



Salt Lake City  
Department of Airports

***SALT LAKE CITY INTERNATIONAL AIRPORT***

**PROJECT MANUAL FOR**

**FIRE STATION 11 ROOF  
REPLACEMENT/SOLAR PANELS  
PROJECT NO. 54 5013 1714**

**FIRE STATION 12 ROOF  
REPLACEMENT/SOLAR PANELS  
PROJECT NO. 54 1019 1716**

**ENGINEERING DIVISION  
SECOND FLOOR – TERMINAL UNIT NO. 1  
P.O. BOX 145550  
SALT LAKE CITY, UTAH 84114  
(801) 575-2900**

SALT LAKE CITY CORPORATION

SALT LAKE CITY UTAH

PROJECT MANUAL FOR

FIRE STATION 11 ROOF REPLACEMENT/SOLAR PANELS  
PROJECT NO. 54 5013 1714

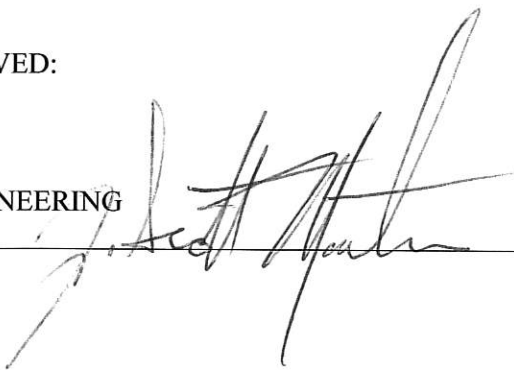
FIRE STATION 12 ROOF REPLACEMENT/SOLAR PANELS  
PROJECT NO. 54 1019 1716

PREPARED BY:

SALT LAKE CITY DEPARTMENT OF AIRPORTS  
ENGINEERING DIVISION

PROJECT APPROVED:

FACILITIES ENGINEERING  
MANAGER: \_\_\_\_\_



8/2/19  
DATE

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Fire Station 12 Roof Replacement/Solar Panels  
**Project Numbers:** 54 5013 1714 & 54 1019 1716  
**Contract Number:** 54-2-19-1289

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**BIDDING FORMS AND INFORMATION**

**NOTICE TO BIDDERS**  
**FIRE STATION 11 ROOF REPLACEMENT/SOLAR PANELS**  
**PROJECT NO. 54 5013 1714**  
**FIRE STATION 12 ROOF REPLACEMENT/SOLAR PANELS**  
**PROJECT NO. 54 1019 1716**  
**CONTRACT NO. 54-2-19-1289**

**SECTION 00020 - NOTICE TO BIDDERS**

**Sealed bids will be received at the Salt Lake City Department of Airports Engineering Office, Suite 220, Terminal 1, Second Floor, Salt Lake City, UT 84122, until 1:00 p.m., local prevailing time, on Thursday, September 5, 2019 for Fire Station 11 Roof Replacement/Solar Panels, Project No.: 54 5013 1714, and Fire Station 12 Roof Replacement/Solar Panels, Project No.: 54 1019 1716 according to the specifications on file in the Department of Airports Engineering Office.**

**Bids will be publicly opened in the Engineering Conference Room at or about 1:00 p.m., local prevailing time, on Thursday, September 5, 2019 by the Department of Airports Engineering Staff. Bidders will be required to submit all information required by the bid forms at the time of bid opening.**

On the outside of the envelope, the bidder shall indicate the nature of the bid and include the bidder's return mailing address.

A bid bond or cashier's check in a form acceptable to the City and in an amount equal to at least five percent (5%) of the total amount of the Bid will be required on each Bid. Bid bonds/checks will be returned to unsuccessful bidders after tabulation and award of the contract.

**ATTENTION TO BIDDERS:** On Wednesday, August 21, 2019, at the hour of 1:30 p.m. a **mandatory Pre-bid Meeting** will be held at the Department of Airports Engineering Conference Room, Salt Lake City Department of Airports, Terminal 1, Second Floor, Salt Lake City International Airport. It is **MANDATORY** that all Bidders intending to bid on this project attend the pre-bid meeting to obtain relevant information concerning the project.

Contract Documents and drawings can be obtained by registering online at the City's website, <https://www.slc.gov/Finance/purchasing/>.

**NON-DISCRIMINATION IN EMPLOYMENT:** Bidders on this Work will be subject to the applicable provisions of all Federal laws, rules, regulations, or orders.

**EQUAL EMPLOYMENT OPPORTUNITY:** The proposed contract is under and subject to Executive order 11246 of 24 September 1965, as amended, and to the equal opportunity clause and the Standard Federal Equal Employment Opportunity Construction Contract Specifications including the goals and timetables for minority and female participation.

This Contract will be awarded in compliance with the City's Value-Based Procurement Program, which takes into account certain factors in the bidder's work environment. For more information about this Program, please read SLC administrative rules, Procurement Rules Chapter 19 at <https://www.slcinfobase.com/PPAREO/#!/WordDocuments/procurementchapter19valuebasedprocurementprogram.htm>

The right is reserved to reject any or all bids.

## SECTION 00100 - INSTRUCTIONS TO BIDDERS

### ARTICLE 1. - GENERAL

#### 1.1. Defined Terms

- 1.1.1. The definitions of certain terms used in these Contract Documents are given in the General Conditions.

#### 1.2. Copies of Bid Documents

- 1.2.1. Bidders must use complete sets of Bid Documents in preparing Bids. The Owner maintains a complete set on file at the address set forth in the Notice to Bidders, and bidders may review the file copy upon request during regular business hours. Bidders are solely responsible to verify whether their sets of Bid Documents are complete.
- 1.2.2. Bid Documents are made available to bidder only for the purpose of obtaining Bids on the Work. No license or grant for any other use is given.
- 1.2.3. Bid Document copyrights shall remain with the Owner.

#### 1.3. Pre - Bid Conference

- 1.3.1. If a pre-bid conference is held, the Notice to Bidders will state the time, place and nature of the conference, and whether attendance is mandatory in order to submit a bid. Representative of the Owner will be present to discuss the Project. The Owner shall not be bound by any statements, representations, conclusions or assumptions made by any party, whether oral or written, except for written statements that are issued in an Addendum by the Owner to all prospective bidders.

#### 1.4. Physical Conditions

- 1.4.1. **Description of the Work** - The Work to be performed consists of furnishing and installing the equipment, facilities, services and appurtenances thereto as included in the Contract Documents. A general description of the Work is set forth in the Agreement to these Contract Documents.
- 1.4.2. **In General** - Prior to submitting a bid, each bidder is responsible to review all available explorations, tests and data concerning surface conditions, subsurface conditions and underground facilities at or contiguous to the site, or otherwise, which may affect cost, progress, performance or furnishing of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 1.4.3. **Surface and Subsurface Conditions** - Provisions concerning surface and subsurface conditions, if any, are set forth in a document titled Geotechnical Data (Document 00220), and such document is specifically excluded and not made a part of the Contract. The document provides the identification of:
  1. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Owner or the Designer in preparing the Contract Documents; and
  2. Those drawings of physical conditions in or relating to existing surface and subsurface structures (except underground facilities) which are at or contiguous to the site which have been utilized by the Designer in preparing the Contract Documents.

1.4.4. **Underground Facilities** - Information and data indicated in the Contract Documents regarding Underground Facilities at or contiguous to the site is based upon information and data furnished to the Owner and the Designer by owners of such underground facilities. The Owner does not assume responsibility for the accuracy or completeness thereof.

1.4.5. **Additional Explorations.** If feasible as determined by the Owner, Owner will provide each bidder access to the site upon written request received at least ten business days before bid opening to conduct any explorations and tests as each bidder deems necessary for submission of a bid. Bidder shall obtain permits, fill all holes, clean up, and restore the site to its former condition upon completion of such explorations. By requesting such an exploration or test, bidder agrees to release, indemnify, defend, and save the Owner harmless from all costs, damages, and liabilities of any kind whatsoever, including reasonable attorneys' fees that may arise in connection with or as a result of the performance of such exploration or test.

## 1.5. Compensation and Quantities

1.5.1 If the Contract Documents require a lump sum, the lump sum will be the only sum paid. If any portion of the Contract Documents requires unit pricing, the successful bidder will be paid only for work actually performed and materials supplied at the unit prices bid and on the terms set forth in the Contract Documents, irrespective of any quantity approximations in the Bid Documents. The Owner may deviate in either direction from any indicated quantities. Stated quantities are estimates for the purpose of doing the class of Work required and as a basis for determining the amount of the bid, but not to fix the amount of the Work to be done or materials to be furnished. The bidder shall have no claim for any variation in quantity, except to the extent permitted in the General Conditions, and the bidder shall sign a Change Order to account for any variation.

1.5.2 The bid price for any lump sum or unit price shall include all labor, materials, and all other matters needed to fully complete the Work in a satisfactory manner under the terms of the Contract Documents. Bidders are responsible to inform themselves of the character of the Work to be performed. Any quantity approximations in the Bid Documents are stated as a basis for determining bids, and they do not fix the amount of Work to be done or materials to be furnished. Actual quantities will vary.

## 1.6. Bidder's Investigations

1.6.1. **In General.** The Owner shall not be bound by any statements, representations, conclusions, or assumptions made by any party, whether oral or written, except for written statements that are issued in an Addendum by the Owner to all prospective bidders.

1.6.2. **Site Access.** The Contract Documents designate the site for performance of the Work. Bidder is responsible to investigate the site and understand all access requirements. All additional off-site lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by bidder.

1.6.3. **Bidder's Obligations.** In addition to bidder's other responsibilities and obligations in connection with submitting a bid, it is the responsibility of each bidder before submitting a bid, to:

1. Examine the Contract Documents thoroughly;
2. Visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work;
3. Investigate all applicable construction and labor conditions, quantities, and the character of the Work as they affect cost, progress, performance, or furnishing of the Work.



4. Consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work; Special attention should be given to Section 3.24.115 of the Salt Lake City Code referring to the City's Building Improvement and Public Works Bidding Program (BIPW Program) which takes into account certain factors in the Bidder's work environment and qualified health insurance coverage.
5. Study and carefully correlate bidder's observations with the Contract Documents;
6. Attend any pre-bid conference, which shall be mandatory if so designated in the Notice to Bidders;
7. Review all available explorations and data concerning surface and subsurface conditions as set forth in Section 1.4 above; and
8. Identify and notify the Owner in writing in the manner set forth in Section 2.1 below of all specific conflicts, omissions, errors, or discrepancies that bidder finds in the Contract Documents, or if bidder doubts any meaning.

The failure or omission of any bidder to take any of the foregoing actions shall not in any way relieve bidder of its bid, and shall not in any way relieve bidder of its obligation to furnish all material, equipment, labor and services necessary to carry out the provisions of the Contract Documents and to complete the contemplated Work for the consideration set forth in its bid. Submission of a bid shall constitute prima facie evidence of compliance with these instructions.

- 1.6.4. **Deviations from the Terms of the Contract Documents.** The Owner will not accept any deviations whatsoever from the printed terms of the Agreement and the Contract Documents, except by Addendum or Change Order.

## ARTICLE 2. - BIDDING PROCEDURES

### 2.1. Interpretations and Addenda

- 2.1.1. All requests for interpretation of the Contract Documents shall be made in writing and delivered to the Owner no later than seven (7) calendar days prior to opening of Bids. At the Owner's discretion, the Owner will send the written interpretation to all persons receiving a set of Bid Documents in the form of a written Addendum. If the Owner does not respond to a bidder's request for interpretation, the bidder shall comply with the intent and terms of the Contract Documents.
- 2.1.2. No oral interpretations shall be made to any bidder. The Owner shall not be responsible for or bound by any statements, interpretations, explanations, representations, conclusions, or assumptions made by any party, whether oral or written, except for written statements that are issued in an Addendum by the Owner to all prospective bidders.
- 2.1.3. Each statement made in an Addendum is a part of the Contract Documents at the location designated in the Addendum. A statement issued in an Addendum shall have the effect of modifying a portion of the Bid Documents when the statement in the Addendum specifies a particular section, paragraph or text and states that it is to be so modified. Only the specified section, paragraph, or text shall be so modified, and all other portions of the Bid Documents shall remain in effect.
- 2.1.4. Bidders shall sign to acknowledge their receipt of all Addenda issued. Bidders shall also acknowledge receipt of all Addenda in the space provided in the bid.
- 2.1.5. Except to postpone the bid opening, no Addenda shall be issued within 48 hours of the bid opening.

## 2.2. Equipment and Material Options Prior to Bid Opening

- 2.2.1. If a bidder or supplier wishes to use items of equipment or materials other than those identified in the Contract Documents, said bidder or supplier shall submit a written request for approval to the Owner at least ten (10) calendar days prior to the date set for opening of bids.
- 2.2.2. The procedure for submission of any such product option shall be as set forth in paragraph 3.9 of the General Conditions. It is the sole responsibility of the bidder or supplier to submit complete descriptive and technical information so that the Owner can make a proper appraisal.
- 2.2.3. The Owner's failure to act upon such a request within five (5) calendar days after receipt shall be deemed a denial thereof.
- 2.2.4. Any such approval is at the sole discretion of the Owner and will be in the form of an Addendum issued to all bidders holding Bid Documents indicating that the additional equipment or materials are approved as equal to those specified for the Project.
- 2.2.5. The Construction Contract, if awarded, will be on the basis of materials and equipment described in the Drawings and Specifications and any changes permitted in any Addenda.

## 2.3. Bid Security

- 2.3.1. **Bid Security Required.** A bid security must accompany each bid. The total amount of the bid on which bid security is to be based shall be the sum of all items of the bid constituting the maximum amount of the possible award to the bidder. The bid security amount must equal at least five (5) percent of the total amount of the bid. The bid security may be in the form of a bid bond or cashier's check.
- 2.3.2. **Form of Bid Security.** The bid security may be in the form of a bid bond or cashier's check. A bid bond must be issued by a licensed Utah agency on behalf of a surety company licensed to do business in the state of Utah. A cashier's check must be drawn on a bank doing business in the state of Utah and made payable to Salt Lake City Corporation. No other form of bid security will be accepted. If a cashier's check is used in lieu of a bid bond, or if the bid bond does not specifically so provide, a certificate from an approved surety company guaranteeing execution of performance and payment bonds in the full amount of the bid must accompany the bid.
- 2.3.3. **Purpose of Submission.** The bidder understands and by the submission of a bid security agrees that the bid security guarantees the following: that the bidder will submit a responsive bid, that the bidder will not withdraw the bid for a period of forty-five (45) days after the time and date fixed for bid opening, that the bidder will promptly enter the Contract Documents in their present form with the Owner if an award is made to the bidder, that bidder will provide the bonds and insurance required by the Contract Documents, and that bidder will take all steps necessary to properly execute the Contract Documents. By submission of the bid security, the bidder also agrees that if any of the foregoing requirements are not met, the Owner is entitled to the full amount of the bid security as compensatory damages to the Owner resulting from the failure to meet those requirements. The bidder agrees that the Owner may immediately execute on such security upon bidder's failure to perform as required.

2.3.4. The Owner will return Bid Securities to all except the three apparent low, qualified responsive and responsible bidders within ten business days after bid opening. The remaining Bid Securities will be returned within three business days after Owner and the successful bidder have executed the Contract Documents, or after all Bids have been rejected. Owner shall have no obligation with respect to Bid Securities other than to return them in the manner set forth in this paragraph.

#### 2.4. Completing Bid Documents

2.4.1. The General Conditions identify all forms comprising the Bid Documents. Additional copies may be obtained from the Owner. The bidder shall make no stipulations or alterations on the Bid Forms. The bidder must use and execute only the Bid Form and bid Schedules bound in the Bid Documents. The complete Bid Documents (excluding the Drawings) should be submitted as the bidder's bid, and bidder shall complete and submit all forms included in Section 00300 Bid (Bid Form).

2.4.2. The bidder must fill in all items in the Bid Form in ink or by typewriter. If applicable, furnish both the unit and total costs for each item. The total bid price is the full price for the performance of all Work under the Contract Documents. Numbers shall be stated in numeric figures and written form, and prices in written form shall govern over prices in numbers. Bidder shall initial in ink any corrections, interlineations, alterations, or erasures made by the bidder on bidder's entries in the Bid Documents.

2.4.3. Any work or material which is specified in the Contract Documents or which is necessary because of the nature of the Work, but which is not listed separately in the Bid Schedule shall not be measured or paid for separately. The cost of such work or material shall be considered as included in the Contract Price.

2.4.4. Bids by corporations must be executed in the corporate name by a corporate officer authorized to sign, and be properly attested to as an official act of the corporation. At the Owner's request, authority to sign shall be submitted.

2.4.5. Bids by partnerships or joint ventures must be executed in the partnership or joint venture name and signed by a partner or joint venturer whose title and official address must be shown. If a partnership or joint venture is the low bidder, the partnership or joint venture must also submit evidence to the Owner of the responsibility of the partnership or joint venture as a bidder in the manner directed by the Owner.

2.4.6. Where the bidder is a wholly owned subsidiary of another company, the bid must so state, and the owner or parent corporation also must agree to sign and be bound with the bidder.

2.4.7. All names must be typed or printed under or near the signature. Signatures shall be in longhand.

2.4.8. The bid shall contain an acknowledgment of receipt of all Addenda. The Addenda numbers must be filled in on the Bid Form.

2.4.9. The bidder's address, telephone number, and facsimile number for communications regarding the bid must be shown on the first page of the Bid Form.

- 2.4.10. The divisions and sections of the specifications, and the identifications of any Drawings, shall not control bidder in dividing the Work among subcontractors or suppliers, or delineating the Work to be performed by any specific trade.
- 2.4.11. The base bid and/or alternates shall include all Work required to be performed by the Contract Documents. In the Bid Form, the blank spaces, opposite the correspondingly numbered alternates, shall be completed by inserting the exact amount to be deducted or added to the Base Bid for that particular alternate.
- 2.5. Submission of Bids
- 2.5.1. Bids shall be submitted at the time and place indicated in the Notice to Bidders and should be enclosed in an opaque sealed envelope, marked with the Construction Contract name and number, the name and address of the bidder, and the date and the opening time for Bids. If the bid is sent through the mail or other delivery system, the sealed envelope should be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. It is the sole responsibility of the bidder to deliver the bid before the scheduled time
- 2.5.2. Alternate Bids, other than those called for in the Bid Form, will not be considered. If called for, the base bid and/or alternates shall include all Work required to be performed by the Contract Documents. In the Bid Form, the blank spaces, opposite the correspondingly numbered alternates, shall be completed by inserting the exact amount to be deducted or added to the base bid for that particular alternate.
- 2.5.3. No oral, telegraphic, telephonic, facsimile or modified Bids will be considered.
- 2.6. Modification and Withdrawal of Bids
- 2.6.1. Bidder may modify a bid prior to the time for bid opening by delivering an original, written notice signed by the bidder clearly setting forth the modification. Upon providing proof of identity, a bidder may withdraw a bid prior to the time for bid opening by physically retrieving the bid, or by delivering an original, signed notice that the bid is withdrawn. Delivery must be made to the attention of Kevin Robins, Director of Engineering (the Procurement Official for the Contract), at the addresses set forth in the Agreement and the Notice to Bidders. Proper delivery is solely the responsibility of the bidder. Bid security will be returned upon proper withdrawal of a bid prior to the time for bid opening.
- 2.6.2. Within 24 hours after Bids are opened, any bidder may file written notice with Kevin Robins, Director of Engineering (the Procurement Official for the Contract), that there was a substantial mistake made in the preparation of its bid. Bidder must thereafter promptly demonstrate bidder's mistake. The Owner has sole discretion to determine whether to permit any modification or withdrawal or the return of any bid security.
- 2.6.3. When it appears a mistake has been made, or when the Owner desires an assurance of any matter, the Owner may request a bidder to confirm the bid in writing
- 2.7. Opening of Bids
- 2.7.1. Bids will be opened and read aloud publicly unless obviously non-responsive. An abstract of the amounts of the base schedule of prices and any alternate schedules will be made available for review after the opening of Bids.
- 2.7.2. Any Bids received after the time specified in the Notice to Bidders will be returned unopened.

2.8. Bids Subject to Acceptance for 45 Days

- 2.8.1. All Bids remain subject to acceptance for 45 days after the day of the bid opening. The Owner may, in its sole discretion, release any bid and return the bid security prior to that date.

**ARTICLE 3. - QUALIFICATIONS OF BIDDERS**

3.1. Qualifications of Bidders

3.1.1. Within three (3) calendar days of the Owner's request, a bidder whose bid is under consideration for award shall submit to the Owner the following information for the bidder. The Owner may request like information on the bidder's Subcontractors, or bidder's Suppliers or any other information the Owner may require.

1. A current financial statement for the Work (as provided to bonding company);
2. A chronological list of "in progress" and "completed" construction work done by bidder during the last 3 years; including project name, address, owner, contact name, and current telephone number;
3. Present construction commitments other than items listed in paragraph 2 above;
4. Proposed organizational structure such as firm ownership, project manager, progress scheduler, and superintendent for the Work of this Project;
5. Owned and rented equipment which is to be used to do the Work;
6. Investigations, arbitrations, litigations or claims which are pending, threatened, settled or otherwise disposed of within the last three (3) years;
7. Evidence of ability to perform and complete the Work in a manner and within the time limit specified. As a minimum, identify specific experience on projects similar to the Work in physical size, cost, and commercial nature. If the work experiences of the project manager and superintendent designated to construct this project are different than that of the company, provide resumes of their work history. Include their actual project titles and indicate their actual responsibilities on each given project;
8. All matters consistent with federal, state and local Laws and Regulations; and
9. Such other data as may be called for by the Owner.

3.1.2. If bidder believes any information should be held confidential for business reasons, bidder must submit a written claim of business confidentiality for that particular information and include a specific statement of the reasons supporting the claim pursuant to UTAH CODE ANN. § 63-2-308.

3.1.3. Untimely response or failure to provide the requested information by bidder will release the Owner of any obligation to further consider the bidder's bid.

3.2. Evaluation of Bids

3.2.1. The Owner reserves the right: to reject any and all Bids or any part thereof; to waive any informalities in the Bid Schedule and elsewhere; to negotiate and agree to Contract items with the successful bidder; to disregard non-conforming, non-responsive, unbalanced or conditional Bids; and to withhold the award for any reason deemed in the best interests of the Owner.

3.2.2. Bidders and all parties associated with the bid must comply with all Laws and Regulations. Without limitation, the bidder is advised and agrees that the Salt Lake City Procurement Code and Administrative Rules, and the Owner's Policies, apply to all aspects of this procurement and any subsequent contract. Copies of the same can be viewed at the Owner's offices Monday through Friday, except holidays, between the hours of 8:00 a.m. and 4:30 p.m., or they can be obtained from the Owner for a charge of ten cents per page. Bidders will be bound to the official Contract Documents, codes, rules, and policies on file.

- 3.2.3. Owner reserves the right to reject any bid if the Owner believes that it would not be in the best interest of the Project or the Owner. Without limitation, such rejection may be because the bid is not responsive, or the bidder is unqualified or of doubtful ability or bidder fails to meet any other pertinent standard or criteria established by the Owner.
- 3.2.4. The Owner may consider all information which the Owner believes is relevant when evaluating a bid, including, without limitation:
1. The qualifications and experience of the bidder and of the Subcontractors, Suppliers, and other persons and organizations proposed (whether or not the bid otherwise complies with the prescribed requirements)
  2. Such alternates, unit prices and other data, as may be requested in the Bid Form, Bid Schedule, or written requests issued prior to the Owner's Notice of Intent to Award the Construction Contract.
  3. Operating costs, maintenance requirements, performance data, and guarantees of ability to provide the required materials and equipment.
  4. Corporate organization and capacity for any party.
  5. Ability to perform and complete the Work in the manner and within the time specified.
  6. Pending litigation.
  7. The amount of the bid.
  8. Proper licensing to do the Work in compliance with licensing laws of the state of Utah for contractors and subcontractors.
  9. All other relevant matters, consistent, with the Owner's Procurement Code and Administrative Rules, other City ordinances, and the Owner's Policies.
- 3.2.5. To establish qualifications of the bidder, the Owner may request such data indicated in the Bid Documents, conduct such investigations as the Owner deems appropriate, and consider any other information (whether obtained from the bid, the bidder, or any other source).
- 3.2.6. If the Construction Contract is to be awarded, it will be awarded to the lowest responsive, qualified, and responsible bidder as determined by the Owner. Alternates may be accepted depending upon availability of the Owner's funds and as determined by the Owner. Accepted alternates will be considered in determining the lowest responsive, qualified, and responsible bidder.
- 3.2.7. Evaluation of Bid Schedules will include the following, without limitation:
1. Discrepancies in the multiplication of quantities of Work items and unit prices will be resolved in favor of the unit prices, and the Owner may correct errors in extending unit prices.
  2. Prices written out in words shall govern over prices written out in numbers.
  3. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
  4. Bids shall not contain any recapitulations of or changes in the work to be done.
- 3.2.8. The Owner, in the Owner's sole discretion, shall make determinations as to disqualification of bidders or rejection of Bids. Such matters may include, without limitation, submission of more than one bid by the bidder (whether under the same or different names); evidence of collusion among bidders; other commitments of bidder which, in the Owner's sole judgment, might hinder the Work; previous defaults, bid irregularities when not waived in the best interests of the Owner, delays or poor performance by bidder on any project; official action against bidder; and any other cause which, in the Owner's sole discretion and judgment, is sufficient to justify disqualification of a bidder or rejection of a bid.

- 3.3. Subcontractors, Suppliers and Others
- 3.3.1. Bidder shall not subcontract more than 75 percent of the dollar value of the total contemplated Work (exclusive of the supply of materials and equipment to be incorporated in the Work) without the Owner's prior written approval.
- 3.3.2. The Owner has determined that the following person or firms may not participate in the solicitation due to conflicts arising from their prior services to the Owner: None
- 3.4. Contract Security and Other Submittals
- 3.4.1. **Performance Bond and Payment Bond.** The Owner's requirements as to Performance and Payment Bonds are as set forth in the bonds themselves and elsewhere in the Contract Documents.
1. The form of the Bonds should be carefully examined by the bidder.
  2. When the successful bidder delivers the executed Construction Contract to the Owner, it must be accompanied by the required Performance and Payment Bonds.
- 3.4.2. **Subcontractor and Supplier Report.** The apparent low bidder shall submit this report form within 24 hours of the Owner's request to do so. The form shall list the name and address, and contract amount of each subcontractor who will perform work or labor or render service to the bidder at the site of the Work, or a subcontractor who, off the job site, will specifically fabricate a portion of the Work or improvement according to detail Drawings. Include professional or consultant services, construction, purchase of materials or supplies, lease or purchase of equipment and any other types of services. In each instance, the nature and extent of the Work to be sublet shall be described. Bidder must have the written consent of the Owner to substitute for any of the subcontractors or suppliers designated or to employ any subcontractor or supplier that is not listed. The failure of the Contractor to specify a subcontractor, or the listing of more than one subcontract for the same portion of the Work, constitutes an agreement by the Contractor that he or she is fully qualified to perform that portion, and that the Contractor shall perform that portion.
- 3.4.3. **Contractor Status Report.** One completed form shall be submitted at the time of bid.
- 3.4.4. **Other Information.** When a determination has been made to award the Construction Contract, bidder is required, prior to the award or after the award, or both, to furnish such other information as the Owner requests.
- 3.4.5. The Total Contract Price identified in the Agreement represents the cost of the Work that is to be paid by the Owner to the Contractor.
- 3.4.6. If the Owner makes an award, a Notice of Intent to Award will be issued to the low, qualified, responsible and responsive bidder whose bid is most advantageous to the Owner, price and other factors considered.
- 3.5. Signing of Agreement
- 3.5.1. Within five (5) working days after the Owner gives Notice of Intent to Award the Construction Contract to the successful bidder, the bidder shall pick up, sign and return the required number of copies of the Construction Contract to the Owner, including the required bonds and insurance. A minimum of six (6) originals will be signed. One executed original will be returned to the bidder. Bidder shall comply with all execution requirements.

- 3.5.2. All of bidder's executions and submittals must be delivered to the Owner before Owner will execute the Construction Contract. The Construction Contract will not be deemed awarded and shall not be binding on the Owner until it has been approved and executed by the Owner, and a fully executed copy is formally delivered to the Contractor. The Owner reserves the right to rescind its Notice of Intent to Award without liability, except for the return of bidder's bid security, at any time before the Construction Contract has been fully executed by all parties and delivered to the Contractor.
- 3.5.3. Transfers, delegations, or assignments of interests in the Contract Documents are prohibited, unless prior written authorization is received from the Owner.
- 3.5.4. At the time of bidding, and the signing of the Contract, and at all times during the Work, bidder shall be properly licensed to do the Work and shall be in compliance with the license laws of the state of Utah, Salt Lake City, and Salt Lake County. The bidder also shall require all Subcontractors to do the same.
- 3.5.5. If a bidder fails to fully and properly execute the Construction Contract and provide all submittals required therewith within five (5) working days after the date of the Notice of Intent to Award, the Owner may elect to rescind the Notice of Intent to Award, and the Owner shall be entitled to the full amount of bidder's bid security, not as a penalty, but in liquidation of and compensation for damages sustained. In the Owner's sole discretion, a Notice of Intent to Award may then be provided to the next lowest, qualified responsive and responsible bidder whose bid is most advantageous to the Owner, price and other factors considered.

#### **ARTICLE 4. - BID SUBMITTALS AND EFFECT OF SUBMISSION**

##### 4.1. Required Submittals for this Bid

- 4.1.1. Bidder will make no recapitulations, stipulations, alterations, alternate submissions, or modifications in any manner to any of the Contract Documents.
- 4.1.2. Bidder must submit a bid by completing and submitting all of the Bid Form Documents, which are:
1. The Bid portion of the Bid Form which is included in these Contract Documents, which shall be in the form of a lump sum, or in the form of unit pricing pursuant to the Bid Schedule, as called for in the Bid Form.
  2. The form "Article 4 - Contractor Status Report," which is attached as a part of the Bid Form.
  3. The form "Article 5 - Equal Opportunity Compliance Clause," which is part of the Bid Form.

##### **OPTIONAL**

4. The form "Article 6 - Value-Based Procurement Program", which is part of the Bid Form. Participation by a bidder in the Value-Based Procurement Program is voluntary, and failure to complete the Article 6 form shall not render a bid non-responsive. See Article 6 in Section 00300 for further details on the Value-Based Procurement Program.
- 4.1.3. The bidder must submit a bid bond that conforms to the requirements of the Bid Documents. If the bidder submits a certified check in lieu of a bond, the bidder must also submit the form "This Form is to be Used when a Cashier's Check is Submitted in Lieu of Bid Bond" which is attached as a part of the Bid Form.
- 4.1.4. After bid opening, the apparent low bidder must submit the following at the times specified:



1. The form "Subcontractor and Supplier Report," Document 00430. The Contractor shall submit the form within 24 hours of the Owner's request to do so.
2. If requested by the Owner, the bidder shall sign and submit a non-collusion affidavit covering the bidder and all subcontractors on the Owner's form.

#### 4.2. Effect of Submitting a Bid

4.2.1. Bidders are responsible to carefully examine the Contract Documents, visit the site, and fully inform themselves so as to include in the bid a sum to cover the cost of all items. Bidder agrees that bidder's failure or omission to receive or examine any form, instrument, addendum or other document, visit the site and become acquainted with existing conditions, or attend any pre-bid Conference, shall in no way relieve any bidder from any obligations with respect to bidder's bid or the Construction Contract.

4.2.2. The submission of a bid constitutes a representation that bidder has complied with all requirements of the Bid Documents, that the bid is premised on properly performing and furnishing the Work required by the Contract Documents within the times specified therein, that bidder is informed of the conditions to be encountered and the character, quality and quantities of the Work, that bidder believes the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work. Submission of a bid constitutes bidder's agreement to all of the terms, conditions and provisions of the Bid Documents.

4.2.3. Submission of a bid constitutes an agreement that the bidder will enter the Contract Documents in the form presented in connection with the bid. Bidders should carefully examine all Contract Documents, including the required bonds and insurance to be provided by the bidder.

1. Bidder's agreement includes an agreement to provide the Performance Bond and Payment Bond in the form provided, and in accordance with the requirements set forth in the General Conditions.
2. The Performance Bond is a guarantee of faithful performance of the requirements of the Contract Documents, including all applicable warranties. The Payment Bond is a guarantee of payment of all labor, materials, or supplies used directly or indirectly in the prosecution of the Work provided in the Construction Documents.
3. The sum of the Performance Bond and the Payment Bond shall be increased or decreased during the course of the Work in the event that Contract Modifications, Change Orders, or Addenda increase or decrease the total contract price. The sum of each bond shall be in an amount equal to the completed contract price at the completion of the Work.
4. Owner does not provide any release of Performance Bonds or Payment Bonds. The bonds are in effect throughout all periods during which a suit may be brought under the provisions of applicable law.

4.2.4. By the submission of any bid, bidder represents that the matters stated therein are true and correct.

### **ARTICLE 5. - FEDERAL MATTERS**

5.1. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity - Executive Order 11246, as Amended; 41 CFR Part 60 - 4.2

5.1.1. The bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

- 5.1.2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Area	Timetables	Goals for Minority Participation in Each Trade	Goals for Female Participation in Each Trade
Salt Lake City	Until further Notice	6.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the Work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects.

The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goal shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The Contractor shall provide written notification to the Director, Office of Federal Contract Compliance Programs, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is in Salt Lake County, Utah.

- 5.1.3. The bidder must supply all the information required by the proposal forms and specifications.
- 5.1.4. The City, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 21000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

When a determination has been made to award a contract or subcontract to a specific contractor, such contractor is required, prior to the award or after the award, or both, to furnish such other information as the FAA, the City, or the Director of OFCC requests.

**5.2. Report to Joint Reporting Committee**

- 5.2.1. A bidder must indicate whether the bidder has previously had a contract subject to the equal opportunity clauses, whether the bidder has filed all report forms required in such contract, and if not, a compliance report (Standard Form (SF)100) must be submitted with the bid.
- 5.2.2. Any contractor having a Federal or Federally-assisted contract of \$50,000 or more and 50 or more employees is required to file annual compliance reports on Standard Form 100 (EEO-1) with the Joint Reporting Committee in accordance with the instructions provided with the form. The Contractor will provide a copy of such a report to the contracting agency within 30 days after the award of a contract if the Contractor has not submitted a complete compliance report within 12 months preceding the date of the award.
- 5.2.3. The Contractor shall require its subcontractors to file an SF-100 within 30 days after award of the subcontract if (1) it is not exempt from the provisions of these regulations in accordance with 60-1.5, (2) it has 50 or more employees, (3) it is a first tier subcontractor, and (4) it has a subcontract amounting to \$50,000 or more.

Subcontractors below the first tier which perform construction work at the site of construction shall be required to file such a report if (1) it is not exempt from the provisions of these regulations in accordance with 60-1.5, (2) has 50 or more employees and has a subcontract amounting to \$50,000 or more.

The SF-100 is available at the following address:

Joint Reporting Committee  
P.O. Box 779  
Norfolk, VA 23501  
Telephone: (757) 461-1213

**END OF SECTION 00100**

**SECTION 00300 - BID (BID FORM)**

**ARTICLE 1. - GENERAL**

**1.1. Bidder**

1.1.1. Date: \_\_\_\_\_.

1.1.2. The Bidder is as follows:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone number: \_\_\_\_\_

Facsimile number: \_\_\_\_\_

Tax Identification Number: \_\_\_\_\_

1.1.3. **License.** Bidder holds license number \_\_\_\_\_, issued on the day\_of \_\_\_\_\_, 20\_\_\_\_, by the Utah State Department of Commerce, Division of Occupational and Professional Licensing. Bidder is licensed to practice as a \_\_\_\_\_ contractor. License renewal date is the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

1.1.4. **Notice.** Pursuant to Section 58-55-501(8), UTAH CODE ANN. (UCA), it is unlawful to submit a bid for any work for which a license is required under Chapter 55 of Title 58, UCA, by a person or other business entity not licensed or excepted from licensure as a contractor under Chapter 55 of Title 58, UCA. Pursuant to Section 58-55-503(1), UCA, contracts for the work may not be awarded to any person or other business entity that violates Sections 58-55-501(8) or (13), UCA, in submitting its bid.

**1.2. Construction Contract Identified**

Name:	Fire Station 11 Roof Replacement/Solar Panels Fire Station 12 Roof Replacement/Solar Panels
Project No.	54 5013 1714 54 1019 1716
Contract No.	54-2-19-1289
Location:	Salt Lake City International Airport Salt Lake City, Utah

**1.3. Addenda**

Bidder hereby acknowledges receipt of the following Addenda: \_\_\_\_\_

\_\_\_\_\_  
(list all Addenda numbers here)

**1.4. Bid**

1.4.1. **Bid.** In compliance with the Owner’s Invitation to Bid, and having examined all conditions surrounding the Work, the Contractor agrees with the conditions stated in the Bid Documents, agrees to perform the Work, and submits the following Bid to cover all costs in performing the Work required in the Contract Documents:

1. Fire Station 11 Roof Replacement/Solar Panels	
a) Roof Replacement	\$ _____
b) Solar Panels	\$ _____
Sub Total	\$ _____
2. Fire Station 12 Roof Replacement/Solar Panels	
a) Roof Replacement	\$ _____
b) Solar Panels	\$ _____
Sub Total	\$ _____
Total	\$ _____

1.4.2. **Bid Bond.** The Contractor has enclosed a \_\_\_\_\_ (bond or cashier’s check) as required in the sum of (\$ \_\_\_\_\_).

**ARTICLE 2. - COVENANTS**

**2.1. Bidder Agrees to the Following**

- 2.1.1. The bidder agrees to **comply with all required times** set forth in the Agreement and elsewhere in the Contract Documents.
- 2.1.2. The bidder agrees to **pay the liquidated damages** required under the Contract Documents under the terms set forth therein.
- 2.1.3. The bidder **agrees to all terms and conditions of the Bid Documents**, including, without limitation, Owner’s rights for disposition of the bid security and the Contractor’s obligations as set forth in the Instructions to Bidders.
- 2.1.4. The bidder agrees to **enter the Contract**, perform the Work, and meet all obligations as set forth in the Contract Documents.
- 2.1.5. This bid was **submitted without collusion**. The bid is genuine and was submitted only on behalf of the named bidder. The bidder has not induced or solicited any other bidder to submit a false or sham bid, or to refrain from bidding, whether directly or indirectly. Bidder has not colluded to obtain any advantage over another bidder or the Owner.
- 2.1.6. **Agreement Supplement.** If it becomes necessary to further define the Work, Contract Price, Contract Time, or some other portion of the Construction Contract prior to signing the Agreement, the Owner shall prepare an Agreement Supplement describing such change. The decision to prepare such a contract modification is at the Owner's sole option. If the Agreement Supplement is acceptable to the Bidder, the Bidder agrees to execute Agreement Supplement prior to or concurrent with the execution of the Agreement. The Agreement Supplement, if

any, is specifically incorporated by this reference and hereby made a part of the Bid Documents.

**ARTICLE 3. - EXECUTION**

**3.1. Effective Date**

3.1.1. Bidder executes this Bid and declares to be in effect as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**3.2. BIDDER'S SUBSCRIPTION**

Bidder's Signature: \_\_\_\_\_

Please print Bidder's name here: \_\_\_\_\_

Title: \_\_\_\_\_

**ARTICLE 4. - CONTRACTOR STATUS REPORT FOR CONTRACTOR**

\_\_\_\_\_  
(Name of Contractor) (Telephone)

\_\_\_\_\_  
(Street Address)

\_\_\_\_\_  
(City, State, and Zip Code)

State of Utah Contractor's License Number: \_\_\_\_\_

Number of Employees: \_\_\_\_\_

This Firm is:

Independently owned and operated

An affiliate of \*

A subsidiary of \*

A division of \*

A business with gross revenue in excess of \$ \_\_\_\_\_

A business with gross revenue below \$ \_\_\_\_\_

\*Parent company:

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Street)

\_\_\_\_\_  
(City, State, and Zip Code)

**ARTICLE 5. - EQUAL OPPORTUNITY COMPLIANCE CLAUSE**

A Bidder must have properly completed this form to be considered an eligible Bidder.

The Bidder shall complete the following statement by checking the appropriate boxes.

The Bidder has  has not  participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 10925, Executive Order 11114, or Executive Order 11246.

The Bidder has  has not  submitted all compliance reports in connection with any such contract due under the applicable filing requirements and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If the Bidder has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under applicable filing requirements, the Bidder shall submit a compliance report on Standard Form 100, "Employment Information Report EEO-1," prior to the award of contract.

**ARTICLE 6. - VALUE BASED PROCUREMENT PROGRAM**

The City has determined that the city obtains better value from contracted services when certain practices enhance a Contractor’s work environment. The City has implemented a Value-Based Procurement Program (the “Value Program”) to obtain the benefit of those practices, and this procurement process and any subsequent contract are subject to the Value Program and set forth in Salt Lake City Procurement Rules Chapter 19.

- a. The Value Program is a program that provides beneficial consideration to Bidders that offer certain practices in their work environment. The Value Program is located in the Salt Lake City Administrative Rules, Procurement Rules Chapter 19, which can be found at the following web address:

<https://www.slcinfobase.com/PPAREO/#!/WordDocuments/procurementchapter19valuebasedprocurementprogram.htm> .

Participation by a Bidder is voluntary, and failure to complete with this Article 6 Form shall not render a bid non-responsive. However, if the Bidder fails to complete this Article 6 Format the time of submitting a bid, the City shall consider such bid as though the bidder had no factors under the Value Program. In such a case,

- (i) The Bidder will receive no benefits allowable under the Value Program;
- (ii) The Bidder will NOT be allowed to submit additional information; and
- (iii) The Bidder waives any and all rights to raise a protest related to the Value Program.

- b. Bidders participating in the Value Program shall provide the following information. The Bidder hereby certifies that its answers to the following questions are true as of the time of submitting this bid:

1.	Has the Bidder adopted a written company policy stating that it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or sexual orientation (defined in the policy to mean being lesbian, gay, transgender, bisexual or heterosexual)?	Yes: _____ Initial
		No: _____ Initial
2.	Has the Bidder conducted an apprenticeship during the twelve (12) months prior to submitting this bid that is consistent with the requirements of Utah Code Title 35A, Chapter 6 and the requirements of the U.S. Department of Labor Bureau of Apprenticeship and Training?	Yes: _____ Initial
		No: _____ Initial
3.	Has the Bidder adopted and implemented a written company policy creating a drug-testing program for pre-employment, and for testing based on “cause,” consistent with the requirements stated in Utah Code Title 34, Chapter 38 (private employees), Title 34, Chapter 41 (local government), or Title 67, Chapter 19 (state)?	Yes: _____ Initial
		No: _____ Initial
4.	Does the Bidder (i) have a fixed office or distribution point within Salt Lake City boundaries, (ii) possess a Salt Lake City business license stating a Salt Lake City address, (iii) employ no more than thirty (30) full-time employees (meaning employees working at least forty (40) hours per week for fifty (50) weeks per year), and (iv) have annual gross revenues not in excess of \$1 million (must meet all four requirements to respond “yes”)?	Yes: _____ Initial
		No: _____ Initial



- c. The foregoing information certified by the Bidder will be used in the manner stated in Salt Lake City Procurement Rules Chapter 19 to evaluate “responsibility” if bids or offers are close. An award, if any, will be made in accordance with Chapter 19. In general terms, Chapter 19 may apply based on the amounts bid and other factors. If it applies, the City must first consider all matters relating to responsiveness and responsibility except the Value Program. The City then further evaluates responsibility under the Value Program, and awards the Contract by determining which Bidder can demonstrate the most points among the following factors:

Factor	Points
Policy of nondiscrimination	½ point
Sponsorship of state-compliant apprenticeship program(s)	½ point
Use of a pre-employment and “for cause” drug testing program	½ point
Local small business	½ point

If there is a tie among Bidders demonstrating the most points, an award, if any, will be made based on the lowest bid.

- d. The City reserves the right to review or audit any information provided by the Bidder under this section. The Bidder shall provide or furnish access to any necessary records or other information in order to permit the City to verify these certifications. The Bidder shall provide or furnish access to such records and information no later than three business days after the City issues a written request for the same.

**THIS FORM IS TO BE USED WHEN A CASHIER'S CHECK IS SUBMITTED IN LIEU OF BID BOND**

DATE: \_\_\_\_\_

TO: \_\_\_\_\_

(Contractor)

If the above-named contractor is the successful bidder on \_\_\_\_\_,  
\_\_\_\_\_.

Project No. \_\_\_\_\_, the \_\_\_\_\_,  
(Surety Company)

incorporated under the laws of the state of \_\_\_\_\_, will execute  
the bonds required by the Agreement for the Project in the proper amount.

SURETY COMPANY:

\_\_\_\_\_  
By \_\_\_\_\_  
Its \_\_\_\_\_

## SECTION 00430 - SUBCONTRACTOR AND SUPPLIER REPORT

### ARTICLE 1. - GENERAL

#### 1.1. Bidder

- 1.1.1. Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_

#### 1.2. Construction Contract

- Project Name: Fire Station 11 Roof Replacement/Solar Panels  
Fire Station 12 Roof Replacement/Solar Panels  
Project No.: 54 5013 1714  
54 1019 1716  
Contract No.: 54-2-19-1289

### ARTICLE 2. - Report

#### 2.1. Subcontractor and Supplier Report

- 2.1.1. Failure of the Bidder to specify a Subcontractor for any portion of the Work or the listing of more than one subcontractor for the same portion of the Work constitutes an agreement by the Bidder that the Bidder is fully qualified to perform that portion and that Bidder shall perform that portion.
- 2.1.2. Bidder will be fully responsible to Owner for the acts and omissions of Subcontractors and Suppliers and of persons either directly or indirectly employed by them, just as Bidder is for the acts and omissions of persons employed by Bidder directly.
- 2.1.3. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor or Supplier and the Owner. Bidder agrees each subcontract with Bidder's Subcontractor will disclaim any third party or direct relationship between Owner and any Subcontractor or Supplier.
- 2.1.4. Bidder must have the written consent of Owner to change or substitute any of the Subcontractors or Suppliers designated herein. Any such change proposed by Bidder must continue to meet the requirements of the Construction Contract, including any federal program requirements.
- 2.1.5. The names and addresses of the Subcontractors and Suppliers who will work under the terms of the Contract Documents and the estimated dollar amount of each subcontract are set forth as follows:

**SUBCONTRACTORS (ALL TIERS)**

<b>Name and Address</b>	<b>Nature and Extent of Work to be Sublet</b>	<b>Amount</b>
1.		
2.		
3.		
4.		
5.		
6.		

**SUPPLIERS**

<b>Name and Address</b>	<b>Nature and Extent of Work to be Sublet</b>	<b>Amount</b>
1.		
2.		
3.		
4.		
5.		
6.		

**ARTICLE 3. - EXECUTION**

**3.1. Effective Date**

3.1.1. Bidder executes this Subcontractor and Supplier report and declares it to be a supplement to the Bid (Document 00300) and in effect as of \_\_\_\_\_, 20 \_\_\_\_.

**3.2. Bidder's Subscription**

Bidder's signature: \_\_\_\_\_

Please print Bidder's name here: \_\_\_\_\_

Title: \_\_\_\_\_

# **AGREEMENT AND BONDS**

**SECTION 00500 - AGREEMENT**

THIS AGREEMENT is made and entered as of the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between the Owner (hereinafter "Owner"):

SALT LAKE CITY CORPORATION, a Utah municipal corporation

Mailing Address: Department of Airports  
Engineering Office  
P. O. Box 145550  
Salt Lake City, UT 84114

Physical Address: Department of Airports  
Engineering Office  
776 North Terminal Drive, TU1, Suite 220  
Salt Lake City, UT 84122

and the Contractor (hereinafter "Contractor"):

\_\_\_\_\_, a \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Representative: \_\_\_\_\_

(hereinafter the "Contract"). The Owner and Contractor agree as follows.

**1.1. The Work**

1.1.1. The Contractor agrees to furnish all labor, materials, and equipment necessary to perform all of the Work for the Project, which is generally described as follows:

- 1. Project Name: Fire Station 11 Roof Replacement/Solar Panels  
Fire Station 12 Roof Replacement/Solar Panels
- 2. Project Number: 54 5013 1714  
54 1019 1716
- 3. Project Address: Salt Lake City International Airport
- 4. Project Description: Removal and replacement of the existing roof membrane/flashings at the Fire Station # 11 & # 12 buildings; installation of new solar panels at the rooftop in both locations, including associated electrical work.

**1.2. The Contract**

1.2.1. The Contract is as defined in the General Conditions at paragraph 1.1.4, and includes all of the Contract Documents as defined in the General Conditions at paragraph 1.1.2. The order of precedence of the Contract Documents is set forth at paragraph 1.6 of the General Conditions

**1.3. Required Times**

1.3.1. The Owner anticipates that a Notice to Proceed will be given on the following date, but reserves the right to change such date:

1. Anticipated Administrative Notice to Proceed: September 23,2019
2. Construction Notice to Proceed: N/A

In addition, certain milestone dates may be required dates that the Contractor must meet under this Contract. Any such dates are specified in paragraph 1.6 of the Agreement.

**1.4. Liquidated Damages**

- 1.4.1. The Contractor agrees to pay the following amounts, not as a penalty, but as liquidated compensatory damages, for each and every day that the Contractor is in default after the times required in the Contract Documents for completing the Work or any portion thereof. Liquidated damages will be assessed against each phase and/or critical activity completion date until the Owner accepts the Work required as completed.

**1.5. Utilities Interruption**

- 1.5.1. Pursuant to paragraph 3.3.12 of the General Conditions, the amount required thereunder is \$1,000 per day.

**1.6. Completion Dates and Liquidated Damages**

- 1.6.1. Pursuant to paragraph 8.5.1 of the General Conditions, the Contractor shall pay liquidated damages as specified if the Work is not completed in accordance with the schedule for completion as follows:

Item	Description	Start Date	Calendar Days	Completion Date	Liquidated Damages
1	Entire Project	9/23/19	179	3/20/2020	\$500/day

**1.7. Punch List Liquidated Damages**

- 1.7.1. After the Owner has accepted Substantial Completion, liquidated damages shall not accrue while the Owner or its representative makes its final inspection and issues the punch list as described in the General Conditions. The punch list is issued on the date it is transmitted by facsimile or hand delivery, or when received by certified mail. If the Project remains incomplete after the Punch List Time as defined in the General Conditions, liquidated damages shall recommence at the rate of fifty (50) percent of the amount specified above.

**1.8. Notice to Proceed Condition**

- 1.8.1. If Notice to Proceed is issued subsequent to the date specified in the Contract Documents, liquidated damages will be adjusted accordingly on a day-for-day basis if the delay is caused by the Owner. If the Contractor causes the delay, no adjustment will be made in completion dates. Any approval issued by the Owner will not be considered as a basis for attributing cause for the delay to the Owner.



**1.9. Total Contract Price**

1.9.1. The Owner shall pay the following as full and complete consideration to the Contractor for the performance of all obligations and performances under this Contract, subject only to additions or deductions which are set forth in properly executed Change Orders as provided for in the General Conditions, or additions or deductions in connection with the Owner's rights as set forth in the Contract Documents.

- 1. Total Contract Price: \_\_\_\_\_  
(\$ \_\_\_\_\_)
- 2. Schedule(s) of Prices: The Schedule(s) of Prices are as set forth in the Contractor's Bid dated: \_\_\_\_\_.

**1.10. Unit Pricing**

1.10.1. When compensation for any matter is based on unit pricing, the Owner shall pay only based on the actual quantities used or constructed in accordance with the Contract Documents. As provided in paragraph 7.5 of the General Conditions, the Owner will determine the actual quantities and classifications of unit price work, and pricing for unit price work shall include all costs. The Contractor shall execute a Change Order to account for any variations in the actual quantities or classifications of unit price work.

**1.11. Extra Work**

1.11.1. The Total Contract Price shall only be modified by a Change Order. No compensation will be paid for any new, additional, or extra work unless set forth in a Change Order. The Owner has the right, and without notice to any surety, to modify or amend the Contract Documents and the Total Contract Price by enlarging or restricting the scope of the Work.

**1.12. Agreement Supplement**

1.12.1. Any Agreement Supplement is attached to this Agreement, and it is specifically incorporated by this reference and hereby made a part of the Contract Documents.

**1.13. Value Based Procurement**

1.13.1. The Value-Based Procurement Program, Salt Lake City Procurement Rules Chapter 19, does  does not  apply to this contract.

1.13.2. Value-Based Procurement Program Compliance. This Contract was awarded pursuant to the Owner's Value-Based Procurement Program, Salt Lake City Procurement Rules Chapter 19. In consideration for the award of this Contract, and in order to preserve the benefits sought by Owner in making this award, the Contractor agrees to the following:

a. Practices to be Maintained. Contractor offered to Owner the following practices as practices enhancing its work environment at the time when this Contract was awarded, and the Contractor shall maintain such practices in Contractor's work environment for the entire term of this Contract, including any extensions or renewals hereof:

Yes No

- i.   Nondiscrimination. The Contractor has adopted and will maintain during the full term of this Contract a written company policy stating that it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or sexual orientation (defined in the policy to mean being lesbian, gay, transgender, bisexual or heterosexual).

Yes No

- ii.   Apprenticeship Programs. The Contractor conducted an apprenticeship during the twelve (12) months prior to submitting its bid in connection with this Contract that was consistent with the requirements of Utah Code Title 35A, Chapter 6 and the requirements of the U.S. Department of Labor Bureau of Apprenticeship and Training, and the Contractor will maintain its apprenticeship program during the full term of this Contract.

Yes No

- iii.   Drug Testing. The Contractor has adopted and implemented a written company policy creating a drug-testing program for pre-employment, and for testing based on “cause,” consistent with the requirements stated in Utah Code Title 34, Chapter 38 (private employees), Title 34, Chapter 41 (local government), or Title 67, Chapter 19 (state), and Contractor will maintain such implemented policy during the full term of this Contract.

- b. Practice Subject to Liquidated Damages. Contractor received the award of this Contract because Contractor offered to Owner practices in Contractor’s work environment that complied with the following sections of Salt Lake City Procurement Rules Section 19.4:

Yes No

- i.   Section 19.4A Policy of Nondiscrimination Factor

Yes No

- ii.   Section 19.4B State-Compliant Apprenticeship Factor

Yes No

- iii.   Section 19.4C Pre-Employment and “for cause” Drug Testing Program Factor

Yes No

- iv.   Section 19.4D Local Small Business Factor

Contractor agrees that Owner paid to receive the benefit of these practices in Contractor’s work environment in an amount not less than **Dollars (\$0.00)**, being the amount by which Contractor’s bid exceeded the lowest bid considered for award, plus Two Thousand Five Hundred dollars (\$2,500), being a reasonable estimate of the Owner’s time to administer the requirements of Chapter 19 which benefited Contractor (collectively the “Program Benefit”). Contractor agrees that Contractor shall pay to Owner the Program Benefit as liquidated damages, and not as a penalty, if Contractor fails to maintain all of the factors listed immediately above in this subparagraph for the entire term of this Contract. Owner may collect any liquidated damages payable to Owner from any sum that Owner may owe Contractor, and may recover such damages from any payment bond or other security provided by Contractor to Owner.

IN WITNESS WHEREOF, the parties have executed this Contract as of the day and year first written above.

SALT LAKE CITY CORPORATION

\_\_\_\_\_  
DIRECTOR - ENGINEERING  
SALT LAKE CITY DEPARTMENT OF AIRPORTS

APPROVED AS TO FORM:

\_\_\_\_\_  
SALT LAKE CITY ATTORNEY'S OFFICE

\_\_\_\_\_  
DATE:

ATTEST:

CITY RECORDER  
\_\_\_\_\_

CONTRACTOR

By \_\_\_\_\_

Its \_\_\_\_\_

**CORPORATE ACKNOWLEDGEMENT**

STATE OF UTAH                    )  
  ) ss.  
COUNTY OF SALT LAKE        )

On the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me \_\_\_\_\_, who being by me duly sworn did say that (s)he is the \_\_\_\_\_ of \_\_\_\_\_, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of a resolution (or bylaws) of its Board of Directors; and said persons acknowledged to me that said corporation executed the same.

\_\_\_\_\_  
NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_

**INDIVIDUAL ACKNOWLEDGEMENT**

STATE OF UTAH                    )  
  ) ss.  
COUNTY OF SALT LAKE        )

On the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me \_\_\_\_\_, individually, who being by me duly sworn did say that (s)he executed the foregoing instrument.

\_\_\_\_\_  
NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_

**PARTNERSHIP ACKNOWLEDGEMENT**

STATE OF UTAH                    )  
  ) ss.  
COUNTY OF SALT LAKE        )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, personally appeared before me \_\_\_\_\_, who being by me duly sworn, did say that (s)he is a partner of the firm of \_\_\_\_\_, a partnership existing under the laws of the state of Utah; and that said instrument was signed by him/her in behalf of said partnership and said \_\_\_\_\_ acknowledged to me that said partnership executed the same.

\_\_\_\_\_  
NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_

**LIMITED LIABILITY COMPANY ACKNOWLEDGEMENT**

STATE OF UTAH                    )  
  ) ss.  
COUNTY OF SALT LAKE        )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, personally appeared before me \_\_\_\_\_, who being by me duly sworn, did say that (s)he is a(n) \_\_\_\_\_ of \_\_\_\_\_, a limited liability company existing under the laws of the state of Utah and that said instrument was signed with proper authority by him/her on behalf of said limited liability company and said \_\_\_\_\_ acknowledged to me that said limited liability company executed the same.

\_\_\_\_\_  
NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_

**SECTION 00610 - PERFORMANCE BOND**

**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_, hereinafter "PRINCIPAL", and \_\_\_\_\_, hereinafter "SURETY", are firmly bound and held unto Salt Lake City Corporation, a municipal corporation of the state of Utah, hereinafter the "OBLIGEE", in the penal sum of \_\_\_\_\_ (\$ \_\_\_\_\_) Dollars, to be levied upon our property, goods and chattels in case of default, as made in the conditions following, that is to say:

WHEREAS, the said Principal has entered or will enter into an Agreement with Obligee (bound herewith and made a part hereof) which Agreement is designated under the name and style of \_\_\_\_\_ whereby Principal has agreed to promptly and faithfully perform said Agreement according to the Contract Documents and terms thereof, all of which, except standard specifications and drawings which are included by reference, are bound herewith and made a part of this bond.

NOW THEREFORE, if the said Principal shall well and faithfully perform said Agreement, (including all warranties and the guarantee) in accordance with the Contract Documents and conditions thereof, including all change orders authorized thereunder, then this obligation shall be void; otherwise to be and remain in full force and effect. This bond shall not be interpreted to confer any benefit or right of action on behalf of any third party against Salt Lake City Corporation.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at Salt Lake City, Utah, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

WITNESS OR ATTESTATION:

\_\_\_\_\_  
PRINCIPAL (Seal)

\_\_\_\_\_

\_\_\_\_\_

Title: \_\_\_\_\_

WITNESS OR ATTESTATION:

\_\_\_\_\_

\_\_\_\_\_  
SURETY

By \_\_\_\_\_

Title: \_\_\_\_\_

**AFFIDAVIT OF QUALIFICATION**

STATE OF \_\_\_\_\_ )  
 ) ss.  
 COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_, being first duly sworn on oath, deposes and says that (s)he is the Attorney-in-Fact of the \_\_\_\_\_, and that (s)he is duly authorized to execute and deliver the foregoing obligation; that said Company is 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.

\_\_\_\_\_  
 ATTORNEY-IN-FACT

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

\_\_\_\_\_  
 NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_

**CORPORATE ACKNOWLEDGMENT**

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me \_\_\_\_\_, who being by me duly sworn did say that (s)he is the \_\_\_\_\_ of \_\_\_\_\_, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of a resolution (or bylaws) of its Board of Directors; and said persons acknowledged to me that said corporation executed the same.

\_\_\_\_\_  
NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_

**INDIVIDUAL ACKNOWLEDGMENT**

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me \_\_\_\_\_, individually, who being by me duly sworn did say that (s)he executed the foregoing instrument.

\_\_\_\_\_  
NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_





**SECTION 00620 - PAYMENT BOND**

**PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_, hereinafter "PRINCIPAL," and \_\_\_\_\_, hereinafter "SURETY," are held and firmly bound unto Salt Lake City Corporation, a municipal corporation of the state of Utah, hereinafter the "OBLIGEE," for the use and benefit of claimants as defined in Title 14, Chapter 1, et seq., U.C.A. 1953, as amended, 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 severally and firmly by these presents.

WHEREAS, the Principal has entered into a certain written Agreement with the Obligee, dated the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, bound herewith and by this reference made a part hereof, which Agreement is designated under the name and style of \_\_\_\_\_.

NOW THEREFORE, the condition of this obligation is such that if the said Principal shall promptly make payments to all claimants supplying labor or materials to Principal or Principal's Subcontractors in the prosecution of the work provided for in said Agreement, then, this obligation shall be void; otherwise to remain in full force and effect.

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

WITNESS OR ATTESTATION:

\_\_\_\_\_  
PRINCIPAL (Seal)  
\_\_\_\_\_  
Title: \_\_\_\_\_

WITNESS OR ATTESTATION:

\_\_\_\_\_  
SURETY  
By \_\_\_\_\_  
Title: \_\_\_\_\_

**AFFIDAVIT OF QUALIFICATION**

STATE OF \_\_\_\_\_)  
  ) ss.  
COUNTY OF \_\_\_\_\_)

\_\_\_\_\_, being first duly sworn on oath, deposes and says that (s)he is the Attorney-in-Fact of the \_\_\_\_\_, and that (s)he is duly authorized to execute and deliver the foregoing obligation; that said Company is 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.

\_\_\_\_\_  
ATTORNEY-IN-FACT

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

\_\_\_\_\_  
NOTARY PUBLIC

Residing at \_\_\_\_\_

My commission expires \_\_\_\_\_

**CORPORATE ACKNOWLEDGMENT**

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, personally appeared before me \_\_\_\_\_, who being by me duly sworn did say that (s)he is the \_\_\_\_\_ of \_\_\_\_\_, a corporation, and that the foregoing instrument was signed in behalf of said corporation by authority of a resolution (or bylaws) of its Board of Directors; and said persons acknowledged to me that said corporation executed the same.

\_\_\_\_\_  
NOTARY PUBLIC  
Residing at \_\_\_\_\_  
My commission expires \_\_\_\_\_

**INDIVIDUAL ACKNOWLEDGMENT**

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, personally appeared before me \_\_\_\_\_, individually, who being by me duly sworn did say that (s)he executed the foregoing instrument.

\_\_\_\_\_  
NOTARY PUBLIC  
Residing at \_\_\_\_\_  
My commission expires \_\_\_\_\_

**PARTNERSHIP ACKNOWLEDGMENT**

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, personally appeared before me \_\_\_\_\_, who being duly sworn, did say that (s)he is a partner of the firm of \_\_\_\_\_, a partnership existing under the laws of the state of Utah; and that said instrument was signed by him/her in behalf of said partnership and said \_\_\_\_\_ acknowledged to me that said partnership executed the same.

\_\_\_\_\_  
NOTARY PUBLIC  
Residing at \_\_\_\_\_  
My commission expires \_\_\_\_\_

**LIMITED LIABILITY COMPANY ACKNOWLEDGEMENT**

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, personally appeared before me \_\_\_\_\_, who being duly sworn, did say that (s)he is a(n) \_\_\_\_\_ of \_\_\_\_\_, a limited liability company existing under the laws of the state of Utah; and that said instrument was signed with proper authority by him/her on behalf of said limited liability company and said \_\_\_\_\_ acknowledged to me that said limited liability company executed the same.

\_\_\_\_\_  
NOTARY PUBLIC  
Residing at \_\_\_\_\_  
My commission expires \_\_\_\_\_

## **CONDITIONS OF THE CONTRACT**

**SECTION 00700 - GENERAL CONDITIONS**

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## ARTICLE 1. - GENERAL

### 1.1. Basic Definitions

1.1.1. **Bid Documents.** The Bid Documents consist of the documents available to Bidders before submission of Bids, which are the written Instructions to Bidders, Notice to Bidders and Addenda; the Drawings and Specifications; and the form of the Agreement, General Conditions, Special Conditions, and Federal Conditions (if any). Any other information provided during bidding is not a part of the Bid Documents unless specifically incorporated by reference in the Bid Documents and made a part thereof.

1.1.2. **Contract Documents.** The Contract Documents consist of the following; the executed Agreement between the Owner and Contractor (the Agreement), the General Conditions, the Special Conditions, the Federal Conditions, if any, the Technical Specifications, the Drawings, and the Bid Documents, and any other documents specifically incorporated by reference and made a part of such documents, and any Contract Modifications (as defined in paragraph 1.1.6) issued after execution of the Agreement.

1.1.3. **Conformed Contract Documents.** For ease of administration of the Contract, the Owner may elect to conform the Contract Documents. Conformed Contract Documents consist of the Bid Documents, which are revised to incorporate information contained within the Addenda. If the Contract Documents have been conformed, the Contractor is responsible for verifying that the Addenda are accurately incorporated into the Conformed Contract Documents before relying on them for purposes of construction. Conformed Contract Documents are for convenience and do not supersede the information contained within the Contract Documents.

1.1.4. **Contract.** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended only by a Contract Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Contractor, the Designer, the Owner and a Subcontractor, or any persons or entities other than the Owner and Contractor.

1.1.5. **Record Documents** The Record Documents consist of those documents assembled at the conclusion of the Contractor's performance of construction or service. Record Documents are developed from as-built drawings, as-built specifications, and any other documents required from the Contractor for closing out the Project.

1.1.6. **Contract Modifications.** A Contract Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a Field Change Order. The terms of such modification shall be as described in the Contract Documents for each of the foregoing and as set forth in the properly executed document.

1.1.7. **Work.** The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

1.1.8. **Project.** The Project is the total construction, of which the Work performed under the Contract Documents may be the whole or a part, and which may include construction by the Owner or by separate contractors.

1.1.9. **Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located, showing the design, location and dimensions of the Work, generally including, plans, elevations, sections, details, schedules and diagrams.

1.1.10. **Specifications.** The Specifications are those portions of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.

1.1.11. **Policies.** The term “Policies” means the policies, rules, regulations, directives, orders, procedures and plans promulgated by the Owner that apply in any way to the Work or to any related matters, as they may be amended from time to time. The Contractor and the Contractor’s Work shall comply with all requirements of the Policies, as amended, whether those requirements are directly stated or are implied to provide for the proper operation thereof.

1.1.12. **Owner.** The Owner is Salt Lake City Corporation (also referred to as City) and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate an engineering representative to provide the Owner’s directives relating to this Contract, and for the purpose of all administration and communication required between the Owner and the Contractor. The Owner has the right to designate others to assist Owner, and the Owner shall have the right to change responsibilities among them, and change the person(s) or entity(ies) providing services, as the Owner may determine.

1.1.13. **Contractor.** The Contractor is identified in the Agreement and is referred to throughout the Contract Documents as if singular in number.

1.1.14. **Designer.** The Designer is the person(s) or entity(ies) lawfully licensed in Utah and under contract with the Owner to provide the architectural or engineering services relevant to the Project. The term “Designer” may refer to one or several parties or any of their authorized representatives. The Designer is referred to throughout the Contract Documents as if singular in number.

1.1.15. **Subcontractor:** A subcontractor is any firm or entity (at any tier) that performs any portion of the Work for the Contractor.

1.1.16. **Engineer.** The Engineer is the engineering representative designated by Owner as stated in the definition of “Owner” at Paragraph 1.1.12.

## 1.2. Execution, Correlation and Intent

1.2.1. **Execution.** By properly executing the Agreement, the Owner and Contractor have executed the entire Contractor’s Contract for Construction.

1.2.2. **Representations.** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

1.2.3. **Intent of Contract Documents.** The intent of the Contract Documents is to describe a functionally complete Project and to include all information necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one portion shall be as binding as if required by all. Performance by the Contractor shall be required in accordance with the Contract Documents and shall include all work, services, materials, or equipment, which may reasonably be inferable as being necessary to produce the intended results, whether or not specifically referenced. The Drawings indicate arrangements and

results to be accomplished, and the Contractor shall provide such fastenings and accessories necessary therefore. All minor details of work that are not shown in the Contract Documents, but that are obviously necessary for the proper completion of the Work, are incidental matters and are included within the Work. The Contractor shall not receive any additional compensation for performing any such matter.

1.2.4. **Document Organization Not Controlling.** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

### 1.3. Ownership and Use of Designer's Drawings Specifications and Other Documents

1.3.1. All Drawings, Specifications, and other documents prepared by the Designer are and shall remain the property of the Owner, and the Owner shall retain all common law, statutory and other reserved rights with respect thereto. They shall not be used on any other project without the prior written consent of the Owner, and the Contractor shall take such action as may be necessary to prevent their use on any other project or for additions to the Project outside the scope of the Work by any Subcontractor or material and equipment supplier. The Contractor, Subcontractors, and material and equipment suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications, and other documents prepared by the Designer appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this license shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications, and other documents prepared by the Designer. Submittals or distributions necessary to meet official regulatory requirements or for other purposes relating to completion of the Project are not to be construed as a publication in derogation of the Owner's copyright or other reserved rights.

### 1.4. Capitalization

1.4.1. Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles and identified references to paragraphs in the document, and (3) the titles of referenced documents.

### 1.5. Interpretation of Contract Documents

1.5.1. **Modifying Words.** In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any," and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.5.2. **Technical Meanings Apply.** Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.5.3. **Codes Referenced.** Any direct or implied reference to industry manuals or codes, or to any laws or regulations, shall mean the most current version thereof in effect at the time of executing the Construction Contract unless specifically stated otherwise in the Construction Documents. No provision of any such manual or code shall be given effect to change the duties, roles or responsibilities of the Contractor or the Owner, the Owner's engineers, the Designer, or others, from those set forth in the Contract Documents.

## 1.6. Order of Precedence

1.6.1. **Order.** If there is an irreconcilable, direct conflict between Contract Documents, the order of precedence for the Contract Documents shall be as follows:

1. The Agreement and the Payment and Performance Bonds
2. Special Conditions
3. General Conditions
4. Drawings and Specifications shall be as follows:
  - a. Drawings take precedence over Specifications as to quantity and location. Any part of the Work not mentioned in the Specifications, but shown on the Drawings, shall be fully performed in a proper manner as if described in the Specifications.
  - b. If there is a discrepancy between the measured dimensions and the written dimensions on a Drawing, the written dimensions shall take precedence.
  - c. Detail drawings shall take precedence over related general drawings. Where a portion of the Work is detailed or drawn out, such portion shall apply to all like portions of the Work.
  - d. Specifications take precedence over Drawings as to quality of materials and workmanship.
  - e. Large-scale drawings of small-scale drawings take precedence over the small-scale drawing.
5. Unit Price Schedules contained in the Contractor's Bid
6. Instructions to Bidders and all portions thereof containing information required from the Contractor
7. Invitation to Bid
8. Measurements by Scale
9. Federal Conditions, if any

1.6.2. **Contract Modifications.** Contract Modifications take precedence over the provisions they are intended to modify but do not otherwise change the order of precedence for the Contract Documents.

1.6.3. **Addenda.** Addenda take precedence over the provisions they are intended to modify but do not otherwise change the order of precedence for the Contract Documents.

1.6.4. **Most Stringent Apply.** In the event any conflicts cannot be resolved by applying the order of precedence, the more stringent and comprehensive requirements shall apply.

## 1.7. Standard Forms

1.7.1. Without limitation, the following forms shall be utilized in the execution of the Work:

1. **Request For Information (RFI).** The Contractor shall use an RFI in the field in a timely manner to present any questions or clarifications requested by the Contractor. The Owner shall, upon receipt, respond to the RFI in writing in a timely manner.
2. **Contractor Request For Change (CRC).** The Contractor shall use a CRC to formally present any request for monetary, time, or contractual adjustment. The CRC shall specifically provide justification for entitlement to the change and shall be substantiated in accordance with Article 7 of the General Conditions. The Contractor shall deliver a CRC to the Owner for consideration and a written response in a timely manner.

3. **Supplemental Instruction (SI).** An SI shall be used to provide clarifications or supplemental information to the Contractor. The intent of the SI is to clarify and supplement the existing requirements of the Contract. An SI is not intended to modify the scope of Work.
4. **Request for Quotation (RFQ).** An RFQ shall be used to indicate proposed modifications to the drawings or specifications. Upon receipt of an RFQ, the Contractor shall submit in a timely manner a detailed breakdown of costs (adds or deducts) in the form of a CRC for review by the Owner.
5. **Change Order (CO).** A CO modifies the Construction Contract after its execution by the Owner and Contractor.
6. **Construction Change Directive (CCD).** A CCD may be utilized to express a written order prepared by the Owner directing a change in the Work and stating a proposed basis for adjustment (if any) in accordance with paragraph 7.3.
7. **Field Change Order (FCO).** An FCO may be utilized for immediate direction and authorization to proceed with Changes in the Work as provided in paragraph 7.4.
8. **Notice of Non-Compliance (NNC).** An NNC shall be utilized by the Owner to communicate in writing to the Contractor either a deficiency in the Work or other action required of the Contractor. The Contractor shall provide a written response to the Owner with reasonable promptness.

## ARTICLE 2. - OWNER

### 2.1. Providing Documents

2.1.1. **Sets Provided.** The Owner will furnish the Contractor the number of sets of the Contract Documents, which is specified in the Special Conditions. The Contractor may obtain additional copies of such documents at the Contractor's expense.

2.1.2. **Surface and Subsurface Conditions.** Prior to execution of the Contract Documents, the Owner made available to the Contractor, and the Contractor studied the results of, test borings and other information that the Owner had as to subsurface structures and site geology. The Owner disclaims all responsibility whatsoever with respect to the sufficiency or accuracy of borings made, or of the logs of test borings, or of other investigations or records of subsurface or surface conditions (including but not limited to, underground utility locations, or of the interpretations made thereof), and there is no warranty or guaranty, expressed or implied, that the conditions indicated by such borings, logs, investigations, records, or information are representative of conditions existing throughout the Work site, or any part thereof, or that unforeseen developments may not occur. At the Owner's request, the Contractor shall make available to the Owner the results of any surface or subsurface investigations of the site, test borings, analyses, studies or other tests conducted by or in possession of the Contractor or any of its agents. The Contractor shall have full responsibility with respect to surface and subsurface conditions at the site.

### 2.2. Providing the Site

2.2.1. **Lands and Access.** The Owner will furnish the lands on which the Work is to be performed, and reasonable access to the site. Any other lands or rights-of-way furnished by the Owner will be designated in the Special Conditions. The Contractor shall provide for all additional lands and access that the Contractor may require for the Contractor's storage or other facilities. The Contractor shall secure and pay for permits, fees, and notices as set forth in paragraph 3.14.

2.2.2. **Reference Points.** Upon written request, the Owner will designate monuments and benchmarks to be used by the Contractor in laying out its Work, which shall not constitute one of the Contract Documents. However, the Owner shall not be responsible for furnishing surveys or

other information as to the physical characteristics of or utility locations for the Project site. As provided in paragraph 3.3.11, the Contractor shall keep the Owner informed at least 72 hours in advance of the times and places at which the Contractor will need reference points.

### 2.3. Owner's Right to Reject, Stop or Suspend the Work

2.3.1. **Right to Reject, Stop, and Require Correction.** The Owner has the right to reject Work that the Owner believes to be defective, that the Owner believes will not produce a Project that conforms with the Contract Documents, that the Owner believes will prejudice the integrity of the design concept as a whole as indicated by the Contract Documents, or that the Owner believes will be prejudicial or detrimental to other work or to the operation of the Owner's premises. The Owner has the right to require special inspections or testing of any portion of the Work at any time to demonstrate or verify conformance with the Contract Documents. The Owner has the right to stop or suspend the Work or any portion thereof upon giving the Contractor written notice that the Owner has rejected any matter, and to require correction of the Work to conform to the Contract Documents.

2.3.2. **Right to Suspend.** The Owner shall have the right to suspend the Work, in whole or in part, for such period of time as it may deem necessary, whether due to unsuitable weather or any other circumstances which, in the Owner's discretion, requires a suspension of the Work. An order by the Owner to suspend the Work shall be in writing except in cases of emergency.

2.3.3. **Nature of Rights.** The right of the Owner to stop or to suspend the Work under this paragraph 2.3 shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity. Any failure by the Owner to reject any work shall not release the Contractor from conforming to the Contract Documents. The rights set forth in this paragraph 2.3 shall be in addition to, and not in restriction of, the Owner's rights under other paragraphs.

2.3.4. **Effect of Stopping or Suspending.** In the event the Work is suspended under paragraph 2.3.2, for reasons beyond the Contractor's control or for unforeseen circumstances not otherwise provided for in the Contract Documents which could not have reasonably been anticipated or avoided by the Contractor, the Contractor shall be granted an appropriate extension of Contract Time as its sole compensation for the period of suspension, which in no event shall exceed the day-for-day period of suspension. The Contractor shall not be entitled to receive any increase in the Contract Time for suspensions imposed by the Owner under paragraph 2.3.1 or for suspensions under paragraph 2.3.2, which are either: (1) made at the request of the Contractor for its own convenience; (2) attributable to circumstances caused by the Contractor or those for which the Contractor is responsible; (3) attributable to circumstances which reasonably could have been anticipated or avoided by the Contractor; (4) attributable to inclement weather conditions except to the extent permitted by paragraph 8.3.4; or (5) attributable to circumstances otherwise anticipated in the Contract Documents.

### 2.4. Owner's Right to Carry Out the Work

2.4.1. If the Contractor defaults or neglects to promptly carry out the Work in accordance with the Contract Documents, or for matters where the Owner determines to permit seven days or correction if the Contractor fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other rights or remedies the Owner may have, including any warranties, commence and continue to carry out the Work. In such case, an appropriate Change Order or Construction Change Directive shall be issued deducting from



payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Designer's and other professionals' additional services and expenses made necessary by such default, neglect or failure and all damages, costs, expenses or losses caused by such default, neglect or failure. Such costs shall include a charge of 2.5 times the expense on any direct labor costs incurred by the Owner's employees. If payments then or thereafter due the Contractor are not sufficient to cover such amounts owed to the Owner, the Contractor shall pay the difference to the Owner. The right of the Owner to carry out the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

### **ARTICLE 3. - CONTRACTOR**

#### **3.1. Commencement of Work**

**3.1.1. Pre-Commencement Conference and Documents.** The Contractor shall attend any pre-construction conference held as notified by the Owner. At such time, or as earlier required by the Owner, the Contractor shall submit the following to the Owner: (1) a copy of all permits required in connection with the Work; (2) a detailed site mobilization plan showing, at a minimum, trailer locations, material storage locations, power and telephone requirements for trailers, if any, and the sanitary facilities that the Contractor will maintain at all times for all employees. At such time, or as earlier required by the Owner, the Contractor shall also submit the following documents in reasonable detail and in a form acceptable to the Owner, with final documents satisfactory to and subject to the approval of the Owner to be submitted no later than ten (10) days before the Contractor submits its first Application for Payment unless stated otherwise in the Contract Documents. The Owner will make no payment under this Contract for Construction until all such items have been received in acceptable form.

1. A preliminary schedule conforming to paragraph 3.7.2.
2. A shop drawing schedule showing all shop drawing and other submittals required for the Work.
3. A schedule of values for all lump sum work which includes the quantities and prices of items composing the Total Contract Price. The schedule shall allocate the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. The actual amount of cost, overhead, and profit shall be allocated to each Work item; however, all bond expense shall be shown as a separate item. The total shall equal the Total Contract Price. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy and reasonableness as the Owner may require. At a minimum, each major item of Work and each subcontracted item should be shown as a separate line item on a Partial Requisition and Certification form as specified by the Policies, or other form acceptable to the Owner. After approval by the Owner, the schedule of values shall be the basis for determining progress payments.
4. A written quality control program showing how the Contractor will maintain the Contractor's quality, workmanship and standard of care, and consistent with any further description set forth in the Special Conditions.
5. A written safety and protection plan meeting the requirements of Article 10.
6. A written environmental plan consistent with the requirements set forth in the Special Conditions.

**3.1.2. Commencement Time.** The Contractor shall commence the Work at the time designated in the Contract Documents. If the Contractor desires to commence work early, the Contractor shall comply with the requirements of paragraph 8.2.3.

### 3.2. Review of Contract Documents and Field Conditions By Contractor

3.2.1. **Documents Sufficient.** The Contractor acknowledges and declares that the Contract Documents are sufficient to enable the Contractor to complete the Work as shown in the Contract Documents or, if not specifically shown, to perform the activities which may be reasonably inferred as necessary for completion of the Work in accordance with the requisite time frame, applicable laws, statutes, building codes, regulations, or as otherwise required by the Contract Documents. The Contractor shall not take advantage of any apparent error or omission in the Contract Documents. In addition, if the Contractor performs any construction activity which the Contractor knows or should have known contains an error, inconsistency, or omission, the Contractor shall be responsible for such performance and shall bear the cost for correction.

3.2.2. **Contractor to Verify Conditions.** The Contractor shall take field measurements, verify field conditions, and carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies, or omissions discovered shall be immediately reported in writing to the Owner.

3.2.3. **Underground Facilities.** The Contractor acknowledges and agrees that any data available with respect to underground facilities has been prepared by others, and the Owner is not responsible for the accuracy or completeness of any such information. The Contractor shall specifically review and verify all such information with the one-call center (Blue Stake location center) or other utility coordination service a minimum of two (2) working days prior to any excavation. The Contractor shall coordinate the Work with the owners of all underground facilities, and is responsible for the safety and protection thereof. The Contractor is responsible for any and all damage to underground facilities.

3.2.4. **Utilities Not Shown.** If the Contractor uncovers or reveals at or contiguous to the site a utility that was not shown on the Drawings or was not within any tolerances stated in the Contract Documents, the Contractor shall promptly notify the Owner in writing of the utility and its owner before performing any Work (except in cases of emergency). The Owner will review the utility to determine the extent to which any modifications to the Contract Documents may be necessary. The Contractor shall be responsible for the safety and protection of the utility during such time. Any changes to the Contract Documents must be made by Change Order, and the Contractor shall not be entitled to any change in price unless directly attributable to the existence of the unknown utility, and the Contractor could not have reasonably been aware of the utility through Contractor's proper investigations. Changes in time shall be subject to the same conditions, and must also impact the critical path.

3.2.5. **Conditions within Contract.** The Contractor represents that it is familiar with the Project site and has received all information it needs concerning the conditions of the Project site. The Contractor represents that it has inspected the location of the Work and has satisfied itself as to the location and condition thereof, including, without limitation, the location and condition of all structures, utilities, and surface and subsurface conditions. At no additional cost to the Owner, the Contractor shall undertake all further investigations and studies as may be necessary or useful to determine the location and condition of structures, surface and subsurface conditions. The Owner will endeavor to provide reasonable access for undertaking the same upon receipt of Contractor's timely written request. Based upon the foregoing inspections, understandings, agreements and acknowledgments, the Contractor agrees and acknowledges: (i) that the Total Contract Price is just and reasonable compensation for all the Work, including all reasonably foreseen and foreseeable risks, hazards, and difficulties in connection therewith; (ii) that the Contract Time is adequate for the performance of the Work; and (iii) that the Work shall not result in any unintended lateral or

vertical movement of any structure. The Contractor shall have no claims for surface or subsurface conditions except as described in paragraph 4.3.4. The Contractor shall exercise special care in executing Work in proximity of known utilities, improvements, and easements.

### 3.3. Site Matters

3.3.1. **Field Office.** When specified in the Special Conditions, the Contractor shall establish and maintain a field office at a site acceptable to the Owner. The Contractor shall maintain at the office a telephone, a fax machine, and other equipment as specified in the Special Conditions, unless otherwise permitted by the Owner. Access to the Contractor's work and office area shall be identified by appropriate signs so that agents, delivery trucks, and other parties may contact the Contractor.

3.3.2. **Limits of Construction.** The Contractor's personnel, materials, and equipment shall be restricted to the construction area shown on the Drawings, and the Contractor shall not unreasonably encumber the site with materials or equipment. The Contractor is solely responsible to prevent unauthorized personnel from proceeding outside of the Contractor's work and office area. No Work shall be done beyond the limits of construction, and any Work done beyond such limits will be considered as unauthorized, and no payment will be made therefore.

3.3.3. **Utility Rearrangement.** The Contractor shall make arrangements directly with the utility owner to rearrange utilities for the Contractor's convenience to facilitate construction operations. The Contractor shall bear all costs in connection therewith.

3.3.4. **Access and Haul Routes.** Access and haul routes shall be restricted to those shown on the Drawings when so indicated unless otherwise allowed by the Owner. The Contractor shall comply with all access requirements as provided in the Special Conditions. The Contractor shall furnish required road signs, barricades, safety lights, signals, and flag personnel at no additional cost.

3.3.5. **Access Pavement Cleaning.** All hard surface roads shall be maintained in a broom clean condition with no accumulation of dirt, debris, or other foreign objects. Other roads shall be maintained with no accumulation of dirt, debris, or other foreign objects. Airport airside pavement areas shall be maintained in a state of cleanliness consistent with FAA and Airport requirements, which shall include immediate cleaning of any spillage by use of a vacuum-type sweeper, and the Contractor shall immediately remedy any breach of such conditions upon notice by the Owner. Haul roads shall be restored to the condition existing prior to the start of construction at no additional charge prior to final contract acceptance. The Owner has the right, but not the obligation, to perform any road or pavement cleaning or repair on behalf of the Contractor if the Contractor fails to respond promptly to a notice by the Owner, and the Contractor shall reimburse all of the Owner's direct costs, plus a back-charge as set forth in the document Construction Safety and Security Compliance for Salt Lake City International Airport to cover the Owner's overhead expense.

3.3.6. **Cleaning Up Site.** The Contractor, on a daily basis, shall keep the premises and surrounding areas free from the accumulation of waste materials or rubbish caused by operations under the Contract for Construction. The Contractor shall remove all materials and equipment as soon as the same are no longer necessary at the site. At the completion of the Work or any portion thereof, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials caused by operations under the Contract for Construction, and shall leave the site ready for occupancy by the Owner. Such cleanup must occur prior to final inspection. The Contractor shall not dispose of debris or

waste material on the Owner's property or in waste containers (dumpsters) leased by the Owner without prior approval of the Owner. If the Contractor fails to keep the site clean as provided in the Contract Documents, then, following the Owner's written notice to the Contractor, pursuant to paragraph 2.4.1, the Owner may take appropriate action to clean the site and charge such costs to the Contractor.

3.3.7. **Disposal.** The Contractor shall make all arrangements and pay all costs for disposing of debris, waste, or materials off of the Owner's property. Such disposal, including the disposal of any hazardous materials, shall comply with all applicable laws and regulations. Upon request, the Contractor shall furnish a certificate of disposal in a form acceptable to the Owner.

3.3.8. **Protection of Property.** The Contractor shall not damage or injure any property adjacent to the site, or any property on the site that is not to be removed, such as trees, shrubs, poles, fences, signs, markers, monuments, buildings and structures, conduits, pipes, sewer and water lines, street facilities, and other improvements and facilities. The Contractor shall provide for suitable safeguards to protect such property at the Contractor's expense. The Contractor shall restore or replace any damaged property at the Contractor's expense, and shall be solely liable to the property owner. The Owner may provide for any temporary repairs that may become necessary in the Owner's judgment, and the Contractor shall pay the cost thereof. The Contractor shall also take action as further described in paragraph 10.2.

3.3.9. **Coordination at the Site.** At no additional cost to the Owner, the Contractor shall take all actions necessary to coordinate the Contractor's Work with other activities at the site of the Work, as well as with the ongoing operations of the Owner and tenants and users of the Owner's facilities. The Owner's facilities shall remain in operation during construction. The Contractor shall not disrupt such operations, including, without limitation, vehicular traffic.

3.3.10. **Surveys.** Unless otherwise required in the Special Conditions, the Contractor shall be responsible for and perform all surveying and staking, and shall ensure that all work is accomplished in accordance with details, lines, grades and elevations provided by the Drawings. The Owner will designate monuments and benchmarks to be used by the Contractor, but will not provide or pay for additional construction staking for the Project. The Owner reserves the right to check any surveys made by the Contractor. If in the opinion of the Owner the Contractor has established insufficient control to satisfactorily perform the Work, the Owner may establish additional controls and back charge the cost of establishing those controls to the Contractor. All work shall be performed by properly licensed and professionally qualified personnel retained by the Contractor.

3.3.11. **Reference Points.** The Contractor shall inform the Owner at least 72 hours in advance of the times and places at which it will need reference points. Unless authorized by the Owner, any Work done without line and grade established by the Contractor shall be at the Contractor's own risk. The Contractor shall be responsible for the accuracy of the Contractor's own layout work and shall be liable for the preservation of all established lines and grades. The Contractor shall not disturb any survey monument, or change or relocate any reference point, without the Owner's prior written permission. Stakes damaged or destroyed by the operations of the Contractor shall be replaced at the Contractor's expense. The Contractor shall notify the Owner in writing within 24 hours after determining that any existing conditions differ from those shown on the plans.

3.3.12. **Interruption of Operations.** If any aspect of normal City operations needs to be interrupted in connection with the Work, the Contractor must give notice of the interruption in writing to the Owner at least 72 hours in advance of the proposed shutdown, and it must be

coordinated with the Owner. The Contractor shall submit a plan to cover contingency problems at the time of giving notice, and the Contractor shall provide alternatives acceptable to the Owner at no additional cost for maintenance of utilities or other essential services designated by the Owner. The Contractor shall not proceed without written authorization by the Owner. The following shall apply:

1. Utility shutdowns must be accomplished during hours approved by the Owner and at no additional cost. If the Work requires lengthy shutdown periods, the Owner may require it to be accomplished on successive nights. No interruptions shall be permitted during passenger flow times at the Airport.
2. The Contractor shall notify the Owner of all areas rendered impassable due to the Contractor's operations, and shall inform them of conditions at regular intervals for routing aircraft and vehicles. The Contractor shall furnish barricades, safety lights, signals, flag personnel, and detour signs in a proper manner and as directed by the Owner.
3. If the Contractor causes any utility interruption without the Owner's prior written authorization, the Contractor agrees that it is difficult to determine the Owner's damages resulting from such loss of service. The Contractor agrees to pay as compensation for the Owner's damages, and not as a penalty, the amounts set forth in the Agreement for each day (or part thereof) of such interruption until service is restored. The Contractor shall immediately pursue restoration of service, and shall pay the costs thereof.

3.3.13. **Airport Security.** The contractor shall comply with all Airport security requirements, as further set forth in paragraph 10.4 and the document Construction Safety and Security Compliance for Salt Lake City International Airport (latest edition) which is hereby incorporated into the Contract Documents by reference.

### 3.4. Contractor's Key Personnel

3.4.1. **Personnel.** The Contractor shall employ a competent Project Manager and Superintendent during the performance of the Work. The Contractor's Superintendent shall be on the site at all times during the performance of the Work. The Project Manager shall represent the Contractor, and communications given to the Project Manager shall be binding on the Contractor. Important communications shall be confirmed in writing. The Owner shall have the right but not an obligation to require the Contractor to dismiss from the Project any or all of the Contractor's project personnel whose performance is not satisfactory to the Owner, and, in such event, the Contractor shall replace such personnel with personnel satisfactory to the Owner at no cost to the Owner. Any such person shall not be employed again on the Project.

3.4.2. **Résumés and Organizational Chart.** The résumés of the Contractor's key personnel, including but not limited to the Project Manager and Superintendent, that the Contractor intends to use on the Project and a chain-of-command organizational chart shall be submitted to the Owner prior to the commencement of Work.

### 3.5. Supervision and Construction Procedures

3.5.1. **Contractor to Control Work.** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract including coordination of the duties of all trades, unless the Contract Documents give other specific instructions concerning these matters.

3.5.2. **Impact to Others.** The Contractor shall control its operations and those of its Subcontractors and Suppliers to assure the least inconvenience to the traveling public and others. Under all circumstances, safety shall be the most important consideration. At no additional cost to the Owner, the Contractor shall take all actions necessary to coordinate the Contractor's Work with other activities at the site of the Work, the ongoing operations of the Owner, and users of the Owner's facilities.

3.5.3. **Responsible for Acts and Omissions.** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.

3.5.4. **No Agent.** The Contractor is not an agent of the Owner for any purpose, and neither is any party working through the Contractor, including the Contractor's agents, subcontractors, or suppliers. The Contractor's liability under the Contract Documents shall not be diminished because of any general management and direction provided by the Owner or Designer.

3.5.5. **Contractor not Relieved of Work by Others.** The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner or others in the Owner's administration of the Contract, or by tests, inspections, observations, approvals, or other acts required or performed by persons other than the Contractor.

3.5.6. **Contractor's Inspection of Prior Work.** The Contractor shall be responsible for inspection or examination of portions of work already performed to determine that such portions are in proper condition to receive subsequent Work. The Contractor shall keep full detailed written records of all inspection or examination efforts, including photographs or video of all prior work. These written records shall include dates, subject matter, persons present, results of inspections or examinations and shall be made available to the Owner, if requested.

3.5.7. **Contractor to Cause Inspection of the Work.** If any of the Work is required to be inspected or approved, the Contractor shall cause such inspection or approval to be performed. No test, inspection or examination performed or failed to be performed by the Owner hereunder, shall be a waiver of the enforcement of any of the Contractor's obligations hereunder.

3.5.8. **Adequate Staffing.** The Contractor is fully responsible to provide a sufficient number of skilled workers, supervision, and project management personnel, to prosecute the Work and insure that the Work is completed within the Contract Time. Failure to fully staff the Project with skilled workers, supervision, or project management personnel shall be cause for termination of the Contract in accordance with Article 14 or such other remedies set forth in these General Conditions. The Contractor assumes all risks of delays or extra costs which may be associated with labor disputes involving the Contractor, its Subcontractors or Suppliers and in no event shall the Contractor be entitled to additional compensation or an extension of Contract Time due to any such dispute.

3.5.9. **Duty to Inquire.** If the Contractor is unclear as to any matter in the Contract Documents or the performance of the Work, the Contractor shall promptly seek clarification in writing from the Owner. The Owner will issue clarifications or interpretations of the Contract Document requirements consistent with the overall intent of the Contract Documents. The failure of the Owner to put any instruction in writing shall not relieve the Contractor of its responsibility to comply with the Contract Documents.

### 3.6. Labor, Services and Materials

3.6.1. **Contractor to Provide Resources.** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, services, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution, termination, suspension, or completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.6.2. **Contractor to Maintain Quality.** The Contractor shall enforce strict discipline and good order among the Contractor's employees, Subcontractors, and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.6.3. **Federal Wages.** For federally funded projects, or where otherwise required by law, all wages and payroll practices and documentation shall meet federal or other legal requirements. The Special Conditions and Federal Conditions contain additional information concerning payroll records, reporting requirements, etc.

3.6.4. **Work Hours.** All Work shall be performed during regular business hours except when other times are necessary due to concerns for the safety or protection of persons or property, and except when otherwise indicated in the Contract Documents. If the Contractor performs or permits any overtime, it shall be paid at the Contractor's discretion and expense unless specifically authorized in the Contract Documents or in writing in advance by the Owner.

3.6.5. **Project Materials and Equipment.** The Contractor shall handle, store, manufacture, apply, install, use, clean, connect, and condition all materials and equipment in a proper manner and in accordance with the manufacturer's instructions unless provided otherwise in the Contract Documents. All materials and equipment to be installed shall be of good quality, and shall be new unless otherwise authorized by the Owner. The Contractor shall furnish evidence of compliance with these requirements upon request. All materials and equipment shall be subject to the following:

1. The Contractor may propose the use of materials prior to sampling and testing by providing a certificate of compliance from the manufacturer stating the materials comply with the Contract Documents in all respects; however, the Owner may accept or reject such proposal, or impose any requirements or conditions, in its sole discretion. In no case shall the Contractor be relieved of its obligation to comply with the Contract Documents.
2. The Contractor shall provide or assign to the Owner all warranties or guaranties required by the Contract Documents, or provided by the manufacturer or supplier in the normal course of business. The same shall be delivered to the Owner before acceptance of the Work, and final payment will be made. The Contractor shall also provide all instruction sheets, spare parts, parts lists, training, or operation and maintenance manuals, or similar materials. Three copies of such materials shall be furnished to the Owner prior to installation of the materials or equipment.
3. The Owner may reserve the right to provide certain materials or equipment as provided in the Special Conditions. The Contractor shall be responsible for the proper transportation, handling, storage, and incorporation of any such materials unless otherwise provided.
4. The Contractor will store all materials and equipment in such a manner as to ensure the preservation of their quality and fitness for the Work. Materials and equipment will be stored in compliance with all laws and regulations, and in a manner so as to facilitate inspections, and site access and operations. Storage will be within the construction area,

or at a location lawfully available to the Contractor at the Contractor's expense and acceptable to the Owner. The Contractor is solely responsible for security of stored and installed materials, equipment, and furnishings. At the termination of the Contract for Construction, the Contractor shall remove all equipment and materials and restore storage areas to their original conditions.

5. All materials or equipment rejected by the Owner shall be removed immediately from the Work site unless otherwise permitted by the Owner. The Contractor shall not correct defects and subsequently use the same materials or equipment without prior written approval from the Owner. The Contractor shall not install or otherwise incorporate sample submittals or mock-up assemblies into the permanent work. If the Contractor fails to promptly comply with an order under this subparagraph, the Owner shall have authority to cause the removal and replacement of the rejected material or equipment and charge the expense to the Contractor.

3.6.6. **Contractor's Equipment.** The Contractor shall provide suitable, adequate and safe equipment to meet the Work requirement, and shall remove unsuitable equipment from the Work when ordered by the Owner. The Contractor shall permit no equipment or machinery to operate on paved areas, sidewalks, landscaped areas, or prepared roadway shoulders, unless the Contractor can demonstrate to the Owner that it can be operated without causing any damage to the same.

3.6.7. **Conformity of Work.** Work and materials shall conform to the lines, grades, dimensions, and material requirements, including tolerances, shown in the Contract Documents. Measurements, sampling, and testing may provide evidence as to certain conditions, but the Owner shall be the sole judge of whether the work or materials deviate from the Contract Documents, and the Owner's decision shall be final and binding on the Contractor. Only the Owner may authorize a deviation from the Contract Documents, and such authorization must be in writing.

3.6.8. **Testing, Observation, and Inspection.** The Contractor shall provide for testing, observation, and inspection as set forth in Article 12.

### 3.7. Contractors Construction Schedules

3.7.1. **Requirements.** Unless the Specifications provide otherwise, the following shall apply to the Contractor's Schedule.

3.7.2. **Preliminary Schedule.** The Contractor shall submit to the Owner a Preliminary Schedule at the time specified in the Special Conditions. The Preliminary Schedule shall be in the format designated in the Special Conditions, and shall cover all major items of the Work including construction activities; milestone dates; submittal dates and the dates needed for approved submittals for shop drawings, product data, and samples; holiday cleanup preparations; procurement and delivery dates on materials and equipment; and specific dates for all special inspections required prior to any utilities "turn-on" or temporary service. The Preliminary Schedule shall identify start and finish dates and the sequence in which the Contractor proposes to carry out the Work, and indicate the critical path. The Preliminary Schedule shall be based upon the entire Contract Time and order of Work requirements specified in the Contract Documents.

3.7.3. **Baseline Schedule.** The Contractor shall submit to the Owner a proposed Baseline Schedule at the time specified in the Special Conditions which shall be in the format designated in the Special Conditions, and covering all major items of the Work. It shall clearly show the critical path. The Owner will review the proposed Baseline Schedule and advise the Contractor of any recommended changes to any matter. If the Contractor agrees with and accepts such recommendations, then the Contractor shall promptly revise and resubmit the proposed Baseline



Schedule to incorporate the Owner's comments. The Contractor shall proceed with the Work in accordance with the accepted Baseline Schedule. The Owner's acceptance of the Baseline Schedule shall not impose on the Owner any responsibility to the Contractor for the accuracy or reasonableness of the Baseline Schedule nor shall the review and acceptance relieve the Contractor from full responsibility therefore. Upon acceptance by the Owner, the Baseline Schedule shall be the basis for evaluation of all time related issues, unless and until a Progress Schedule is accepted which supersedes a matter in the Baseline Schedule. The Owner shall have no obligation to process or issue payment for an Application for Payment without Contractor's submission of an accepted Baseline Schedule.

3.7.4. **Progress Schedules.** Each month, the Contractor shall submit an updated Progress Schedule showing the progress of the Work, as originally set forth in the Baseline Schedule. Progress Schedules must be submitted with each Contractor's Application for Payment and the data contained in the Progress Schedule must accurately correspond to the progress of the work information contained in the Contractor's Application for Payment. The Contractor's Progress Schedule must accurately reflect the actual progress of the Work as well as any revisions to any matter in previous schedules. The Owner shall have no obligation to process or issue payment for an Application for Payment without the Contractor's submission of a current, accurate, and updated Progress Schedule.

3.7.5. **Recovery Plans.** If the Contractor's Progress Schedule reflects that the Contractor is five (5) days behind on the critical path shown on the Contractor's current schedule, then the Contractor must submit with the Progress Schedule the Contractor's proposed recovery plan for completing the Work within the Contract Time. In the event the Contractor claims entitlement to a time extension which is disputed by the Owner, the Contractor's recovery plan shall not be based upon receiving disputed time extensions. This provision shall not limit the Owner's ability to require recovery schedules under paragraph 8.2.5.

3.7.6. **No Waiver.** The Contractor shall comply fully with all time and other requirements of the Contract Documents. The Owner's approval and payment of an Application for Payment, without the submission of a current, accurate Baseline or Progress Schedule, shall not constitute a waiver of either the requirement for such updates nor the Owner's right to withhold payment, nor shall the Contractor be relieved from the obligation to complete the Work within the Contract Time.

3.7.7. **Acceptance.** Any proposed adjustment to the Baseline Schedule, as modified by prior accepted adjustments, must be accepted by the Owner before the adjusted schedule will become effective. Changes must be submitted in accordance with the requirements of Article 8, and must be properly memorialized by a Change Order. All float time shall be allocated and used in the best interests of the Work, and shall not be for the benefit of the Contractor.

### 3.8. Maintaining and Controlling Documents

3.8.1. **Documents Available.** The Contractor shall maintain at the site all approved Shop Drawings, Product Data, Samples and other required submittals and make such documents available for use at any time by the Owner. Documents shall be marked to show all authorized changes. The Contractor shall also maintain a copy of the Contract Documents. All documents shall be maintained in good order.

3.8.2. **As-Built Documents.** The Contractor shall maintain at the site for the Owner certified As-Built Documents comprised of one copy of the Drawings, Specifications, Addenda, Change Orders and other Contract Modifications, in good order and marked currently to accurately reflect all as-built conditions, including, but not limited to, all locations of utilities as actually installed,

actual elevations of all underground construction and all pavement, all changes to the Work required by Modifications or material selections made during the construction period. These As-Built Documents shall be available to the Owner throughout the construction period. All As-Built Documents shall be delivered to the Owner for review and acceptance upon completion of the Work, signed by the Contractor to certify that they show complete and exact as-built conditions, stating dimensions, sizes, kinds of materials, and similar matters (including, but not limited to, piping and conduit locations). The Contractor shall be held responsible for all damages arising directly or indirectly out of the Contractor's failure to maintain and provide to the Owner complete and accurate As-Built Documents and other information.

3.8.3. **Drawings.** The Contractor shall maintain at the site all approved permit Drawings in a manner so as to make them accessible to governmental inspectors and other authorized agencies. All approved Drawings shall be wrapped, marked and delivered to the Owner within the timeframe provided in the Specifications; if no timeframe is so provided, then within the timeframe established by the Owner.

3.8.4. **Document Control.** The Contractor shall comply with all of the Owner's document control requirements as provided in the Policies or elsewhere. Without limitation, the Contractor shall forward a copy of each and every Project document, whether correspondence, plans, manuals, as-built drawings, or otherwise, to the Engineer.

### 3.9. Submittals: Shop Drawings, Product Data and Samples

3.9.1. **Shop Drawings Defined.** Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

3.9.2. **Product Data Defined.** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.9.3. **Samples Defined.** Samples are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

3.9.4. **Submittals.** Shop Drawings, Product Data, Samples, and similar submittals (all of which shall be referred to as "Submittals") are not changes to the Contract Documents, unless incorporated by a Contract Modification. The purpose of Submittals is to demonstrate for those portions of the Work for which Submittals are required, the manner in which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Designer is subject to the limitations of paragraphs 3.9 and 4.1.

3.9.5. **Submission of Submittals.** Unless the Specifications provide otherwise, the Contractor shall review, stamp as approved and submit through the Owner, for review by the Designer. Submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. The Contractor shall furnish a sufficient number of Submittals to enable the Owner to retain four (4) copies.

3.9.6. **Review and Proposed Deviations.** The Contractor shall perform no portion of the Work nor purchase any materials requiring review of Submittals until the relevant Submittal has been reviewed and no exceptions have been noted by the Designer or the Designer accepts with specified exceptions. All Work shall be performed in accordance with Submittals which have been reviewed

and returned with no exceptions taken or accepted with specified exceptions. If the Contractor proposes to deviate from the requirements of the Contract Documents in any manner, whether through the substitution of similar materials or otherwise, the Contractor shall separately submit, and identify prominently on the transmittal cover sheet(s) for the Submittal, all proposed deviations from the requirements of the Contract Documents. The Contractor's transmittal cover sheet(s) shall direct, in writing, the Designer's attention to the specific proposed deviations, and the Submittal shall contain all required data and supporting documentation necessary for the Designer's evaluation of the proposed deviation. The Contractor shall provide additional evidence of quality and suitability through documentation, testimony, or other means as requested. The Designer shall evaluate the proposed deviation and submit a written recommendation to the Owner. Any Submittal containing deviations not identified as previously described shall be deemed rejected and require resubmission. When requesting a deviation, the Contractor shall also make the representations contained in paragraph 3.9.12. The Contractor's request for a deviation shall not entitle the Contractor to a time extension or an increase in compensation; however, the Owner may adjust the Contract Time or compensation at its sole discretion pursuant to Article 7.

**3.9.7. Contractor's Representations by Submission.** By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has (1) determined and verified materials, field measurements and field construction criteria related thereto, and has checked and coordinated the information contained within such Submittals with the requirements of the Work and of the Contract Documents; (2) complied with all of the requirements for submission, including those relating to subcontractors; and (3) the information is complete and ready for review and is in conformance with the Contract Documents.

**3.9.8. No Waiver.** The Contractor shall not be relieved of responsibility for deviations or from requirements of the Contract Documents by the Designer's review of Submittals unless the Contractor has complied with paragraphs 3.9.6 and 3.9.12 at the time of submission and the Contractor has received written authorization for the specific deviation.

**3.9.9. Resubmissions.** The Contractor shall direct specific attention, in writing, to revisions on resubmitted Submittals, other than those requested by the Designer on previous Submittals.

**3.9.10. Informational Submittals.** Informational submittals upon which the Designer and Contractor are not expected to take responsive action may be so identified in the Contract Documents.

**3.9.11. Professional Certification.** When the Contract Documents require the Contractor to submit professional certification of performance capabilities of materials, connections, assemblies, systems, equipment, or other aspects of the Work, the Designer and Owner shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

**3.9.12. Proposed Substitutions.** If the Contractor proposes to use a method or type of material or equipment other than as specified in the Contract Documents, a written request therefore shall be made to the Owner along with an estimate of the credit for cost and time, if any, the Owner will receive as a result of the change. If approval is given, the Contractor will not be excused from producing work in conformity with Contract requirements. If a trial use establishes the Work does not meet the requirements of the Contract Documents, the Contractor shall take such action as the Owner determines necessary. By making a request for such a substitution, the Contractor:

1. represents that it has personally investigated the proposed substitution and determined that the proposed substitution is equal to or superior in all respects to the specified materials, method, or equipment;
2. represents that it will provide a warranty for the substitution identical in all respects to the warranty for the specified materials, method, or equipment;
3. certifies that the cost data presented is complete and includes all related, incidental and consequential costs;
4. waives all claims for any additional costs related to the substitution; and
5. represents that it will coordinate the installation of the accepted substitute, making changes as may be required for the Work to be complete in all respects, at no additional cost to the Owner, nor additional time to perform the Work.

3.9.13. **Rejection.** When Shop Drawings, Product Data or Physical Samples are returned to the Contractor stamped REJECTED, NOT APPROVED, RETURNED FOR CORRECTIONS or otherwise not accepted through no fault of the Designer, the Contractor shall reimburse the Owner for its additional expenses incurred as a result of the Contractor's failure to comply with submittal requirements. Such sums shall be paid in mitigation of damages suffered by the Owner as a result of the Contractor's deficient performance. Such amounts shall be withheld (cumulatively) from the Contractor's Application for Payment each month, as applicable. At or before the final completion, a deductive Change Order shall be issued to the Contractor by the Owner to reflect all such deductions.

3.9.14. **Communication and Compensation.** The Contractor shall be responsible to communicate and coordinate shop drawing information effectively to subcontractors, suppliers, and all others affected at the site. Full compensation for shop drawings is included within the prices paid for the Work to which they relate.

### 3.10. Cutting and Patching

3.10.1. **Contractor Responsibility.** The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.10.2. **Damage or Alteration.** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor, and review by the Designer; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

### 3.11. Access to Work

3.11.1. The Contractor shall, at no additional cost, provide the Owner and Designer access to the Work during preparation activities and while the Work is in progress, subject to the safety rules and insurance requirements of the particular work area. This access shall include the Contractor's providing reasonable assistance; for example, providing ladders, equipment and workers access to areas for inspection, review, and to determine work progress.

### 3.12. Warranty

3.12.1. **Standard.** The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality, will be new unless otherwise required or permitted by the Contract Documents, and that all Work will be performed in a good and workmanlike manner, and will conform with the requirements of the Contract Documents. This warranty is in addition to

all other warranties, duties, and obligations that may be applicable, whether by law or contract, or otherwise. Work not conforming to these requirements, including substitutions not properly authorized by the Owner, is considered defective. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials, labor, and equipment provided in the Work. Additional provisions addressing the Contractor's liability for defective Work include, but are not limited to, Article 12 and paragraph 13.8. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion as extended and otherwise provided in paragraph 12.5, unless provided otherwise in the Contract Documents, and shall be subject to the terms of paragraph 12.5. Delivery of any written warranty documents in addition to those set forth in the Construction Contract is a requirement for release of final payment by the Owner. All warranty obligations shall survive acceptance of the Work and termination of the Contract.

3.12.2. **Warranty No Limitation on Actions.** The period established for the correction of work in the Contract Documents, or any other times established or permitted for the performance of obligations under any warranty or guaranty contained in or provided under the Contract Documents, shall not be construed to establish a period of limitation with respect to obligations which the Contractor might have under the Contract for Construction. Establishment of any such time relates only to the specific obligation of the Contractor to correct particular Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations under the Contract Documents.

3.12.3. **No Waiver.** The Contractor's obligation to perform in conformance with the Contract Documents is absolute, and no act or failure to act by the Owner, or any other party, shall constitute a waiver or release of the Contractor's obligation except when the Owner specifies in a written document properly signed by the Owner that a particular obligation is waived or released. The Owner's intent must be so specified, and shall not be implied from any document, act or failure to act, including, without limitation, any statements by a representative of the Owner or the Designer, recommendation of final payment, issuance of Substantial Completion, occupancy of any part of the Work, review or approval of any matter, any inspection or test, or any corrective work or acceptance of defective work.

### 3.13. Taxes

3.13.1. The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof, which are required to be paid during the performance of the Work.

### 3.14. Permits, Fees and Notices

3.14.1. **Contractor to Provide.** Unless otherwise specifically provided in the Special Conditions, the Contractor shall secure and pay for the building permit and all other permits and fees, licenses, and inspections necessary for proper execution and completion of the Work which are required for performance of the Work, including, but not limited to, any applicable building, engineering, dewatering, NPDES stormwater management, or other construction permits (including plan check fees) required to complete the Work. The Contractor shall procure all certificates of inspection, use, occupancy, permits, and licenses and give all notices necessary and incidental to the due and lawful prosecution of the Work. The Contractor shall provide a copy of all permits to the Owner prior to commencing any Work to which they relate. Certificates of inspection, use, and occupancy shall be delivered to the Owner upon completion of the Work in sufficient time for occupancy of the Project in accordance with the schedule for the Work, and the

Owner shall not make final payment prior to the receipt of the same. The costs of such procurement, payment, and delivery are included within the Total Contract Price.

3.14.2. **Comply with Laws.** The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.

3.14.3. **Discrepancies.** It shall be the obligation of the Contractor to review the Contract Documents to determine and to notify the Owner of any discrepancy between building codes and regulations of which the Contractor has knowledge or should be reasonably able to determine. The Contractor shall not violate any zoning, setback, or other locational requirements of applicable laws, codes, or ordinances, or of any recorded covenants of which the Contractor has knowledge. If the Contractor observes that portions of the Contract Documents are at variance with applicable laws, statutes, ordinances, building codes, rules or regulations, the Contractor shall promptly notify the Owner in writing, and necessary changes shall be accomplished by appropriate Contract Modification after approval by the Owner.

3.14.4. **Failure to Notify.** If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Owner, the Contractor shall assume full responsibility for correction of such Work and shall bear the attributable costs.

3.14.5. **Utilities.** The Contractor shall make arrangements for and pay all charges for utility connections to the Work unless otherwise specified by the Owner. Temporary utilities shall conform to all appropriate safety and regulatory requirements, and shall be provided in a manner satisfactory to the Owner. Any relocation of temporary utilities shall be at the Contractor's expense. If the Contractor desires to use the Owner's water, the Contractor shall make proper arrangements with the Department of Public Utilities, including obtaining a meter, and shall pay all charges and costs. The Contractor is responsible for any damage caused to hydrants or to the Owner's waterworks system.

### 3.15. Royalties and Patents

3.15.1. The Contractor shall pay all royalties, license fees, and associated costs, and make all appropriate arrangements with respect to the use of matters subject to such a license fee or royalty. If the Contractor has reason to believe that a required design, process, or product is an infringement of a patent, copyright, license, or trademark, the Contractor shall promptly notify the Owner in writing. The Contractor shall be liable for the violation of a license, trademark, copyright, or patent as set forth in paragraph 3.17.1.

### 3.16. Indemnification

3.16.1. Contractor shall, at its sole cost and expense, indemnify and hold Owner and its officers, board members, departments, authorized representative(s), agents and employees, harmless from and against all losses, claims, demands, suits, actions, administrative proceedings, damages, costs, charges and causes of action of every kind or character, without limitation, (collectively "Claims") arising from, related to or connected with Contractor's work under this Contract, including, but not limited to the following: Contractor's breach of duty, breach of contract, fraud or wrongful, reckless or negligent acts or omissions; fraud or wrongful, reckless or negligent acts or omissions of Contractor's officers, directors, agents, subcontractors or suppliers of any tier; or, violation by Contractor; or Contractor's officers, directors, agents, subcontractors or suppliers of any tier, of any

copyright, trademark or patent or federal, state or local law, rule, code, regulation, policy or ordinance (collectively Contractor's "Acts and Omissions").

3.16.2. Contractor shall at its sole cost and expense, defend Owner and its officers, board members, departments, authorized representative(s), agents and employees, harmless from and against all Claims which are based, in whole or in part, upon allegations or assertions, express or implied, that Contractor; or its officers, directors, agents, subcontractors or suppliers of any tier, committed any Acts or Omissions, regardless of whether such allegations or assertions are true and whether or not Owner, Contractor, or its officers, directors, agents, subcontractors or suppliers of any tier, are ultimately found liable for such Acts or Omissions.

3.16.3. Contractor's duty to defend shall arise only upon Owner's tender of defense to Contractor in writing. Upon receipt of Owner's tender of defense, if Contractor does not promptly accept the defense and thereafter duly defend the Owner and its officers, board members, departments, authorized representative(s), agents and employees as provided herein, then Contractor shall pay and be liable for the reasonable costs, expenses and attorneys' fees incurred after the tender of defense by Owner and its officers, board members, departments, authorized representative(s), agents and employees in defending against the Claims and enforcing this provision.

3.16.4. Nothing herein shall be construed to require Contractor to indemnify or defend the Owner from Owner's own negligence *except* Owner's passive negligence arising from Contractor's work. For purposes of this paragraph, Owner's passive negligence arising from Contractor's work (which shall be subject to Contractor's duty to indemnify and defend) shall mean and refer to duties of care, if any, imposed upon or alleged against Owner by reason of or arising from Contractor's work, including without limitation alleged duties to inspect, identify, correct or protect against any fraud, errors, omission or wrongful, reckless or negligent acts caused by Contractor or its subcontractors. Nothing herein is intended to create any duties of care to third parties that do not otherwise exist at law or in equity.

3.16.5. The parties intend that the indemnity and defense provisions in this section shall be interpreted to the fullest extent permitted by law, but nothing herein shall be interpreted in any manner to violate public policy.

3.16.6. Contractor's agreements with its subcontractors shall provide in writing (in a form acceptable to Owner) that each subcontractor shall, jointly and severally with Contractor indemnify and defend Owner, and Owner's officers, board members, departments, authorized representative(s), agents and employees, from any alleged Acts and Omissions of the subcontractor, and its officers, directors, agents, subcontractors or suppliers of any tier, to at least the same degree as Contractor is bound to indemnify, defend and hold Owner harmless from and against such alleged Acts and Omissions under the provisions of this Contract. Nothing in this Contract shall prevent the Contractor from making a claim against its subcontractors for contribution at law or pursuing contribution or indemnification from its subcontractor pursuant to the terms and conditions of a contract between the Contractor and a subcontractor.

3.16.7. The provisions of this Section 3.16 shall survive the terminations of this Contract and shall apply to all Claims regardless of whether they arise before or after completion of the work under this Contract.

3.16.8. Contractor's Acts and Omissions, for purposes of Section 3.16, shall include, without limitation, any violation of federal, state or local environmental laws or requirements by Contractor or Contractor's officers, directors, agents, subcontractors or suppliers of any tier, and Contractor's

indemnification obligation shall include (but not be limited to ) all cleanup and remedial costs, diminution in the value of City property, and reasonable legal fees and costs incurred by City in connection with any such violation or the enforcement of this provision. The provisions of this paragraph shall survive the termination of this Contract.

**3.17. Observe All Laws**

3.17.1. **Be Informed of and Obey All Laws.** The Contractor shall keep fully informed of all applicable laws and regulations which in any manner affect those engaged or employed in the Work or the materials used in the Work, or which in any way affect the conduct of the Work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The Contractor shall at all times observe, give all notices in connection with, and comply with and cause all of the Contractor's agents and employees to observe and comply with all such existing laws, ordinances, regulations, orders and decrees. Except where otherwise expressly required by law, the Owner shall not be responsible for monitoring the Contractor's or any agent or subcontractor's compliance with any law.

3.17.2. **Notice of Noncompliance.** If the Contractor observes that the Specifications or Drawings are at variance with any law or regulation, the Contractor shall give prompt written notice thereof to the Owner. If the Contractor performs Work knowing or having reason to know that it is contrary to any law or regulation without notice to the Owner, the Contractor shall bear all costs arising therefrom.

**3.18. Owner Not Responsible**

3.18.1. The Owner and Designer, and any of their officers, employees or agents, are not responsible for any of the Contractor's means, methods or techniques, or for the Contractor's safety program, or for any of the Contractor's other operations, and they shall not be accountable for any loss or damage that may happen to the Work, to any materials or equipment, or to any property or persons

**3.19. Risk of Loss**

3.19.1. Until the Work is transferred to the Owner, the Contractor shall have charge and care of the Work, and shall bear the risk of injury or damage to any part thereof from any cause whatsoever. The Contractor shall rebuild, repair and restore, and make good all injury or damage, to any portion of the Work.

**3.20. Good Faith**

The Contractor shall work cooperatively and in good faith with the Owner and all other participants affecting the Work.



## ARTICLE 4. - ADMINISTRATION OF THE CONTRACT

### 4.1. Role of The Designer

4.1.1. **Site Visits.** The Designer will visit the Project site at intervals appropriate to the stage of construction to observe the Work, note deficiencies, and become generally familiar with the progress and quality of the work to determine in general if the Work is being performed in a manner such that when the Work is completed it will be in accordance with the Contract Documents. The Designer will not make exhaustive or continuous on-site inspections to check quality or quantity of the Work. The Designer has authority to recommend to the Owner to reject Work which does not conform to the Contract Documents, and to require additional inspection or testing to assist the Owner in accordance with these Contract Documents. The Owner may assist in coordinating correction of the Designer's noted deficiencies and rejection of Work.

4.1.2. **Submittals.** The Designer will review and take appropriate action upon the Contractor's Submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Designer's action will be taken with such reasonable promptness as to avoid or minimize delay in the Work or in the activities of the Owner, Contractor, or separate contractors, while allowing sufficient time in the Designer's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Designer's review of the Contractor's Submittals shall not relieve the Contractor of any obligation, including, without limitation, the obligations under paragraphs 3.9 and 3.12. The Designer's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Designer, of any construction means, methods, techniques, sequences or procedures. The Designer's review of and action concerning a specific item shall not indicate review of and action concerning an assembly of which the item is a component.

4.1.3. **Interpret Technical Requirements.** The Designer is the final interpreter of the technical requirements and intent of the Contract Documents. The Designer, within a reasonable period of time after receipt of a written request therefore, shall render such interpretations to the Owner for forwarding to the Contractor with respect to the Drawings and Specifications which the Owner or Designer deem necessary for the proper execution and progress of the Work.

4.1.4. **Interpretations.** Interpretations and decisions of the Designer will be consistent with the intent of and reasonably inferable from the Contract Documents and will be rendered in writing or in the form of drawings.

4.1.5. **Aesthetics.** The Designer's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

4.1.6. **Substantial and Final Completion.** The Designer will conduct inspections with the Owner and Contractor to determine the date or dates of Substantial Completion and the date of Final Completion. For any it may receive from the Contractor, the Designer will forward to the Owner for review written warranties and related closeout documents required by the Contract Documents and assembled by the Contractor.

4.1.7. **No Control.** The Designer will not have control over, charge of nor be responsible for construction means, methods, techniques, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in paragraph 3.5 and Article 10. The Designer shall not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

#### 4.2. Role of The Owner's Engineer

4.2.1. **Administration.** The Engineer provides all services necessary to oversee and administer the construction activities of the Work. Among those responsibilities, the Engineer oversees, administers, and coordinates all construction work activities, such as overseeing construction progress, coordinating the Project schedule, administering the Contract for Construction, coordinating safety programs, preparing and administering Project documentation, conducting Project meetings, approving requests for payment, recommending Change Orders, and providing for Project closeout and the delivery of all required warranties, manuals, and other items. This paragraph 4.2 sets forth some of the Engineer's general responsibilities in the administration of this Contract for Construction. If the Contractor is uncertain as to any of the Engineer's responsibilities, the Contractor shall promptly seek clarification from the Engineer.

1. In the manner authorized in the Contract Documents or the Engineer through its designee shall decide all questions which may arise as to quality or acceptability of materials furnished, the Work performed, the rate of the progress, questions which may arise as to the interpretation of the Contract Documents, compensation, and all questions as to the acceptable fulfillment of the Contract on the part of the Contractor.
2. Use of terms such as "order," "direct," "approve," "require," or of adjectives such as "reasonable," "suitable," "acceptable," "proper," or "satisfactory," or words of similar import, are used to describe the direction, review or judgment of the ENGINEER as to the Work, and are not intended to authorize any authority or responsibility contrary to the Contract Documents.
3. The Engineer shall be permitted to observe all Work at any stage, and call to the attention of the Contractor any failure of the Work to conform to the Contract Documents.
4. The Engineer has authority to authorize variations in the Work from the requirements of the Contract Documents.

4.2.2. **Certificates for Payment.** Based on the Engineer's observations and evaluations of the Contractor's Applications for Payment, the Engineer will review and certify the amounts due the Contractor and will process Certificates for Payment in such amounts. The Engineer will approve a final Certificate for Payment only upon the Contractor's compliance with the requirements of the Contract Documents.

4.2.3. **Communications.** The Engineer is the party through whom all communications shall be transmitted to and from the Contractor. Communications by and with Subcontractors and material suppliers shall be through the Contractor. The Contractor's communications with the Designer or with separate contractors shall be through the Engineer. All written communications shall comply with the requirements of paragraph 3.8.4.

4.2.4. **Rejecting Work.** The Engineer is authorized to reject Work which does not conform to the Contract Documents. Whenever the Engineer considers it necessary or advisable, the Engineer is authorized to require additional inspection, examination or testing of the Work in accordance with paragraph 12.1, regardless of the stage of completion or delivery of the Work. However, neither this authority of the Engineer nor a decision made in good faith either to exercise or not to

exercise such authority shall give rise to a duty or responsibility of the Engineer to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.5. **Changes.** The Engineer will prepare Change Orders, Construction Change Directives, and Field Change Orders.

4.2.6. **Substantial and Final Completion.** The Engineer, in conjunction with the Designer and the Contractor, will conduct inspections to determine the date or dates of Substantial Completion and the date of Final Completion, will receive written warranties and related documents required by the Contract Documents and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents. Receipt by the Designer or Owner of warranties and related documents at variance with the requirements of the Contract Documents shall not be deemed acceptance of a modification to the Contract Documents or a waiver of any requirement of the Contract documents.

4.2.7. **No Control.** The Owner, whether through the Engineer or otherwise, will not have control over, charge of nor be responsible for construction means, methods, techniques, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in paragraph 3.5 and Article 10. The Owner shall not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Owner shall not be responsible for or have control over acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work. However, in the event the Contract Documents expressly require the Contractor to use specific means, methods, techniques, or procedures, the Contractor shall perform the Work in accordance with those express requirements.

### 4.3. Claims and Disputes

4.3.1. **Definition.** A Claim is a demand or assertion by the Owner or Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice pursuant to paragraph 4.3.2.

4.3.2. **Requirements for Submission of Claims.** The Contractor shall submit any Claim under this Contract for Construction in compliance with the following requirements. Failure to comply with these requirements shall bar the Contractor from pursuing said Claim in any manner, whether judicially, administratively, or otherwise.

1. **Notice.** Except as provided in paragraph 4.3.6, notice of a Claim by the Contractor must be submitted as soon as possible, but no later than fourteen (14) days after occurrence of the event giving rise to such Claim, or fourteen (14) days after the Contractor first recognizes the condition giving rise to the Claim, whichever is later. The Contractor shall give notice of a Claim to the Owner. Claims must be made by written notice pursuant to paragraph 4.3.2, and contain a thorough description of the basis of the Claim and an estimated impact on time, cost, scope, and coordination with other Work, if any. The Contractor shall also comply with all of the requirements for certain types of Claims set forth in subparagraphs 4.3.4 through 4.3.7.
2. **Substantiation.** The Contractor shall substantiate all Claims as soon as reasonably possible, but in no case later than thirty (30) calendar days after the occurrence of the event or recognition of the condition. The Owner may allow an additional reasonable

period of time if the nature of the Claim appears to require more time to acquire accurate data. The Contractor must request additional time in writing prior to the expiration of the thirty-day time period, and state the reason why more time is needed. Substantiation shall include an itemized, detailed cost breakdown, stating applicable unit prices, quantities, markups, and time impacts, sufficient to analyze the value and impact of the Claim. All claims for cost or time shall comply with the requirements set forth in Articles 7 and 8 of these General Conditions. The Contractor's submission to substantiate a Claim shall include a written statement that the amount of any submitted change in cost or time constitutes all known cost amounts or time to which the Contractor believes it is entitled as a result of the occurrence of the event. No other matters shall be allowed.

3. **Review and Resolution.** The Owner shall review the Contractor's submission, and determine the resolution of the Contractor's Claim. The Owner may request any information it may require in connection with reviewing the Contractor's Claims. The Contractor shall cooperate with the Owner in conducting such review, and shall supply all information requested. The Owner shall resolve the Claim within a reasonable time upon receiving all information from the Contractor. If the Contractor fails to disagree with the Owner's resolution within seven (7) calendar days after it is delivered to the Contractor, the Owner's resolution shall take effect as presented, and the Contractor shall execute a Change Order containing that resolution.
4. **Change Order.** Claims shall be resolved by agreement in the form of a Change Order signed by both parties, and this constitutes a full and final resolution of the Claim. No subsequent Claim for that matter will be allowed. Any disputes will be resolved pursuant to paragraph 4.4.
5. **Waiver.** Failure to comply with any time requirement shall result in a waiver of the applicable claim. In addition, under no circumstances shall the Contractor be entitled to demand or recover from the Owner any indirect, incidental, special, or consequential damages in any proceeding arising out of or relating to this Contract or the breach thereof.

4.3.3. **Continuing Contract Performance.** Pending final resolution of a Claim, the Contractor shall proceed diligently with performance of the Work and the Owner shall continue to make payments in accordance with the Contract Documents.

4.3.4. **Claims for Concealed or Unknown Conditions.** If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then the Contractor shall give notice to the Owner promptly before conditions are disturbed and in no event later than seven (7) days after first observance of the conditions. The Owner, with the assistance of the Designer, shall promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, shall recommend an equitable adjustment in the Total Contract Price or the Contract Time, or both. If the Owner and Designer determine that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, or that the Contractor knew or should have known of such conditions as a part of the Contractor's obligations under these Contract Documents and is thus barred from raising such Claim, the Owner shall so notify the Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within seven (7) days after the Owner has given notice of the decision. If unforeseen or concealed site conditions are encountered,

entitlement to adjustments in the Total Contract Price shall be limited to the direct increase or decrease in the cost of performing the Work. The Contractor shall not be entitled to additional monetary compensation for any delays incurred as a result of unforeseen or concealed site conditions.

4.3.5. **Claims for Additional Cost.** If the Contractor intends to make a Claim for an increase in the Total Contract Price, written notice as provided in paragraph 4.3.2 shall be given before proceeding to execute the Work. For all such claims, including but not limited to (1) a written interpretation from the Designer, (2) a written order for a minor change in the Work issued by the Owner, or (3) other reasonable grounds, the Claim shall be filed in accordance with the procedure established herein. Prior notice is not required for a Claim relating to an emergency endangering life or property arising under paragraph 10.5.1. All costs shall at a minimum comply with the requirements set forth in Article 7 of these General Conditions.

4.3.6. **Claims for Adjustment of Time**

1. If the Contractor intends to make a Claim for an adjustment in the Contract Time, written notice as provided in paragraph 4.3.2 shall be given. The Contractor's Claim for an adjustment of the Contract Time must be substantiated by a critical path analysis of the impact to the most recent approved schedules. The critical path analysis must identify all activities impacted by Owner or Contractor-caused delays, and separately identify and segregate delays caused solely by the Owner or Contractor from any concurrent delays. In the case of a continuing delay, only one Claim is necessary, but the Contractor shall state the reasons for the continuing delay and what matters the Contractor believes will resolve the delay.
2. If unusual or abnormal inclement weather conditions are the basis for a Claim for adjustment of time, such Claim shall be documented by data published by the National Weather Service for Salt Lake City International Airport (SLCIA) substantiating that weather conditions were unusual or abnormal for the period of time as compared to the average weather conditions for SLCIA over the preceding ten (10) years and could not have been reasonably anticipated. The Contractor shall specifically state how and the extent to which weather conditions had an adverse effect on critical path construction activities. This paragraph 4.3.6.2 applies if the Specifications or Drawings do not provide otherwise as to anticipated weather conditions or time adjustments for weather. Irrespective of any other provision of these Contract Documents, the Owner will not consider any claim for time due to weather until after 90 percent or more of the Contract Work has been completed.
3. All time requests shall at a minimum comply with the requirements set forth in Article 8 of these General Conditions.

4.3.7. **Injury or Damage to Person or Property.** If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts such party is legally liable, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding fourteen (14) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in paragraph 4.3.2.

#### 4.4. Dispute Resolution

4.4.1. **Process Required.** Before Contractor may commence a legal action against Owner, Contractor must first comply with the provisions of this Section, which compliance shall be a condition precedent to commencing a legal action under the Contract.

4.4.2. **Process.** Any dispute or claim that Contractor may have which is not disposed of by a written Change Order to this contract between the parties shall be decided pursuant to the procedure set forth below. Each request, submission, appeal, notification or decision under this Section shall be made by delivery to the addresses for Owner set forth in this Contract. Delivery shall be made directly to the Engineer by hand delivery, electronic transmission, facsimile transmission (email), or by U.S. mail, return receipt requested. Documents delivered by hand delivery, electronic transmission or facsimile transmission shall also be placed in regular mail to such addressees on the day of such delivery or transmission.

#### 4.4.3. Contractor's Disputes and Claims.

4.4.3.1. Contractor shall submit written notice of any dispute or claim arising under this Contract to Engineer within fifteen (15) days after Contractor knows or reasonably should know of the facts giving rise to the dispute or claim.

4.4.3.2. Within thirty (30) days after giving the written notice described above, Contractor shall submit the dispute or claim to Engineer for review by delivering to Engineer.

4.4.3.2.1. A detailed statement of all the relevant facts and law applicable to such dispute or claim, with citations and references to all relevant evidence, contract provisions and authorities;

4.4.3.2.2. Copies of all relevant evidence, contract provisions and authorities;

4.4.3.2.3. The identification, title, address and phone numbers of each person who may have relevant knowledge concerning the dispute or claim, together with a summary of the relevant knowledge believed to be held by each such person;

4.4.3.2.4. A concise statement of the relief sought by Contractor; and,

4.4.3.2.5. A summary of all amounts, if any, Contractor is seeking as monetary relief or damages as part of the claim or dispute, together with all detailed cost records, receipts, invoices and documents that support the claimed amount.

4.4.3.3. Upon receiving Contractor's submission, Engineer shall be entitled, at its sole discretions, to:

4.4.3.3.1. Direct Contractor to provide additional or supplemental information and documentation to Engineer that is relevant to the dispute or claim or may lead to the discovery of relevant information;

4.4.3.3.2. Meet with and interview persons who may have relevant knowledge concerning the matter;

4.4.3.3.3. Direct submission of the dispute or claim to an independent expert of experts, or an independent third party or panel of third parties, for review and recommendations, on terms directed by Engineer.

4.4.3.3.4. Direct submission of the dispute or claim to a Dispute Resolution Board ("DRB) for informal or formal guidance or recommendations on terms directed by Engineer.

4.4.3.3.5. Direct any other form of dispute resolution or claim evaluation, as directed by Engineer, for purposes of providing guidance or recommendations to Engineer concerning all or any aspect of the dispute or claim;

4.4.3.3.6. Direct meetings between the parties or their agents (including, without limitation, senior decision makers, project personnel, attorneys, agents, Contractors and suppliers) to, among other things, vet the issues, gather information, assure full disclosure, evaluate facts, obtain statements, or encourage settlement;

4.4.3.3.7. Direct legal counsel for the parties to provide legal authorities, citations, opinions or attend meetings to address legal issues;

4.4.3.3.8. Direct such other acts as Engineer deems reasonable to vet the issues, gather information, assure full disclosure, evaluate facts, obtain statements, encourage settlement and fully and fairly evaluate the relevant facts and law.

4.4.3.4. Subject to paragraphs 4.4.3.7 and 4.4.3.8 below, within sixty (60) days after the events directed by Engineer have concluded and all information and documentation requested by Engineer has been provided, Engineer shall issue a written decision concerning the dispute or claim and such decision by Engineer shall be final and binding unless it is appealed in writing as set forth in paragraph 4.4.3.5. Engineer shall have the right, in its sole discretion, to adopt, follow or agree with, in whole or in part, any formal or informal guidance, recommendations or decisions given by any experts, third parties, DRB, or other person. Engineer shall further have the authority (among other things) to direct whether or not such formal or informal guidance, recommendations or decisions by an such experts, third parties, DRB, or other persons may be introduced, admitted or used as evidence in any subsequent proceedings. Unless otherwise agreed in writing, failure of the Engineer to issue a written decision within sixty (60) calendar days shall be deemed a denial of Contractor's dispute or claim.

4.4.3.5. If Contractor disputes Engineer's decision and wishes to appeal, Contractor shall file an appeal with the Owner's Airport Executive Director in writing within twenty (20) calendar days after the date the Engineer's decision is issued. If an appeal is not timely filed, then the decision of the Engineer shall be final and binding upon all parties with respect to its subject matter and the disputes or claims that were at issue. Contractor's appeal to the Owner's Airport Executive Director shall specify all factual and legal grounds that Contractor is relying upon for the appeal, and shall certify that the appeal is ready for decision. The appeal shall be limited to the facts, documents, evidence and legal arguments previously submitted to the Engineer, although Owner's Airport Executive Director may, in its discretion, direct Contractor to provide additional information and documentation deemed necessary to review the issues on appeal. Within twenty (20) business days after Owner's Airport Executive Director receives the appeal and all documents requested from Contractor in connection with the appeal, the Owner's Airport Executive Director or his or her official designee shall issue a written decision. A decision by Owner's Airport Executive Director, or his or her official designee, shall be final and binding unless Contractor requests a facilitation meeting in writing as provided in paragraph 4.4.3.6 below. Unless otherwise agreed in writing, failure by the Owner's Airport

Executive Director to issue a written decision within twenty (20) calendar days shall be deemed a denial of Contractor's appeal.

4.4.3.6. Within ten (10) business days after a decision by Owner's Airport Executive Director, or his or her official designee, Contractor may submit a request in writing for a facilitation meeting. Owner's Airport Executive Director, Contractor's Chief Executive Officer, and the Chief Executive Officer of any of Contractor's Subcontractors involved in the dispute, as appropriate, shall participate in such facilitation meeting, which shall occur as soon as reasonably practicable and which shall be conducted by such facilitator or mediator mutually selected by both parties at such location in Salt Lake City as the parties shall agree. If the matter is not resolved at the facilitation meeting, then Contractor may pursue the matter through legal action within one (1) year after the facilitation meeting. In any such legal action, Contractor shall be limited to the facts, documents and legal issues submitted to the Engineer pursuant to paragraphs 4.4.3.2 through 4.4.3.3. Unless otherwise agreed in writing, any action commenced by Contractor more than one (1) year after the facilitation meeting shall be barred as pertaining to the matters, disputes and claims that gave rise to the facilitation meeting.

4.4.3.7. Notwithstanding the foregoing, Engineer or Owner's Airport Executive Director shall have the right in his or her sole discretion to waive in writing all or any portion of the foregoing procedures with respect to any particular claim or dispute, or portion thereof, and to implement other reasonable procedures to handle such disputes or claims on a more accelerated basis if Engineer or Owner's Airport Executive Director deems it necessary or desirable to consider or resolve the dispute or claim on an accelerated basis. In such event, Engineer shall notify Contractor in writing of the change in procedures applicable to the particular claim or dispute, or portion thereof, and Contractor shall follow Engineer's directives with respect to submitting such claim or dispute, or portion thereof. Engineer's exercise of the rights under this paragraph shall not waive the process set forth in paragraphs 4.4.3.4 through 4.4.3.6 with respect to any other claims or disputes, or portion thereof, or any subsequent disputes or claims involving the same or similar issues.

4.4.3.8. Notwithstanding the foregoing, if Engineer in good faith anticipates or becomes aware of a potential claim or dispute that might be made by third parties against the Owner by reason of Contractor's alleged acts or omissions (e.g. alleged defects, deficiencies, etc.), including, without limitation, potential claims for defects or deficiencies, then Engineer may in his or her sole discretion stay the process set forth in paragraphs 4.4.3.1 through 4.4.3.6 with respect to Contractor's disputes or claims pertaining to the same subject matter until Owner is reasonable able to determine the outcome of the potential claim or dispute.

4.4.4. **Effect of Process.** Notwithstanding the pendency of any dispute or any appeal, Contractor shall, if so ordered by Owner, comply with all orders and directions of Owner concerning the performance of the Contract and Owner shall continue to fulfill its obligations hereunder. Contractor agrees that should Contractor discontinue performance of the work due to a dispute, Owner may terminate this Contract for cause and owner may withhold any sums in dispute until after a final resolution of such dispute. Contractor's time and expenses incurred in the pursuit of Contractor's claims shall not be subject to payment or reimbursement under this Contract. Contractor shall not be entitled to recover any claim preparation costs, mediation or facilitation fees or costs, attorney fees or costs, or any other expense incurred during the pendency of any claim preparation, dispute, appeal, alternative dispute resolution process or litigation.



## ARTICLE 5. - SUBCONTRACTORS

### 5.1. Definitions

5.1.1. **Subcontractor.** A Subcontractor is a person or entity who has a direct contract with the Contractor to furnish labor, material, or services for the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor.

5.1.2. **Sub-subcontractor.** A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to furnish labor, material, or services for the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### 5.2. Award of Subcontracts and Other Contracts for Portions of The Work

5.2.1. **Owner's Objection to Subcontractors.** In the manner stated in the Invitation to Bidders, the Contractor shall furnish in writing to the Owner the names of persons or entities (including, but not limited to, those who are to furnish specifically fabricated materials or equipment, or who will meet DBE requirements, if any) proposed for each portion of the Work, including Subcontractors. The Owner shall have the right, but not the obligation, to investigate and object, on a reasonable basis, to any such proposed person or entity. The Owner shall promptly notify the Contractor if any such objection exists. Bids or proposals from Subcontractors and from other firms which unsuccessfully competed for subcontracts shall, upon the request of the Owner, be submitted to the Owner for review. The Contractor shall not contract with a proposed person or entity to whom the Owner has made reasonable and timely objection.

5.2.2. **Effect of Objection on Prices.** If the Owner has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner has no reasonable objection. The Total Contract Price shall only be increased by the difference in cost occasioned by such change if made solely for the Owner's convenience, and not if the basis for the Owner's objection is the failure of such person or entity to conform to the requirements of the Contract, such as an apparent lack of responsibility (i.e., experience, capacity or financial viability), or if DBE requirements apply to this Contract, the person or firm is proposed as a DBE and is not certified in accordance with Owner and FAA requirements. However, no increase in the Total Contract Price shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required. Substitutions of Subcontractors, or persons or entities resulting in decreases in the Contractor's cost shall result in the Owner receiving a deductive Change Order reflecting the decrease in the Contractor's cost.

5.2.3. **Changing Subcontractors.** The Contractor shall not change a Subcontractor previously selected except with the written consent of the Owner. The Owner may require the Contractor to change any Subcontractor previously approved and, if at such time the Contractor is not in default hereunder, the Total Contract Price shall be increased or decreased by the difference in actual, direct cost occasioned by such change, unless in connection with an increase the Owner's objections are based upon the factors set forth in paragraph 5.2.2. If DBE requirements apply to this Contract and if a DBE Subcontractor is terminated or fails to complete its work under this Contract for any reason, the Contractor shall make good faith efforts to find another DBE Subcontractor to substitute for the original DBE Subcontractor in conformance with federal requirements. The Contractor shall not terminate a DBE Subcontractor for convenience and then perform the Work with its own forces without prior written consent after demonstrating good faith efforts. The Owner will invoke all remedies deemed appropriate by Owner for a failure to comply with these requirements.

### 5.3. Subcontractual Relations

5.3.1. **Terms of Subcontracts.** The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors. The Contractor shall bind Subcontractors, and require that Sub-subcontractors be bound, to all terms and conditions of the Contract Documents that may be necessary to protect the Owner's interest, including, without limitation, all Special Conditions unless the Owner provides otherwise in writing. The Contractor's failure to bind Subcontractors or provide for binding Sub-subcontractors to any of the terms of these Contract Documents shall not relieve the Contractor of any obligation.

5.3.2. **Producing Subcontracts.** All work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate written agreement between the Contractor and the Subcontractor. The Contractor shall provide to the Owner, if requested, copies of all Subcontracts within five (5) days following the Owner's request.

5.3.3. **Contractor Responsible.** The Contractor shall be fully responsible to the Owner for all acts and omissions of agents, Subcontractors, Sub-subcontractors, suppliers, and other persons or organizations performing or furnishing any of the Work under a direct or indirect contract with the Contractor just as the Contractor is responsible for the acts and omissions of the Contractor's own employees. The Contractor shall give personal attention to the fulfillment of the Contract and shall keep the Work under control. All persons engaged in the Work shall be considered controlled by the Contractor, and the Contractor will be held responsible for their work, which shall be subject to all provisions of this Contract. If subcontracted work is not prosecuted in a manner satisfactory to the Owner under this Contract, the Contractor shall correct the default promptly, and shall receive no additional compensation for completing such work.

5.3.4. **Subcontractor Licensing.** The Contractor shall be responsible to confirm that all Subcontractors and Sub-subcontractors are properly licensed to perform their work. The Contractor shall not employ any improperly licensed or unlicensed Subcontractors or Sub-subcontractors. The Owner has no responsibility whatsoever for such licensing.

5.3.5. **No Relationship with Owner.** Nothing in the Contract Documents or otherwise shall create any contractual relationship between the Owner and any Subcontractor, supplier, Sub-subcontractor, or other person or organization, nor shall it create any obligation to make direct payment to any moneys due. The Owner has no responsibility for the terms and conditions of any subcontract.

5.3.6. **Use of Owner's Consultants.** When directed in the Contract Documents, the Contractor shall not use as a Subcontractor or any other party under the Contractor any agency or company which is or has been under contract to the Owner to provide design, design reviews, soil testing, material testing, surveying, or any other function associated with the design phase of the Work.

## ARTICLE 6. - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

### 6.1. Owner's Right to Perform Construction and To Award Separate Contracts

6.1.1. **Performance by Owner or Other Forces.** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces or to award separate contracts in connection with portions of the Project or other construction or operations on the site.

6.1.2. **Coordination with Others.** The Owner shall provide for general coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall coordinate all phases of the Contractor's Work with the work of other contractors or the Owner's forces to assure continuity of activity and minimum impact to cost, schedule, and operational requirements of the Owner. The Contractor shall participate with other separate contractors and the Owner in reviewing related construction schedules when directed to do so. The Contractor shall make any revisions to the Progress Schedule deemed necessary after a joint review and mutual agreement. The Progress Schedules shall then be used by the Contractor, separate contractors, and the Owner until subsequently revised.

6.1.3. **Multiple General Contractors.** When the Project involves more than one general contractor or is a multi-prime job, the person(s) or organization(s) who will be responsible for coordinating the Work of all contractors on the Project and other relevant matters will be specified in the Special Conditions. The Owner has the right to make changes in a contractor's sequence of operations if in its judgment and in its sole discretion changing Project conditions require changes in sequence. The Contractor shall, in the manner it shall determine, modify its sequence of operations and procedures to conform to the requirements of the Owner.

6.1.4. **Utilities May Enter.** Owners of utilities and franchises may enter upon the Work site to make repairs, inspections, or changes in their property. References to other contractors in this article shall include, but not be limited to, work by utilities.

## 6.2. Mutual Responsibility

6.2.1. **Suitable Performance.** The Contractor shall promptly afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2. **Integration with Prior/Other Work.** If the proper execution or results of the Contractor's Work depends upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with the affected portion of the Work, carefully inspect and promptly report to the Owner apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results.

1. Failure of the Contractor to report discrepancies or defects shall constitute an acknowledgment and acceptance that the Owner's or separate contractors completed or partially completed construction is fit and proper to receive or be integrated with the Contractor's Work, and the Contractor shall make such changes, at the Contractor's cost, as are necessary to integrate the Contractor's Work.
2. If contractors under separate contracts are unable to join their work in a manner acceptable under all contracts, the Owner will decide if the Contractor or other contractors shall cease work temporarily. The Owner has the right to deduct from moneys due to the Contractor all costs incurred by the Owner, which are the result of the Contractor not properly coordinating the Work.
3. The Contractor shall do all cutting, fitting, and patching of the Work that may be required to make its several parts come together properly and integrate with other work. The Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the Owner and the others whose work will be affected.

6.2.3. **Damage to Property.** The Contractor shall promptly remedy damage caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in paragraph 10.2.4.

6.2.4. **Claims by Others.** Claims and other disputes and matters in question between the Contractor and a separate contractor shall be subject to the provisions of this Contract with respect to entitlement and recoverable costs. If a separate contractor initiates legal or any other proceedings against the Owner on account of any damage alleged to have been solely caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at its own expense, or at the Owner's option, pay all defense costs of the Owner including attorneys' fees, and if any judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or other costs which the Owner has incurred over and above those paid directly by the Contractor.

6.2.5. **No Interference with Others.** When separate contracts are performed within overlapping limits of construction or involving areas which might result in congestion or interference, each Contractor shall conduct its Work so as not to interfere with or hinder the progress or completion of the work being performed by separate contractors.

6.2.6. **Delay.** Any difference or conflict which may arise between the Contractor and separate contractors shall be referred to the Owner for resolution. If the Work of the Contractor is delayed because of any acts or omissions of any separate contractor, then only an extension of time sufficient to compensate for the delay, as determined by the Owner, shall be granted to the Contractor as its sole and exclusive remedy. In no event shall the extension of Contract Time exceed the day-for-day period of delay on the critical path experienced by the Contractor. The Contractor's entitlement to an extension of Contract Time for such delays shall be conditioned upon timely receipt by the Owner of written notice in compliance with paragraph 4.3.2.

6.2.7. **No Disruption.** The Contractor shall be responsible for controlling all labor employed by it and its Subcontractors for performance of the Work so as to avoid any disruption of or disharmony with other labor being used by separate contractors now or hereafter working on the Owner's property. The Contractor further agrees that this provision will be included in all of its Subcontracts.

### 6.3. Owner's Right to Clean Up

6.3.1. If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in paragraph 3.3.6, the Owner, following written notice to the Contractor, may clean up and allocate the cost among those responsible as the Owner determines.

### 6.4. Multiple Contracts with Contractor-Setoff

6.4.1. The Owner and Contractor may enter into more than one contract for the performance of labor or the provision of materials, equipment, or supplies. The Owner shall be entitled to set off any claims against the Contractor which it may have pursuant to the terms of the Contract Documents against any sums due or claimed to be due to the Contractor from the Owner under any other contract or agreement between the Owner and Contractor.

## ARTICLE 7. - CHANGES IN THE WORK AND ALLOWANCE WORK

### 7.1. Changes

7.1.1. **Ordering and Documenting Changes.** Only the Work set forth in the Contract, or in a subsequent Contract Modification, is authorized to be performed, and no other Work shall be compensated. Changes in the Work shall be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order ("CO"), Construction Change Directive ("CCD"), Field Change Order ("FCO") or an order for a Minor Change in the Work ("Minor Change"), subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2. **Time and Manner of Change.** Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive, Field Change Order, or order for a Minor Change in the Work. Changes constitute new, additional, or unforeseeable matters. Adjustments in unit price work are not changes in the Work, but will be compensated as set forth in paragraph 7.5.

7.1.3. **Basis for Adjustment of Time.** Time shall only be adjusted in the manner permitted by Article 8, and pursuant to a Claim in the manner required by paragraph 4.3.2. All adjustments to time must be formalized by Change Order or Construction Change Directive as provided in paragraphs 7.2 through 7.4, and 8.3.1.

7.1.4. **Basis for Adjustment of Price.** Price shall only be adjusted in the manner permitted by this Article 7, and pursuant to a Claim in the manner required by paragraph 4.3.2. All adjustments to price must be formalized by Change Order as provided in paragraphs 7.2 through 7.4. The amount of the adjustment shall be based upon one of the following methods which shall be selected by the Owner:

1. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation consistent with the requirements of paragraphs 7.6 and 7.7, which data shall include, at a minimum, copies of such books and records of the Contractor and its Subcontractors to verify actual material and equipment costs, wage rates, payroll taxes, insurance rates, actual bond premiums and any other data used by the Contractor in estimating the value of the changed Work; or
2. Unit prices stated in the Contract Documents or subsequently agreed upon in compliance with the requirements of paragraph 7.5; or
3. In a manner otherwise agreed upon by the Owner and the Contractor; or
4. As provided in paragraph 7.8 ("Time and materials").

7.1.5. **Representation of Fair Dealing and Nonexclusive Remedy.** The Contractor, on behalf of itself and its Subcontractors and suppliers, represents that all allowable costs furnished by the Contractor to the Owner in response to any Change Order Request, Construction Change Directive, or Field Change Order, shall be fair, reasonable, accurate, complete and current at the time of submission. In addition to any other rights and remedies provided to the Owner by the Contract Documents, the Owner shall have the right to adjust the Total Contract Price to (1) exclude any amounts by which the Owner determines one or more Change Orders, Construction Change Directives, or Field Change Orders were increased due to inaccurate, misleading or non-current allowable costs, including material or equipment costs, wage rates, payroll taxes, insurance rates, actual bond premiums or other factual unit costs, and (2) recover interest on all excess amounts paid to the Contractor at the rate of ten percent (10%) per annum. The Contractor and its Subcontractors shall be required to include these provisions in any subcontracts entered into for this project.

7.1.6. **Notice to Surety.** If any surety requires notice of any change or modification to the Contract, it is the Contractor's responsibility to provide such notice and verify that all applicable bonds have been properly adjusted.

## 7.2. Change Orders

7.2.1. **Definition.** A Change Order is a written contract modification signed by the Owner and Contractor stating their agreement upon all of the following:

1. A change in the Work.
2. The amount of the adjustment in the Total Contract Price, if any, as determined under paragraph 7.1.4.
3. The extent of the adjustment in the Contract Time, if any, as determined under paragraph 7.1.3.

7.2.2. **Authorization.** A Change Order must be reviewed and approved by the Owner, and executed by both parties in a proper manner.

7.2.3. **Change Order Notice to Proceed.** Provided the Contractor executes the Change Order following approval by the Owner in the manner set forth in paragraph 7.2.2, the Owner may issue a Change Order Notice to Proceed. The Change Order Notice to Proceed authorizes the Change Order work pending the Owner's execution of the Change Order.

## 7.3. Construction Change Directives

7.3.1. **Definition.** A Construction Change Directive is a written order prepared and signed by the Owner directing a change in the Work, or stating a proposed basis for adjustment, if any, in the Total Contract Price or Contract Time, or both. The Owner may, by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, and state the Owner's adjustments to the Total Contract Price or Contract Time. A Construction Change Directive shall be issued unilaterally by the Owner, whether or not a Change Order has been discussed with the Contractor, and may or may not be agreed to by the Contractor. A Construction Change Directive shall state all of the following:

1. A change in the Work.
2. The amount of the adjustment in the Total Contract Price, if any, as determined under paragraph 7.1.4.
3. The amount of the adjustment in the Contract Time, if any, as determined under paragraph 7.1.3.

7.3.2. **Authorization.** A Construction Change Directive must be approved and executed as provided by the Owner.

7.3.3. **Performance Required.** Upon receipt of a properly signed Construction Change Directive, the Contractor shall promptly proceed with the change involved regardless of whether the Contractor agrees or disagrees with the Owner's adjustments in Total Contract Price and Contract Time. The Contractor shall inform the Owner in writing within five (5) days if the Contractor disagrees with the adjustment in the Total Contract Price or Contract Time, or the method for determining them.

7.3.4. **Agreement by Contractor.** If the Contractor agrees with a Construction Change Directive as presented, the Contractor shall sign the directive. If the Contractor fails to disagree in writing within five (5) days with the adjustment in Total Contract Price and Contract Time or the method for determining them, the Contractor shall be deemed to have agreed. The Contractor's agreement shall be effective immediately, and the Construction Change Directive shall be executed as or recorded as a Change Order.

7.3.5. **Disagreement by Contractor.** If the Contractor disagrees with the adjustment in the Total Contract Price or Contract Time, or the method for determining them, the method and the adjustment shall be determined by the Owner on the basis of Time and materials based upon the reasonable expenditures or savings of those performing the Work attributable to the change as provided in paragraph 7.8. If the Owner orders the change to proceed on Time and materials, the Contractor shall keep and present at the end of each work day an itemized accounting together with appropriate supporting data pursuant to paragraph 7.8. In no event shall the charge or credit to the Owner exceed the allowable charges set forth in paragraph 7.8.

7.3.6. **Payment Pending Resolution.** Pending final determination of cost to the Owner, amounts not in dispute may be included in Applications for Payment. The amount of credit for a deductive change or increase for an additive change shall be calculated in a consistent manner under this Article 7. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net change, if any, with respect to that change.

7.3.7. **Owner's Determinations Pending Resolution.** If the Contractor and Owner are unable to agree on the increase or decrease in the Total Contract Price, or in the Contract Time, the Owner may choose to approve payments to the Contractor for reasonable costs and adjust the Contract Time for work performed by the Contractor on the basis of the Construction Change Directive, in any manner which the Owner deems appropriate, pending final resolution of the changes in Total Contract Price and Contract Time. Any payments or adjustment hereunder, made in the Owner's discretion, shall not constitute an admission by the Owner of liability for those payments or adjustment and shall not constitute a waiver of any of the Owner's rights under the Contract Documents.

#### 7.4. Field Change Orders and Minor Changes in The Work

7.4.1. **Field Change Order.** A Field Change Order may be issued in an amount, if any, not to exceed \$25,000, as determined under paragraph 7.1.2. A Field Change Order shall be approved and executed by the Owner. A Field Change Order shall not be used to change Contract Time. A Field Change Order authorizes the Contractor to proceed with the changed Work immediately. A properly executed Field Change Order constitutes a Change Order to the Contract and shall be binding on the Owner and the Contractor.

#### 7.5. Cost of Unit Price Work

7.5.1. **Quantities Not Guaranteed.** If unit prices are stated in the Contractor's bid or proposal and are accepted by the Owner, or if they are subsequently agreed upon by the Owner and the Contractor, it is acknowledged that the quantities for such work are estimates and are not guaranteed. The Owner shall change such quantities as deemed necessary or desirable by the Owner without invalidating the Contract. The Owner will determine the actual quantities and classifications of unit price work, and the Contractor shall only be paid for the Work actually performed. The Contractor shall execute a Change Order to account for any variations in such quantities and classifications. Unit prices include all costs for the performance of such Work,

including all overhead and profit, and no additional sums will be claimed or paid except as permitted in paragraph 7.5.2.

**7.5.2. Changes Permitting Price Adjustment.** The Owner may authorize any increases or decreases in quantities of unit price Work, and the Contractor shall perform such Work. There shall be no change in the applicable unit price, provided that the aggregate change in quantity of a Major Work Item does not increase or decrease by a net amount of twenty-five percent (25%) compared to the quantities stated in the unit price schedule contained in the Contract at the time of award. A Major Work Item constitutes twenty percent (20%) or more of the Total Contract Price. If the cumulative or aggregate amount of the quantity of a Major Work Item changes (either increases or decreases) by a net amount in excess of twenty-five percent (25%), then the Owner and Contractor shall mutually agree upon an increase or decrease in the unit price for the portion exceeding the twenty-five percent (25%). In the event the Owner and Contractor are unable to agree upon the unit price adjustment, the Owner may issue a CCD consistent with Article 7.3 or terminate the Contract with respect to the disputed items and perform the work through separate contractors or the Owner's own forces.

**7.6. Direct Cost of The Work**

**7.6.1. Definition.** The net direct cost of the work is the Contractor's direct and incurred costs without any markup for overhead or profit for the matters set forth in paragraph 7.6.2. The amount of such cost shall be in amounts no higher than those prevailing in the locality of the Project, and shall not include any prohibited costs as set forth in paragraph 7.6.3. The basis for the negotiation of any change under this Contract, whether additive or deductive, shall take into account the direct cost of the work.

**7.6.2. Matters Constituting Direct Cost of the Work.** The following constitute direct costs of the work:

- 1. Net Direct Labor Costs.** The net cost of the actual hours of labor worked during authorized times at the site shown by certified payroll records for labor and foremen employees working in approved job classifications. Costs shall include actual wage rate cost plus the cost of direct and ordinary benefits provided to workers, including social security contributions, unemployment, payroll taxes, workers' compensation, health and retirement plan benefits, and sick, vacation and holiday time. No overtime is permitted unless authorized in writing in advance. The Contractor acknowledges that time for superintendents, project engineers or project managers, and the cost of bonuses and incentive payments and benefits, are compensated as a part of the Contractor's overhead.
- 2. Major Equipment Costs.** The net direct rental cost for the hours of actual use of rented or Contractor-owned equipment necessary to perform the Work during authorized times at the site. Rental rates shall not exceed the lowest locally prevailing rates of equipment rental services or distributors at the time the Work is performed. Maximum rates for equipment not listed shall be established by capacity comparisons to other listed equipment. No overtime charges are permitted, regardless of the hours of operation. Rented equipment shall be charged only at the rate for a daily or prorated weekly or monthly rate depending on the actual rental period. Contractor-owned equipment daily rates shall be based on 1/30th of the monthly rates, and hourly rates (not to exceed a total of eight hours per day) shall be based on 1/240th of the monthly rate. The Contractor will make no charge whatsoever for repairs, repair down time, or idle or standby equipment. Rental equipment used intermittently shall be returned to save expense, or kept at the Contractor's expense. Operating costs, if not capable of being determined by local prevailing rates, shall be no greater than 15% of the rental



rate for actual operating hours. The Contractor will make no charge for the use of hand tools and other small equipment normally available at the site, nor for highway vehicles normally assigned to the site. Rental rates include the cost of all fuel, oil, lubrication, supplies, repairs, maintenance, necessary loading and transportation, and all other equipment overhead.

3. **Materials and Incorporated Equipment.** The actual net cost of materials and equipment furnished and incorporated into the Work based on invoices, including the actual freight paid for delivery of the required quantities to the site, and the actual sales taxes paid. Material prices shall be at the lowest current price at which such materials are locally available. All trade discounts, rebates, refunds, and returns from sale of surplus materials and equipment shall accrue to the Owner, and the Contractor shall provide the same. If the Owner provides funds at the time of purchase, all cash discounts shall accrue to the Owner.
4. **Subcontracts.** The actual net cost of subcontracts which were procured on a competitive basis using the lowest responsive and responsible bidder, or the cost of which is determined in a manner consistent with this article so as to limit costs to those identified.
5. **Bonds, Insurance and Permits.** The actual net cost of the bonds, insurance and permits required by the Contract.
6. **Specific Authorized Direct Expenses.** When authorized in advance in writing by the Owner, other net expenses incurred specifically for the performance of the Work may be reimbursable.

7.6.3. **Prohibited Costs.** Any cost not specifically authorized under this Contract is prohibited. If the Owner determines that any such expense has been included in any compensation to the Contractor, the Contractor shall reimburse such sum to the Owner, plus interest at a rate of ten percent (10%) per annum from the time of the Owner's overpayment. Without limitation, the following costs shall not be charged to the Owner.

1. **Liability Cost.** Costs associated with the Contractor's pursuit of any dispute, claim or cause of action, such as attorneys' fees, expert fees, court costs, or other similar expenses. Any costs due to the Contractor's negligence or the negligence of anyone employed by or through the Contractor, or persons for whose acts any of them may be liable. Any costs associated with defective Work, or any default or failure of performance by the Contractor or anyone employed by or through the Contractor.
2. **Overhead and Fee.** Overhead and fee charges in excess of the sums specifically permitted under paragraph 7.7, or any separate charge for matters normally included within the Contractor's overhead costs such as depreciation, home or field office expenditures, expenditures for the cost of capital, business-related expenditures, etc.

## 7.7. Maximum Fee

7.7.1. Changes to unit price Work shall be handled as set forth in paragraph 7.5. For all changes in the Total Contract Price other than those based on unit prices, whether additive or deductive, the maximum markup for overhead and profit on allowable costs which the Contractor or any subcontractor or supplier may receive shall be governed as set forth below.

1. The following markups shall be applied to the Net Direct Labor Cost permitted under paragraph 7.6.2.1, and to the cost of Materials and Incorporated Equipment permitted under paragraph 7.6.2.3:

Value of Changes	Contractor or Subcontractor Own Forces Markup	Contractor Markup on Subcontractor
\$1 to \$25,000	15%	5%
\$25,001 to \$500,000	12%	5%
\$500,001 and more	10%	5%

2. No other markups shall be permitted, and the Contractor shall make no other charges for overhead or profit.
3. The appropriate maximum markup payable to Subcontractors and suppliers for Work performed by their own forces for each separate Change Order or Construction Change Directive shall be determined by the dollar value of the Work performed by a particular Subcontractor or supplier. The appropriate maximum markup payable to the Contractor for administration of Work performed by Subcontractors or suppliers for each separate Change Order or Construction Change Directive shall be determined by the cumulative dollar value of Work being performed by Subcontractors or suppliers, on each separate Change Order, Construction Change Directive, or Field Change Order.
4. The maximum markup for overhead and profit for Work performed by Subcontractors or suppliers will be a cumulative maximum markup over allowable costs, regardless of the number of tiers of subcontracts or supply contracts involved. For deductive changes, the Owner shall be entitled to a credit on the net amount of the change commensurate with the markup provided to the Contractor and its Subcontractors or suppliers for additive Change Orders, Construction Change Directives, or Field Change Order. There shall be no markup allowed for the cost of bonds or insurance. The Contractor shall be allowed reimbursement for the actual cost of bonds required by the Contract.
5. When both additions and credits are involved in any change, the adjustment in the Contractor's fee will be computed on the basis of the net change.

**7.8. Time and Materials Work**

7.8.1. **Substantiation of Allowable Costs.** Time and materials work shall be documented and verified jointly by the Contractor and the Owner. The Contractor bears the responsibility for obtaining the Owner's daily approval of all of the allowable time and materials charges described below. The Contractor shall not be paid for claims arising from unapproved charges. Prior to beginning any time and materials work, a "not-to-exceed" amount limit of the time and materials will be established. The Contractor will inform the Owner when 80 percent of the not-to-exceed amount limit has been reached. The Contractor shall provide any documentation requested by the Owner including but not limited to:

1. The Contractor shall submit time sheets, which shall be approved at the close of each day by the Owner (or authorized site representative, designated for this purpose) for the actual hours spent by labor and equipment listed. This report shall be on a form approved by the Owner, and shall include applicable delivery tickets listing all labor, materials, and equipment involved in the time and materials work for that day. Subcontract reports shall be submitted by the Contractor. The Owner and the Contractor shall sign the report each day, and they shall enter notes on the report

explaining any points on which there is an irreconcilable disagreement which cannot be resolved immediately. Failure to submit the daily report by the close of the next working day will waive any rights for that day. A budget limit of the time and materials will be established, which can be increased with appropriate approval. The Contractor will inform the Owner when the Contractor has reached eighty percent (80%) of the budget limit.

2. Substantiation for net direct cost of the Contractor's labor and foremen employees to the extent permitted by paragraph 7.6.2.1 while directly performing the time and materials work activity. Required records shall include certified payroll records showing names of workers, classifications, and actual time and materials hours worked, as well as timesheets summarizing all pertinent information for recoverable labor costs, increased by the Contractor's actual documented cost to cover all allowable benefits and expenses.
3. Substantiation for the net rental cost of rented equipment or Contractor-owned equipment to the extent permitted by paragraph 7.6.2.2 for use while directly performing the time and materials work activity. The Contractor shall submit original copies of rental invoices and all other documentation to the Owner. Such documentation shall state the type of equipment, size, identification number, and actual time and materials hours of operation, noting all loading and transportation time. No transportation time is allowed for equipment already at the site.
4. Substantiation for net costs of materials to the extent permitted by paragraph 7.6.2.3 based upon invoices for materials used directly in the performance of the time and materials activity. Invoices shall correspond to take-off quantities of materials, and shall describe the materials. Originals or certified invoices, prorated to these actual take-offs and including allowable freight and taxes shall be delivered to the Owner.
5. Substantiation for net cost of subcontracts provided that the cost of the subcontract is determined in a manner consistent with paragraph 7.6.2.4.
6. Substantiation for appropriate markup percentages not to exceed those permitted in paragraph 7.7 to cover overhead and profit of the Contractor and its Subcontractors.
7. Substantiation for final calculations. Within seven (7) days of the completion of the time and materials work activity, the Contractor shall compile a packet of information containing all backup documentation for accrued charges and submit all documentation not previously provided to the Owner with a request for reimbursement to the extent permitted under this paragraph 7.8.1.

7.8.2. **Owner's Right to Furnish.** The Owner reserves the right to furnish part or all materials or equipment, and the Contractor shall have no claim for profit on the cost of the material or equipment so furnished.

7.8.3. **No Other Claims.** The Contractor specifically agrees that the Contractor is entitled to no sums for time and materials work except those set forth in this paragraph 7.8, and that the Contractor will assert no Claims against the Owner for such time and materials work except as provided under this paragraph 7.8.

7.8.4. **Change Order.** Upon verification of the total charges the Owner will prepare a Change Order for this Time and materials Work in the manner described under paragraph 7.2.

## 7.9. Allowances

7.9.1. **Allowances Included in Total Contract Price.** If any allowances are a part of the Contract, those allowances are set forth in the Special Conditions. The Contractor shall include in

the Total Contract Price all such allowances. Allowances do not constitute changes except for credits due to the Owner, and they shall be used only on the terms set forth in the Special Conditions.

## ARTICLE 8. - TIME

### 8.1. Definitions

8.1.1. **Contract Time.** Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2. **Commencement of Work.** The date of commencement of the Work is the effective date of the Notice to Proceed. The date shall not be postponed by the Contractor's failure to act or by such failures of persons or entities for whom the Contractor is responsible.

8.1.3. **Substantial Completion.** The date of Substantial Completion is the date certified in accordance with paragraph 9.9.

8.1.4. **Day.** The term "day" as used in the Contract Documents shall mean a calendar day.

8.1.5. **Punch List Time.** The term "Punch List Time" means the 15-day time period set forth in paragraphs 9.9.4 and 9.11.1 which is permitted after Substantial Completion of the Work to achieve final acceptance of the Work, or such other time period as may be permitted under these Contract Documents.

### 8.2. Progress and Completion

8.2.1. **Time of Essence.** Time limits stated in the Contract Documents are of the essence of the Contract. The Contractor, by executing the Agreement, confirms that the Contract Time is a reasonable period for performing the Work.

8.2.2. **Contractor's Schedules.** The Contractor shall produce and maintain all schedules required under the Contract Documents, including without limitation those required under paragraph 3.7.

8.2.3. **Early Start.** The Contractor has no right to commence work prior to issuance of the Notice to Proceed. If the Contractor desires to do so, the Contractor may submit such a request to the Owner, and it is solely within the Owner's discretion to grant such a request. Any such early commencement time shall be allocated and used in the best interests of the Work, and shall not be for the benefit of the Contractor. If the Owner grants the Contractor's request, the commencement of any Work by the Contractor shall constitute the Contractor's agreement to the following:

1. All such Work shall be undertaken at the sole risk and expense of the Contractor as a volunteer. The Owner is not obligated to proceed with the execution of any contract.
2. The Contractor shall perform all such Work in full compliance with the terms set forth in the Contract Documents, and shall be fully liable for the same. Upon execution of the Contract for Construction, such Work shall be a part of the Contract as if it had been commenced after its execution.
3. The Owner shall not be liable for any Work, and shall not be liable for any compensation, time extensions, delays, hindrances, or interferences which may result from an early start.

4. If the Owner does not execute the Contract for Construction, the Contractor at its sole expense shall do all work necessary to restore the site to a clean and level condition satisfactory to the Owner.

8.2.4. **Milestones.** Work under this Contract may be required to be completed by certain milestone dates set forth in the Contract Documents. The specification of milestone dates is not intended to take the place of complete Work scheduling by the Contractor, but is provided to show certain critical milestone dates for various phases of the Work on which the Contractor's Baseline Schedule or Progress Schedules must be based. There shall be no changes in the milestone dates, except by Change Order or Construction Change Directive. In the event that the Contractor fails to complete any required portions of the Work by the milestone dates, the Contractor shall be liable for liquidated damages, in accordance with paragraph 8.5.1.

8.2.5. **Recovery Schedules.** The Contractor shall cooperate with the Owner in order to maintain the progress of the Work in accordance with the Contractor's Baseline Schedule, Progress Schedule, and Contract Time requirements. If the Owner determines that the Contractor is failing to maintain the progress of the Work, through no fault of the Owner, the Contractor must, within seventy-two (72) hours of written request of the Owner, submit a written response detailing the Contractor's plan of action to recover lost time in order to maintain the progress of the Work in accordance with the Contractor's Baseline Schedule, Progress Schedule or Contract Time requirements. In such event, the Contractor shall comply with the Owner's written orders to take whatever steps are necessary to recover lost time and maintain the progress of the Work. These steps may include, but are not limited to, re-sequencing the Work activities, increasing the number of Contractor's shifts, workforce, supervision, work days, overtime operations, equipment resources, or expediting delivery of materials or equipment. The Contractor shall not be entitled to additional compensation for actions required or ordered under this paragraph or related Contract provisions.

8.2.6. **Adhere to Times.** The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial and Final Completion, and any milestones indicated in the Special Conditions within the time frames established by the Contract Documents.

### 8.3. Delays and Extensions of Time

8.3.1. **Manner of Changing Time.** The Contract Time shall be adjusted only by Change Order or Construction Change Directive.

8.3.2. **Obligation when Submitting Claim.** Claims relating to time shall be made in accordance with applicable provisions of paragraph 4.3. A copy of any Claim for a time extension shall be delivered to the Owner, and the Contractor shall immediately take all steps reasonably possible to minimize the adverse impact of delay events on the Work.

8.3.3. **When Time Permitted for Delay.** The Contractor shall not be allowed any additional time to perform in compliance with the Contract Time, Punch List Time, the time for any milestone, or any other mandatory times set forth in the Contract Documents, except under the circumstances set forth in this paragraph 8.3. Any time granted shall be appropriate to adjust for the permitted circumstance, but in no event shall exceed a day-for-day extension for the period of proven actual delay to the critical path. The Owner's agreement to the issuance of an extension of time shall preclude any and all claims or entitlements the Contractor might have for additional compensation, such as acceleration, interference, inefficiencies or unabsorbed overhead associated with either delays affecting the Contractor's ability to perform the Work, or additions to the Project Scope.

**8.3.4. Circumstances Permitting Delay for Weather.** The time allotted in the Contract Documents allows for local prevailing weather conditions. Claims for additional time due to weather must comply with paragraph 4.3.6. No additional time shall be granted except when unusual, excessive, and unexpectedly severe and prolonged weather conditions for a particular time and season cause actual delay to work on the critical path, as defined by the Contractor's existing approved schedule, and the Contractor took appropriate measures to mitigate the effects of inclement weather. If the Contractor has no approved schedule showing the critical path, it shall be determined by the Owner. When considering any claim for time due to weather, the Owner will consider the weather conditions for the total length of the Work. No time will be granted if the Work claimed to have been delayed would not have been on the critical path, or could have been performed during acceptable weather conditions, had it not been for earlier delays caused by the Contractor as provided in paragraph 8.3.5. No time will be granted for weather delay for periods beyond the Contract Time or Punch List Time.

**8.3.5. Circumstances Considered Not Attributable to Contractor.** The Contractor may submit a Claim for time lost on the critical path when directly attributable to the following if (1) the matter occurred without any responsibility, participation, fault, or negligence on the part of the Contractor; (2) if, in the opinion of the Owner, it could not have been anticipated or avoided by the Contractor; and (3) if the Contractor has complied with the Claim requirements of paragraph 4.3:

1. A delay caused solely by the Owner for its convenience.
2. Additional time necessary to perform a change in the scope of the Work ordered by the Owner.
3. Disruption of the Work due to extraordinary and unforeseen circumstances which the Contractor lacked any ability to control or manage, such as civil unrest or fire. Neither labor disputes involving the Contractor, its Subcontractors, or any other laborers or suppliers performing the Work, nor weather conditions, except as provided in paragraph 8.3.4, shall be considered to meet the requirements of this paragraph.
4. A delay caused by another contractor or utility company working at the Owner's request, but not when the delay is the result of the Contractor's own lack of Project coordination or Work effort.

#### **8.4. No Damage for Delay to Contractor**

**8.4.1. No Damage for Delay.** Notwithstanding any provision in the Contract Documents to the contrary, an extension of the Contract Time shall be the Contractor's sole and exclusive remedy for any delay of any kind or nature, unless the delays were caused solely by acts constituting intentional interference by the Owner with the Contractor's performance of the Work, and such acts continue after the Contractor's written notice to the Owner specifying such interference. Intentional interference is an act or omission by the Owner by which it intentionally, willfully or knowingly seeks to delay the progress of the Work. The Owner's exercise of any of its rights or privileges under the Contract Documents, including, but not limited to (1) rights under Article 7, Changes in the Work, regardless of the extent or number of changes, (2) rights under paragraphs 2.4 and 2.5 to Suspend the Work and carry out the Work, or (3) rights under Article 14 to terminate or suspend the Work shall not under any circumstances be construed as intentional interference with the Contractor's performance of the Work. In no event, including circumstances in which the Owner has intentionally interfered with the Contractor's performance of the Work, shall the Contractor be entitled to recover from the Owner any indirect, incidental, special, or consequential damages or any unabsorbed overhead expense in any proceeding arising out of or relating to this Contract or the breach thereof.

**8.4.2. No Compensation for Delay in Early Completion.** Regardless of any early completion date anticipated by the Contractor in its Bid or Proposal, or indicated by the Contractor on any

Progress Schedule or any other form of communication, under no circumstances (other than intentional interference by the Owner as defined in paragraph 8.4.1) shall the Contractor be entitled to additional compensation for delays unforeseen by the Contractor in its performance of the Work caused by circumstances beyond its control where the Work is completed within the Contract Time.

#### **8.5. Non-Exclusive Remedies**

8.5.1. **Liquidated Damages.** If any portion of the Work remains uncompleted after the expiration of the Contract Time or Punch List Time, including all extensions and adjustments thereto, the Owner will incur substantial injury, including loss of use of facilities and inconvenience to the public. Damages arising from such injuries cannot be calculated with any degree of certainty due to the complexity of the Project. It is agreed that if the Work is not substantially completed and finally completed as defined in the Contract within the established time frames or within such further time, if any, as shall be allowed for such completion in accordance with the Contract, the Contractor or the Contractor's surety shall pay to the Owner compensatory liquidated damages, not as a penalty, for such delay. The liquidated damages are defined in the Agreement for this Project. Permitting the Contractor to finish the Work after the expiration of the Contract Time or Punch List Time established by the Contract Documents shall in no way operate as a waiver by the Owner of any of its rights under this paragraph or elsewhere in the Contract Documents.

8.5.2. **Prosecution by Surety or Owner.** In addition to other remedies available to the Owner, if the Contractor fails to maintain the progress of the Work in accordance with the Contractor's Baseline Schedule, Progress Schedule or Contract Time requirements, the Owner may, upon seven (7) days' written notice to the Contractor and its Surety, or sooner in case of an urgent operational need, order the Contractor to suspend or cease all or a portion of the Work and the Owner may demand that the Contractor's Surety prosecute all or a portion of the Work in accordance with the Contract Documents. Failure of the Surety to so perform within seven (7) days of receipt of such notice or sooner as specified shall be grounds for the Owner to prosecute the Work at Surety's and Contractor's expense.

### **ARTICLE 9. - PAYMENTS AND COMPLETION**

#### **9.1. Total Contract Price**

9.1.1. **Definition.** The Total Contract Price is stated in the Agreement and, including executed Change Orders, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents. Such performance includes, without limitation, all Work specified and all matters necessary or beneficial for the performance thereof, and all loss or damage arising from the nature of the Work or from the action of the elements or any unforeseen difficulties encountered before final acceptance.

#### **9.2. Schedule of Values**

9.2.1. **Submission and Form.** Before the first Application for Payment on lump sum contracts, including those which contain unit prices for certain portions of the Work, the Contractor shall submit to the Owner for approval a schedule of values allocated to various portions of the Work as provided in paragraph 3.1.1.3.

#### **9.3. Applications for Payment**

9.3.1. **Submission and Form.** Not more than once a month and no later than the time designated by the Owner, the Contractor shall submit to the Owner an original itemized Application for Payment for actual work completed in accordance with the schedule of values, which shall include unit price work. Each Application for Payment shall be supported by such data required by the Contract Documents substantiating the Contractor's right to payment (such as copies of

requisitions from Subcontractors and material suppliers), including the matters required by paragraph 3.1.1.3.

9.3.2. **Submittals and Certifications with Application for Payment.** Each Application for Payment shall be accompanied by the items set forth below. Failure to provide any of the following in a manner satisfactory to the Owner and as set forth below will result in the Owner's withholding payment or partial payment from the Contractor until such time as the deficient matter is provided or corrected. The Contractor must submit all materials as provided in paragraph 3.1.1 prior to any payment under this Contract for Construction.

1. **Schedule of Values.** Each Application for Payment shall contain an updated schedule of values to indicate the current percentage or unit quantity of Work and dollar value completion (for the period and a cumulative total) of each category of Work listed. The schedule of values shall be subject to the Owner's determination of the work complete, and to approval by the Owner. Upon approval, it shall become the basis for calculating the progress payment.
2. **Progress Schedule.** Concurrent with the Contractor's submission of an Application for Payment, the Contractor shall submit an updated Progress Schedule pursuant to paragraph 3.7.
3. **As-Built Drawings.** Concurrent with the Contractor's submission of an Application for Payment, the Contractor shall make available for review and inspection by the Owner or Designer, an updated version of the certified As-built Drawings, prepared in accordance with the requirements of paragraph 3.8, reflecting all items of Work for which the Contractor is seeking payment.
4. **Material Delivery Schedules.** If required by the Owner, the Contractor shall submit material delivery schedules for all materials and equipment delivered and suitably stored pursuant to paragraph 9.3.3. Otherwise, no payment will be made.
5. **Waivers of Rights.** The Contractor shall submit waivers of lien/bond rights and other documentation from Subcontractors and Suppliers to evidence the status of payments.
6. **Subcontracts.** Applications for Payment may not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason. All sums due to Subcontractors and Suppliers under previous Applications for Payment that have been paid by the Owner must be paid to the Subcontractors and Suppliers in question before the Owner will make any additional payments. Notwithstanding any other provision herein, the Contractor shall pay all amounts due to Subcontractors for satisfactory performance of their contracts within thirty (30) days after receiving payment for the same from Owner. Work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required under these Contract Documents.
7. **Authorized CCD's or FCO's.** At the Owner's discretion, Applications for Payment may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives or Field Change Orders but not yet included in Change Orders so long as such request does not exceed the current Total Contract Price.
8. **Contractor's Report.** The Contractor shall include with each Application for Payment a report containing the following matters: (1) a narrative describing the Work performed during the previous period, including matters started, continued, and completed; (2) photos of the progress of the Work that exemplify the Work performed during the previous period, which shall be no less than twelve (12) 8" x 10" glossy color photos properly labeled; and (3) a narrative describing what Work will be performed during the next four (4) week period.



9. **Other Required Forms.** The Contractor shall submit with each Application for Payment any other forms or information designated by the Owner.
10. **Certification.** The Contractor shall designate a competent financial officer to sign the following certification on behalf of the Contractor in each Application for Payment: “The Contractor hereby certifies that except as indicated on the attached documents, there are no written claims of Subcontractors or Suppliers submitted to the Contractor as of the date of this Application for Payment that have not been completely resolved, that the Contractor has no knowledge of any unresolved Claims by Subcontractors or Suppliers with respect to the Work, that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of this Application for Payment, and that there is no known basis for the filing of any Claim on the Work. The Contractor further certifies that the Contractor has not submitted for payment any sums in dispute. The Contractor hereby releases and waives all Claims, including, without limitation, all liens and actions of any kind, which the Contractor may have against the Owner except for Claims for which the Contractor has complied with the provisions of paragraph 4.3.2 of the General Conditions of the Contract for Construction. The Contractor further certifies that the matters stated in this Application for Payment are true and correct.”

9.3.3. **Storage and Scheduling of Materials.** Unless otherwise provided in the Contract Documents, payments may be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work upon complying with this paragraph. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon the Contractor’s production of evidence satisfactory to the Owner establishing the Owner’s clear title to such materials and equipment, such as through a bill of sale warranting that the Owner has received title free and clear of all liens, and otherwise protecting the Owner’s interest, such as providing property insurance and other appropriate arrangements. The Contractor’s arrangements shall include applicable insurance, storage, and transportation to the site for such materials and equipment stored off the site. If so requested by the Owner, the Contractor shall submit, within 30 days after the date of commencement of the Work and thereafter as the Owner requires, material delivery schedules for each category or subcontract for which application for payment under paragraph 9.3 will be made, which schedules shall include items, quantities, value or unit prices with extensions and the month in which Application for Payment with respect thereto is expected to occur. Schedules shall be updated on a monthly basis and submitted as an attachment to the Contractor’s Application for Payment. The Owner has no obligation to pay the Contractor if the updated monthly schedule is not provided. Payment for such materials shall not exceed seventy-five percent (75%) of the value of the materials in storage.

9.3.4. **Title.** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment on such Application for Payment by the Owner to the Contractor. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

#### 9.4. Certificates for Payment

9.4.1. **Action on Application.** The Owner shall, within ten (10) days after receipt of the Contractor's Application for Payment, either forward the Certificate for Payment for such amount as the Owner determines is properly due, or notify the Contractor in writing of the reasons for withholding certification in whole or in part as provided in paragraph 9.5.1.

9.4.2. **Issuance Not Acceptance.** The issuance of the Certificate for Payment does not constitute the Owner's acceptance of the Work, and Contractor shall not rely on the same. The issuance of the certificate is made for payment purposes only and is subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion, and to specific qualifications expressed by the Designer or Owner. The issuance of the Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of the Certificate for Payment is not a representation that the Owner has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work (2) reviewed construction means, methods, techniques, sequences or procedures, or (3) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Total Contract Price. The Contractor may not rely upon the Owner's Certificate of Payment as approval and acceptance of the Work reflected thereon.

#### 9.5. Decisions to Withhold Certification

9.5.1. **Basis.** The Owner may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Owner's opinion the representations to the Owner required by paragraph 9.4.2 cannot be made. If the Owner is unable to certify payment in the amount of the Application, the Owner will notify the Contractor as provided in paragraph 9.4.1. If a revised Application for Payment amount cannot be agreed upon, the Owner will promptly issue a Certificate for Payment for the undisputed amount. The Owner may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary to protect the Owner from any loss caused by the Contractor, including, without limitation, those caused by the following:

1. defective or damaged Work not remedied;
2. third party claims filed (including liens) or reasonable evidence indicating probable filing of such claims;
3. failure of the Contractor to make payments properly to Subcontractors for labor, materials or equipment;
4. damage to the Owner or another contractor;
5. reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages arising from the anticipated delay or other impact;
6. failure to prepare and make available properly updated As-built Drawings in accordance with the requirements of paragraph 9.3.3;
7. falling behind any schedule by more than five (5) days on the critical path;
8. persistent failure to carry out the Work in accordance with the Contract Documents;
9. failure to submit a current, accurate Progress Schedule and other required documentation with an Application for Payment;
10. the Work is unsafe or inaccessible and therefore the Owner or Designer cannot determine if the Work is acceptable;

11. the occurrence of any event of default by the Contractor, including any events subject to termination of the Contract for cause;
12. subsequently discovered evidence, or the results of subsequent tests, nullify any payments previously made; or
13. any sum is due or reasonably may become due to the Owner by the Contractor under the terms of this or any other Contract between them, whether due to work performed or expenses incurred by the Owner on behalf of the Contractor, reductions in the Total Contract Price, liquidated damages, any rights of setoff or other Owner remedies, or otherwise.

9.5.2. **Correction.** When the above reasons for withholding certification are removed, certification will be made by the Owner for amounts previously withheld.

9.5.3. **No Interruption of Work.** If the Contractor disputes any determination by the Owner with regard to any Certificate of Payment, the Contractor nevertheless shall continue to expeditiously prosecute the Work.

## 9.6. Progress Payments and Retainage

9.6.1. **Manner of Payment.** Contractor's Application for Payment shall fully conform to this Contract. The Contractor may submit an Application for Payment no more than once each month, and on the day of the month agreed to between the parties. Upon receipt of a fully conforming Application for Payment, the Owner shall make payment to the Contractor of the amount specified in the Certificate for Payment within thirty (30) days of Owner's approval of the same. Payment by the Owner shall not constitute approval or acceptance of any item of cost in the Application for Payment. No partial payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or relieve the Contractor of any of its obligations hereunder. The Owner shall make no payment unless the Contractor has complied with the requirements of paragraph 9.3.

9.6.2. **Payment of Subcontractors.** The Owner shall have no obligation to pay or to assure the payment of money to a Subcontractor for Work on the Project. The Owner may, however, demand sworn statements of account from Subcontractors or Suppliers and, at the Owner's sole discretion, pay Subcontractors or Suppliers by joint checks or directly for those amounts agreed by the Contractor as due and owing. In such event, the Contractor agrees any such payments shall be treated as a direct payment to the Contractor's account. The Owner has the discretion, but not the obligation, to demand an explanation from the Contractor regarding the reason for nonpayment, to investigate any matter in connection with such nonpayment, to require remedial efforts providing for payment, and to take any other lawful action with respect to such nonpayment, and the Contractor shall participate cooperatively with the same.

The Owner will not withhold retainage on progress payments made to the Contractor. The Owner will pay monthly to the Contractor while carrying on the Work, the balance due for work satisfactorily completed deducting therefrom all previous payments made under the provisions of the Contract. No such estimate of payment shall be required to be made, when in the judgment of the Engineer the Work is not proceeding in accordance with the Contract Documents; or when in Engineer's judgment the total value of the work done since the last estimate amounts to less than \$1,000.00. No such estimate or payment shall be construed to be an acceptance of any defective or improper work or materials.

If the Contractor withholds retainage from its Subcontractors, the Contractor will return all retainage payments to all subcontractors within thirty (30) days after the subcontractor's work is satisfactorily completed and payment for such work has been made by the Owner and shall insert in all subcontract agreements, a statement that requires the same of all lower-tier subcontractors. In connection with subcontracted work, the following shall apply:

The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of each Subcontractor's portion of the Work, the amount to which each Subcontractor is entitled.

The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

**9.7. Continued Performance Pending Payment**

9.7.1. The Owner's obligation to make timely payments which are subject to payment under this Contract and the Contractor's obligations to diligently prosecute the Work shall continue uninterrupted during the pendency of any bona fide dispute between the Owner and the Contractor.

**9.8. Additional Remedies and Conditions of Payment**

9.8.1. **Holdback of Funds for Lack of Performance.** Notwithstanding anything to the contrary contained in the Contract Documents, the Owner may withhold any payment to the Contractor hereunder if and for so long as the Contractor fails to perform any of its obligations hereunder or otherwise is in default under any terms of the Contract Documents; provided, however, that any such holdback shall be limited to an amount sufficient in the reasonable opinion of the Owner to cure any such default or failure of performance by the Contractor. Such holdback does not constitute retainage.

9.8.2. **Payment Not Due before Proper Performance.** Payment shall not become due or payable for any Contract Work not provided or installed by the Contractor exactly as specified in the Contract Documents. The Owner will consider making partial payment to the Contractor for certain out-of-tolerance items in advance of any negotiated settlement reached between the Contractor and the Owner, provided the Contractor requests in writing that this be done. The Contractor agrees that any such payments made by the Owner are payments in advance, and that no other moneys are due or payable prior to reaching a final settlement.

9.8.3. **No Payment Outside Contract Requirements.** The Owner shall make no payment for any matter not authorized by this Contract.

9.8.4. **Setoff.** The Owner has the right to deduct from any sum that the Owner owes to the Contractor under this or any other agreement between the Owner or the Contractor the amount of any sum that the Contractor owes to the Owner, including, without limitation, the amount of any fine, credit, damage, or other expense that the Owner reasonably believes to be established and due.

9.8.5. **Subcontract Disputes.** The Owner shall make no payment for any matter disputed by the Contractor with its subcontracted parties until the Contractor notifies the Owner in writing that the dispute is finally resolved. The Owner will pay any undisputed balance if the invoice is submitted in accordance with this Contract, and all parties to the dispute agree to the undisputed sum. The Owner shall pay no interest or late charges.

9.8.6. **No Interest or Late Charges.** The Owner shall pay no interest or late charges.

9.8.7. **Deductions from Final Payment.** The Owner shall deduct from the final payment under this Contract, any sum which is properly due or attributable to the Owner under the terms of this Contract. All prior progress payments are subject to correction in the final payment.

## 9.9. Substantial Completion

9.9.1. **Definition.** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the correction of any remaining deficiencies will not interfere with the area's intended use or occupancy, and when all required occupancy permits, if any, have been issued so the Owner can occupy or utilize the Work for its intended use. The Contractor is required to obtain all required occupancy permits.

9.9.2. **Contractor's Certification.** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is Substantially Complete, the Contractor shall certify in writing to the Owner that such Work has been completed in accordance with the Contract Documents, and include with the certification a comprehensive list of the remaining items to be completed or corrected. The Contractor shall perform a cleanup of the area, and the Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

9.9.3. **Review of Certification.** Within five (5) days after receipt of the Contractor's list, the Designer and Owner will conduct a preliminary inspection to determine whether the Work or designated portion thereof is Substantially Complete. If the Designer's and Owner's preliminary inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall complete or correct such item or items upon notification by the Owner. The Owner will issue a written notice either agreeing that the Work is ready for the Substantial Completion inspection, or stating why the Work is not Substantially Complete. Upon concurrence by the Designer and Owner that the Project is sufficiently complete for a Substantial Completion inspection, the Owner will schedule the Substantial Completion inspection.

9.9.4. **Substantial Completion Inspection.** The Owner will schedule a Substantial Completion inspection within a reasonable time after the Owner agrees that the Work is ready for the inspection. At such time, the Owner shall prepare a Certificate of Substantial Completion signed by the Owner and Designer which shall establish the date of Substantial Completion, shall establish the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall prepare and fix the time within which the Contractor shall finish all items on the punch list, which shall accompany the Certificate. Unless otherwise agreed in writing by the Owner, the Contractor shall complete all items on the Punch List within fifteen (15) calendar days. Unless otherwise agreed by the Owner, the Contractor shall continue to carry all insurance and otherwise comply with all requirements of this Contract before the Work is final. The Certificate of Substantial Completion shall be submitted to the Contractor for appropriate action. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work as provided in paragraph 12.5 (or designated portion thereof) unless otherwise provided in the Contract Documents. Within fourteen (14) days of the date of Substantial Completion, the Contractor shall secure and deliver to the Owner acceptable written warranties and guarantees from its Subcontractors and Suppliers bearing the date of Substantial Completion stating the period of warranty as required by the Contract Documents. The Contractor is responsible for the warranty of all Work, whether performed by it or by its Subcontractors at any tier. The Owner

may exclude the Contractor from the Work after the date of Substantial Completion, but shall permit reasonable access to complete or correct items on the Punch List. The Owner does not relinquish any rights in connection with Substantial Completion, delivery of the Punch List, or work thereon.

#### **9.10. Partial Occupancy or Use**

9.10.1. **Right of Partial Occupancy.** The Owner may occupy or use any completed or partially completed portion of the Work at any stage and, if the Owner chooses such partial occupancy, the Contractor and Owner shall designate by an agreement the conditions of such partial occupancy, provided such occupancy or use is consented to by the Owner's insurer as required by the insurer. The Contractor shall prepare and submit a list of matters to be completed to the Owner as provided under paragraph 9.9.2. Consent of the Contractor to partial occupancy or use by the Owner shall not be unreasonably withheld.

9.10.2. **Inspection.** Immediately prior to such partial occupancy or use, the Owner, Contractor and Designer shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.10.3. **No Acceptance of Non-Conformities.** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work which is not in conformance with the requirements of the Contract Documents.

#### **9.11. Final Completion and Final Payment**

9.11.1. **Final Inspection and Application for Payment.** Final Completion shall be achieved by the Contractor within fifteen (15) days of Substantial Completion unless otherwise agreed in writing by the Owner or required in the Contract Documents. Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner will promptly make such inspection with the Contractor and, when the Owner finds the Work acceptable under the Contract Documents and the Contract fully performed, including the delivery of all closeout documentation required in paragraph 9.11.2, the Owner will promptly issue a final Certificate for Payment stating that to the best of its knowledge, information and belief, and on the basis of the Owner's observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the amount noted in the final Certificate has been earned, subject to the Owner's claims. The Owner's execution of the final Certificate for Payment will constitute a further representation that conditions listed in paragraph 9.11.2 as conditions precedent to the Contractor's being entitled to final payment have been fulfilled. If the Owner determines that the Work is not ready for final payment, it shall indicate its reasons for refusing final payment, and the Contractor shall make all necessary corrections and resubmit.

9.11.2. **Conditions to Final Payment.** In addition to other submissions required prior to payment, final payment shall not become due until the Contractor submits to the Owner: (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied; (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner; (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents; (4) consent of surety to final payment; (5) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner; (6) all required As-built Drawings, operating and maintenance instructions and

manuals, schedules, bonds, certificates of inspection, and acceptable warranty/guaranty documents; (7) a Certificate of Occupancy, if required by any law or the Contract Documents (the Contractor is solely responsible to obtain the Certificate of Occupancy); (8) turn in all Airport badges or pay for missing badges; (9) a "Certification of Payment to Disadvantaged Business Enterprises Form," and a written certification that all Subcontractors have been paid in full; and (10) Final Release Form. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Owner may withhold all money that the Owner may be compelled to pay in discharging such claim, including all costs and reasonable attorneys' fees. However, the Owner may elect not to withhold any monies if the Contractor certifies that it is proceeding diligently and in good faith to contest the Subcontractor's entitlement to payment and the surety acknowledges the existence of the contested claim. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor shall furnish a bond satisfactory to the Owner to indemnify the Owner against such claim. If such claims remain unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such liens or other claims, including all costs and reasonable attorneys' fees and charges.

9.11.3. **Delay Not Contractor's Fault.** If, after Substantial Completion of the Work, Final Completion thereof is materially delayed for a period exceeding fifteen (15) days or other period agreed to in writing by the Owner, through no fault of the Contractor or by issuance of Change Orders affecting Final Completion, the Owner may, upon application by the Contractor and certification by the Owner, and without terminating the Contract, make payment of the balance due for the portion of the Work that is fully completed and accepted. If the remaining balance for Work not fully completed, or corrected is less than any monies withheld and if bonds have been furnished, then the written consent of surety to final payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Owner prior to certification of such payment, and such payment may be made, under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.11.4. **Waiver and Release.** Acceptance of final payment by the Contractor, a Subcontractor or a material supplier shall constitute a waiver and release of all claims by that payee, including liens, actions, damages, and any other claim whatsoever, except those previously made in full compliance with paragraph 4.3, and identified by that payee as unsettled at the time of final Application for Payment.

## 9.12. Owner's Audit Rights

9.12.1. **Records Open.** The Contractor's records shall be open to inspection and subject to audit or reproduction by the Owner's agent or its authorized representative to the extent necessary to adequately permit evaluation and verification of: (1) the Cost of the Work; (2) any invoices, Change Orders, Construction Change Directives, Field Change Orders, or Time and materials payments; (3) the Contractor's performance, including matters of quality and conformance to regulatory requirements; or (4) Claims submitted by the Contractor or any of its payees pursuant to the execution of the Contract. Such records shall be similarly open to any governmental agency in connection with its funding or regulatory authority, including, without limitation, the Comptroller General of the United States. The Contractor's records include but are not limited to the following: accounting records (hard copy, as well as computer readable data), written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); back-charge logs and supporting documentation; general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends; documents described in paragraph 7.1.4.1, 7.6 or 7.7, and any other supporting evidence deemed necessary by the Owner to substantiate charges related to this contract, such as books, papers,

documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in the Owner's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document (all foregoing hereinafter referred to as "Contractor's Records"). Such Contractor's Records subject to audit shall also include, but not be limited to, those Contractor's Records necessary to evaluate and verify direct and indirect costs (including overhead allocations), as they may apply to costs associated with this Contract. Audits may require inspection and copying from time to time and at reasonable times and places of any and all information, materials and data of every kind and character.

9.12.2. **Audit Access.** Contractor's Records described above shall be maintained and made available to the Owner or Owner's Agent for not less than seven (7) years or any longer period required by law after date of Final Completion. The Owner or its designee shall be afforded access to all of the Contractor's Records, and shall be allowed to interview any of the Contractor's employees, and such rights shall extend throughout the term of this Contract and for such seven-year period after final payment or longer if required by law. The Owner, Designer, or governmental auditor or their authorized representative shall have access to the Contractor's facilities, shall have access to all necessary Contractor's Records, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this article. If the Contractor refuses to provide reasonable access to any of the Contractor's Records or employees, the Owner's records and accounting shall be deemed correct.

9.12.3. **Persons Associated with Contractor.** The Contractor shall require all Subcontractors, insurance agents, and material Suppliers (payees) to comply with the provisions of this article by insertion of the requirements hereof in a written contract agreement between the Contractor and payee. Such requirements will also apply to Sub-subcontractors and Subcontractors' material Suppliers. The Contractor will cooperate fully and will cause all related parties and all of the Contractor's Subcontractors (including those entering into lump sum Subcontracts) to cooperate fully in furnishing or in making available to Owner from time to time whenever requested in an expeditious manner any and all such information, materials and data.

9.12.4. **Overcharges.** If an audit inspection or examination in accordance with this article, discloses overcharges (of any nature) by the Contractor to the Owner in excess of one percent (1%) of the total monthly contract billings, the actual cost of the Owner's audit shall be reimbursed to the Owner by the Contractor. Reimbursement of overpayments and any adjustments or payments which must be made as a result of any such audit or inspection of the Contractor's Records shall be made within a reasonable amount of time (not to exceed 90 days) from presentation of the Owner's finding to the Contractor. Interest on any overpayments to the Contractor shall be recovered by the Owner at the rate of ten percent (10%) per annum.

## ARTICLE 10. - PROTECTION OF PERSONS AND PROPERTY

### 10.1. Safety Precautions and Programs

10.1.1. **Contractor's Program.** The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and implementing and monitoring a safety program in connection with the performance of the Contract including but not limited to those requirements in this Article 10. The Contractor shall submit to the Owner a copy of its safety and protection plan in the manner provided in paragraph 3.1.1. Such program shall conform to all current law, including, without limitation, the latest general safety orders of the Utah State Industrial Commission. Such program shall also be consistent with any matters set forth in the Special Conditions. The program shall continue in effect throughout the Contract duration. The presence



on the site of an inspector or other person representing the Owner, Designer, or insurer shall not in any way be construed to limit the Contractor's full responsibility hereunder for safety. The Contractor is solely responsible for safety.

10.1.2. **Safety Coordinator.** The Contractor will provide a full-time, construction safety coordinator with a combination of at least eight years of experience and education in that position whose sole function will be the administration of the Contractor's Safety and Loss Control Program. The Contractor and all subcontractors will designate a responsible member of their on-site staff as their on-site safety coordinators. The Contractor and subcontractor safety coordinator designees are subject to approval by the Owner. The subcontractor's safety coordinator designee will be its site manager, unless otherwise designated in writing to the Owner's safety coordinator.

10.1.3. **Owner's Nonexclusive Remedies.** In the event the Contractor fails to initiate, maintain, supervise and monitor the safety of its operations during the performance of the Work, including the operations of its Subcontractors, Suppliers and any others for whom the Contractor is responsible, then the Owner may, without reservation, pursue any rights or remedies against the Contractor that are available, under this Contract or by law, including withholding of payment.

## 10.2. Safety of Persons and Property

10.2.1. **Contractor's Precautions.** The Contractor shall, at its expense, take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to:

1. employees and other persons who may be affected thereby;
2. the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors; and
3. other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2. **Comply with Laws.** The Contractor shall comply with applicable laws, ordinances, codes, rules, regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury, or loss.

10.2.3. **Posting.** The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities. The Contractor shall conduct weekly toolbox safety meetings with its employees and submit a copy of the meeting minutes to the Owner weekly.

10.2.4. **Remedy Loss.** The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in paragraphs 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under paragraphs 10.2.1.2 and 10.2.1.3 at no additional cost to the Owner. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under paragraph 3.16.

10.2.5. **Loads.** The Contractor shall not load (for example, by delivery of materials, structural or physical loads) or permit any part of the construction or site to be loaded so as to endanger the safety of the Owner, Designer, Contractor or their agents, representatives or employees, or to endanger the structure or adjacent or other property through stresses, pressure, or otherwise.

10.2.6. **Adjacent and Concurrent Operations.** The Contractor shall protect adjoining private or municipal property and shall provide barricades, temporary fences, and covered walkways required to protect the safety of passers-by, as required by prudent construction practices, local building codes, ordinances or other laws, or the Contract Documents. The Contractor will cause the least possible obstruction and inconvenience to vehicular or pedestrian traffic. Any obstruction or inconvenience shall require prior written approval from the Owner. Where normally occurring, all such traffic shall be permitted to pass through the Work, and shall be properly controlled at the Contractor's expense. The Contractor shall meet all requirements set forth in the current edition of the Salt Lake City Traffic Barricade Manual. If a traffic control plan is required in the Contract Documents, the Contractor shall be responsible for preparing the plan for approval by the Owner, and implementing the plan.

10.2.7. **Protect the Work.** The Contractor, at its expense, shall take all reasonable precautions to protect and keep the Work, materials and equipment free from injury or damage from rain, wind, storms, frost or heat. If extreme adverse weather conditions prevent the Contractor from continuing operations safely in spite of having implemented weather precautions, the Contractor shall cease Work and notify the Owner of such cessation. The Contractor shall not permit open fires on the Project site.

10.2.8. **Protect Property, Utilities, and Access.** The Contractor shall, at its sole cost and expense, promptly repair any damage or disturbance to walls, utilities, sidewalks, curbs and the property of third parties resulting from the performance of the Work, whether by it or by its Subcontractors at any tier. The Contractor shall maintain streets in good repair and traversable condition. The Contractor shall notify the owners of adjacent property, utilities, and other properties when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal and relocation or replacement of their property.

10.2.9. **Temporary Repairs by Owner.** If not performed by the Contractor in a timely manner upon a request by the Owner, the Owner may make or cause to be made temporary repairs as necessary to restore service to any damaged facility. The Contractor shall be responsible for the cost of such repairs.

### 10.3. Hazardous Materials

10.3.1. **Contractor's Obligations.** In the event the Contractor encounters on the site material reasonably believed to be hazardous material, the Contractor shall immediately stop work in the area affected and verbally report the condition to the Owner followed by notification in writing. The Contractor shall follow all requirements set forth in the Special Conditions regarding hazardous materials, and shall comply with all applicable federal, state, and local laws, rules, orders, regulations, and all policies and procedures of Owner with respect to such materials.

10.3.2. **Hazardous Substances.** When use or storage of hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall notify the Owner in writing of when and where the same shall be used and shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

10.3.3. **Hazard Communication Standards (Employee Right to Know).** The Contractor is subject to 29 CFR 1910.1200, Hazard Communication Standard. The Contractor is solely responsible for any violations of such standard. All persons required under the Contract Documents to work with or in close proximity to hazardous materials or wastes shall comply with all OSHA training and other requirements, including completion of the OSHA Hazardous Waste Operations and Emergency Response training program.

10.3.4. **Contractor's Handling.** The Contractor is responsible for the proper and lawful handling, evaluation, transportation and disposal for any hazardous materials generated by the Contractor or its subcontractors or agents, or for which the same have responsibility under the Contract Documents. Additional obligations are described in the Special Conditions.

#### 10.4. Airport Safety and Security

10.4.1. The Contractor shall comply with all Airport requirements related to Airport Security, Aircraft Operating Area (AOA) access, and all Airport rules impacting the operation of the Contractor's safety program, and shall implement such measures as are necessary to comply with the same. The Contractor shall promptly notify the Owner if the Contractor believes any such requirements will adversely impact any safety requirements. Among other things, the Contractor shall train all employees regarding Airport requirements before any employee begins work; give all employees an Airport map designating work areas and access routes; provide all drivers with Airport driving regulations and assure compliance; provide markers and flag persons to direct delivery vehicles and suppliers to the site; assure employees do not enter active runway, taxiway, ramp or safety areas without proper clearance, and keep employees on the site; hold weekly safety meetings with all employees and copy the minutes to the Owner; comply with FAA Advisory Circular 150/5370-2E, Operational Safety on Airports During Construction; and prohibit any animals from entering the site. Additional requirements are set forth in the Special Conditions.

#### 10.5. Emergencies

10.5.1. In an emergency affecting the safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in paragraph 4.3 and Article 7. In such an emergency, the Owner may also act and charge the Owner's cost for the Contractor's benefit to the Contractor.

### ARTICLE 11. - INSURANCE AND BONDS

#### 11.1. Contractor's Liability Insurance

11.1.1. **Required Insurance.** The Contractor must be covered by insurance for the Contractor's operations and for Subcontractors and all other parties for whom the Contractor is legally liable. Coverage shall be in the categories set forth below, and shall be obtained and maintained in the manner set forth in the Special Conditions.

1. Workers' compensation to cover full liability under the Workers' Compensation Laws of the work site(s);
2. Employer's liability insurance in amounts equal to general liability limit;
3. Comprehensive general liability, with the full amount of the coverage applicable for bodily injury, personal injury, and property damage;
4. Builder's risk insurance to cover the Project site prior to final acceptance by the Owner;
5. Business Automobile Liability for all owned, non-owned and hired automobiles and other vehicles used in connection with the Work and
6. Other special coverage as required in the Special Conditions.

11.1.2. **Comprehensive General Liability and Umbrella Liability Insurance.** The Contractor shall take out and maintain during the life of this Contract and at all times thereafter when Contractor may be correcting, removing or replacing defective work, a comprehensive general liability insurance policy to protect Contractor and any Subcontractor performing work covered by this Contract from claims for damages for personal injury, including accidental death, and from claim for property damage which may arise from contractor's operations under this Contract, whether such operations be by Contractor, Subcontractor, or anyone directly or indirectly employed by either of them, with the Owner as an additional insured. Contractor shall furnish concurrent with signing this Contract a certificate of insurance verifying such coverage.

Said insurance company shall be listed on the Department of the Treasury Fiscal Services List 570 or hold an "A" rating or better in A.M. Best Co., Inc.'s Best Insurance Reports, Property and Casualty Edition. The minimum amounts of such insurance shall be not less than \$2,000,000 per occurrence. All policies must be written on a per occurrence basis.

11.1.3. **Business Auto Coverage Form.** Whenever Contractor or any Subcontractor shall use and operate automobiles, trucks, or other vehicles on Airport or public streets and highways in complying with the terms and conditions of this Contract, each such Contractor or Subcontractor shall carry Business Auto Coverage Form with limits of not less than \$2,000,000 per occurrence. Such policy shall have Owner as an additional insured and be placed with a company holding the rating levels described above for comprehensive general liability. All policies must be written on a per occurrence basis.

11.1.4. **Worker's Compensation Insurance.** In addition to other required insurance, the Contractor shall obtain and maintain during the life of the Contract, Worker's Compensation Insurance as required by Utah law for all of Contractor's employees employed at the site of the Project, and in case any Work is sublet, the Contractor shall require the Subcontractor similarly to provide Worker's Compensation Insurance for all of the latter's employees, unless such employees are covered by protection as required by Utah law.

11.1.5. **Risk of Loss.** In the event the Project involves construction or renovation of a building, Contractor agrees to and assumes the risk of loss for any damage or loss to the building by any means or occurrence until Project Final Acceptance. Unless otherwise provided in the Special Conditions, the Contractor further agrees to obtain Builder's Risk or Course of Construction insurance in the total amount of the Bid. Concurrent with signing this Contract a certificate of insurance verifying such coverage shall be provided. This above insurance need only be provided if a building is being constructed or renovated.

11.1.6. **Non-cancellability.** Each and every policy of insurance or agreement for any securities as provided in this Contract shall be absolutely non-cancelable for a period of not less than thirty (30) days after notice and shall contain the following provisions or one substantially the same as the following:

"This policy or agreement or instrument shall not be subject to cancellation, change, or reduction of coverage by the other party or parties hereto, unless notice, as defined herein, is sent to the City, with a copy to the Engineer and City Attorney."

## 11.2. Performance and Payment Bonds

11.2.1. **Bonds Required.** A Performance Bond and a Payment Bond in the exact form attached hereto, each in an initial amount of not less than the Total Contract Price, will be required of the Contractor (a) to guarantee faithful performance of the requirements of the Contract Documents,

including all applicable warranties; and (b) to guarantee the payment of all labor, materials, or supplies used directly or indirectly in the prosecution of the Work provided for in the Contract. Performance Bonds shall inure to the benefit of the Owner, and nothing in this Contract shall be construed to create any third-party rights against the Owner. Bonds shall be filed with the Owner at the time of executing the Agreement.

11.2.2. **Bonds to Always Match Total Contract Price.** The Penal Sum of the Performance Bond and the Payment Bond shall be increased or decreased automatically during the course of the Work in the event that Contract Modifications or addenda increase or decrease the Total Contract Sum so that the Penal Sum of each bond shall be in an amount equal to the Total Contract Sum at the completion of the Work.

11.2.3. **Criteria for Surety.** The Bonds shall be written through a licensed Utah agency on behalf of a surety company licensed to do business in Utah meeting the following requirements:

1. **Qualification–Management and Strength:** The Surety must be rated no less than "A" by the latest edition of Best's Insurance Guide, published by A.M. Best Company, Post Office Box 1107, Summit, New Jersey 08901. Alternatively, the Owner will accept sureties listed on the current Department of the Treasury Fiscal Series Test 570 with an underwriting limitation equal to or greater than the Total Contract Price.
2. **Bonding Limit–Any One Risk:** The bonding limit of the Sureties shall not exceed five percent (5%) of the policyholder surplus (capital and surplus) as listed by the aforementioned Best's Insurance Guide.

11.2.4. **Producing Bonds.** Upon request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the applicable bond or shall permit a copy to be made.

11.2.5. **Replacement of Surety.** If the Surety on any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated or suspended in any state or it ceases to meet the requirements defined in paragraph 11.2.3.1, the Contractor shall within ten (10) days thereafter substitute another Bond and Surety, both of which must comply with the Contract requirements.

## **ARTICLE 12. - INSPECTION, UNCOVERING AND CORRECTION OF WORK**

### **12.1. Inspection, Observation and Testing**

12.1.1. **Right to Inspect, Observe, and Test.** The Owner, Designer and any governmental authority shall have the right to test, observe and inspect the Work or any portion thereof, including, without limitation, any materials, equipment, performance, or the operation of any plant performing portions of the Work.

1. Such testing, observation, and inspection shall be performed to determine compliance of the Work with the Contract Documents, including compliance of the Work with any applicable code, law, regulation, order or standard, and any other tests, observations, or inspections. Such testing, observation and inspection does not constitute the Contractor's quality control activities, for which the Contractor is solely responsible.
2. The Owner shall make arrangements with such testing laboratories or entities, or with the appropriate public authorities, as needed for the Owner's purposes, and the same are at the Owner's expense except as otherwise provided in the Contract Documents.

3. The Contractor's obligations in connection with all testing, observation and inspection are a part of this Contract.

12.1.2. **Contractor to Provide for Inspection.** The Contractor shall provide the following in connection with any testing, observation, or inspection of any portion of the Work, whether or not such Work must be uncovered:

1. **Access and Safety.** The Contractor at its expense shall provide unrestricted, proper and safe conditions to access the Work to perform any testing, observation, or inspection. The Contractor shall advise all persons performing any testing, observation, or inspection of the Contractor's safety program requirements and provide for compliance.
2. **Furnish Labor.** The Contractor, at its sole cost, shall furnish the Owner any labor required and necessary for a thorough inspection, culling over, or removing of defective materials, or for thorough examination into any of the Work, or for any other purpose required in the discharge of their respective duties.
3. **Furnish Samples.** The Contractor shall furnish without charge any samples of materials requested by the Owner, which have been or are proposed to be used, in sufficient amounts as required to make proper tests.
4. **Notice Required.** The Contractor shall give the Owner at least 24 hours' notice of readiness of the Work to provide for all observations, tests, and inspections required under paragraph 12.1.1.
5. **Uncovering Work.** The Contractor shall provide uncovering work as required in this Article 12.

12.1.3. **Determination by Owner.** The Owner, or any party designated as acting for the Owner's interests, has the right to accept or reject any matter as not in conformance in the Owner's sole discretion. Inspections, observations, and tests made at any point other than the point of incorporation into the Work shall be advisory in nature, and shall not be binding on the Owner. Failure by the Owner or such designated party to discover, condemn, or reject any Work shall not be construed to imply acceptance of the same. Nothing in this Article 12 shall be construed to waive any of the Owner's rights under any warranty.

## 12.2. Persons Inspecting, Observing and Testing

12.2.1. **Inspectors.** Persons conducting any inspection, observation, or test shall be referred to herein as "inspectors."

12.2.2. **Authority of Inspectors.** An inspector is not authorized to modify or waive any requirements of the Contract Documents. The inspector shall be permitted to observe all Work done, including labor performed and materials furnished, in connection with any part of the Work whatsoever. The inspector has authority to call the attention of the Contractor to any failure of the Work, including all labor, services, materials, and equipment, to conform to the Contract Documents. The inspector has the authority to reject materials and/or suspend all or any part of the Work until any question at issue can be referred to and decided by the Owner. The inspector will issue a written order giving the reason for suspending any Work, and Owner will not accept any work done after the time when the inspector delivers the order to the person in charge at the site. The inspector has no other authority, and any advice which an inspector may give the Contractor shall not be binding in any way on the Owner. The Contractor shall not be relieved from any obligation in connection with the Contract Documents by relying on any such advice.

12.2.3. **No Intimidation.** Inspectors shall at all times be free to perform their duties. Inspectors shall not be considered as foremen, or asked to perform any duties on behalf of the Contractor. Any intimidation of an inspector by the Contractor or the Contractor's agents or employees shall be sufficient reason for the cancellation or termination of the Construction Contract for cause. At the request of Owner, the Contractor shall remove from the Project any employee causing such intimidation.

### 12.3. Uncovering Work

12.3.1. **Uncover at Contractor's Expense.** If any portion of the Work is covered contrary to the Owner's request or to requirements specifically expressed in the Contract Documents, including, without limitation, the Contractor's obligation to give notice, it must, if required in writing by the Owner, be uncovered for observation and be promptly re-covered (if corrections are not required) or be corrected, if applicable, at the Contractor's expense without change in the Contract Time.

12.3.2. **Uncover Upon Other Request.** If a portion of the Work has been covered which the Designer, Owner or any applicable governmental authority has not requested to observe prior to its being covered, or was not otherwise subject to inspection, observation, or testing under the Contract Documents, the Owner may request to see such Work and it shall be uncovered by the Contractor. If such work is in accordance with the Contract Documents, direct costs of uncovering and restoration shall, by appropriate Change Order, be charged to the Owner. If such Work is not in accordance with the Contract Documents, the Contractor shall pay such costs unless the condition was caused by the Owner or a separate contractor.

### 12.4. Correction of Work

12.4.1. **Work Must Conform.** All Work, including labor, services, materials, and other performances, must strictly conform to the Contract Documents. The Contractor shall not incorporate any nonconforming materials or equipment into the Work. Inspection, observation, and testing shall not release or relieve the Contractor from full compliance with the Contract Documents. It also shall not waive any warranty or other rights of the Owner.

12.4.2. **Prompt Correction Required.** The Contractor shall promptly correct Work rejected by the Designer, Owner or any governmental authority as failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including additional testing and inspections, compensation for the Designer's, Owner's, and other professional services, expenses incurred by the Owner and all damages, and the Contractor shall receive no additional time.

12.4.3. **Removal of Defective Work.** The Contractor shall properly remove from the site and from the Owner's property, at such point distant there-from as the Owner may require, portions of the Work which are not in accordance with the requirements of the Contract Documents, and are neither corrected by the Contractor nor accepted by the Owner.

12.4.4. **Owner's Right to Perform Work.** If the Contractor fails to correct nonconforming Work within a reasonable time, or to remove any defective or deficient Work as required, the Owner may correct or remove it in accordance with paragraph 12.5.1 and recover all costs and damages from the Contractor. If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Owner, the Owner may correct or remove such nonconforming work and all costs and damages for such corrections or removals shall be assessed against the Contractor. The Owner has the right to take all actions necessary to complete such remedial action.

12.4.5. **Destroyed or Damaged Work.** The Contractor shall bear the cost of correcting destroyed or damaged Work, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's performing correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.4.6. **No Work Beyond Limits.** Any work done beyond the limits shown on the Drawings or established in writing by the Owner, or any extra work done without written authority, as required in the Contract Documents, will be considered as unauthorized, and no payment will be made for the same.

## 12.5. Warranty Corrections

12.5.1. **Correction of Warranty Work.** During a one-year period after the date of Substantial Completion of the Work or any designated portion thereof, or during a one-year period after any other date for the commencement of warranties established under the Contract Documents, or during the term of an applicable special warranty for such period as required by the Contract Documents, if any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of that specific condition in all respects. This period of one year shall be extended with respect to portions of Work performed or impacted by a performance after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work. This obligation under paragraph 12.5.1 shall survive acceptance of the Work under the Contract and termination of the Contract. The Owner shall give such notice within a reasonable amount of time after discovery of the condition.

12.5.2. **Additional Warranty Time.** If any portion of the Work fails during the one-year warranty correction period, or during any other required warranty period, the warranty for such matter shall be extended for one additional one year period, or for such other required warranty period, from the time of such rework.

12.5.3. **Warranty No Limitation on Actions.** Nothing contained in the Contract Documents shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. As provided in paragraph 12.5.1, establishment of any time period relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability and damages with respect to the Contractor's obligations other than specifically to correct the Work.



**12.6. Acceptance of Non-Conforming Work**

12.6.1. If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal or correction. If the Owner accepts the Work under such circumstances, the Total Contract Price will be reduced in an equitable manner to account for all costs and damages as determined by the Owner, whether or not final payment has been made. No such acceptance shall release or relieve the Contractor from any warranty obligations.

**ARTICLE 13. - MISCELLANEOUS PROVISIONS**

**13.1. Governing Law**

13.1.1. The Contract shall be governed by the laws of Utah, and venue shall be in Salt Lake County.

**13.2. Time of Essence**

13.2.1. Time is of the essence of this Contract.

**13.3. Assignment of Contract**

13.3.1. This Contract cannot be assigned by either party without the prior written consent of the other. If the Contractor attempts to make such an assignment without such consent, such attempt shall be invalid, and the Contractor shall remain legally responsible for all obligations under this Contract.

**13.4. Successors**

13.4.1. Each and all of the provisions of the Contract shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns to the extent such successors and assigns are permitted under the Contract.

**13.5. No Waiver**

13.5.1. The failure of the Owner to enforce at any time any of the provisions hereof shall not be construed to be a waiver of the right of the Owner thereafter to enforce any such provisions. No inspection, acceptance, or payment of money for all or any part of the Work shall operate as a waiver of any provision of this Contract.

**13.6. Modifications**

13.6.1. This Contract may only be modified in the manner set forth in Article 7 of the General Conditions, or by a written amendment to this Contract signed by both parties.

**13.7. Severability**

13.7.1. In the event that any one or more of the provisions of this Contract shall for any reason be held to be unenforceable in the court of any state or of the United States of America, such unenforceability shall not affect any other provision, but this Contract shall then be construed as if such unenforceable provision or provisions had never been contained herein. The invalidity of any part or provision of the Contract Documents shall not impair or affect in any manner the validity, enforceability, or effect of the remaining provisions of the Contract Documents.

**13.8. Non-Exclusive Remedies**

13.8.1. The Owner's remedies, rights, and elections hereunder shall be deemed to be nonexclusive, and wherever possible, shall be cumulative with all other remedies at law or equity.

**13.9. Headings**

13.9.1. Headings included in this Contract are for convenience only and are not to be used to interpret the Contract between the parties.

**13.10. No Agency**

13.10.1. This is a Contract for construction. No agency, partnership, joint venture, or other joint relationship is created hereby. The Owner does not extend to the Contractor or the Contractor's agents any authority of any kind to bind the Owner in any respect whatsoever.

**13.11. No Presumption**

13.11.1. There shall be no presumption against any party on the ground that such party was responsible for preparing these Contract Documents or any part of them. Any ambiguity shall be construed in favor of the Owner.

**13.12. Entire Agreement**

13.12.1. This Contract supersedes all proposals, oral or written, all negotiations, conversations, or discussions between the parties relating to this Contract, and all past course of dealing. The Contractor acknowledges that the Contractor has not been induced to enter this Contract by any representations or statements, oral or written, not expressly contained herein, and that the Contractor has had an opportunity to have this Contract reviewed by its legal counsel.

**13.13. Written Notice**

13.13.1. Written notice shall be deemed to have been duly served if delivered in person or by overnight delivery service or certified mail to those persons identified as the Owner and Contractor, as set forth in the Agreement, unless such identifications are changed in writing with notice to all such persons.

**13.14. Interest**

13.14.1. In no event shall interest be due and payable by the Owner to the Contractor.

**13.15. Execution Representations and Warranties**

13.15.1. The Contractor and the Owner represent and warrant to the other that (1) the execution and delivery of the Contract Documents and the performance of the acts and obligations to be performed by such party thereunder have been duly authorized by all necessary corporate (or, if appropriate, partnership) actions by such party; and (2) the Contract Documents do not conflict with or violate any agreements to which such party is now a party or by which such party is bound, or any judgment, decree or order of any court against or affecting such party.

**13.16. Security Requirements**

13.16.1. The Contractor acknowledges that the Owner's premises are subject to various security requirements, including those imposed by CFR 1542 Airport Security, as amended. The Contractor agrees that the Contractor and its employees, agents, sub-consultants, suppliers, and invitees shall learn such security regulations and requirements, and comply with them at all times. The Contractor shall take all actions necessary such that badging and other matters relating to compliance do not slow the Work. The Contractor agrees that it shall be responsible for any and all breaches of security to the extent resulting from the negligent or intentional acts of omission or commission of officers, employees, representatives, agents, servants, subtenants, consultants, subcontractors, successors, assigns, and suppliers of the Contractor.

### 13.17. Liable for Fines

13.17.1. The Contractor agrees that as between the Contractor and the Owner, the Contractor is liable for and shall immediately pay the amount of any and all fines, penalties and fees imposed by any lawfully empowered entity on the Owner or any of its departments, employees, officers, or agents or on the Contractor or any of the Contractor's officers, employees, agents, sub-consultants or suppliers, to the extent caused by any act or failure to act by the Contractor or the Contractor's officers, employees, agents, sub-consultants or suppliers. Such fines shall include, but not be limited to, any fine, fee, or penalty imposed by the FAA or TSA in connection with a violation of any security requirement. Any such payment by the Contractor shall not be reimbursable by the Owner, and as between the Owner and the Contractor, shall be paid solely by the Contractor. The Contractor may contest the imposition of any such fine, fee, or penalty solely at the Contractor's expense, and the costs thereof shall not be reimbursable by the Owner. In the event the Contractor shall contest any matter, the Contractor shall take all reasonable steps necessary to prevent the imposition of any fines or adverse consequences on the Owner or any of the Owner's departments, officers, employees or agents, including, without limitation, paying any sum under protest and contesting the matter after such time.

### 13.18. Payment Obligations

13.18.1. The Contractor agrees to promptly pay all taxes, excises, license fees, permit fees, and any other similar matters required for the conduct of the Contractor's business and the performance of the Contract Services. The Contractor shall not permit any of the same to become delinquent. The Contractor further agrees to promptly pay when due all bills, debts, and obligations incurred in connection with the Contractor's performance of this Contract. The Contractor shall not permit any of the same to become delinquent, or to suffer any lien, mortgage, judgment or execution to be filed against the Owner or its premises or improvements. The Contractor shall furnish the Owner, upon request, with copies of receipts or other satisfactory evidence of prompt payment.

### 13.19. Standards of Conduct

13.19.1. Representation Regarding Ethical Standards for City Officers and Employees and Former City Officers and Employees. The Bidder, Offeror, or Contractor represents that it has not (1) provided an illegal gift or payoff to a City officer or employee or former City officer or employee or his or her relative or business entity; (2) retained any person to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee other than bona fide employees or bona fide commercial selling agencies for the purpose of securing business; (3) knowingly breached any of the ethical standards set forth in the City's conflict of interest ordinance, Chapter 2.44, Salt Lake City Code; or (4) knowingly influenced and hereby promises that it will not knowingly influence a City officer or employee or former City officer or employee to breach any of the ethical standards set forth in the City's conflict of interest ordinance, Chapter 2.44, Salt Lake City Code. (As used in this paragraph, "City" means Salt Lake City Corporation.)

### 13.20. Non-Discrimination

13.20.1. **Act of 1964.** During the performance of this Contract, the Contractor, for itself, its assignees and successors in interest, agrees as follows:

1. **Compliance with Regulations.** The Contractor shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, 'DOT') Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Contract.

2. **Nondiscrimination.** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, creed, color, sex or national origin in the selection and retention of subcontractors and sub-consultants, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment.** In all solicitations, either by competitive bidding or negotiation, made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the regulations relative to nondiscrimination on the grounds of race, creed, color sex or national origin.
4. **Information and Reports.** The Contractor will provide all information and reports required by the regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of Information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration (FAA) to be pertinent to ascertain compliance with such regulations, orders, and instructions. Where any information required of the Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Owner or the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance.** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the Owner shall impose such contract sanctions as it or the FAA may determine to be appropriate, including but not limited to:
  1. withholding of payments to the Contractor under the contract until the Contractor complies, and/or
  2. cancellation, termination, or suspension of the contract, in whole or in part.
6. **Incorporation of Provisions.** The Contractor shall include the provisions of subparagraphs 1 through 5 above in every subcontract, including procurements of materials and leases of equipment, unless exempt by the regulations or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the Owner or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor, sub-consultant, or supplier as a result of such direction, the Contractor may request the Owner to enter into such litigation to protect the interests of the Owner and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

13.20.2. **Exclusive Rights.** Nothing herein contained shall be construed to grant or authorize the granting of an exclusive right forbidden by Section 308 of the Federal Aviation Act of 1958, as amended.

### 13.21. Sponsor's Assurances

13.21.1. This Contract shall be subordinate to the provisions of any existing or future contracts between the Owner and the United States Government relating to the operation or maintenance of the Airport, the execution of which has been or will be required as a condition precedent to the granting of federal funds for the development of the Airport to the extent that the provisions of any such existing or future contracts are generally required by the United States at other civil air carrier airports receiving federal funds and provided that Owner agrees to give the Contractor written notice in advance of the execution of such contracts of any provisions which will modify the terms of this Contract. The Contractor agrees to incorporate all such items into this Contract.

### 13.22. No Third-Party Beneficiaries

13.22.1. The Contractor and the Owner assume no duty or responsibility under this Contract which may be construed as being for the benefit of and/or thereby enforceable by any subcontractor, supplier, surety, designer, or any other third party. The Contractor's and Owner's obligations are solely to each other. This Contract shall confer no third-party rights whatsoever.

## ARTICLE 14. - TERMINATION OR SUSPENSION OF THE CONTRACT

### 14.1. Termination by the Contractor

14.1.1. **Basis.** As set forth herein, the Contractor may terminate the Contract because the Work has been stopped for a period of 30 days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, provided the Contractor notifies the Owner in writing of such intent and the Owner has not cured the Work stoppage within fourteen (14) days of receipt of such notice. The Contractor may only exercise the termination right stated in this paragraph 14.1.1 for the following reasons:

1. issuance of an order of a court or other public authority having jurisdiction;
2. an act of government, such as a declaration of national emergency, making material unavailable;

14.1.2. **Contractor's Termination Payment.** If the Contractor terminates the Contract per paragraph 14.1.1, the Contractor may recover from the Owner payment for Work executed and actual reasonable costs incurred with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages earned in compliance with the Contract Documents, and to the date of termination, but excluding anticipatory profits. The Contractor shall justify any such Claims as requested by the Owner with accurate records and data.

14.1.3. **No Release for Performed Work.** Termination of the Contract or a portion thereof pursuant to paragraph 14.1 shall neither relieve the Contractor of its responsibilities for the completed Work nor shall it relieve its Surety of its obligation for and concerning any Claim arising out of the Work performed.

### 14.2. Termination by the Owner for Cause

14.2.1. **Basis for Termination for Cause.** The Owner may terminate the Contract for cause if the Contractor:

1. fails to perform the Work; fails to provide a sufficient number of adequately skilled workers or supervisory staff who actively staff the job and prosecute the Work, or fails to have available at the site proper equipment or materials to assure completion of the Work in accordance with the terms of the Contract Documents, or
2. performs the Work unsuitably or neglects or refuses to remove materials or to perform anew such Work as may be rejected as unacceptable and unsuitable, or
3. fails to commence the Work, maintain adequate progress towards completion of the Work or discontinues the prosecution of the Work, or
4. fails to carry out the requirements of the Owner's DBE Participation Program (if required), or
5. allows any final judgment against it to remain unsatisfied for a period of thirty (30) days, or
6. makes an assignment for the benefit of creditors, or
7. fails to carry on the Work in accordance with the Contract provisions, or substantially violates such provisions, or
8. consents to the appointment of a receiver, trustee, or liquidator of all or substantially all of the property of Contractor, or
9. files a petition for bankruptcy or receivership, or is the subject of any order or decree of any court or governmental authority or agency having jurisdiction, appointing a receiver, trustee, or liquidator to take possession or control of all or substantially all of the Contractor's property for the benefit of creditors, or
10. if at any time the surety executing the bond is determined by the Owner to be unacceptable and the Contractor fails to furnish an acceptable substitute surety within fifteen (15) days after notice from the Owner, or
11. disregards the laws or regulations of any public body having jurisdiction, or disregards the authority of any individual designated as acting with respect to the Owner's interests, or
12. fails to comply with any provision regarding the safety, security, or ongoing operations of the Owner's Airport; or
13. is otherwise in material default under this Contract.

14.2.2. **Owner's Action.** When any of the above reasons exists, the Owner may, without prejudice to any other rights or remedies of the Owner, and after giving the Contractor and the Contractor's surety seven (7) days' written notice, and provided the Contractor, within such seven (7) day period, has not commenced in good faith to cure such cause or breach (or if having commenced such cure, is not proceeding diligently to complete such cure), terminate employment of the Contractor and may, subject to any prior rights of the surety:

1. take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
2. accept assignment of Subcontracts, and the Contractor shall provide for assignment of the same;
3. finish the Work by whatever reasonable method the Owner may deem necessary.

14.2.3. **Effect on Payment.** When the Owner terminates the Contract for one of the reasons stated in paragraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is completed.

14.2.4. **Amount of Payment.** Contractor and Contractor's surety shall be liable to pay the costs of finishing the Work, including all damages, and compensation for the Designer's services, and other expenses made necessary as a result of such termination. This obligation for payment shall survive termination of the Contract.

14.2.5. **No Release.** When exercising the Owner's rights, the Owner shall not be required to obtain the lowest price, but shall act in the best interests of the Owner's Project. Termination of the Contract or a portion thereof pursuant to paragraph 14.2.1 shall neither relieve the Contractor of its responsibility for the completed Work nor shall it relieve its surety of its obligation for and concerning any Claim arising out of the Work performed nor shall it affect any rights or remedies of the Owner.

### 14.3. Suspension or Termination by the Owner For

14.3.1. **Right to Suspend.** The Owner may, without cause, by written order direct the Contractor to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine. The Contractor shall do such work necessary to leave the site safe and secure, and otherwise shall immediately suspend work.

14.3.2. **Contractor's Sole Remedy.** An extension of Contract Time equal to the period of suspension shall be the Contractor's sole and exclusive remedy for a suspension by the Owner. No adjustment to Contract Time shall be made to the extent:

1. that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
2. that an equitable adjustment is made or denied under another provision of this Contract.

14.3.3. **Termination for Convenience.** The Owner may terminate this Contract in whole or in part at any time for its convenience by giving the Contractor seven (7) days' written notice. The Owner shall have the right, in that event, to take over any or all of the Contractor's material, supplies, equipment, or Subcontractors in order to complete the Work and the Contractor shall assign to the Owner such material, supplies, equipment, or Subcontracts/purchase orders. The Contractor shall proceed to complete any part of the Work, as directed by the Owner, and shall attempt to settle all Subcontractor/supplier claims and obligations under the Contract with the Owner. Subject to the limitations in Article 7, the Contractor shall be compensated by the Owner for the Contractor's actual, reasonable, and incurred costs (including reasonable profits conforming to this Contract earned on work performed up to the date of termination, but excluding anticipatory profits on unperformed portions of the Work), and the Contractor shall justify any such Claims as requested by the Owner with accurate records and data in the manner contemplated by Articles 4 and 7 of this Contract.

14.3.4. **Termination for Executive Order.** The Owner shall terminate the Contract or portion thereof by written notice when the Contractor is prevented from proceeding with the Contract as a direct result of an Executive Order of the President of the United States. When the Contract, or any portion thereof, is terminated pursuant to this paragraph before completion of all items of work in the Contract, payment will be made, subject to the limitations of Article 7, for the actual number of units or items of work completed at the contract price or as mutually agreed to for items of Work partially completed or not started. No Claims for loss of anticipatory profits shall be permitted. Reimbursement for other overhead expenses (when not otherwise included in the Contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor. Acceptable materials obtained or ordered by the Contractor for the Work which are not incorporated in the Work shall, at the option of the

Owner, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Owner. Termination of the Contract or a portion thereof pursuant to this paragraph shall neither relieve the Contractor of its responsibilities for the completed Work nor shall it relieve its Surety of its obligation for and concerning any Claim arising out of the Work performed.

**\*\*END OF SECTION 00700\*\***



**ARTICLE 1–SECTION 00810 - SPECIAL CONDITIONS**

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**ARTICLE 1. - CONTRACT DOCUMENTS PROVIDED**

**1.1. Sets Provided**

1.1.1. The Owner will furnish (6) six sets of the Contract Documents to the Contractor.

**ARTICLE 2. - SITE MATTERS**

**2.1. Utility Shutdowns**

2.1.1. The Contractor shall notify and coordinate all utility shutdowns with the owner of the affected utility. Any shutdown of utilities must be accomplished during the hours of 1 a.m. to 5 a.m. with no additional cost to the City. If proposed construction will require a longer shutdown of utilities, it must be approved by the Owner and be accomplished on successive nights. Interruption of utility services during passenger flow times will not be permitted. A penalty of \$1,000 will be imposed on the Contractor for any unauthorized utility interruption.

**ARTICLE 3. - LABOR, SERVICES AND MATERIALS**

**3.1. Vehicle Load Weight**

3.1.1. The Owner reserves the right to spot check the load weight of any vehicle during the project duration. The Contractor shall provide the Owner with the tare weight of all trucks that will be used on the project. The maximum gross weight limit of the truck whose number is listed on the ticket is also required to be automatically printed on the same weight ticket. This shall be done at the Contractor's expense on scales approved by the Owner.

**3.2. Material Weight Tickets**

3.2.1. The material supplier is required to submit a delivery ticket with each load of material sent to the job site that is to be measured and paid for by weight. This ticket serves as a certification of the type and quantity of material delivered. The minimum information shall include the following:

1. Project name and number
2. Bid item name
3. Date and truck number
4. Serial number of ticket
5. Name of Contractor
6. Pit name
7. Weight of material in tons
8. Weighman's signature on first and last ticket of each day's delivery and initials on all other tickets
9. Explanation of any voided loads
10. Time and temperature of departure of bituminous mix from scales

All materials that are measured or proportioned by weight shall be weighed on accurate, certified and approved scales by competent, qualified personnel.

All weight tickets must be delivered to the Owner within 24 hours of receiving the material. No weight tickets will be accepted for payment after 24 hours.

**3.3. Concrete Delivery Ticket**

3.3.1. The concrete supplier is required to submit a delivery ticket with each load of concrete. This ticket serves as a certification of proportions and quantities delivered. The minimum information shall include the following:

1. Name of ready-mixed concrete batch plant

2. Serial number of ticket
3. Date and truck number
4. Name of Contractor
5. Specific designation of the job (name and location)
6. Specific class or designation of the concrete in conformance with that required by the job Specifications
7. Type and brand of cement
8. Amount of cement
9. Total water content by the producer
10. Type, name, and amount of admixtures
11. Maximum size of aggregate
12. Weight of fine and coarse aggregate
13. Free water on the aggregate
14. Amount of concrete delivered (cu yd)
15. Time mixer was loaded or time of first mixing of cement and aggregate
16. Time of arrival at site
17. Time discharge started
18. Time completed delivery
19. Reading of revolution counter at the first addition of water
20. Amount of water added by receiver of concrete and their initials

#### **ARTICLE 4. - CONTRACTOR'S QUALITY CONTROL PROGRAM**

##### **4.1. Inspection Requirements**

- 4.1.1. Inspections shall be performed daily to ensure continuing compliance with Contract requirements until completion of the particular feature of work.

#### **ARTICLE 5. - CORRESPONDENCE**

##### **5.1. Correspondence**

- 5.1.1. All correspondence or any other written documents related to this project must include the following:

1. Name of project
2. Project number or numbers
3. Contract number
4. AIP number, if applicable

##### **5.2. Document Control**

- 5.2.1. The Contractor and its subcontractors will be required to develop and implement a serialized Document I.D. Numbering system for all documentation, and for providing copies of all project-related documentation to the Owner.

- 5.2.2. The Owner be included on the distribution list for all documentation.

1. All forms of correspondence, including letters, e-mail, memoranda, letters of transmittal, or facsimiles
2. Contract documentation (RFI's, change requests, and change orders)
3. Meeting minutes, agenda, including attendance record sheets and all handout materials; reports; presentation materials; job site photographs; and field sketches.

- 5.2.2.1. The following information will be required for all documentation:

1. All forms of correspondence will be dated and signed.
2. All documents will include the project name, document ID number, project number, contract number, and AIP number, if applicable.

5.2.2.2. The Contractor shall submit a complete set of correspondence and technical logs monthly. Logs will include the following:

1. Correspondence log
2. Request for information control log
3. Proposed change order log and change order log
4. Submittal control log
5. Non-compliance control log

### **5.3. Daily Time and Materials Report**

5.3.1. The Contractor shall use a Time and Materials Report that is acceptable to the Owner.

The report shall include as a minimum the following:

1. Project name and project number
2. Contractor's name and address
3. Weather, temperature, and any unusual site conditions
4. Brief description and location of the day's scheduled activities including the work of subcontractors.
5. Number of workers from the GC's own work force and that of its subcontractors
6. Equipment, other than hand tools, utilized by the Contractor and subcontractors
7. Any special problems, incidents, or accidents
8. Materials used by the Contractor and subcontractors.

## **ARTICLE 6. - RESERVED**

## **ARTICLE 7. - COOPERATION WITH OTHERS**

The Technical Specifications describe the constraints on the physical work site areas. These descriptions are not exhaustive and the Contractor is required to coordinate its activities and work as may be required to meet FAA or Owner requirements while performing the Work

## **ARTICLE 8. - SITE COMMUNICATIONS**

Any radio communications systems to be used by the Contractor on-site must be approved by SLCDA Operations. Proposed frequencies shall be submitted to the Owner at the Pre-construction Conference for approval.

## **ARTICLE 9. - ENVIRONMENTAL REGULATIONS AND PROTECTION**

### **9.1. General Environmental Protection Provisions**

9.1.1. The Contractor shall conduct activities on Salt Lake City Airport property in such a manner as to minimize impact to the environment. In addition, the Contractor is required to be knowledgeable of, and adhere to all requirements set forth in current local, state, and federal environmental laws, ordinances, and regulations which pertain to the planned activities and to potential accidental impacts. The Contractor is also responsible for following policies that apply to construction projects as set forth by the Salt Lake City Department of Airport's *Guide to Environmental Compliance*.

9.1.2. After award and before Notice to Proceed, the Contractor shall complete the Environmental Protection Program Forms 1 through 11 for submittal to the Airport's Environmental Programs Manager. The Contractor is to respond to all questions and indicate "Not Applicable" for any response that does not apply.

9.1.3. Contractor may submit his/her own Environmental Protection Program to the Airport for approval in lieu of these forms, provided the program incorporates all provisions and intent of what is requested in the Airport's Environmental Protection Program.

9.1.4. The Contractor is responsible for mitigation of environmental problems associated with the performance of construction activities onsite. In addition, the Contractor is responsible for mitigation of environmental problems associated with performance of construction activities onsite by the Contractor's employees and subcontractors.

9.1.5. The Contractor shall not receive additional payment or reimbursement for environmental compliance items that have been identified by the Salt Lake City Department of Airports (SLCDA). In addition, the Contractor shall not receive additional payment or reimbursement for environmental cleanup costs in the event of accidental impacts caused by the Contractor, employees of the Contractor or any subcontractors.

9.1.6. Upon completion of the Work, the Contractor shall return construction areas, as defined in the project documents, to the conditions required by the Contract. Contractor shall then notify the Engineer, who will issue the proper notice indicating completion of the construction.

**9.2. Environmental Protection Plan (EPP) and EPP Cover Sheet**

9.2.1. Plan Submission. The construction Contractor's Environmental Protection Plan (EPP) is a document that shall be completed by the Contractor. The Cover Sheet constitutes Contractor's certification that the submitted plan is accurate and complete. (**See Form 1**). The Contractor is responsible for assuring and documenting conformance to the EPP. In addition, the Contractor is responsible for assuring compliance by all Contractor's employees and subcontractors.

9.2.2. The Contractor shall submit the completed EPP for review and approval to:

Mailing Address: Department of Airports  
Engineering Office  
P. O. Box 145550  
Salt Lake City, UT 84114

Physical Address: Department of Airports  
Engineering Office  
776 North Terminal Drive, TU1, Suite 220  
Salt Lake City, UT 84122

9.2.3. The Contractor may not begin work on the project site until the EPP is approved. Throughout performance of construction activities, the EPP may be amended as necessary to accommodate changing conditions or new information, with the approval of the Environmental Programs Manager. The EPP is to be present and accessible onsite at all times during construction activities.

### **9.3. Work Preparation**

9.3.1. Prior to commencing construction activities, the Contractor shall perform the following:

1. Submit to the Engineer an approved EPP.
2. Inspect all onsite equipment to ensure that it meets the criteria described in Section D below.
3. Make all necessary preparations to rapidly respond to environmental problems as discussed within this document and as outlined in the EPP.

### **9.4. Condition of Equipment**

9.4.1. Equipment used by the Contractor and any subcontractors must be clean with respect to fuels, lubricants, and hydraulic fluids, and be in reasonably good condition prior to performing onsite construction activities. All equipment mobilized to the construction site shall not leak any fluids. Any equipment that arrives on site with leaks shall be immediately repaired or removed if leaks cannot be stopped. This requirement is primarily directed at the condition of motorized equipment. Equipment in reasonably good condition must meet the following standards:

1. Fuel, lubricants, or hydraulic fluid must not leak from pumps, hoses, fittings, valves, or reservoirs.
2. Exhaust manifolds and associated mufflers and piping, including their mounting and gasketed surfaces, must not be split, broken, or otherwise missing.
3. If a piece of equipment already onsite develops a problem as mentioned above, the Contractor must remedy the situation prior to continuing use of that equipment. If equipment is utilized which generates regulated solid, liquid, or airborne waste streams, it is the Contractor's responsibility to operate the equipment in compliance with applicable regulations, and to appropriately manage the generated waste streams. Proper containment and disposal of solid and liquid waste materials generated by maintenance activities is required as discussed in Section 9.14.

### **9.5. Non-Compliance**

9.5.1. If the Engineer or his representative notes any non-compliance with these environmental protection requirements, or is advised of such non-compliance by a governmental agency with the authority to enforce environmental regulations, the Engineer shall:

1. Notify the Contractor of the non-compliance and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the non-compliance to immediately initiate corrective action.
2. Exercise the right to issue a suspend-work order stopping all or part of the work if the Contractor fails or refuses to take corrective action within the time specified in the notice. The order will remain in effect until satisfactory corrective action has been taken.
3. Deny any claim or request from the Contractor for equitable adjustment for additional time or money on any suspend-work order issued under these circumstances.
4. Require the removal from the project property of any employee or piece of equipment necessary to achieve compliance at no additional cost to the Airport.

9.5.2. Information. Any questions regarding the Environmental Protection Program should be directed to the Airport's Environmental Programs Manager, at (801) 575-2987.

**9.6. General Construction Area Layout**

9.6.1. Fuels, lubricants, hydraulic fluids, other hazardous materials and wastes shall be stored in an approved location when located on Airport property. Contractor must sketch the general locations of these materials as required. (See Form 2)

**9.7. Hazardous Materials Storage and Usage**

9.7.1. Contractor must maintain information regarding hazardous materials and their storage. (See Form 3) Containers shall require secondary containment. Secondary containment for product storage vessels must be constructed of an impervious material and have a minimum storage capacity of the largest product storage container used within the containment area plus 10% of the volume of the largest container.

9.7.2. Use of above ground product storage tanks (AST) containing Uniform Fire Code Class I and Class II liquids, and having a capacity of not more than 1,000 gallons, is allowed, provided the tank is listed, labeled, and installed in accordance with its listing. Such tanks shall be constructed to provide two-hour fire resistance, and the tank product shall be a non-corrosive, non-reactive liquid having a specific gravity equal to or less than 1. The Contractor shall adhere to other requirements regarding signage, registration, fire control, etc. established by the SLCDA

Fire Marshall. Prior to placement and use onsite, the Contractor must notify the Engineer and the SLCDA Fire Marshall and receive approval for placement of such tanks. The Fire Marshall can be contacted at (801)-531-4512.

9.7.3. If the total volume of product storage in all ASTS exceeds 1,320 gallons, or if any single AST has a capacity exceeding 660 gallons, the Contractor must also prepare a Spill Prevention Control and Countermeasure (SPCC) plan as required by Title 40 of the Code of Federal Regulations Part 112. A copy of the SPCC shall be submitted to the Environmental Programs Manager with the EPP. Spill prevention requirements are also discussed in Article 12.

9.7.4. If the total amount of product stored exceeds 10,000 pounds (approximately 1,000 gallons, depending on the specific gravity of the liquid), the Contractor is required to file Tier II forms as outlined in Section 302 of CERCLA and 40 CFR 370, the Emergency Planning and Community Right-To-Know Act. Copies of these shall be submitted to the Engineer.

9.7.5. All products used onsite must be stored in proper, labeled containers, and must be used as specified on the product label. All chemicals stored and used onsite must be accompanied by a copy of their respective Material Safety Data Sheets (MSDS).

**9.8. Emission Control Plan**

9.8.1. The SLCDA has developed an Emissions Control Plan (ECP) to control fugitive emissions and fugitive dust from construction sites at all airports. All Contractors performing work on Airport property are required to adhere to this ECP. Failure to do so may result in shutting down operations until the work is brought into compliance. Part of the ECP is based on information contained in Utah Rule R307-12. Any change in this rule may cause a change in the ECP.

9.8.2. Fugitive emissions and fugitive dust contribute to air pollution. (See Form 4) The EPP shall address the following air pollutants:

PM 10	Nitrous Oxides (NOx)
Sulfur Dioxide (SO <sub>2</sub> )	Hazardous air pollutants (HAPs)



Carbon Monoxide	Volatile organic compounds (VOCs)
-----------------	-----------------------------------

1. PM10 is usually produced by fugitive dust. The other pollutants, usually referred to as fugitive emissions, are usually associated with equipment that uses gasoline or other similar fuel for operating. Organic solvents, chemicals and materials also contribute to fugitive emissions.
2. Fugitive dust shall not exceed 10% opacity if the wind speed does not exceed 25 mph. Opacity will be monitored by the Contractor or his/her representative certified in using Method 9. Fugitive emissions shall be controlled to the greatest extent possible as prescribed in the ECP.
3. Emissions may be from stationary or mobile sources.

9.8.3. Stationary sources include the following:

1. Haul roads, including paved and unpaved roads
2. Material storage, handling and processing
3. Asphalt or hot-mix plants
4. Concrete batch plants

9.8.4. Mobile sources include the following

1. Loading of materials
2. Dumping of materials
3. Hauling of materials
4. Dozing of materials
5. Excavating
6. Grading operations
7. Operational areas
8. Electric generators or other mobile, gas or diesel powered units

9.8.5. Contractors will use the Best Available Control Measures (BACM) to control fugitive emissions and fugitive dust. There may be more than one method available to control fugitive emissions and fugitive dust. If the method chosen by a Contractor proves to be ineffective, the Contractor shall move to the next level of control. Effectiveness of control shall be determined by opacity as measured by Method 9.

9.8.6. Dust, dirt, and other materials are deposited on paved roads in a number of ways including pavement wear, vehicle deposition, dust fall, litter, carry out, erosion and spills. Control of fugitive dust on roads can be achieved by preventive (P) measures or controls and removal. Preventive measures or controls shall be the primary means of controlling fugitive dust. Removal (R) shall be used if preventive measures are not completely effective.

1. Construct, maintain and clean a transition zone daily (P)
2. Maintain adequate freeboard on all loads (P)
3. Cover loads (P)
4. Water flush areas with severe tracking (P)
5. Reduce vehicle speed (P)
6. Sweep roadway (R)

9.8.7. Unpaved roads emit dust due to the fine particles in the surface material under the wheels of vehicles. Emissions control fall under three areas: source extent reduction, source improvement, and surface treatment.

1. Limit traffic volume
2. Reduce vehicle speed
3. Construct and maintain paved transition zones
4. Cover road with gravel or other more durable material
5. Water road
6. Chemical treatment of road (ex. Coherex or magnesium chloride)

9.8.8. If fugitive dust opacity exceeds 20%, the Department of Air Quality (DAQ) will receive a Notice of Violation and an Order to Comply. The Contractor will have to determine what controls, or what level of controls, are necessary to comply with State Rules and send a compliance plan to DAQ for review. If the Contractor is a repeat, flagrant violator, DAQ may issue a Cease and Desist order. The Contractor is responsible for all fines associated with orders issued by DAQ. The Airport has no responsibility for the loss of time due to such a shut down.

9.8.9. Material Storage. Dust emissions can be significant in material storage areas. Contractors shall take precautions to reduce such emissions. The following are methods to accomplish this. Contractors shall use one or more of these to meet the opacity standard set for Airport projects (Utah Rule R307-12).

1. Watering Storage Pile. Wet suppression of materials being loaded into piles.
2. Reducing the Height Materials Fall onto Piles. Reducing the overall height of piles. This provides a lower profile for wind erosion as well as reduces disturbance of materials during moving operations.
3. Control vehicle movement around piles where there are high concentrations of fine materials. Move activities not directly connected with the piles to other locations.
4. Use chemicals to stabilize piles if they will not interfere with the use of materials in the piles.

9.8.10. Asphalt or Hot Mix Plant. Asphalt or hot mix plants use various materials that may emit dust. These materials should be treated as material storage. Other emissions will be addressed in another section.

9.8.11. Concrete Batch Plant. Concrete batch plants use sand and fine aggregate that will produce fugitive dust emissions. These materials should be treated as material storage. The cement silo is a point source of emissions. This should be controlled by using a fabric filter or sock

9.8.12. Fugitive Emissions.

1. Vehicles. Any gasoline-fueled motor vehicle used on the Airport shall obtain a Salt Lake County vehicle emissions test prior to entering the site. Such vehicles shall be retested annually.
2. Volatile Organic Compounds (VOC). Any material containing VOC shall be stored in such a manner to minimize evaporation of such materials.

3. Completion of Projects. At the completion of any project that produces exposed surfaces that have the potential to produce fugitive dust, the Contractor shall take measures to prevent such fugitive dust from being produced. Such measures shall be effective for a time period that is specified in the Contract. Should fugitive dust develop within this time, the Contractor shall, at his/her own expense, return to the site and re-stabilize the material. The choice of stabilization material shall be the Contractor's, unless the Airport specifically specifies such material. It shall be the responsibility of the Airport to ensure the stabilized material is not disturbed.

9.8.12.1. The Contractor is required to maintain a record of all internal combustion engine powered equipment operated during this project, including number of units and total hours operated. The Construction Equipment Air Emissions Form (See Form 5) is to be completed by the Contractor and submitted to the Engineer with the Contractor's final pay request.

## **9.9. Water Quality Control Plan**

9.9.1. The Contractor shall not release wastewater, waste materials, or other chemicals to storm water drains, drainage channels, or other waterways. Wastewater or other liquids generated through construction activities shall be containerized in suitable ASTS or portable storage tanks, which do not leak, as necessary. Storage and disposal of containerized liquids must be performed under applicable local, state, and federal laws, ordinances and regulations. Stormwater runoff to excavations must be limited by the use of curbs and berms (See Form 6).

9.9.2. The Contractor is responsible for complying with requirements set forth in the Utah Pollutant Discharge Elimination System (UPDES) stormwater runoff permit as required by the Environmental Protection Agency (EPA). Additional water quality and erosion control requirements may be provided in the project plans and specifications.

## **9.10. Erosion/Sedimentation Control**

9.10.1. Erosion/sedimentation control measures must be implemented to minimize surface erosion and to adequately filter stormwater runoff. This shall include the use of settling ponds at points where stormwater runoff leaves the project site. Vector skimming devices shall be installed if projects generate material and/or oil and grease that enter the stormwater.

9.10.2. Cut surfaces shall be protected and stabilized from erosion with berms, drainage structures and/or netting or other similar devices.

9.10.3. Immediately upon completion, exposed surfaces shall be protected from erosion by re-vegetation or other appropriate means (See Form 7).

## **9.11. Regulated Waste Management**

9.11.1. Waste Minimization. Waste minimization practices should be utilized by the Contractor to reduce the net quantity and type of waste that must be disposed. When practical, routine maintenance and equipment repairs should be performed off site to minimize the amount of waste materials generated on site.

9.11.2. **Regulated Waste Storage.** All regulated wastes should be segregated and properly containerized as required by applicable local, state, and federal laws, regulations, and ordinances. Waste containers must not leak their contents. Containers storing hazardous waste must be kept closed except when filling or emptying. Open-top containers must be covered at the end of each workday and during periods of precipitation. Secondary containment may be required for certain wastes.

9.11.3. The requirements for the management and storage of hazardous and non-hazardous waste generated on site are set forth in Title 40 of the Code of Federal Regulations, Parts 261 and 266. The Contractor is responsible for proper registration, permitting, and notification of state and federal agencies for regulated waste streams.

9.11.4. **Regulated Waste Disposition.** The Contractor must keep an accurate account of the types and quantities of all regulated wastes generated. Copies of this account must be provided to the Engineer upon request. The Contractor is responsible for the proper registration, classification, and disposal of all generated wastes. Copies of the documentation of waste stream analyses, waste characterization profiles, and transport and disposal manifests must be provided to the SLCDA upon request. Waste materials and containers that are contaminated by chemicals or oils must be segregated from products and non-hazardous wastes, placed in properly labeled and sealed containers, and removed from the site as soon as practical (See Form 8).

## **9.12. Spill Prevention and Cleanup**

9.12.1. Project construction activities must be planned and performed to minimize the possibility of fire, explosion, or inadvertent release of detrimental substances to the air, soil, or surface or ground water. All onsite employees must be informed of proper accidental release or spill response procedures. It is important to note, however, the initial response to any emergency situation will be to first protect human health and safety, and second, protect the environment.

9.12.2. **Preparation for Spill Cleanup.** As included in the EPP, the Contractor must have the following information on hand at all times to handle unauthorized release situations:

1. Site emergency personnel contacts
2. List of potential emergency response contractors
3. MSDS's for each of the chemicals used onsite
4. Regulatory agency personnel contacts

9.12.3. The Contractor is required to allocate all necessary personnel and equipment for handling a release. Spill response equipment to be stored at the project site shall include, at a minimum, the following:

1. Berm materials (such as hay bales, "pigs," and absorbent socks)
2. Plastic sheeting
3. Absorbent material (such as hydrophobic absorbent pads, granular clay, etc.).
4. Drain covers

9.12.4. This equipment shall be present onsite during all construction activities and shall be at least of sufficient quantity to control a spill of the entire contents of the largest container of hazardous material used onsite by the Contractor. This equipment shall also be stored in a location that is readily available to potential spill locations.

9.12.5. Contingency Procedures. The following contingency procedures must be followed in the event of an unauthorized release:

1. Airport Control shall be notified at 575-2401.
2. All employees in a hazardous spill area should be moved upwind and out of low-lying areas.
3. Open flames, sparks, and other emissions sources must be kept clear of spilled hazardous materials and the immediate surrounding area.
4. A hazardous substance spill area must be physically restricted and limited to access only by necessary and trained response personnel.
5. After performing any necessary health and safety emergency procedures, an employee must immediately notify the site supervisor and provide information as to the location, quantity, rate, and composition if known, of the released material.
6. The supervisor will then contact the Engineer and any appropriate site, emergency response, or regulatory contacts.
7. Initial spill containment may be performed by Contractor employees if the substance released is considered non-hazardous to human health. Hazardous substance spill containment should only be performed by personnel who have received certified OSHA Hazardous Materials training. If appropriate personnel are not available to handle a hazardous substance spill, an emergency response contractor must be notified.

9.12.6. In the event of an unauthorized release, all waste materials generated as part of containment and cleanup must be properly containerized and disposed of as discussed in Section 9.1.1. The Contractor is responsible for conducting any assessment or remedial actions necessary to mitigate the environmental impact. Analyses of water, sludge, or soil samples must be conducted by an EPA certified laboratory.

9.12.7. All waste disposal shall be the responsibility of the Contractor. The costs associated with the waste disposal shall be the Contractor's responsibility (See Form 9).

### **9.13. Reporting Environmental Problems**

9.13.1. In the event a potential pre-existing environmental problem is discovered during construction activities, the Contractor shall immediately stop work in the specific area and notify the Engineer. Activities which place site workers at risk of exposure due to the perceived environmental problem, which may increase the environmental problem, or which might pose a threat to the environment, must be halted until any necessary assessment or remedial steps are completed and the Engineer authorizes the resumption of work (See Form 10).

### **9.14. Non-Regulated Waste Management**

9.14.1. The SLCDA encourages the recycling of waste materials whenever possible. Contractors shall separate all waste material into separate waste streams and recycle the materials where there is an acceptable recycling facility available in the Salt Lake Valley. (Refer to Form 11 and the Directory of Recycling Facilities).

This shall be done even if the cost to recycle the material is greater than the cost to dispose of the material in an approved landfill. Associated costs for recycling will not be paid for separately, but should be included in the bid as incidental to the completion of work related items.

9.14.2. The following waste streams shall be collected and recycled by the Contractor when these waste materials are present:

- Antifreeze
- Asphalt
- Cardboard
- Concrete
- Ferrous and non-ferrous metals, including, but not limited to, aluminum and steel
- Glass
- Used motor oil
- Vehicle lead-acid batteries
- Vehicle tires

9.14.3. The following waste streams, when they are present, shall be collected and recycled if the Airport determines there are opportunities to do so at an Airport location:

- Plant material
- Unsuitable excavated soil

9.14.4. The following waste streams, when they are present, shall be collected and recycled if so directed by the Airport:

- Drywall/Gypsum
- Lumber
- Paper

9.14.5. The Contractor shall submit a Recycling Plan (See Form 11) detailing how various waste streams will be separated and managed. The Recycling Plan is to be completed by the Contractor and submitted to the Engineer prior to beginning any work on the project.

#### **9.15. General Construction Storm Water Permit**

The Contractor is responsible for complying with all requirements set forth by the Utah Division of Water Quality (DWQ) as they pertain to the performance of the Contractor's work under this Contract. These requirements include those set forth in the Utah Pollutant Discharge Elimination System (UPDES) permits.

Construction is subject to the following requirements set forth by DWQ:

1. **Projects That Disturb Less Than One Acre**  
Projects that disturb less than one acre are not subject to DWQ regulations. However, the Contractor must still complete Forms 6 and 7 of the Environmental Protection Plan. (See Sections 9.9 and 9.10 above.) A site that disturbs less than one acre is required to obtain a Storm Water Permit if it is part of a "common plan of development or sale" that is greater than one acre.
2. **Projects That Disturb Greater Than One Acre**  
Projects that disturb areas equal to, or greater than one acre are required to obtain a General Storm Water Permit for Construction Activities from the Utah DWQ. This permit must be obtained and erosion and sediment controls must be installed prior to beginning any construction activities.

The Contractor shall prepare and submit a Notice of Intent and obtain a General Storm water Permit for Construction Activities prior to beginning any work on the project. A Fact Sheet for the General Storm Water Permit for Construction Activities can be found online at the following web address: <http://www.waterquality.utah.gov/UPDES/stormwatercon.htm>

Prior to submitting a Notice of Intent with the DWQ, the Contractor shall prepare a Storm Water Pollution Prevention Plan (SWP3) and have it available for inspection by the DWQ. This SWP3 shall be in compliance with state and/or local sediment and erosion plans and requirements. A copy of this SWP3 shall be attached to the Environmental Protection Plan.

The Contractor shall pay all fees associated with obtaining the General Construction Storm Water Permit.

The Engineer has determined that this project will disturb less than one (1) acre and that requirement described above applies for this project.

**ENVIRONMENTAL PROTECTION PLAN (EPP)**

**FORM 1 EPP COVER SHEET**

(Reference Special Conditions Section 9.2.1)

Note: If a subcontractor is physically sharing a staging area with the Contractor it is not necessary that the subcontractor prepare a separate EPP. Please complete all requested information, using the entry “**Not Applicable**” for items that do not apply. Attach additional sheets as necessary.

Contractor: \_\_\_\_\_

Subcontractor(s) covered under this EPP: \_\_\_\_\_

Subcontractor(s) not covered under this EPP: \_\_\_\_\_

Project Name and Description: \_\_\_\_\_

Project Number: \_\_\_\_\_

**Name, title and phone number(s) of person(s) responsible for environmental issues and implementation of this EPP:**

Original Submittal Date: \_\_\_\_\_

Revised Submittal Date: \_\_\_\_\_

**Approval:**  
Environmental Programs Manager: \_\_\_\_\_

Date: \_\_\_\_\_

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**Permit and Registration Numbers**  
1EPA Waste Generator ID Number(s): \_\_\_\_\_

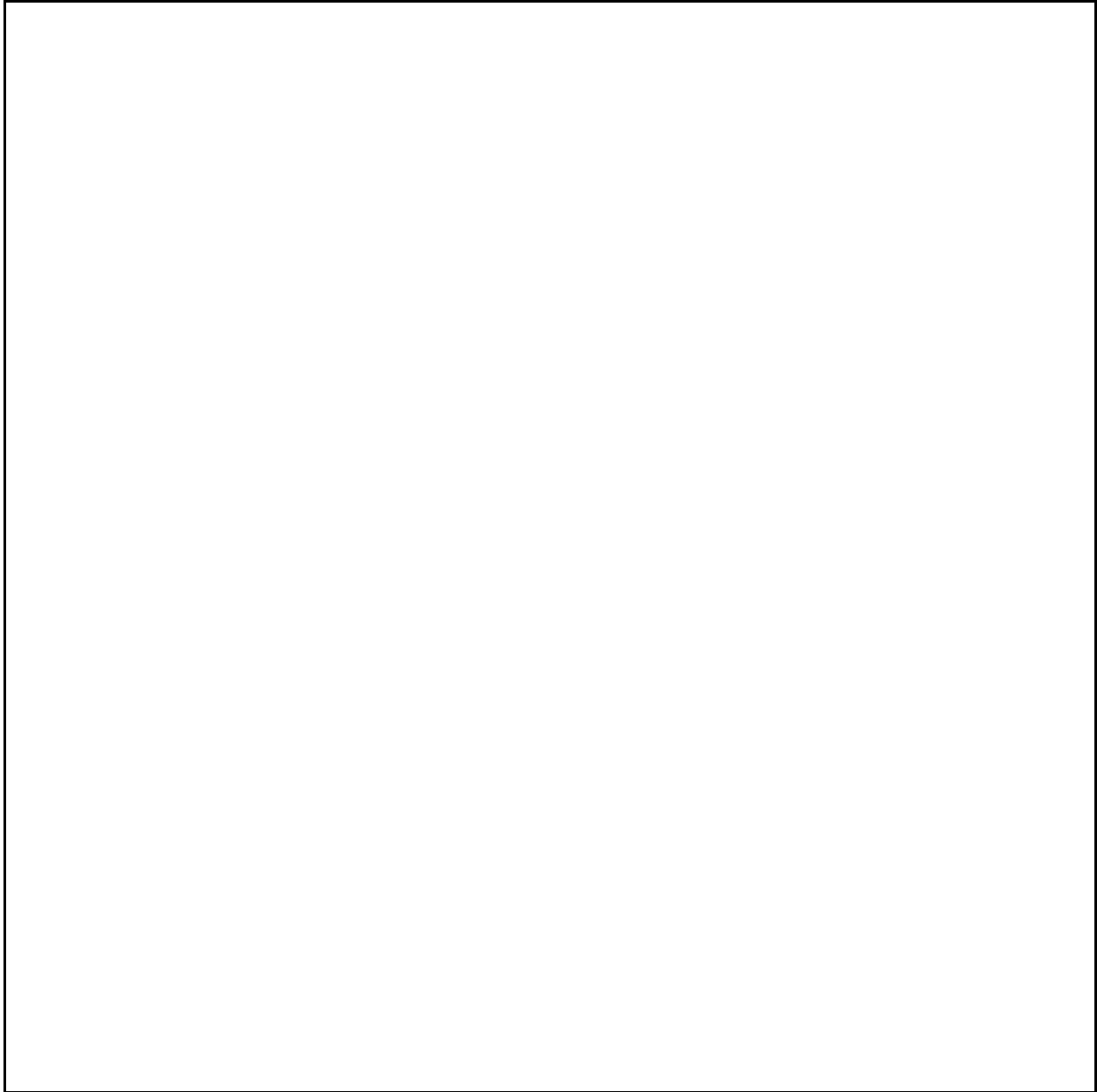
**Air Quality Permits/Approval Orders(s):** \_\_\_\_\_

Other Applicable Registration Numbers (indicate type and number): \_\_\_\_\_



**FORM 2      GENERAL CONSTRUCTION AREA LAYOUT**  
**(Reference Special Conditions Section 9.6.1)**

**Contractor shall provide a sketch showing the general construction staging area layout with locations of hazardous materials storage, spill equipment storage, and maintenance area with associated waste storage.**



**FORM 3      HAZARDOUS MATERIALS STORAGE AND USAGE**  
**(Reference Special Conditions Section 9.7.1)**

Contractor shall provide a list (Table 1) of chemicals, including fuel anticipated to be used at the construction site, including a gross estimate of quantity, method of containerization, and applicability of secondary containment. Attach the Material Safety Data Sheets (MSDS) for the listed chemicals in Table 1.

Describe the chemical storage locations and mechanisms for storage to be used onsite:

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Describe the intended use of above ground storage tanks (such as fuel tanks), including the capacity, construction (steel, fiberglass, etc), and placement:

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Describe the secondary containment mechanisms and practices to be used onsite for all chemicals. Attach a sketch of the proposed secondary containment device. Provide calculations of secondary containment storage capacity as described in Section 9.7.

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**FORM 5 CONSTRUCTION EQUIPMENT AIR EMISSIONS**  
**(Reference Special Conditions Section 9.8.13)**

The Contractor shall complete this form at the completion of the project

Project Location: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Number: \_\_\_\_\_

Contractor/subcontractor: \_\_\_\_\_

Start Date: \_\_\_\_\_ Completion Date: \_\_\_\_\_

EQUIPMENT	NO. UNITS	TOTAL HOURS OF OPERATIONS
Diesel Powered		
Track hoe/tractor		
Rubber tire hoe/tractor		
Wheeled dozer		
Scraper		
Grader		
Track loader		
Rubber tire loader		
Roller		
Non-licensed truck		
Generator		
Air compressor		
(other)		
(other)		
Gasoline Powered		
Rubber tire hoe/tractor		
Grader		
Rubber tire loader		
Roller		
Generator		
Air compressor		
(other)		

This is an accurate accounting of all internal combustion engine powered equipment operated during this project.

Signed \_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_  
 Name (Printed)

\_\_\_\_\_  
 Title

Distribution: Environmental Programs,  
 File





**FORM 8      REGULATED WASTE MANAGEMENT**  
**(Reference Special Conditions Section 9.11.4)**

Contractor shall provide a list of regulated waste streams (used oil, etc.) anticipated to be generated on site, including a gross estimate of quantity:

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Contractor shall describe the regulated waste stream segregation and storage practices to be used on site. Identify the maximum quantity that is to be stored at any one time. Include an estimate of the duration that these waste materials will be stored on site:

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2Contractor shall describe how equipment or container wash/rinse water will be containerized and managed, including storage and disposal:

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**(FORM 8 CONTINUED)**

3 Contractor shall describe the measures that will be taken to minimize the potential for an accidental release of hazardous or waste materials:

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If routine, onsite vehicular maintenance is performed on a routine basis (by Contractors or others), describe the maintenance area and provisions used to minimize the potential for an accidental release (lined pads, catch basins or pans, etc.):

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4 Contractor shall describe any waste minimization practices to be used onsite:

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## **ARTICLE 10. - JOB MEETINGS**

In addition to various preconstruction meetings, coordination meetings, safety meetings, and monthly application for payment meetings, it is anticipated that there will be weekly job meetings. In all instances, the Contractor shall be expected to attend each meeting and be represented by individuals familiar with the Project and authorized to conclude matters related to the Work.

## **ARTICLE 11. - INSURANCE**

11.1.1. The Contractor shall furnish concurrent with signing this Contract a certificate of insurance verifying comprehensive general liability insurance in the minimum amounts of \$5,000,000.00 per occurrence and pursuant to those requirements of General Condition Article 11.

11.1.2. The Contractor shall furnish concurrent with signing this Contract, a certificate of insurance verifying Business Auto Coverage insurance in the minimum amounts of \$5,000,000.00 per occurrence and pursuant to those requirements of General Condition Article 11.

## **ARTICLE 12. - CONTRACTOR'S CONSTRUCTION SCHEDULES**

### **12.1. Requirement Included**

12.1.1. This Article includes procedures for preparation and submittal of construction schedules.

### **12.2. Related Requirements**

12.2.1. General Conditions, Article 3.7 Contractor's Construction Schedule

12.2.2. General Conditions, Article 3.9 Submittals: Shop Drawings, Product Data, and Samples

### **12.3. General**

12.3.1. The Contractor's and/or Subcontractor's timely execution or performance of all construction related activities shall be in strict compliance with the approved Baseline Construction Schedule. Means and methods of construction in accordance with the Contract Documents shall remain the sole responsibility of the Contractor.

12.3.2. The Construction of the project will be planned and recorded utilizing Primavera Project Planner (latest Windows version) or Sure Trak Project Manager (latest version) computer software. It shall be used for coordination, monitoring, and verification of payment of all work under the Contract including all activities of the Contractor, Subcontractors, vendors, and suppliers.

12.3.3. A scheduling meeting will be held after the Pre-construction Conference and prior to issuance of Notice to Proceed. The Contractor, Owner and any other persons designated by the Owner or Contractor will attend the meeting. The purpose of this meeting will be to address any questions the Contractor may have concerning the schedule requirements.

### **12.4. Preliminary Schedule**

12.4.1. Within fourteen (14) days of the Notice to Proceed date, the Contractor shall submit to the Owner a Preliminary Schedule. The Preliminary Schedule shall delineate, in the same details as required for the Progress Schedule, the work anticipated for the first thirty (30) calendar days after Notice to Proceed (NTP), with the balance of the construction duration including all milestones shown in summary form.

### **12.5. Baseline Schedule**

12.5.1. Within thirty (30) days of the Notice to Proceed date, the Contractor shall submit to the Owner a proposed Baseline Schedule. The Baseline Schedule shall delineate in the same details as required for the Progress Schedule, all work in this contract. The duration of the Baseline Schedule

shall be in agreement with the duration of the Contract as stipulated in the Contract Documents. This schedule will reflect no progress and the status date will be the Notice to Proceed date.

## 12.6. Progress Schedules

12.6.1. The Progress Schedule shall be in the form of a time scaled precedence diagram. It shall consist of detailed activities and their restraining relationships as required to complete the project from Notice to Proceed through completion of the work. The Progress Schedule shall indicate the following:

1. Beginning and end date duration in workdays for each activity. (Activities in occupied areas and activities requiring premium time labor rates shall be differentiated from each other and from the balance of project activities.)
2. Beginning and end date and total duration in calendar days for each area or portion thereof.
3. Significant milestones, included in the Contract Documents.
4. Specific location of each work activity per the phasing drawing(s) or alternative location drawings approved by the Owner.
5. Specific phase of the work (as defined by the Owner, if applicable) using activity codes approved by the Owner.
6. Detailed schedule of all “utility shut downs” which would impact airlines, tenants and other building operations or functions including, but not limited to; power, telephone, airline computers, communication systems, air conditioning systems, fire sprinklers, alarm systems, domestic water systems, and sanitary sewer systems.
7. Sequence and interdependence of all activities required for complete performance of all items of work under this Contract, with special designations for critical path items.
8. All network restraints (restraining ties between activities which restrict the start or finish of another activity).
9. Submittal activities (including shop drawings, product data and samples) by the Contractor, and reviews and approvals. Activities describing re-submittals and approvals shall be clearly identified and reported as required.
10. Fabrication and delivery activities for long lead items (materials, equipment, or specialty shop fabricated work).
11. Notice to tenant(s) prior to start of work in occupied or used tenant spaces.
12. All the relationships to work of other Contractors or to the operation of the Airport that affect the work to be performed under this Contract. The Contractor is required to identify and separately code all schedule activities that may be affected by work in areas of shared access.

12.6.2. The Contractor shall also provide the following information: holidays, proposed schedule of “utility shut downs” and a list of work activities which must be performed during restricted or special working hours.

12.6.3. The precedence diagram shall show the sequence and interdependence of all activities required for complete performance of all items of work under this contract, including shop drawing submittals and approvals and fabrication and delivery activities.

12.6.4. Long-term construction activities shall be broken down into recognizable smaller activities so that no activity will be longer than 20 workdays.

12.6.5. The Owner reserves the right to selectively limit the number of activities in the schedule.

12.6.6. The Progress Schedule shall be sufficiently detailed to track the progress of each activity and the project as a whole, on a daily basis. The activities shall be clearly described so that the work is readily identifiable. The progress of each activity is to be reasonable and based on the amount of labor, materials, and equipment involved.

12.6.7. The Progress Schedule shall be updated and submitted to the Owner within seven (7) calendar days from the approval date of the Baseline Schedule.

12.6.8. The Owner will review the Progress Schedule for compliance with the Contract requirements as to staging, phasing, and the time of completion. Such review and acceptance of the Schedule does not imply the Owner's endorsement and/or responsibility of each and every activity duration or sequence of activities. If the Progress Schedule is not accepted by the Owner, the Contractor shall revise the Progress Schedule in accordance with the Owner's comments, and resubmit for the Owner's acceptance within seven (7) calendar days of the receipt of the Owner's comments.

12.6.9. The Progress Schedule shall be updated and submitted as outlined in Article 12.7.

## **12.7. Schedule Revisions**

12.7.1. Updating the Progress Schedule to reflect actual progress shall not be considered revisions to the Progress Schedule. All other changes, including but not limited to, the following shall be considered revisions:

1. Adding and/or deleting activity relationships
2. Adding and/or deleting activities
3. Changes to original durations
4. Changes to Contract Milestone dates
5. Performance of work out of sequence

12.7.2. The Progress Schedule may be revised from time to time as conditions may require, and as approved by the Owner. However, nothing in this Article shall be construed to authorize or approve any extension of time or increase the Contract price. It being expressly understood and agreed that time extensions or increases in Contract price, if any, may only be granted in accordance with the applicable requirements of the Contract Documents.

12.7.3. The Contractor may make only those revisions to the Progress Schedule as are accepted in advance by the Owner. In the event of a revision, the Contractor shall make certain that not more than one activity shall have the same activity identification number.

12.7.4. Changes to the Contract by Change Order are to be included in the Progress Schedule prior to commencement of Change Order Work. The new activities and logic are to be reviewed and accepted by the Owner prior to being incorporated into the accepted Progress Schedule.

12.7.5. Total float is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, for each and every activity in the Schedule. Float is not for the exclusive use or benefit of either the Owner or the Contractor.

## **12.8. Schedule Recovery**

12.8.1. Whenever the Contractor's progress is not commensurate with that required to adhere to the Contract Time or Milestone(s) and the Contractor is not entitled to a time extension, the

Contractor shall submit a plan for bringing the work into conformity with the accepted Baseline Schedule.

12.8.2. The Contractor shall submit with the next Application for Payment (following recognition of the problem) a written recovery statement to the Owner, describing the cause for the slippage and the actions planned by the Contractor to recover the Schedule within the shortest reasonable time.

12.8.3. Appropriate recovery actions may include, but not be limited to, assignment of additional labor, subcontractors or equipment, shift or overtime work, expediting of submittals or deliveries, or any combination of them.

12.8.4. Failure or refusal by the Contractor to submit a plan or implement the approved plan for bringing the work back into conformity with the accepted schedule may result in termination of this Contract by the Owner.

## **12.9. Schedule Submittals**

12.9.1. Schedule reports to be included in the Preliminary and Baseline Schedule submittals and subsequent monthly Progress Schedule updates are listed below. These reports will include the following activity information: early start, early finish, late start, late finish, total float, original duration, remaining duration, actual start, actual finish, percent completion.

12.9.2. The Submittal and Procurement Schedule Report shall be in matrix format, grouped by applicable specification reference and sorted by early finish dates for the following activities as applicable:

1. Submittal
2. Approval
3. Issue purchase order
4. Fabricate
5. Delivery to Job site

12.9.3. When required, activities describing re-submittals and approvals shall be clearly identified and reported directly adjacent to original submittal information.

12.9.4. Tabular Schedule Reports of Construction Activities and Milestones sorted by activity number.

12.9.5. Critical Activities (longest path) Report sorted by total float, then early start.

12.9.6. Graphic Schedule Reports: Time scale bar chart based on early schedule dates to include Activity Number, Activity Description and Remaining Duration.

12.9.7. The Contractor shall include in the Preliminary Schedule Submittal and each update thereafter, electronic media shall become the property of the Owner) containing a copy of the computerized schedule and all report files to include:

1. A complete Schedule Submittal shall consist of two copies of each schedule report. Unless indicated otherwise, all report and computer sorts shall depict all activities required to complete the entire project.



2. Each request for payment must be accompanied by the updated schedule reports and electronic media based on the monthly update of the approved Progress Schedule. Requests for payment will not be processed unless properly submitted as specified.
3. All costs and time associated with the preparation and distribution of schedules, reports, sorts, and other supportive information required by this Article for the entire Project shall be deemed incidental to and included in the Contract Bid Price Item(s).

**12.10. Maintenance and Update of the Progress Schedule**

12.10.1. The Owner shall conduct a monthly progress meeting attended by representatives of the Contractor and others as deemed necessary. The focus of the meeting is to assess Project status and develop solutions to items hindering progress. The attendees shall review:

1. Progress during the period
2. Progress schedule during the next period, as forecasted and as originally planned
3. Anticipated problems and proposed solutions
4. Discussion of logic revisions made to the schedule
5. Analysis and discussion of alternative methods to mitigate accumulated delays

**12.11. Twenty-One-Day (Look Ahead) Schedules**

12.11.1. When work on site commences, the Contractor shall prepare weekly, a bar chart schedule covering a 21 calendar day period, including the current week and the forthcoming two weeks. The bar chart schedule will identify all activities that are in progress and activities scheduled to start within the 21-calendar day period. An activity number corresponding to the approved Baseline Schedule shall identify each activity. The bar chart schedule is to be submitted to the Owner on the day prior to the weekly site meetings. The 21-calendar day schedule shall be in a format approved by the Owner.

12.11.2. There shall be regular Scheduling Coordination meetings, which will be a part of the weekly Construction Coordination meetings. The first such Scheduling

Coordination meeting shall be two weeks after the date of Notice to Proceed and each subsequent Scheduling Coordination meeting shall be every week thereafter. Unless otherwise directed by the Owner, the Scheduling Coordination meetings shall be held at the job site and shall be attended by the Contractor. The Contractor shall be represented at each Scheduling Coordination meeting by a person or persons authorized to make decisions and commitments regarding schedules, crew sizes, sequence(s) of events and similar scheduling matters on behalf of the Contractor.

12.11.3. The Scheduling Coordination meeting shall be a forum to establish the true state of completion of the project to update the status of the delivery of material and equipment items and to review and revise (as applicable) the detailed 21-calendar day schedule.

**ARTICLE 13. - OWNER FURNISHED MATERIALS OR EQUIPMENT**

**13.1.** The Owner will provide the following materials or equipment for this project. The Contractor shall be responsible for the proper transportation, handling, storage and incorporation of any such materials or equipment into the Work.

1. None

## **ARTICLE 14. - SAFETY AND SECURITY**

### **14.1. Airport Construction Safety and Security Compliance Requirements**

14.1.1. Work on this project requires access to secure areas within the Airport. Special requirements for airfield safety and security apply to all Contractor and Subcontractor employees working on the project. These requirements are defined in the Airport's Construction Safety and Security Compliance Manual which is available on line at [www.slcairport.com/assets/pdfDocuments/ConstructionSafetyManual.pdf](http://www.slcairport.com/assets/pdfDocuments/ConstructionSafetyManual.pdf) and is hereby incorporated into these Special Conditions and the Contract Documents.

## **ARTICLE 15. - ALLOWANCES**

The Contractor shall include the following allowances in the Total Contract Price: Allowances are only to be used with prior written approval of the Owner. At the end of the Project, any remaining monies in the allowances, shall be credited back to the Owner by change order.

Allowances to be included:

1. None.

## **ARTICLE 16. - TAXES ON CONSTRUCTION MATERIALS**

Effective July 1, 2010, construction materials purchased by, on behalf of, or for the benefit of Salt Lake City International Airport are subject to narrow exemption from Utah State Sales Tax as defined in SB 237 of 2008. Said construction materials must be clearly identified, segregated, and installed or converted to real property as defined by the law. Consult with your tax or legal experts to determine the applicability of SB 237 to materials purchased for this project.

## **ARTICLE 17. - PLAN CHECK FEE**

The plan check fee is paid by Airport.

## **ARTICLE 18. - BIDDER REQUIREMENTS**

The Airport requires a General Contractor to lead this project. The successful bidder must have a Utah General Contractor license.

**\*\*END OF SECTION 00810\*\***

# **ADDENDA AND MODIFICATIONS**

**SECTION 00900      ADDENDA AND MODIFICATIONS**

**This section is reserved for any addenda and modifications that may be issued by the Owner during the bidding process. Any addenda and modifications so issued will be bound into the project manual prior to execution of the Contract by the successful Bidder.**

# **SCHEDULE OF DRAWINGS**

**FIRE STATION 11 ROOF REPLACEMENT/SOLAR PANELS**

**PROJECT NO.: 54 5013 1714**

**FIRE STATION 12 ROOF REPLACEMENT/SOLAR PANELS**

**PROJECT NO.: 54 1019 1716**

**SCHEDULE OF DRAWINGS**

<b>Sheet No.</b>	<b>Dwg. No.</b>	<b>Description</b>
	1	Cover Sheet
G001	2	General Information
G002	3	General Information
AD111	4	Roof Demolition Plan – Station 11
AD121	5	Roof Demolition Plan – Station 12
AE111	6	Roof Plan – Station 11
AE112	7	Photovoltaic Array Layout Plan – Station 11
AE113	8	Reflected Ceiling Plan – Station 11
AE121	9	Roof Plan – Station 12
AE122	10	Photovoltaic Array Layout Plan – Station 12
AE123	11	Reflected Ceiling Plan – Level 1 Station 12
AE124	12	Reflected Ceiling Plan – Level 2 Station 12
AE501	13	Details
AE502	14	Details
AE503	15	Details
AE504	16	Details
AE505	17	Details
EG001	18	Index, Symbols and Abbreviations
EP111	19	Fire Station # 11 Level One Power Plan
EP113	20	Fire Station # 11 Roof PV Plan
EP117	21	Fire Station # 11 One-Line Diagram and Schedules
EP121	22	Fire Station # 12 Level 1 Power Plan
EP122	23	Fire Station # 12 Level 2 Power Plan
EP123	24	Fire Station # 12 Roof PV Plan
EP127	25	Fire Station # 12 One-Line Diagram and Schedules
EP501	26	Electrical Details

# **TECHNICAL SPECIFICATIONS**

**FIRE STATION 11 ROOF REPLACEMENT  
PROJECT NO.: 54 5013 1714  
FIRE STATION 12 ROOF REPLACEMENT  
PROJECT NO.: 54 1019 1716  
TECHNICAL SPECIFICATIONS  
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## SECTION 05 5000 - METAL FABRICATIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Miscellaneous steel including PV array pipe and cable anchors.

#### 1.3 COORDINATION

- A. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For the following:
  - 1. Fasteners.
- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
  - 1. Steel PV Array pipe and cable anchors
- C. Delegated-Design Submittal: For PV Array pipe and cable anchors, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer's experience with providing delegated-design engineering services of the kind indicated, including documentation that engineer is licensed in the jurisdiction in which Project is located.
- B. Mill Certificates: Signed by stainless steel manufacturers, certifying that products furnished comply with requirements.

- C. Welding certificates.
- D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- E. Research Reports: For post-installed anchors.

#### 1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

#### 1.7 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 4000 "Quality Requirements," to design PV Array pipe and cable anchors.

#### 2.2 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.
- D. Stainless Steel Wire Rope: Wire rope manufactured from stainless steel wire complying with ASTM A492, Type 316.
  - 1. Wire Rope Fittings: Stainless steel connectors, Type 316, with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.

### 2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
- B. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.
- C. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
  - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

### 2.4 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

### 2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

- G. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

## 2.6 MISCELLANEOUS STEEL

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
- C. Galvanize exterior miscellaneous steel.

## 2.7 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

## 2.8 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
  - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

3.2 REPAIRS

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 05 5000

FIRE STATION #11 AND #12 – RE-ROOF & PV INSTALL  
SALT LAKE CITY INTERNATIONAL AIRPORT

BID SET  
MAY 2019

B L A N K P A G E

## SECTION 06 1000 - ROUGH CARPENTRY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Rooftop equipment bases and support curbs.
  - 2. Wood blocking, cants, and nailers.

#### 1.3 DEFINITIONS

- A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.
- C. Exposed Framing: Framing not concealed by other construction.
- D. OSB: Oriented strand board.
- E. Timber: Lumber of 5 inches nominal size or greater in least dimension.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
  - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
  - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
  - 1. Wood-preservative-treated wood.
  - 2. Fire-retardant-treated wood.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
- B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.

### 2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWWA UC2.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
  - 2.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat the following:
  - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.



2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

### 2.3 FIRE-RETARDANT-TREATED MATERIALS

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

### 2.4 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  1. Blocking.
  2. Nailers.
  3. Rooftop equipment bases and support curbs.
  4. Cants.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:
  1. Hem-fir (north); NLGA.
  2. Hem-fir; WCLIB or WWPA.
  3. Western woods; WCLIB or WWPA.
  4. Northern species; NLGA.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

### 2.5 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
  1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 ICC-ES AC58 ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate.
  - 1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  - 1. Use inorganic boron for items that are continuously protected from liquid water.
- E. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. ICC-ES evaluation report for fastener.

#### 3.2 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 1000

SECTION 06 1600 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
  - 1. Parapet sheathing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review air-barrier and water-resistant glass-mat gypsum sheathing requirements and installation, special details, transitions, mockups, air-leakage testing, protection, and work scheduling that covers air-barrier and water-resistant glass-mat gypsum sheathing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. For air-barrier and water-resistant glass-mat gypsum sheathing, include manufacturer's technical data and tested physical and performance properties of products.
- B. Shop Drawings: For air-barrier and water-resistant glass-mat gypsum sheathing assemblies.
  - 1. Show locations and extent of sheathing, accessories, and assemblies specific to Project conditions.
  - 2. Include details for sheathing joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
  - 3. Include details of interfaces with other materials that form part of air barrier.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer..
- B. Product Certificates: From air-barrier and water-resistant glass-mat gypsum sheathing manufacturer, certifying compatibility of sheathing accessory materials with Project materials that connect to or that come in contact with the sheathing.

- C. Product Test Reports: For each air-barrier and water-resistant glass-mat gypsum sheathing assembly, indicating compliance with specified requirements, for tests performed by a qualified testing agency.
- D. Evaluation Reports: For the following, from ICC-ES:
  - 1. Air-barrier and water-resistant glass-mat gypsum sheathing.
- E. Field quality-control reports.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer of air-barrier and water-resistant glass-mat gypsum sheathing.
  - 1. Installer shall be licensed by ABAA according to ABAA's Quality Assurance Program and shall employ ABAA-certified installers and supervisors on Project.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Air-Barrier and Water-Resistant Glass-Mat Gypsum Sheathing Performance: Air-barrier and water-resistant glass-mat gypsum sheathing assembly, and seals with adjacent construction, shall be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, tie-ins to installed waterproofing, tie-ins to other installed air barriers, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

#### 2.2 PARAPET SHEATHING

- A. Glass-Mat Gypsum Sheathing: ASTM C1177/C1177M.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. CertainTeed Corporation.
    - b. Georgia-Pacific Gypsum LLC.
    - c. National Gypsum Company.

2. Type and Thickness: Type X, 5/8 inch thick.
3. Size: 48 by 96 inches for vertical installation.

### 2.3 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  1. For roof parapet sheathing, provide fasteners of Type 304 stainless steel.

### 2.4 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

- A.
- B. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
  1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
  1. ICC-ES evaluation report for fastener.
- D. Coordinate parapet sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Seal sheathing joints according to sheathing manufacturer's written instructions.
- D. Air-Barrier and Water-Resistant Glass-Mat Gypsum Sheathing:
  - 1. Install accessory materials according to sheathing manufacturer's written instructions and details to form a seal with adjacent construction, to seal fasteners, and ensure continuity of air and water barrier.
    - a. Coordinate the installation of sheathing with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
    - b. Install transition strip on roofing membrane or base flashing, so that a minimum of 3 inches of coverage is achieved over each substrate.
  - 2. Connect and seal sheathing material continuously to air barriers specified under other Sections as well as to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
  - 3. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
  - 4. Repair punctures, voids, and deficient lapped seams in strips and transition strips extending 6 inches beyond repaired areas in strip direction.

END OF SECTION 06 1600

## SECTION 07 0150 - PREPARATION FOR REROOFING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

1. Full tear-off of entire roof system.
2. Removal of flashings and counterflashings.
3. Allowance for removal of existing roof insulation.
4. Temporary roofing.

#### 1.3 DEFINITIONS

- A. EPS: Molded (expanded) polystyrene.
- B. Full Roof Tear-off: Removal of existing roofing system down to existing roof deck or concrete slab.
- C. OSB: Oriented strand board.
- D. Partial Roof Tear-off: Removal of selected components and accessories from existing roofing system.
- E. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.
- F. Roof Re-Cover Preparation: Existing roofing system is to remain and be prepared for new roof installed over it.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site.
  1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  2. Review methods and procedures related to roofing tear-off, including, but not limited to, the following:

- a. Reroofing preparation, including roofing system manufacturer's written instructions.
- b. Temporary protection requirements for existing roofing system components that are to remain.
- c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
- d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
- e. Existing roof deck conditions requiring Architect notification.
- f. Existing roof deck removal procedures and Owner notifications.
- g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
- h. Structural loading limitations of roof deck during reroofing.
- i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
- j. HVAC shutdown and sealing of air intakes.
- k. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
- l. Asbestos removal and discovery of asbestos-containing materials.
- m. Governing regulations and requirements for insurance and certificates if applicable.
- n. Existing conditions that may require Architect notification before proceeding.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Temporary Roofing Submittal: Product data and description of temporary roofing system.
  1. If temporary roof remains in place, include surface preparation requirements needed to receive permanent roof, and submit a letter from roofing manufacturer stating acceptance of the temporary roof and that its inclusion does not adversely affect the new roofing system's resistance to fire and wind or its FM Approvals rating.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
  1. Include certificate that Installer is approved by warrantor of existing roofing system.
  2. Include certificate that Installer is licensed to perform asbestos abatement.
- B. Field Test Reports:
  1. Fastener pull-out test report.
- C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations.
  1. Submit before Work begins.



- D. Landfill Records: Indicate receipt and acceptance of demolished roofing materials and hazardous wastes, such as asbestos-containing materials, by a landfill facility licensed to accept them.

## 1.7 QUALITY ASSURANCE

### A. Regulatory Requirements:

- 1. Comply with governing EPA notification regulations before beginning roofing removal.
- 2. Comply with hauling and disposal regulations of authorities having jurisdiction.

## 1.8 FIELD CONDITIONS

### A. Existing Roofing System: PVC roofing.

### B. Owner will occupy portions of building immediately below reroofing area.

- 1. Conduct reroofing so Owner's operations are not disrupted.
- 2. Provide Owner with not less than 72 hours' written notice of activities that may affect Owner's operations.
- 3. Coordinate work activities daily with Owner so Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
- 4. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area.
  - a. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.

### C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

### D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

### E. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

- 1. A roof moisture survey of existing roofing system is available for Contractor's reference.
- 2. The results of an analysis of test cores from existing roofing system are available for Contractor's reference.
- 3. Construction Drawings for existing roofing system are provided for Contractor's convenience and information, but they are not a warranty of existing conditions. They are intended to supplement rather than serve in lieu of Contractor's own investigations. Contractor is responsible for conclusions derived from existing documents.

### F. Limit construction loads on existing roof areas to remain, and existing roof areas scheduled to be reroofed to <Insert load> for rooftop equipment wheel loads and <Insert load> for uniformly distributed loads.

- G. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
  - 1. Remove only as much roofing in one day as can be made watertight in the same day.
- H. Hazardous Materials: It is not expected that hazardous materials, such as asbestos-containing materials, will be encountered in the Work.
  - 1. Hazardous materials will be removed by Owner before start of the Work.
  - 2. Existing roof will be left no less watertight than before removal.
  - 3. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.
    - a. Hazardous materials will be removed by Owner under a separate contract.
- I. Hazardous Materials: A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except according to procedures specified elsewhere in the Contract Documents.
  - 3. Coordinate reroofing preparation with hazardous material remediation to prevent water from entering existing roofing system or building.

## PART 2 - PRODUCTS

### 2.1 TEMPORARY PROTECTION MATERIALS

- A. EPS Insulation: ASTM C 578.
- B. Plywood: DOC PS 1, Grade CD, Exposure 1.
- C. OSB: DOC PS 2, Exposure 1.

### 2.2 TEMPORARY ROOFING MATERIALS

- A. Design and selection of materials for temporary roofing are Contractor's responsibilities.
- B. Sheathing Paper: Red-rosin type, minimum 3 lb/100 sq. ft.
- C. Base Sheet: ASTM D 4601/D 4601M, Type II, nonperforated, asphalt-impregnated and -coated, glass-fiber sheet.
- D. Glass-Fiber Felts: ASTM D 2178/D 2178M, Type IV, asphalt-impregnated, glass-fiber felt.
- E. Base Sheet Fasteners: Capped head, factory-coated steel fasteners, listed in FM Approvals' RoofNav.

### 2.3 AUXILIARY REROOFING MATERIALS

- A. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of new roofing system.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.
- B. Shut off rooftop utilities and service piping before beginning the Work.
- C. Test existing roof drains to verify that they are not blocked or restricted.
  - 1. Immediately notify Architect of any blockages or restrictions.
- D. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.
  - 1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- E. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- F. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.
  - 1. Prevent debris from entering or blocking roof drains and conductors.
    - a. Use roof-drain plugs specifically designed for this purpose.
    - b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
  - 2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding.
    - a. Do not permit water to enter into or under existing roofing system components that are to remain.

### 3.2 ROOF TEAR-OFF

- A. Notify Owner each day of extent of roof tear-off proposed for that day.
- B. Lower removed roofing materials to ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.

- C. Remove pavers and accessories from roofing.
  - 1. Store and protect equipment ballast and accessories for reuse in manner not to exceed structural loading limitations of roof deck.
  - 2. Discard broken ballast.
  
- D. Full Roof Tear-off: Remove existing roofing and other roofing system components down to the existing roof deck or concrete slab.
  - 1. Remove substrate board, vapor retarder, roof insulation and cover board.
  - 2. Remove base flashings and counter flashings.
  - 3. Remove perimeter edge flashing and gravel stops.
  - 4. Remove copings.
  - 5. Remove expansion-joint covers.
  - 6. Remove flashings at pipes, curbs, mechanical equipment, and other penetrations.
  - 7. Remove wood blocking, curbs, and nailers.
  - 8. Bitumen and felts that are firmly bonded to concrete decks are permitted to remain if felts are dry.
    - a. Remove unadhered bitumen, unadhered felts, and wet felts.
  - 9. Remove fasteners from deck.

### 3.3 DECK PREPARATION

- A. Inspect deck after tear-off of roofing system.
- B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.
  - 1. Do not proceed with installation until directed by Architect.
- C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect.
  - 1. Do not proceed with installation until directed by Architect.
- D. Provide additional deck securement as required.

### 3.4 INFILL MATERIALS INSTALLATION

- A. Immediately after roof tear-off, and inspection and repair, if needed, of deck, fill in tear-off areas to match existing roofing system construction.
  - 1. Installation of infill materials is specified in Section 07 5419 "Polyvinyl-Chloride (PVC) Roofing."
  - 2. Installation of wood blocking, curbs, and nailers is specified in Section 06 1000 "Rough Carpentry."

3.5 REPLACEMENT OF EXISTING INSULATION

- A. Inspect and replace damaged or saturated existing roof insulation as required. For purposes of bidding, estimate 10% replacement on both fire station roofs.
  - 1. The portion of roof insulation replacement on the south side of fire station #11 is replaced regardless of condition. This area is excluded from the 10% bid allowance.

3.6 TEMPORARY ROOFING

- A. Install approved temporary roofing over area to be reroofed.
- B. Remove temporary roofing before installing new roofing.
- C. Prepare temporary roof to receive new roofing according to approved temporary roofing proposal.
  - 1. Restore temporary roofing to watertight condition.
  - 2. Obtain approval for temporary roof substrate from roofing manufacturer and Architect before installing new roof.

3.7 BASE FLASHING REMOVAL

- A. Remove existing base flashings.
  - 1. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.
- B. Do not damage metal counterflashings that are to remain.
  - 1. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish as existing.
- C. Remove existing parapet sheathing and replace with new parapet sheathing to comply with Section 06 1600 "Sheathing."
  - 1. If parapet framing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.

3.8 FASTENER PULL-OUT TESTING

- A. Perform fastener pull-out tests according to SPRI FX-1, and submit test report to Architect and roofing manufacturer before installing new roofing system.
  - 1. Obtain roofing manufacturer's approval to proceed with specified fastening pattern.
    - a. Roofing manufacturer may furnish revised fastening pattern commensurate with pull-out test results.

3.9 DISPOSAL

- A. Collect demolished materials and place in containers.
  - 1. Promptly dispose of demolished materials.
  - 2. Do not allow demolished materials to accumulate on-site.
  - 3. Storage or sale of demolished items or materials on-site is not permitted.
- B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 07 0150

## SECTION 07 5419 - POLYVINYL-CHLORIDE (PVC) ROOFING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Mechanically fastened, polyvinyl chloride (PVC) roofing system.
  - 2. Substrate board.
  - 3. Roof insulation.
  - 4. Cover board.
  - 5. Walkways.
- B. Section includes installation of sound-absorbing insulation strips in ribs of roof deck. Sound-absorbing insulation strips are furnished under Section 05 3100 "Steel Decking."
- C. Related Requirements:
  - 1. Section 06 1000 "Rough Carpentry" for wood nailers, curbs, and blocking; and for wood-based, structural-use roof deck panels.
  - 2. Section 07 6200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
  - 3. Section 07 7100 "Roof Specialties" for premanufactured copings and roof edge flashings.
  - 4. Section 07 9200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

#### 1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Roofing Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  1. For insulation and roof system component fasteners, include copy of FM Approvals' RoofNav listing.
- B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:
  1. Layout and thickness of insulation.
  2. Base flashings and membrane terminations.
  3. Flashing details at penetrations.
  4. Tapered insulation thickness and slopes.
  5. Roof plan showing orientation of steel roof deck and orientation of roof membrane, fastening spacings, and patterns for mechanically fastened roofing system.
  6. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
  7. Tie-in with air barrier.
- C. Samples for Verification: For the following products:
  1. Roof membrane and flashing, of color required.
  2. Walkway pads or rolls, of color required.
- D. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and manufacturer.
- B. Manufacturer Certificates:
  1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.



- a. Submit evidence of compliance with performance requirements.
  2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.
  - C. Product Test Reports: For roof membrane and insulation, tests performed by independent qualified testing agency indicating compliance with specified requirements.
  - D. Evaluation Reports: For components of roofing system, from ICC-ES.
  - E. Field Test Reports:
    1. Concrete internal relative humidity test reports.
    2. Fastener-pullout test results and manufacturer's revised requirements for fastener patterns.
  - F. Field quality-control reports.
  - G. Sample Warranties: For manufacturer's special warranties.
- 1.7 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For roofing system to include in maintenance manuals.
  - B. Certified statement from existing roof membrane manufacturer stating that existing roof warranty has not been affected by Work performed under this Section.
- 1.8 QUALITY ASSURANCE
- A. Manufacturer Qualifications: A qualified manufacturer that is listed in FM Approvals' RoofNav for roofing system identical to that used for this Project.
  - B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
- 1.9 DELIVERY, STORAGE, AND HANDLING
- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
  - B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
    1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

#### 1.10 FIELD CONDITIONS

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

#### 1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
  - 1. Special warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, substrate board, and other components of roofing system.
  - 2. Warranty Period: 20 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:
  - 1. Warranty Period: Two years from date of Substantial Completion.
- C. Wind Warranty: Provide warranty of roofing membrane against winds in excess of 90 mph.
- D. Special Warranty: Provide a special PV Overburden warranty.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and flashings shall remain watertight.
  - 1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
  - 2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.

- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.
- C. FM Approvals' RoofNav Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.
  - 1. Fire/Windstorm Classification: Class 1A-90.
  - 2. Hail-Resistance Rating: FM Global Property Loss Prevention Data Sheet 1-34 MH.
- D. ENERGY STAR Listing: Roofing system shall be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.
- E. Energy Performance: Roofing system shall have an initial solar reflectance of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1.
- F. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- G. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

## 2.2 POLYVINYL CHLORIDE (PVC) ROOFING

- A. PVC Sheet: ASTM D4434/D4434M, Type III, fabric reinforced.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville; a Berkshire Hathaway company; JM PVC SD Plus or a comparable product by one of the following:
    - a. Carlisle SynTec Incorporated.
    - b. GAF.
    - c. Mule-Hide Products Co., Inc.
    - d. Sika Sarnafil.
  - 2. Thickness: 80 mills.
  - 3. Exposed Face Color: White.
- B. Source Limitations: Obtain components for roofing system from roof membrane manufacturer.

## 2.3 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
  - 1. Adhesives and Sealants: Comply with VOC limits of authorities having jurisdiction.

- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- D. Bonding Adhesive: Manufacturer's standard.
- E. Water-Based, Fabric-Backed Membrane Adhesive: Roofing system manufacturer's standard water-based, cold-applied adhesive formulated for compatibility and use with fabric-backed membrane roofing.
- F. Slip Sheet: Manufacturer's standard, of thickness required for application.
- G. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- H. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate, and acceptable to roofing system manufacturer.
- I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

## 2.4 COVER BOARDS

- A. Cover Board: ASTM C1177/C1177M, glass-mat, water-resistant gypsum substrate or ASTM C1278/C1278M, fiber-reinforced gypsum board.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide National Gypsum Company; DEXcell FA Glass Mat Roof Board or a comparable product by one of the following:
    - a. CertainTeed Corporation.
    - b. Georgia-Pacific Gypsum LLC.
    - c. USG Corporation.
  - 2. Thickness: Type X, 5/8 inch.

## 2.5 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by PVC roof membrane manufacturer, approved for use in FM Approvals' RoofNav listed roof assemblies.
- B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 3, felt or glass-fiber mat facer on both major surfaces.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville; a Berkshire Hathaway company; ValuTherm or a comparable product by one of the following:
  - a. Carlisle SynTec Incorporated.
  - b. Firestone Building Products.
  - c. GAF.
2. Compressive Strength: 25 psi.
3. Size: 48 by 96 inches.
4. Thickness:
  - a. Base Layer: 1-1/2 inches.
  - b. Upper Layer: As required to match existing roof insulation thickness.

## 2.6 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer.

## 2.7 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16-inch-thick and acceptable to roofing system manufacturer.
  1. Size: Approximately 36 by 60 inches.
  2. Color: Contrasting with roof membrane.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
  1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
  2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.
  - 1. Submit test result within 24 hours of performing tests.
    - a. Include manufacturer's requirements for any revision to previously submitted fastener patterns required to achieve specified wind uplift requirements.

### 3.3 INSTALLATION OF ROOFING, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions, FM Approvals' RoofNav listed roof assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C.

### 3.4 INSTALLATION OF INSULATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Installation Over Metal Decking:
  - 1. Install base layer of insulation with joints staggered not less than 24 inches in adjacent rows and with long joints continuous at right angle to flutes of decking.
    - a. Locate end joints over crests of decking.
    - b. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
    - c. Make joints between adjacent insulation boards not more than 1/4 inch in width.

- d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
    - 1) Trim insulation so that water flow is unrestricted.
  - e. Fill gaps exceeding 1/4 inch with insulation.
  - f. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
  - g. Loosely lay base layer of insulation units over substrate.
  - h. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.
    - 1) Fasten insulation according to requirements in FM Approvals' RoofNav for specified Windstorm Resistance Classification.
    - 2) Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.
2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.
- a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
  - b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
  - c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
  - d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
  - e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
  - f. Trim insulation so that water flow is unrestricted.
  - g. Fill gaps exceeding 1/4 inch with insulation.
  - h. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
  - i. Loosely lay each layer of insulation units over substrate.
  - j. Adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - 1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
    - 2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
    - 3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
    - 4)
- D. Installation Over Concrete Decks:
1. Install base layer of insulation with joints staggered not less than 24 inches in adjacent rows.
    - a. Make joints between adjacent insulation boards not more than 1/4 inch in width.

- b. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
    - 1) Trim insulation so that water flow is unrestricted.
  - c. Fill gaps exceeding 1/4 inch with insulation.
  - d. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
  - e. Loosely lay base layer of insulation units over substrate.
  - f. Adhere base layer of insulation to concrete roof deck according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - 1) Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft., and allow primer to dry.
    - 2) Set insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
    - 3) Set insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
    - 4) Set insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.
- a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
  - b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
  - c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
  - d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
  - e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
    - 1) Trim insulation so that water flow is unrestricted.
  - f. Fill gaps exceeding 1/4 inch with insulation.
  - g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
  - h. Loosely lay each layer of insulation units over substrate.
  - i. Adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - 1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
    - 2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
    - 3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.



### 3.5 INSTALLATION OF COVER BOARDS

- A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.
  - 1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
  - 2. At internal roof drains, conform to slope of drain sump.
    - a. Trim cover board so that water flow is unrestricted.
  - 3. Cut and fit cover board tight to nailers, projections, and penetrations.
  - 4. Adhere cover board to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - a. Set cover board in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
    - b. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
    - c. Set cover board in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
- B. Install slip sheet over cover board and immediately beneath roof membrane.

### 3.6 INSTALLATION OF MECHANICALLY FASTENED ROOF MEMBRANE

- A. Mechanically fasten roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.
- B. Unroll roof membrane and allow to relax before installing.
- C. For in-splice attachment, install roof membrane with long dimension perpendicular to steel roof deck flutes.
- D. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- E. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- F. Mechanically fasten or adhere roof membrane securely at terminations, penetrations, and perimeter of roofing.
- G. Apply roof membrane with side laps shingled with slope of roof deck where possible.
- H. In-Seam Attachment: Secure one edge of PVC sheet using fastening plates or metal battens centered within seam, and mechanically fasten PVC sheet to roof deck.

- I. Seams: Clean seam areas, overlap roof membrane, and hot-air weld side and end laps of roof membrane and sheet flashings to ensure a watertight seam installation.
  - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roof membrane and sheet flashings.
  - 2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.
  - 3. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.
- J. Spread sealant bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.

### 3.7 INSTALLATION OF BASE FLASHING

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

### 3.8 INSTALLATION OF WALKWAYS

- A. Flexible Walkways: Install walkway products according to manufacturer's written instructions.
  - 1. Install flexible walkways at the following locations:
    - a. Locations indicated on Drawings.
    - b. As required by roof membrane manufacturer's warranty requirements.
  - 2. Provide clearance between adjoining pads as required by manufacturer.
  - 3. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

### 3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to inspect substrate conditions, surface preparation, roof membrane application, sheet flashings, protection, and drainage components, and to furnish reports to Architect.

- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.
- C. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 5419

FIRE STATION #11 AND #12 – RE-ROOF & PV INSTALL  
SALT LAKE CITY INTERNATIONAL AIRPORT

BID SET  
MAY 2019

B L A N K P A G E

SECTION 07 6200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

- 1. Manufactured reglets with counterflashing.
- 2. Formed low-slope roof sheet metal fabrications.

B. Related Requirements:

- 1. Section 06 1000 "Rough Carpentry" for wood nailers, curbs, and blocking.
- 2. Section 07 7100 "Roof Specialties" for manufactured copings, roof-edge specialties, roof-edge drainage systems, reglets, and counterflashings.
- 3. Section 07 7200 "Roof Accessories" for set-on-type curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.

1.3 COORDINATION

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

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- 2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
- 3. Review requirements for insurance and certificates if applicable.
- 4. Review sheet metal flashing observation and repair procedures after flashing installation.

## 1.5 ACTION SUBMITTALS

### A. Product Data: For each of the following

1. Underlayment materials.
2. Elastomeric sealant.
3. Butyl sealant.
4. Epoxy seam sealer.
- 5.

### B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
8. Include details of special conditions.
9. Include details of connections to adjoining work.
10. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches.

### C. Samples: For each exposed product and for each color and texture specified, 12 inches long by actual width.

### D. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.

### E. Samples for Verification: For each type of exposed finish.

1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.
4. Anodized Aluminum Samples: Samples to show full range to be expected for each color required.

## 1.6 INFORMATIONAL SUBMITTALS

### A. Qualification Data: For fabricator.

- B. Product Certificates: For each type of coping and roof edge flashing that is FM Approvals approved.
- C. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- D. Evaluation Reports: For copings and roof edge flashing, from ICC-ES showing compliance with ANSI/SPRI/FM 4435/ES-1.
- E. Sample Warranty: For special warranty.

#### 1.7 CLOSEOUT SUBMITTALS

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

#### 1.8 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
  - 1. For copings and roof edge flashings that are ANSI/SPRI/FM 4435/ES-1 tested and FM Approvals approved, shop shall be listed as able to fabricate required details as tested and approved.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
  - 1. Build mockup of typical roof edge, approximately 10 feet long, including supporting construction cleats, seams, attachments, and accessories.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

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

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

#### 1.10 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. SPRI Wind Design Standard: Manufacture and install roof edge flashings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:
  - 1. Design Pressure: 90 mph.
- D. FM Approvals Listing: Manufacture and install roof edge flashings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90. Identify materials with name of fabricator and design approved by FM Approvals.
- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.



1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2 SHEET METALS

- A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
  1. Exposed Coil-Coated Finish:
    - a. Three-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    2. Color: As selected by Architect from manufacturer's full range.
    3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil.
  - C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, dead soft, fully annealed; with smooth, flat surface.
    1. Finish: ASTM A480/A480M, No. 2D (dull, cold rolled).
      - a. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

## 2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer in accordance with underlayment manufacturer's written instructions.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Carlisle WIP Products; a brand of Carlisle Construction Materials.
    - b. GCP Applied Technologies Inc.
    - c. Henry Company.
    - d. Metal-Fab Manufacturing, a Drexel Metals Company.
    - e. Owens Corning.
    - f. Protecto Wrap Company.
  2. Source Limitations: Obtain underlayment from single source from single manufacturer.

3. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F or lower.

## 2.4 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
  1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
    - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    - b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
  2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
  3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- D. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- G. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with interlocking counterflashing on exterior face, of same metal as reglet.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Cheney Flashing Company.
    - b. Fry Reglet Corporation.
  2. Source Limitations: Obtain reglets from single source from single manufacturer.

3. Material: Stainless steel, 0.0188 inch thick.
4. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
5. Finish: Mill.

## 2.5 FABRICATION, GENERAL

- A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.
  1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
  2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
  3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
  4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
  5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances:
  1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
  2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.
- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
  1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
  2. Use lapped expansion joints only where indicated on Drawings.
- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.
- E. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.
- F. Seams:
  1. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.

G. Do not use graphite pencils to mark metal surfaces.

## 2.6 ROOF-DRAINAGE SHEET METAL FABRICATIONS

### A. Hanging Gutters:

1. Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required.
2. Fabricate in minimum 96-inch-long sections.
3. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard, but with thickness not less than twice the gutter thickness.
4. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters. Shop fabricate interior and exterior corners.
5. Gutter Profile: To match existing in accordance with cited sheet metal standard.
6. Expansion Joints: Match existing.
7. Gutters with Girth up to 15 Inches: Fabricate from the following materials:
  - a. Aluminum: 0.032 inch thick.

B. Downspouts: Fabricate rectangular downspouts to dimensions indicated on Drawings, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors.

1. Fabricated Hanger Style: Match existing in accordance with SMACNA's "Architectural Sheet Metal Manual."
2. Fabricate from the following materials:
  - a. Aluminum: 0.024 inch thick.

C. Parapet Scuppers: Fabricate scuppers to dimensions required, with closure flange trim to exterior, 4-inch-wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof. Fabricate from the following materials:

1. Aluminum: 0.032 inch thick.

## 2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing (Gravel Stop) and Fascia Cap: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long sections. Furnish with 6-inch-wide, joint cover plates. Shop fabricate interior and exterior corners.

1. Joint Style: Overlapped, 4 inches wide.
2. Fabricate with scuppers spaced to match existing, to dimensions required with 4-inch-wide flanges and base extending 4 inches beyond cant or tapered strip into field of roof. Fasten gravel guard angles to base of scupper.
3. Fabricate from the following materials:
  - a. Aluminum: 0.050 inch thick.

- B. Copings: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, fasten and seal watertight. Shop fabricate interior and exterior corners.
  - 1. Coping Profile: Match existing in accordance with SMACNA's "Architectural Sheet Metal Manual."
  - 2. Joint Style: Match existing
  - 3. Fabricate from the following materials:
    - a. Aluminum: 0.032 inch thick.
- C. Base Flashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:
  - a. Aluminum: 0.032 inch thick.
- D. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:
  - a. Aluminum: 0.032 inch thick.
- E. Flashing Receivers: Fabricate from the following materials:
  - a. Aluminum: 0.032 inch thick.
- F. Roof-Penetration Flashing: Fabricate from the following materials:
  - 1. Stainless Steel: 0.0188 inch thick.
- G. Roof-Drain Flashing: Fabricate from the following materials:
  - 1. Stainless Steel: 0.0156 inch thick.

## 2.8 MISCELLANEOUS SHEET METAL FABRICATIONS

- A. Equipment Support Flashing: Fabricate from the following materials:
  - 1. Stainless Steel: 0.0188 inch thick.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
  - 1. Verify compliance with requirements for installation tolerances of substrates.
  - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
  - 3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION OF UNDERLAYMENT

#### A. Self-Adhering, High-Temperature Sheet Underlayment:

1. Install self-adhering, high-temperature sheet underlayment; wrinkle free.
2. Prime substrate if recommended by underlayment manufacturer.
3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
4. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses.
5. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller.
6. Roll laps and edges with roller.
7. Cover underlayment within 14 days.

### 3.3 INSTALLATION, GENERAL

#### A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
6. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
8. Do not field cut sheet metal flashing and trim by torch.
9. Do not use graphite pencils to mark metal surfaces.

#### B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of uncoated-aluminum and stainless steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

#### C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
  2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
  3. Use lapped expansion joints only where indicated on Drawings.
- D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
1. Use sealant-filled joints unless otherwise indicated.
    - a. Embed hooked flanges of joint members not less than 1 inch into sealant.
    - b. Form joints to completely conceal sealant.
    - c. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
    - d. Adjust setting proportionately for installation at higher ambient temperatures.
      - 1) Do not install sealant-type joints at temperatures below 40 deg F.
  2. Prepare joints and apply sealants to comply with requirements in Section 07 9200 "Joint Sealants."
- G. Rivets: Rivet joints in uncoated aluminum where necessary for strength.

### 3.4 INSTALLATION OF ROOF-DRAINAGE SYSTEM

- A. Install sheet metal roof-drainage items to produce complete roof-drainage system in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.
- B. Hanging Gutters:
1. Join sections with joints sealed with sealant.
  2. Provide for thermal expansion.
  3. Attach gutters at eave or fascia to firmly anchor them in position.
  4. Provide end closures and seal watertight with sealant.
  5. Slope to downspouts.
  6. Fasten gutter spacers to front and back of gutter.
  7. Anchor and loosely lock back edge of gutter to continuous eave or apron flashing.
  8. Anchor back of gutter that extends onto roof deck with cleats spaced not more than 24 inches apart.
  9. Anchor gutter with straps spaced not more than 24 inches apart to roof deck unless otherwise indicated, and loosely lock to front gutter bead.
  - 10.

11. Install gutter with expansion joints at locations to match existing, but not exceeding, 50 feet apart. Install expansion-joint caps.

C. Downspouts:

1. Join sections with 1-1/2-inch telescoping joints.
2. Provide hangers with fasteners designed to hold downspouts securely to walls.
3. Locate hangers at top and bottom and at approximately 60 inches o.c.
4. Provide elbows at base of downspout to direct water away from building.
5. Connect downspouts to underground drainage system.

D. Parapet Scuppers:

1. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
2. Anchor scupper closure trim flange to exterior wall and seal with elastomeric sealant to scupper.
3. Loosely lock front edge of scupper with conductor head.
4. Seal with elastomeric sealant exterior wall scupper flanges into back of conductor head.

- E. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated on Drawings. Lap joints minimum of 4 inches in direction of water flow.

### 3.5 INSTALLATION OF ROOF FLASHINGS

- A. Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Roof Edge Flashing:

1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch centers.
3. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for FM Approvals' listing for required windstorm classification.

C. Copings:

1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated.
  - a. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 24-inch centers.



- b. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 24-inch centers.
3. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for specified FM Approvals' listing for required windstorm classification.
- D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.
  1. Insert counterflashing in reglets or receivers and fit tightly to base flashing.
  2. Extend counterflashing 4 inches over base flashing.
  3. Lap counterflashing joints minimum of 4 inches.
  4. Secure in waterproof manner by means of interlocking folded seam or blind rivets and sealant unless otherwise indicated.
- F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

### 3.6 INSTALLATION OF MISCELLANEOUS FLASHING

- A. Equipment Support Flashing:
  1. Coordinate installation of equipment support flashing with installation of roofing and equipment.
  2. Weld or seal flashing with elastomeric sealant to equipment support member.

### 3.7 INSTALLATION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

### 3.8 CLEANING

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.

3.9 PROTECTION

- A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.
- C. Maintain sheet metal flashing and trim in clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 07 6200

SECTION 26 0001 – ELECTRICAL GENERAL PROVISIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Architectural, Structural, Mechanical and other applicable documents also apply to work of this section.

1.2 DESCRIPTION OF WORK:

- A. The contract documents indicate the extent of electrical work. Provide all labor, materials, equipment, supervision and service necessary for a complete electrical system as described in divisions 26, 27, and 28.

1.3 RELATED SECTIONS:

- A. Other Divisions relating to electrical work apply to the work of this section. See other applicable Divisions including, but not necessarily limited to:
  - 1. Division 1 – General and Supplementary Conditions
  - 2. Division 2 – Existing Conditions
  - 3. Division 3 – Concrete
  - 4. Division 5 – Metals
  - 5. Division 6 – Wood, Plastics, and Composites
  - 6. Division 7 – Thermal and Moisture Protection
  - 7. Division 8 – Openings
  - 8. Division 9 – Finishes
  - 9. Division 21 – Fire Suppression
  - 10. Division 22 – Plumbing
  - 11. Division 23 – Heating Ventilating and Air Conditioning
  - 12. Division 27 – Communications
  - 13. Division 28 – Electronic Safety and Security

1.4 INTERPRETATIONS OF DRAWINGS AND SPECIFICATIONS:

- A. Prior to bidding the job, submit requests for clarification in writing to the Architect/Engineer prior to issuance of the final addendum.
- B. After signing the contract, provide all materials, labor, and equipment to meet the intent, purpose, and function of the contract documents.
- C. The following terms used in Division 26, 27, and 28 documents are defined as follows:
  - 1. "Provide" - Means furnish, install, and connect, unless otherwise indicated.

2. "Furnish" - Means purchase new and deliver in operating order to project site.
3. "Install" - Means to physically install the items in-place.
4. "Connect" - Means make final electrical connections for a complete operating piece of equipment. This includes providing conduit, wire, terminations, etc. as applicable.
5. "Or Equivalent" - Means to provide equivalent equipment. Such equipment must be approved by the Engineer prior to bidding.

1.5 EXAMINATION OF SITE:

- A. Visit the site and verify existing field conditions prior to submitting bid.
- B. All costs arising from site conditions and/or preparation shall be included in the base bid. No additional charges will be allowed due to inadequate site inspection.

1.6 QUALITY ASSURANCE:

- A. Perform work in accordance with all governing codes, rules, and regulations including the following minimum codes (latest editions or as otherwise accepted by the Authorities Having Jurisdiction):
  1. National Electric Code (NEC)
  2. International Building Code (IBC)
  3. International Fire Code (IFC)
  4. International Mechanical Code (IMC)
  5. International Plumbing Code (IPC)
  6. American Disability Act (ADA)
  7. National Electrical Safety Code (NESC)
  8. Local Codes and Ordinances
- B. Comply with all standards where applicable for equipment and materials including the following minimum standards:
  1. Underwriter's Laboratories (UL)
  2. American Society for testing Materials (ASTM)
  3. Certified Ballast Manufacturers (CBM)
  4. Insulated Cable Engineers Association (ICEA)
  5. National Electrical Manufacturer's Institute (NEMA)
  6. American National Standards Institute (ANSI)
  7. Electrical Testing Laboratories (ETL)
  8. National Fire Protection Association (NFPA)
  9. Institute of Electrical and Electronics Engineers (IEEE)
  10. American Institute of Electrical Engineer's Electrical Power
  11. Systems and Grounding in Commercial Construction
  12. Illuminating Engineers Society (IES)
- C. Provide new electrical equipment conforming to all requirements as set forth in the above standards. Provide UL labeled equipment where such label is applicable.
- D. Comply with all state and local codes and ordinances. When conflicts occur among codes, standards, drawings, and/or specifications, the most stringent requirements shall govern.

- E. Obtain all permits, inspections, etc. required by authority having jurisdiction. Include all fees in bid. Provide a certificate of approval to the owner's representative from the inspection authority at completion of the work.
- F. Provide only first-class workmanship from competent workers, conforming to the best electrical construction practices.
- G. The contractor shall have a current state contracting license applicable to type of work to be performed under this contract.

1.7 SUBMITTALS:

- A. The contractor shall submit complete shop drawings and other required submittals. Incomplete submittals will be returned to the contractor unreviewed. No time extensions or cost increases will be allowed for delays caused by the return of incomplete submittals.
- B. Shop Drawings: After the contract is awarded, but prior to manufacture or installation of any equipment, submit eight (8) complete sets of shop drawings. Partially complete sets of shop drawings are not acceptable. Submit all shop drawings in one complete submittal package. Prior to submitting shop drawings, review and certify that they are in compliance with the contract documents; Sign all approved shop drawings. Allow a minimum of two weeks for architect/engineer to review shop drawings. Refer to architectural general provision section for additional requirements.
- C. Provide equipment catalog “cut sheets”, brochures and/or drawings which clearly describe the proposed equipment. Include plans, elevations, sections, isometrics, and detailed engineering and dimensional information as applicable including equipment room layouts. Electrical room layouts are required to show all electrical equipment locations for all projects that include electrical rooms. Do not submit catalog sheets which describe several different items in addition to those items to be used, unless all relevant information is clearly identified. Bind each information set in three ring binder or binders of sufficient size or sizes to enclose all information. Organize all information by section. Provide separate tabbed covers for each section of Divisions 26, 27, and 28, indicating section number for each section requiring submittals.
- D. Include on front cover of binder or binders the name and location of the project, architect, electrical engineer, general contractor, electrical contractor, subcontractors, supplier/vendor, order number, volume, date, and any other applicable information. Certify that shop drawings are submitted in accordance with the contract documents with a written statement indicating compliance. Submittals will be reviewed and comments produced two times maximum. Additional reviews will be billed at current rates.

1.8 OPERATION AND MAINTENANCE MANUALS:

- A. Submit four (4) complete sets of operating instruction and maintenance manuals for all equipment and materials provided under Divisions 26, 27, and 28.
- B. Provide manufacturer's recommended operating and maintenance instructions, cleaning and servicing requirements, serial and model number of each piece of equipment, complete list of replacement parts, performance curves and data, wiring diagrams, warranties, and vendor's name, address, and phone numbers. Do not submit information which describes several

different items in addition to those items to be used, unless all relevant information is clearly identified. Assemble all data in completely indexed volume or volumes. Engrave the job title, and name, address, and phone numbers of the contractor on the front cover and on the spine. Incomplete O&M manuals will be returned to the contractor for corrections / additions.

1.9 RECORD DRAWINGS:

- A. Maintain on a daily basis a complete set of "Red-Lined Drawings", reflecting an accurate record of all work including addendums, revisions, and changes. Indicate precise dimensioned locations of all concealed work and equipment, including concealed or embedded conduit, junction boxes, etc. Record all "Red-Lined Drawing" information on a set of full sized prints of the contract drawings.
- B. Certify the "Red Lined Drawings" for correctness. Indicate on each drawing the name of the general and electrical contractors with signatures of each representative responsible for the work.
- C. The electrical engineering design firm will create record (as-built) drawings from the certified red-lined drawings; however, the general and electrical contractors retain the responsibility for the accuracy of the record drawings.

1.10 WARRANTY:

- A. Ensure that the electrical system installed under this contract is in proper working order and in compliance with drawings, specifications, and/or authorized changes and is free from electrical defects. Without additional charge, replace or repair, to satisfaction of the owner's representative, except from ordinary wear and tear, any part of the installation which may fail or be determined unacceptable within a period of one (1) year after final acceptance or as otherwise indicated in individual sections, but in no case less than one year. Warranty incandescent and fluorescent lamps only for a period of two months from the date of substantial completion.
- B. Provide complete warranty information for each item including beginning of warranty period, duration of warranty, names, addresses, and telephone numbers and procedures for filling a claim and obtaining warranty services. Written warranties and guarantees are to be submitted separately as:
  - 1. Originals bound in a binder clearly identified with the title, "WARRANTIES AND GUARANTEES," the project name, the project number, and the Contractor's business name.
  - 2. Electronic documents in \*.pdf format.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. All materials shall be new and shall bear the manufacturer's name, trade name, and the approved testing laboratory such as the UL label in every case where a standard has been established for that particular material. Used materials are acceptable only if specifically indicated on

drawings.

## 2.2 SUBSTITUTION OF MATERIALS:

- A. Provide only specified products or products approved by addendum. Substitutions will be considered if two copies of the proposal is received at the architect's/engineer's office eight (8) working days prior to the bid day. Include in the proposal the specified and proposed catalog numbers of the equipment under consideration and a catalog cut sheet(s) with pictorial and descriptive information. Certify that the equipment proposed is equal to that specified, that it has the same electrical and physical characteristics, compatible dimensions, and meets the functional intent of the contract documents.
- B. It is the responsibility of the contractor to make all substituted equipment comply with the intent of the contract documents and bear all cost associated with conflicts arising from the use of substituted equipment.
- C. Provide samples if so required by the architect or engineer before or after bid day.

## 2.3 SPARE PARTS:

- A. Provide spare parts as specified in Divisions 26, 27, and 28 sections. Deliver all spare parts to owner's representative prior to substantial completion.

## PART 3 – EXECUTION

### 3.1 GENERAL:

- A. **Workmanship:** Provide only first class workmanship from competent workers. Defective materials or workmanship will not be allowed on the project. Provide competent supervision for the work to be accomplished. Keep same foreman on the job, unless a change is authorized by the engineer.
- B. **Coordination:** Prior to construction, layout electrical work and coordinate work with other trades. Sequence, coordinate, and integrate installation of materials and equipment for efficient flow of the work. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed. Install electrical equipment to facilitate maintenance and repair or replacement of equipment components. Coordinate the installation of electrical materials and equipment above ceilings with suspension system, mechanical equipment and systems, and structural components. Coordinate with all utilities including power, communication, and data installations.
- C. Provide cutting, drilling, channeling, etc. only as necessary for proper completion of the work. Do not cut structural members unless authorization is issued in writing by the architect/engineer.
- D. **Repairs:** Repair damage to building, grounds, or utilities as a result of work under this contract at no additional cost to the owner.
- E. **Dimensioning:** Electrical drawings indicate locations for electrical equipment only in their

approximate location, unless specifically dimensioned. Do not scale electrical drawings for dimensional information. Refer to architectural drawings and shop drawings where applicable for locations of all electrical equipment. Field verify all dimension on the job site.

- F. Provide block-outs, sleeves, demolition work, etc., required for installation of work specified in this division.
- G. Standards: Provide electrical installation in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.
- H. All workmen doing work of any nature on State of Utah projects must at all times carry their electrician's license with them and show it upon request. The acceptable ratio of apprentice to journeyman electricians on the job is 1:1.

### 3.2 REQUESTS FOR INFORMATION:

- A. When it is clearly apparent that information is not adequately described in the construction documents or when a coordination problem exists, submit a request for information (RFI) through proper contractual channels. The electrical engineering design firm will provide a response through its contractual channel. Although verbal direction may be given to expedite changes, responses are not considered part of the contract documents until a change order has been issued and signed by the Owner or his designated representative. The Contractor shall bear all costs associated with proceeding on any change order that has not been approved by the Owner or his designated representative.
- B. Any damages caused by construction delays due to frivolous RFI's, will be born solely by the Contractor.

### 3.3 SAFETY PRECAUTIONS:

- A. Provide all necessary guards or construction barriers and take all necessary precautions to insure the safety of life and property.

### 3.4 CLEAN:

- A. Clean up all equipment, conduit, fittings, wire, packing cartons, plastic, and other debris that is a direct result of the installation of the work of this division, both during the execution, and at the conclusion, of the project. Keep the site clean and safe during the progress of the work. Clean fixtures, interior and exterior of all equipment, and raceways prior to final acceptance. Vacuum interior of all electrical panels and equipment. Correct any damaged equipment. Touch-up or repaint if necessary.

### 3.5 TEMPORARY POWER:

- A. Make arrangements with the proper institution authority for all temporary electricity.
- B. Provide temporary power, complete with metering and wiring for lighting and power outlets for construction tools and equipment. Report the initial meter reading to the owner/institution, or otherwise as may be directed.



- C. Service shall be provided with a main disconnect and all 20 ampere receptacles protected by 20 amp GFI, single-pole breakers. No attempt is made herein to specify construction power requirements for equipment in detail. Provide all electrical equipment and wiring as required.
- D. As soon as permanent power and metering is available, the temporary power supply shall be disconnected and removed from the project site.
- E. All temporary wiring shall meet the requirements of NEC Article 305 and the State Industrial Commission.

3.6 POWER OUTAGES:

- A. All power outages required for execution of this work shall occur during non-standard working hours and at the convenience of the owner. Any electrical service interruption will be coordinated at least 7 days in advance of the power shut-off. Include all costs for overtime work in bid. Coordinate all outages and proceed only after receiving authorization from the owner's representative. Keep all outages to an absolute minimum.

3.7 STORAGE AND PROTECTION OF MATERIALS:

- A. Provide storage space for storage of materials and apparatus and assume complete responsibility for all losses due to any cause whatsoever. Lost or damaged materials will be replaced at no additional cost to owner. Do not store materials and apparatus in any public thoroughfare or in any area on the site where such storage would constitute a hazard to persons in the vicinity. Protect completed work, work underway, and apparatus against loss or damage.

3.8 ROOF PENETRATIONS:

- A. Where raceways and/or cables penetrate roofing, provide 26 gauge galvanized iron roof jack, sized to fit tightly to raceway and/or cable for weather-tight seal, and with flange extending a minimum of 9" under roofing on all sides. Seal opening between raceway and roof jack with approved sealant. Coordinate all work with division 7.
  - 1. All roof penetrations must be done in coordination with the Airport Roofing Contractor to maintain current warranties.

3.9 FIRE PENETRATION SEALS:

- A. Seal all raceway and/or cable penetrations through fire-rated floors, wall, and ceilings to prevent the spread of smoke, fire, toxic gas or water through the penetration either before, during or after fire. Provide penetration sealants and fittings of ratings to match the rating of the penetrated materials so that the original fire rating of the floor or wall is maintained as required by Article 300-21 of the NEC.
- B. Sealant Systems: Provide sealants, wall wraps, partitions, caps, and other accessories complying with UL 1479 (ASTM E-814) from the following where applicable:
  - 1. 3M Fire Barrier Sealing Penetration System
  - 2. Chase Foam Fire Stop System
  - 3. Thomas and Betts Flame Safe Fire Stop System
  - 4. Nelson Fire Stop Products

- C. Fittings: Where applicable, provide OZ Type CFSE/I and CAFSE/I fire seal fittings for conduit and cable penetrations through concrete and masonry wall, floor, slabs, and similar structures.
- D. Install sealants and fittings in accordance with all manufacturer's written instructions.

3.10 LABELING:

- A. Engraved black plastic laminated, with white-core labels, 1/16" thick, shall be permanently attached on both the interior and exterior of the following electrical equipment:
  - 1. Branch panels
  - 2. Disconnect switches
  - 3. Motor starter and controls
  - 4. Junction boxes (power and auxiliary)
  - 5. Push buttons
  - 6. Thermal switches
  - 7. Time switches
  - 8. Low voltage switches
  - 9. Transformers
  - 10. Lighting contactors and associated switches
  - 11. Junction boxes larger than 6"x6"

For all other devices (junction boxes, receptacles, light switches, etc.) and equipment provide type written self-adhesive p touch type label with 3/4" characters. Where changes are made in existing panels, the labeling and schedules shall be accurately corrected to reflect the changes. new typed panel schedules shall be provided for all existing panelboards that have changes.

3.11 TESTS:

- A. Notify engineer prior to all testing specified herein at least three business days prior to testing. Engineer shall observe all tests to insure the proper operation of the electrical system.

3.12 PROJECT FINALIZATION AND START-UP:

- A. Upon completion of the work, have each factory representative and/or subcontractor assist in start-up and testing of their respective systems.
- B. Have each representative give personal instructions on operating and maintenance of their equipment to the owner's maintenance and/or operation personnel.
- C. Have representatives certify each system with a written statement indicating that they have performed start-up and final check out of their respective systems.

3.13 FINAL REVIEW:

- A. Have the project foreman accompany their reviewing parties and remove coverplates, panel covers, access panels, etc. as requested, to allow review of the entire electrical system.

END OF SECTION 26 0001

SECTION 26 0070 – ELECTRICAL CONNECTIONS FOR EQUIPMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:A

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to electrical connections.

1.2 DESCRIPTION OF WORK:

- A. Extent of electrical connections for equipment include all final electrical connections for all equipment having electrical requirements including, but not necessarily limited to the following:
  - 1. Equipment specified under all divisions of the contract. Refer to other divisions for specific electrical requirements.
  - 2. Owner-furnished equipment

1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.
- B. SHOP DRAWINGS: Not required.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Provide all materials for electrical connections including, but not necessarily limited to the following:
  - 1. Raceways
  - 2. Fittings
  - 3. Conductors
  - 4. Cords
  - 5. Cord caps
  - 6. Wiring devices
  - 7. Pressure connectors
  - 8. Lugs (CU-AL)
  - 9. Electrical insulating tape
  - 10. Heat-shrinkable tubing
  - 11. Cable ties
  - 12. Wire nuts
  - 13. Other items and accessories as required.

- B. Crimp on or slip-on type splicing materials designed to be used without wire stripping are not acceptable.
- C. Power Distribution Blocks: Provide Square D Type LB or Equivalent.
- D. Refer to other Division 26, 27, and 28 Sections for specification of electrical materials as applicable.

### PART 3 – EXECUTION

#### 3.1 GENERAL:

- A. Make electrical connections in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA Standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

#### 3.2 CONNECTIONS:

- A. Permanently Installed Fixed Equipment:
  - 1. Install conductors in flexible conduit from junction box to equipment control panel or connection point.
  - 2. Where such installations are subject to moisture, install in liquid-tight flexible conduit.
- B. Movable equipment:
  - 1. Provide wiring devices, cord caps, and multi-conductor cables as required.
- C. Other methods as required by the NEC and/or as required by special equipment or field conditions.
- D. Power Distribution Blocks: Unless noted otherwise on drawings, provide power distribution blocks only for tapping of feeders and branch circuits. Locate in junction box or gutter in NEMA ratings to suit application.

#### 3.3 MANUFACTURER'S INSTRUCTIONS:

- A. Obtain manufacturer's instruction and wiring diagram regarding electrical connections of each piece of equipment and provide connections in accordance therewith.

#### 3.4 VERIFICATION OF LOAD CHARACTERISTICS:

- A. Verify electrical load characteristics of all equipment prior to rough-in. Review respective shop drawings of all other Divisions and Owner's equipment manuals. Report any variances from electrical characteristics noted in the contract documents to the Architect/Engineer prior to rough-in.
- B. Value of rough-in work, electrical equipment, etc. installed and/or purchased by the contractor not meeting equipment requirements shall be credited back to the owner.

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END OF SECTION 26 0070

B L A N K   P A G E

SECTION 26 0072 – ELECTRICAL SUPPORTS AND SEISMIC RESTRAINTS

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. Hangers and supports for electrical equipment and systems.
  - 2. Seismic restraints for electrical equipment and systems.
  - 3. Construction requirements for concrete bases.

1.3 DEFINITIONS:

- A. IBC: International Building Code.
- B. Seismic Restraint: A structural support element such as a metal framing member, a cable, an anchor bolt or stud, a fastening device, or an assembly of these items used to transmit seismic forces from an item of equipment or system to building structure and to limit movement of item during a seismic event.

1.4 SUBMITTALS:

- A. Product Data: Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of electrical support and seismic-restraint component used.
  - 1. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency acceptable to authorities having jurisdiction.
  - 2. Annotate to indicate application of each product submitted and compliance with requirements.
- B. Shop Drawings: Indicate materials and dimensions and identify hardware, including attachment and anchorage devices, signed and sealed by a qualified professional engineer. Include the following:
  - 1. Fabricated Supports: Representations of field-fabricated supports not detailed on Drawings.
  - 2. Seismic Restraints: Detail anchorage and bracing not defined by details or charts on Drawings. Include the following:
    - a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and shear loads.
    - b. Details: Detail fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods,

- and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events.
- c. Preapproval and Evaluation Documentation: By an agency acceptable to authorities having jurisdiction, showing maximum ratings of restraint items and the basis for approval (tests or calculations).
- C. Coordination Drawings: Show coordination of seismic bracing for electrical components with other systems and equipment in the vicinity, including other supports and seismic restraints.
  - D. Welding certificates.
  - E. Qualification Data: For professional engineer and testing agency.
  - F. Field quality-control test reports.
- 1.5 QUALITY ASSURANCE:
- A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
  - B. Testing of Seismic Anchorage Devices: Comply with testing requirements in Part 3.
  - C. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS:

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

### 2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS:

- A. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed under this Project, with a minimum structural safety factor of five times the applied force.
- B. Steel Slotted Support Systems: Comply with MFMA-3, factory-fabricated components for field assembly.
  - 1. Available Manufacturers:
    - a. Cooper B-Line; a division of Cooper Industries.
    - b. ERICO International Corporation.
    - c. Allied Support Systems; Power-Strut Unit.
    - d. GS Metals Corp.



- e. Michigan Hanger Co., Inc.; O-Strut Div.
  - f. National Pipe Hanger Corp.
  - g. Thomas & Betts Corporation.
  - h. Unistrut; Tyco International, Ltd.
  - i. Wesanco, Inc.
2. Finishes:
    - a. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-3.
  3. Channel Dimensions: Selected for structural loading and applicable seismic forces.
- C. Raceway and Cable Supports: As described in NECA 1.
- D. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
1. Verify suitability of fasteners in subparagraph below for use in lightweight concrete or concrete slabs less than 4 inches (100 mm) thick.
  2. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
    - a. Available Manufacturers:
      - 1) Hilti, Inc.
      - 2) ITW Construction Products.
      - 3) MKT Fastening, LLC.
      - 4) Simpson Strong-Tie Co. Inc.
  3. In the following subparagraph, use stainless steel anchors in corrosive environments.
  4. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
    - a. Available Manufacturers:
      - 1) Cooper B-Line; a division of Cooper Industries.
      - 2) Empire Tool and Manufacturing Co., Inc
      - 3) Hilti, Inc.
      - 4) ITW Construction Products.
      - 5) MKT Fastening, LLC.
      - 6) Powers Fasteners.
  5. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
  6. Through Bolts: Structural type, hex head, high strength. Comply with ASTM A 325.
  7. Toggle Bolts: All-steel springhead type.

8. Hanger Rods: Threaded steel.

### 2.3 SEISMIC-RESTRAINT COMPONENTS:

- A. Rated Strength, Features, and Application Requirements for Restraint Components: As defined in reports by an agency acceptable to authorities having jurisdiction.
  1. Structural Safety Factor: Strength in tension, shear, and pullout force of components used shall be at least five times the maximum seismic forces to which they will be subjected.
- B. Angle and Channel-Type Brace Assemblies: Steel angles or steel slotted-support-system components; with accessories for attachment to braced component at one end and to building structure at the other end.
- C. Cable Restraints: ASTM A 603, zinc-coated, steel wire rope attached to steel or stainless-steel thimbles, brackets, swivels, and bolts designed for restraining cable service.
  1. Available Manufacturers:
    - a. Amber/Booth Company, Inc.
    - b. Loos & Co., Inc.
    - c. Mason Industries, Inc.
  2. Seismic Mountings, Anchors, and Attachments: Devices as specified in Part 2 "Support, Anchorage, and Attachment Components" Article, selected to resist seismic forces.
  3. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections to hanger rod, of design recognized by an agency acceptable to authorities having jurisdiction.
  4. Bushings for Floor-Mounted Equipment Anchors: Neoprene units designed for seismically rated rigid equipment mountings, and matched to type and size of anchor bolts and studs used.
  5. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for seismically rated rigid equipment mountings, and matched to type and size of attachment devices used.

### 2.4 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES:

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in [Division 5 Section "Metal Fabrications"](#) for steel shapes and plates.

## PART 3 – EXECUTION

### 3.1 APPLICATION

- A. Comply with NECA 1 for application of hangers and supports for electrical equipment and systems, except if requirements in this Section are stricter.

- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for raceways as within 12 inches of coupling, fitting, and box, at each 90 degrees bend, minimum of two supports per ten foot run. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
  - 1. Secure raceways and cables to these supports with single-bolt conduit clamps, or as otherwise required by an agency acceptable to authorities having jurisdiction.

3.2 SUPPORT AND SEISMIC-RESTRAINT INSTALLATION:

- A. Comply with NECA 1 for installation requirements, except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, raceways may be supported by openings through structure members, as permitted in NFPA 70.
- C. Install seismic-restraint components using methods approved by the evaluation service providing required submittals for component.
- D. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- E. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
  - 1. To Wood: Fasten with lag screws or through bolts.
  - 2. To New Concrete: Bolt to concrete inserts.
  - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
  - 4. To Existing Concrete: Expansion anchor fasteners.
  - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
  - 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69 Spring-tension clamps.
  - 7. To Light Steel: Sheet metal screws.
  - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.
- F. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.
- G. Do not drill or core cut holes for anchors or use powder-activated fasteners in post-tension

slabs, joists, and beams.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS:

- A. Comply with installation requirements in [Division 5 Section "Metal Fabrications"](#) for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES:

- A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and seismic criteria at Project.
- B. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so expansion anchors will be a minimum of 10 bolt diameters from edge of the base.
  - 1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around full perimeter of the base.
  - 2. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
  - 3. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 4. Install anchor bolts to elevations required for proper attachment to supported equipment.
  - 5. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
  - 6. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in [Division 3 Section "Cast-in-Place Concrete."](#)

3.5 INSTALLATION OF SEISMIC-RESTRAINT COMPONENTS:

- A. Install bushing assemblies for anchor bolts for floor-mounted equipment, arranged to provide resilient media between anchor bolt and mounting hole in concrete base.
- B. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
- C. Restraint Cables: Provide slack within maximums recommended by manufacturer.
- D. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, upper truss chords of bar joists, or at concrete members.

3.6 FIELD QUALITY CONTROL:

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

- B. Testing: Test pullout resistance of seismic anchorage devices.
1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.
  2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
  3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
  4. Test at least four of each type and size of installed anchors and fasteners selected by Architect.
  5. Test to 90 percent of rated proof load of device.
  6. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.
- C. Record test results.

END OF SECTION 26 0072

B L A N K   P A G E

SECTION 26 0080 – ELECTRICAL DEMOLITION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to electrical demolition.

1.2 DESCRIPTION OF WORK:

- A. Extent of electrical demolition work is indicated by drawings.
- B. Electrical demolition items are shown to give a basic description of the extent of demolition work, but may not be inclusive.
- C. Do not assume that the electrical drawings reflect as-built conditions. Visit and observe the project prior to submitting bid and determine extent of electrical demolition work.

1.3 QUALITY ASSURANCE:

- A. Standards: Refer to [Section 260001 - Electrical General Provisions](#) as applicable.

PART 2 – PRODUCTS - Not Used.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Demolition work shall be laid out in advance to eliminate unnecessary cutting, drilling, channeling, etc. Where such cutting, drilling, or channeling becomes necessary, perform with care, use skilled mechanics of the trades involved. Cutting work of other contractors shall be done only with the consent of that contractor. Cutting of structural members is not permitted. Repair damage to building and equipment as a result of electrical demolition work under this contract at no additional cost to owner.
- B. Obtain permission from the architect before penetrating any ceiling, floor, and wall surfaces.

3.2 METHODS:

- A. Disconnect and remove any/all fixtures, devices, equipment, etc. required for proper completion of the work whether shown or not.

- B. Relocate, rewire, and/or reconnect any/all fixtures, devices, equipment, etc. that for any reason obstructs construction.
- C. Maintain circuit integrity and continuity of all existing circuits/feeders, and systems that interfere with or are interrupted by remodel work, unless those circuits/feeders are to be abandoned completely. Maintain all circuits and systems in operation during construction. Provide temporary panels, temporary wiring and conduits, etc. as required.
- D. Leave all existing fixtures, devices, equipment, etc. In portions of the building not being remodeled, in working condition.
- E. Remove and dispose of all raceways, conductors, boxes, devices, equipment, etc., that are not to be reused. Terminate at accessible junction box by providing proper knockout closure, tape conductors, and label as "spare" with circuit no., Zone no., or other characteristic identifying source.
- F. Existing raceways may be reused, if in place, where in compliance with the contract documents and the National Electrical Code. Upgrade and/or provide new conduit supports where necessary for all raceways being reused. Insure integrity of existing raceways before re-use.
- G. Existing raceways may not be reused. Completely remove all existing raceway that are not to remain back to source.
- H. Return to owner all light fixtures which are to be removed. Dispose of all light fixtures if so directed by owner in accordance with local environmental laws and policies. Those fixtures indicated for re-use shall be thoroughly cleaned, repaired as required, re-lamped, and installed as indicated. When storing fixtures for reuse, store in area and/or provide protective covering that will keep construction dust and materials off fixtures.
- I. Completely remove all telephone or data cables which are to be removed back to source or as directed by owner.
- J. Disconnect and remove all sound system equipment including speakers, amplifiers, etc. And return to owner. Completely remove and dispose of all associated conduit and wire.

### 3.3 PATCHING AND REPAIR:

- A. Finished Surfaces: The electrical contractor is responsible for patching and repair of all existing interior surfaces pertaining to the installation of work under this Division, unless specifically noted elsewhere in the contract documents. Where patching and repair is necessary, surfaces shall be finished (painted, etc.) to match the adjacent materials, finished, and colors. Requirements of other Divisions such as [Division 9 - finishes](#) shall apply.
- B. Hard Surfaces: Whenever excavation or trenching is required for the installation of electrical work, it shall be the responsibly of the electrical contractor to make repairs and/or replacements of hard finish surfaces such as concrete, asphalt, etc. Requirements of other Divisions such as [Division 2 – Existing Conditions](#) shall apply.

### 3.4 CONCEALING:

- A. All raceways shall be concealed within the ceilings, walls, and floors, except in locations where



exposed raceways are specifically permitted, such as equipment rooms and unfinished storage areas.

- B. Surface-mounted raceways or systems shall be permitted only where approved by Architect/Engineer.

END OF SECTION 26 0080

B L A N K   P A G E

SECTION 26 0110 – CONDUIT RACEWAYS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to conduit raceways.

1.2 DESCRIPTION OF WORK:

- A. Extent of raceways is indicated by drawings and schedules.
- B. Types of raceways in this section include the followings:
  - 1. Rigid Metal Conduit
  - 2. PVC Externally Coated Rigid Steel Conduit
  - 3. Intermediate Metal Conduit
  - 4. Electrical Metallic Tubing
  - 5. Flexible Metal Conduit
  - 6. Liquid-tight Flexible Metal Conduit
  - 7. Rigid Non-metallic Conduit
  - 8. Electrical Non-metallic Tubing

1.3 QUALITY ASSURANCE:

- A. Standards: Refer to [Section 260001 – Electrical General Provisions](#) as applicable. Provide conduit raceway installation in accordance with recommendations of the American Iron and Steel Institute "Design Manual on Steel Electrical Raceways", latest edition.
- B. Manufacturers: Firms regularly engaged in the manufacture of raceway of types and sizes required, whose products have been in satisfactory service for not less than three (3) years.
- C. Shop Drawings: Not required.

PART 2 – PRODUCTS

2.1 CONDUITS:

- A. Rigid Metal Conduit (RMC): Provide zinc-coated, hot-dipped galvanized, rigid metallic conduit in accordance with Federal Specification WW-C-0581 and ANSI C80.1.
- B. PVC Externally Coated Rigid Metal Conduit: Provide hot-dipped galvanized, rigid metallic conduit externally coated with Polyvinyl Chloride (PVC) in accordance with ANSI C80.1 and

NEMA Std. Pub. No. RN 1.

- C. Intermediate Metal Conduit (IMC): Provide hot-dipped galvanized, intermediate metal conduit in accordance with Federal Specification WW-C-581.
- D. Electric Metallic Tubing (EMT): Provide electric metal tubing in accordance with Federal Specification WW-C-563 and ANSI C80.3.
- E. Flexible Metal Conduit: Provide zinc-coated, flexible metal conduit in accordance with Federal Specification WW-C-566.
- F. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight, flexible metal conduit, constructed of single strip, flexible continuous, interlocked, and double-wrapped steel, galvanized inside and outside, coated with liquid-tight jacket of flexible Polyvinyl Chloride (PVC).
- G. Rigid Non-Metallic Conduit: Provide rigid non-metallic conduit (PVC) in accordance with ANSI/NEMA TC 2, Type 1 for concrete encasement, Type 2 for direct burial.

## 2.2 FITTINGS:

- A. Rigid Metal Conduit, Intermediate Metal Conduit, and PVC Externally Coated Rigid Metal Conduit: Provide fully-threaded, malleable steel fittings, rain-tight and concrete-tight as applicable. Provide double locknuts and metal bushings at all conduit terminations. Install OZ Type B bushings on conduits 1-1/4" and larger.
- B. Electric Metallic Tubing: Provide insulated throat, non-indenter, set screw, malleable steel fittings. Screws must have a full set. Provide concrete-tight compression-type fittings in suspended slabs. All EMT fittings shall be fabricated from steel. Die-cast fittings or fittings made from pot metal shall not be allowed. Indenter type fittings are not acceptable. Install OZ Type B bushings on conduits 1" and larger.
- C. Flexible Metal Conduit: Provide flexible metal conduit fittings in accordance with Federal Specification W-F-406, Type 1, Class 1, and Style A. Commercial "greenfield" not less than 1/2" diameter or as otherwise specified on drawings is acceptable.
- D. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight flexible metal conduit fittings in accordance with Federal Specification W-F-406, Type 1, Class 3, Style G.
- E. Non-Metallic Conduit: Provide non-metallic conduit fittings (PVC) in accordance with ANSI/NEMA TC 3 to match conduit types and materials.
- F. Expansion Fittings: OZ Type AX, or equivalent to suit application.
- G. Sealing Bushings: Provide OZ Type FSK, WSK, or CSMI as required by application. Provide OZ Type CSB internal sealing bushings.
- H. Cable Supports: Provide OZ cable supports for vertical risers, type as required by application.

## 2.3 SIZES:

- A. Provide conduits in sizes as indicated in contract documents or as otherwise specified herein,

but not less than 3/4".

### PART 3 – EXECUTION

#### 3.1 GENERAL:

- A. Install raceway and accessories in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA Standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

#### 3.2 LOCATIONS:

- A. Rigid Metal Conduit and Fittings: Use for conduit bends greater than 22 degrees where buried below grade or slab on grade. Install RMC where raceway passes vertically through slab-on-grade. Where raceways penetrate building, manholes, or vault walls and floors below grade, provide RMC for a minimum distance of 10' on the exterior side of the floor or wall. Use RMC for exposed runs where conduit is subject to moisture, weather, or mechanical injury. Use in hazardous locations in
- B. Install RMC on all outdoor locations below 12 ft. and indoor locations subject to motorized and heavy duty carts.
- C. Intermediate Metal Conduit and Fittings: Use for exposed runs where conduit is subject to moisture, weather, or mechanical injury. Use in hazardous locations in accordance with all NEC requirements.
- D. Electric Metal Tubing and Fittings: Use for above-grade feeders, branch circuits, and signal and control circuit, unless specifically noted otherwise on drawings. Install in suspended slabs subject to local code requirements and fire rating considerations.
- E. Flexible Metal Conduit and Fittings: Use as whips for lighting fixtures, fixed equipment where not exposed to weather or moisture, other devices where required by NEC, and as requested by the Engineer. Maximum length not to exceed 6', unless specifically approved by the Electrical Engineer.
- F. Liquid-Tight Flexible Metal Conduit and Fittings: Use for connection to motor terminal boxes, fixed equipment where subject to moisture or weather, and other equipment subject to movement or vibration. Maximum length not to exceed 6', unless specified otherwise.
- G. Rigid Non-Metallic Conduit and Fittings: Use for below-grade service entrances, feeders, branch circuits, and signal and control circuit, unless specifically noted otherwise on drawings. Do not use above grade.

#### 3.3 METHODS:

- A. Maintain a minimum of 12" clearance between steam or hot water lines or other hot surfaces. Where such clearance is impractical, insulate conduit with approved materials.

- B. Install conduits parallel with or at right angles to lines of the structure. Route conduits symmetrically where possible.
- C. Field bends and offsets shall be made without flattening, kinking, rippling or destroying the smooth internal bore or surface of the conduit and to not less than NEC minimum radius. Conduit that shows signs of rippling or kinking shall not be installed. Conduits installed with wrinkles or kinks or otherwise in an unworkmanlike manner shall be replaced at no additional cost to owner.
- D. Precaution shall be exercised to prevent accumulation of water, dirt or concrete in the conduits during the execution of the project. Conduits in which water or foreign matter has been permitted to accumulate shall be thoroughly cleaned or the conduits runs replaced where such accumulation cannot be removed by methods approved the engineer.
- E. Any conduit which pierces airtight spaces or plenums shall be sealed to prevent air leakage with mastic acceptable to the Architect.

#### 3.4 CONCEALING:

- A. All raceways shall be concealed within the ceilings, walls, and floors, except in locations where exposed raceways are specifically permitted, such as equipment rooms and unfinished storage areas. In equipment rooms, if lighting raceways are run exposed, installation shall not be done until piping and duct work layout has been determined in order that lighting boxes may be located so as to avoid being covered by overhead ducts and piping. If lighting raceways in equipment rooms are concealed in the structural ceiling slab, after mechanical work is complete, exposed conduit extensions shall be run to locate lighting fixtures where they are not obscured by work of other trades.

#### 3.5 BURIED CONDUITS:

- A. Comply with all burial depths as defined in NEC Section 300-5. Bury all conduits at least 24" below grade, unless specifically indicated otherwise on drawings. Provide magnetic 6" wide "Yellow Warning" ribbon 12" directly above conduit and 6" below finished grade measured from the top of the conduit or duct bank. Where multiple small lines are buried in a common trench and do not exceed an overall width of 16", install a single marker.
- B. Slope all conduits toward manholes or pull boxes for proper drainage. Use weep holes. Gravel drainage pockets are not permitted.
- C. Coat all metal conduits with an approved asphaltic compound or wrap with two layers of PVC tape.
- D. Under Concrete Slab on Grade: Horizontal conduit must be installed a minimum of 2" below the bottom of the concrete slab. Conduits should not be installed in concrete slabs.
- E. Concrete Encasement: Where concrete-encasement is indicated on drawings, provide ductbank construction using red 3000 psi at 28 day strength concrete. Provide minimum 4" cover on all sides of exterior conduits. Provide conduit spacers where applicable. Coat all metal conduits with an approved asphaltic compound or wrap with two layers of PVC tape.
- F. Where conduits are extended for future use, cap and clearly mark.

3.6 ELECTRICAL CONTINUITY:

- A. Provide electrically continuous conduit systems throughout.

3.7 FIELD CUTS AND THREADS:

- A. Cut all conduits square. Remove all sharp or rough edges and ream all burrs, inside and outside. Provide clean sharp threads on RMC and IMC.
- B. Engage at least five full threads on all RMC and IMC fittings. Before couplings or fittings are attached, apply one coat of red lead or zinc chromate to male threads of RMC or IMC. Apply coat of red lead, zinc chromate or special compound recommended by manufacture to conduit where conduit protective coating is damaged.

3.8 SUSPENDED SLABS:

- A. When conduit is installed in the suspended slab, it shall be limited to conduits having a diameter of 1" (25 mm) or less, or less than 1/3 the concrete cover, and no crossovers occur, and conduit spaced at least 18" (450 mm) apart with a 3/4" (20 mm) cover.

3.9 CONDUIT ENDS:

- A. Cap all spare conduits. Cap or plug conduit ends during construction to prevent entrance of foreign material.

3.10 SPARE CONDUITS:

- A. Provide five (5) 3/4" empty conduits from panel stubbed into accessible ceiling space and five (5) 3/4" conduits into accessible floor space. When floor is not accessible, provide six (6) 3/4" empty conduits from panel stubbed into accessible ceiling space. Cap and label all conduits.
- B. Install a 200 lb. polypropylene pull cord in each empty conduit run.

3.11 HAZARDOUS LOCATIONS:

- A. Install RMC and IMC in all hazardous locations as defined by the NEC. Provide suitable fittings, seal-offs, boxes, etc. to comply with all NEC requirements and/or as shown on the drawings. Provide inspection fittings with hazardous location rated drains to prevent water from accumulating in conduit runs.

3.12 CLEANING:

- A. Pull mandrel and swab through all conduits before installing conductors.

END OF SECTION 26 0110

B L A N K P A G E



## SECTION 26 0120 – CONDUCTORS AND CABLES

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to conductors and cables.

#### 1.2 DESCRIPTION OF WORK:

- A. This section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.
- B. Types of conductors and cables in this section include the following:
  - 1. Copper Conductors.
- C. Applications for conductors and cables required for project include:
  - 1. Branch Circuits.

#### 1.3 SUBMITTALS:

- A. Product Data: For each type of conductor and/or cable indicated.
- B. Field Quality-Control Test Reports: From Contractor. Refer to [Section 260001 – General Electrical Provisions](#).

#### 1.4 QUALITY ASSURANCE:

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

### PART 2 – PRODUCTS

#### 2.1 GENERAL:

- A. Manufacturers: In other Part 2 articles where subparagraph titles below introduce lists, provide products by the manufacturer specified, subject to compliance with requirements.

- B. Ambient Conditions: Conductors used for branch circuits in areas where the ambient conditions exceed 30 degree C. shall be provided with insulation approved for that temperature.
- C. Wire Sizes: As indicated on electrical drawings or as specified herein, but in no case less than No. 12 AWG.

## 2.2 COPPER CONDUCTORS:

- A. Manufacturers:
  - 1. Cerro Wire & Cable Company.
  - 2. General Cable Technologies Corporation.
  - 3. Encore Wire Corporation.
  - 4. Southwire Incorporated.
- B. Refer to Part 3 "Conductor and Cable Applications" Article for application requirements.
- C. References and Ratings:
  - 1. ICEA S-95-658 / NEMA WC70.
  - 2. ASTM.
  - 3. UL Standard 83.
  - 4. UL Standard 1063 (MTW).
  - 5. Federal Specification J-C-30B.
  - 6. NEC.
- D. Conductor Material: Copper.
- E. Stranding: Solid conductor for No. 12 AWG, stranded for No. 10 AWG and larger.
- F. Conductor Insulation Types: Cross-linked Polyethylene High Heat-resistant Water-resistant, Type XHHW-2.

## 2.3 ALUMINUM CONDUCTORS

- A. Not allowed.

## 2.4 MC CABLES

- A. Not allowed.

## 2.5 CONNECTORS AND SPLICES:

- A. Manufacturers:
  - 1. AFC Cable Systems, Inc.
  - 2. AMP Incorporated/Tyco International.
  - 3. Hubbell/Anderson.
  - 4. O-Z/Gedney; EGS Electrical Group LLC.
  - 5. 3M Company; Electrical Products Division.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type,

and class for application and service indicated.

- C. Splices for wire sizes #10 and smaller shall be screw-on type similar to scotch or ideal wing nut connectors. Crimp-on splices designed to be used without wire stripping are not acceptable.

### PART 3 – EXECUTION

#### 3.1 GENERAL:

- A. Install conductors, cables, and accessories as indicated, in compliance with manufacturer's written instruction, applicable requirements of NEC, NECA's "Standards of Installation", and in accordance with recognized industry practices to ensure that products fulfill requirements.

#### 3.2 CONDUCTOR AND CABLE APPLICATIONS:

##### A. Branch Circuits:

1. Exposed, including in crawlspaces: Copper conductors in raceway.
2. Concealed in ceilings, walls, and partitions: Copper conductors in raceways.
3. Concealed in concrete and below slabs-on-grade: Copper conductors in raceway.

- B. Class 1 Control Circuits: Copper conductors in raceway.

#### 3.3 INSTALLATION:

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means; including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- D. When raceway is not required, install concealed cables parallel and perpendicular to surfaces of structural members, and follow surface contours where possible.
- E. Support cables according to other applicable specification sections.
- F. Seal around cables penetrating fire-rated elements to comply with applicable fire stop specification sections.
- G. Color Coding: Color code secondary service, feeder, and branch circuit conductors. Colors shall remain consistent throughout the project and shall match existing coding system where applicable.
  1. Conductor sizes No. 6 AWG and smaller: Colored insulation.
  2. Conductors sizes No. 4 AWG and larger: 2 inch (51 mm) band of Colored adhesive marking tape applied at all terminations, junction boxes, and pull boxes.
  3. Branch circuit switched-legs and travelers: Colored insulation (in colors other than those

indicated below).

4. Color-code 120/208V system conductors:
  - a. Phase A: Black.
  - b. Phase B: Red.
  - c. Phase C: Blue.
  - d. Neutral A: White with Black stripe.
  - e. Neutral B: White with Red stripe.
  - f. Neutral C: White with Blue stripe.
  - g. Neutral (Shared when allowed): White
  - h. Ground: Green.
  - i. Isolated Ground: Green with yellow tracer.
5. Color-code 277/480V system conductors:
  - a. Phase A: Brown.
  - b. Phase B: Orange.
  - c. Phase C: Yellow.
  - d. Neutral A: Gray with Brown stripe.
  - e. Neutral B: Gray with Orange stripe.
  - f. Neutral C: Gray with Yellow stripe.
  - g. Neutral (Shared when allowed): Gray.
  - h. Ground: Green.
6. Color-code 120/240V system conductors:
  - a. Phase A: Black.
  - b. Phase B: Red.
  - c. Neutral A: White with Black Stripe.
  - d. Neutral B: White with Red Stripe.
  - e. Neutral (shared when allowed): Gray.
  - f. Ground: Green.
  - g. Isolated Ground: Green with yellow tracer.

### 3.4 HOMERUN CIRCUITS:

- A. Homerun circuits may be combined in common conduits at the option of the contractor in compliance with the following:
  1. Three-Phase Installations: Not more than three single-phase circuits in one conduit, unless specifically noted otherwise, if each circuit is from a different phase (a, b, or c).
  2. Single-Phase Installations: Not more than two single-phase circuits in one conduit, unless specifically noted otherwise, if each circuit is from a different phase (a or b).

### 3.5 NEUTRAL CONDUCTORS:

- A. LINE-TO-NEUTRAL BRANCH CIRCUITS: Provide a dedicated neutral for each line-to-neutral branch circuit. Size the neutral conductor the same as the phase conductor. In each outlet or junction box containing multiple neutral conductors, tag each neutral to identify which circuit it serves.

### 3.6 VOLTAGE DROP:

- A. Provide branch circuit conductors in sizes such that voltage drop for branch circuits do not exceed 3 percent at the farthest outlet. Provide service, feeder, and branch circuit conductors so that the voltage drop on the entire electrical system does not exceed 5 percent at the farthest

outlet. This shall be strictly followed regardless of the conductor sizes indicated on the electrical drawings. Increase conductor sizes (and conduits where necessary to comply with NEC conduit fill requirements) as necessary to accommodate this requirement. Calculations shall be based on the following:

1. Lighting Branch Circuits: Connected load plus 25% spare.
2. Appliance and Equipment Branch Circuits: Nameplate or NEC required load.
3. 120V Convenience Outlet Branch Circuits: 12 amps minimum, but in no case less than NEC loading requirements. Use the following schedule:

Distance (feet)	Wire Size (AWG)
0-80	#12
81-125	#10
126-200	#8
201-320	#6

4. Use the NEC method to calculate voltage drop.

### 3.7 CONNECTIONS:

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack. Use pig tails when wiring outlets.

### 3.8 FIELD QUALITY CONTROL:

- A. Testing: Perform the following field quality-control testing:
  1. Visual and Mechanical Inspection:
    - a. Inspect cables for physical damage and proper connection in accordance with the electrical construction documents.
    - b. Test cable mechanical connections to manufacturer's recommended values with a calibrated torque wrench.
    - c. Check cable color coding for compliance with electrical specifications.
  2. Electrical Tests:
    - a. Perform insulation resistance test on each conductors for feeders 100 amps and greater with respect to ground and adjacent conductors. Applied potential shall be 1000 volts dc for 1 minute.
    - b. Perform continuity test to insure proper cable connection.
  3. Test Values:
    - a. Minimum insulation resistance values shall not be less than two megaohms.
- B. Test Reports: Prepare a written report and submit to the Electrical Engineer at the completion of the project. The report shall include the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION 26 0120

SECTION 260135 – ELECTRICAL BOXES AND FITTINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to electrical boxes and fittings.

1.2 DESCRIPTION OF WORK:

- A. Extent of electrical boxes and fittings work is indicated by drawings and schedules.
- B. Types of electrical boxes and fittings in this section include the following:
  - 1. Outlet Boxes
  - 2. Junction Boxes
  - 3. Pull Boxes
  - 4. Floor Boxes
  - 5. Conduit Bodies
  - 6. Bushings
  - 7. Locknuts
  - 8. Knockout Closures
  - 9. Miscellaneous Boxes and Fittings

1.3 QUALITY ASSURANCE:

- A. Standards: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.
- B. Manufacturers: Firms regularly engaged in the manufacturer of boxes and fittings required, whose products have been in satisfactory service for not less than three years.
- C. Shop Drawings: Submit shop drawings on floor boxes only where required.

PART 2 – PRODUCTS

2.1 INTERIOR OUTLET BOXES:

- A. General: Provide one piece, galvanized or cadmium-plated, flat-rolled, sheet steel interior outlet boxes of types, shapes, and sizes to suit respective location and installation. Construct with stamped knockouts on back and sides and with threaded screw holes. Provide corrosion-resistant screws for securing boxes, covers, and wiring devices. Size all junction boxes in accordance with NEC Table 314.16(A), with a minimum box size of 4" x 4" x 1-1/2". Where three raceway entries are made, provide outlet boxes with a minimum depth of 2-1/8". Where

four or more raceway entries are made, provide outlet boxes with a minimum depth of 4-11/16". Gangable boxes shall not be used.

- B. Switch, Telephone, and Receptacle Outlets: Provide outlet boxes not less than 4" square, with adapting tile or plaster covers where necessary to set flush with finished surfaces. Where three raceway entries are made, provide outlet boxes with a minimum depth of 2-1/8". Gang boxes shall be used where more than one switch or device is located at one point. Sectional Boxes are not acceptable. In masonry walls where tile or plaster ring cannot be used, install a single-gang 3-1/2" deep box minimum, unless otherwise noted. Where four or more raceway entries are made, provide outlet boxes with a minimum depth of 4-11/16".
- C. Lighting Outlets:
  - 1. Lay-in Grid: Outlets for recessed fixtures in acoustical tile ceilings shall be located to center on a single tile or at the intersection of four tiles.
  - 2. Surface-mounted: Provide 4" square octagonal outlet boxes for surface-mounted, ceiling fixture outlets. Mount each box independently of the conduit on standard 3/8" stud or approved box hanger where applicable. Include backing and supports as required to carry 200 lbs. Where three or more raceway entrances are made, use a minimum box depth of 2-1/8".

## 2.2 WEATHERPROOF OUTLET BOXES:

- A. Provide corrosion-resistant, cast-metal weatherproof outlet boxes, of types, shapes, and sizes, with threaded conduit ends, cast metal coverplates with spring-hinged waterproof caps, face plate gaskets, and corrosion-resistant fasteners.

## 2.3 JUNCTION AND PULL BOXES:

- A. Provide code-gauge sheet steel junction and pull boxes, with removable screw-on covers and welded seams, of types, shapes, and sizes to suit each respective location and installation. Size all junction and pull boxes in accordance with NEC 314.28. Provide stainless steel nuts, bolts, screws, and washer.

## 2.4 FLOOR BOXES:

- A. Provide steel or PVC, weatherproof, concrete-tight floor boxes of types, shapes, and sizes to suit each respective location and installation. Where multi-service floor boxes are indicated, provide floor boxes sized to accommodate wiring devices and communication outlets shown on drawings. Construct floor boxes with fully adjustable leveling screws, and knockouts as required to accommodate specified conduits.
- B. Provide floor boxes from the following manufacturers:
  - 1. Bell Electric
  - 2. Crouse-Hinds
  - 3. Hubbell
  - 4. Steel City
  - 5. Thomas&Betts
  - 6. Wiremold



2.5 CONDUIT BODIES:

- A. Provide galvanized, cast-metal conduit bodies of type, shapes, and sizes to suit respective locations and installation. Construct with threaded conduit entrance ends and removable covers. Provide corrosion-resistant screws.
- B. Aluminum boxes and fitting shall not be permitted.

2.6 CONDUIT CONNECTIONS:

- A. Box connectors 3/4" and larger shall be insulated, throat-type or equal type plastic bushings. Provide double locknuts and insulating plastic bushings for RMC and IMC terminating at panels and boxes.
- B. Where RMC penetrates building, manholes, or vault walls and floors below grade, provide sealing bushings with external membrane clamps as applicable. Provide segmented internal sealing bushings in all raceways penetrating building walls and slabs below grade, and in all above grade raceway penetrations susceptible to moisture migration into building through raceway. Where RMC terminates in manhole, vault, or pull box, provide insulated grounding bushings.
- C. Install OZ type "B" connectors for all conduits 1" and larger.
- D. Provide cable supports in all vertical risers in accordance with NEC 300-19.

2.7 EXPANSION FITTINGS:

- A. Provide expansion joint fittings in all conduit runs crossing structural expansion joints, whether above-grade, in slab-on-grade, or in suspended slabs. Provide OZ type "AX" or approved equivalent, size to the raceway.

2.8 ACCESSORIES:

- A. Provide all accessories including, but not necessarily limited to, bushings, knockout closures, locknuts, offset connectors, etc. of types, shapes, and sizes to suit respective locations and installation. Construct of corrosion-resistant steel.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install electrical boxes and fittings in accordance with manufacturer's written instruction, applicable requirements of the NEC, NEMA Standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 METHODS:

- A. Where outlet boxes are subject to weather or moisture, install weatherproof outlet boxes.

- B. Remove knockouts only for entering conduits. Provide knockout closures to cap unused knockout holes where blanks are mistakenly removed.
- C. Do not use condulets in place of elbows or junction boxes. Condulets in sizes 2" or larger shall not be used, unless specifically approved by the electrical engineer.
- D. Install boxes and conduit bodies in readily accessible locations. Install recessed boxes with faces of boxes or rings flush with finished surfaces. Seal all openings between outlet box and adjacent surfaces with plaster, grout, or similar suitable material.
- E. For stud construction, install boxes with rigid supports using metal bar hangers, or 2" X 4", 1" X 6" wood bridging between studs with screws. Welding or nailing boxes directly to metal joist and studs is not acceptable. Boxes set opposite in common wall shall have at least 10" of conduit between them. Securely fasten outlet boxes to structural surfaces to which attached.
- F. For concrete or masonry construction, solidly embed electrical boxes in concrete and masonry. Provide box supports as required to keep outlet boxes flush with finished surfaces.
- G. Coordinate location of all outlet boxes with millwork, back splashes, tackboards, etc.
- H. Install junction boxes or condulets in conduit runs as required at 100 foot maximum intervals on long runs. This shall apply to concrete junction boxes in grade and junction boxes within the building.
- I. Provide electrical connections for installed boxes.

3.3 IDENTIFICATION:

- A. Mark circuit number on exterior side of junction boxes located in ceilings such that circuits numbers are readily identifiable. For outlet boxes in wall, mark circuit numbers on interior sides of outlet boxes.
- B. Identification labels shall be as follows:
  - Normal Power            Black with White letters
  - Emergency Power       Red with White Letters
  - UPS                        Orange with White Letters
- C. Raceway systems termination points shall be marked the same as junction boxes.
- D. Boxes that exceed 4 x 4 x ½ inches shall be labeled with plastic engraved labels containing panelboard and circuit information.
- E. Label and paint the covers of the systems junction boxes as follows:

System	Color (All Colors are Kwal Howells)
Fire Alarm	Red Alert AC118R
Sound/IC	Neon Blue 7076A
Telephone	Competition Yellow 7225A
Data	Java Green AC098N

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CCTV	Flat Black
Security	Orange Fiesta AC107Y
CASS	Flat White

END OF SECTION 26 0135

B L A N K P A G E

SECTION 26 0160 – PANELBOARDS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to panelboards.

1.2 DESCRIPTION OF WORK:

- A. Extent of panelboard work is indicated by drawings and schedules and is specified herein.
- B. Type of panelboards in this section include the following:
  - 1. Lighting and Appliance Panelboards
  - 2. Power Distribution Panelboards

1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.
- B. SUBMITTALS:
  - 1. Shop Drawings: Submit dimensioned drawings of panelboards and enclosures showing accurately scaled layouts of enclosures. Include schedule of devices, including, but not necessarily limited to, circuit breakers, fusible switches, fuses, ground-fault circuit interrupters, and accessories.
  - 2. Equipment Room Layouts: Submit dimensioned drawings of all equipment rooms indicating spatial relationships to other proximate equipment. Insure that all code required clearances are maintained.

PART 2 – PRODUCTS

2.1 MANUFACTURERS:

- A. Subject to compliance with all requirements, provide products from one of the follows:
  - 1. General Electric Co.
  - 2. Siemens Energy & Automation, Inc.
  - 3. Square D Co.

2.2 GENERAL:

- A. Provide panelboards, enclosures, and ancillary components, of types, sizes, and ratings indicated. Provide overcurrent protective devices, etc. as indicated on drawings for a complete installation.
- B. Where "Spaces" or "Blanks" are indicated on panelboard schedules, provide drilled bus and mounting hardware ready to receive breaker or fusible switch of size indicated on panelboard schedule.

2.3 PANELBOARD ENCLOSURES:

- A. Provide Code gauge, galvanized or rust-resistant sheet steel enclosures in sizes and NEMA types to suit respective applications. The size of the wiring gutters and gauge of steel shall be in accordance with the latest NEMA Standards Publication and latest UL standards for panelboards. Flush locks shall not protrude beyond the front of the door. Key all enclosures alike and provide three keys at completion of the project. Fronts shall have adjustable indicating trim clamps, which shall be completely concealed when the doors are closed. Doors shall be mounted by completely concealed steel hinges. A circuit directory frame and card, with clear plastic covering shall be provided on the inside of the door. The directory cards shall be typewritten to identify each circuit service. Provide panel enclosures with doors hinged to enclosures. Provide ANSI-61 painted finish.

2.4 LIGHTING AND APPLIANCE PANELBOARDS:

- A. Provide dead-front, safety-type lighting and appliance panelboards of types and electrical characteristic indicated. Provide copper bus bars, full-sized neutral bus, and ground bus. Provide insulated/isolated ground buses where indicated. Include overcurrent protective devices and switches in quantities, ratings, types, and arrangements shown. See [Section 260180 – Overcurrent Protective Devices](#).
- B. Rate devices, bussing, supports, etc. equal to or greater than the short circuit current rating indicated. Provide fully-rated systems only. Series-rated systems are not acceptable, unless specifically noted otherwise.

2.5 POWER DISTRIBUTION PANELBOARDS:

- A. Provide dead-front, safety-type lighting and appliance panelboards of types and electrical characteristic indicated. Provide wall-mounted or floor-standing power distribution panelboards as indicated. Provide panelboards suitable for use as service equipment where required. Provide copper bus bars, full-sized neutral bus, and ground bus. Provide insulated/isolated ground buses where indicated. Include overcurrent protective devices and switches in quantities, ratings, types, and arrangements shown. See [Section 260180 – Overcurrent Protective Devices](#).
- B. Rate devices, bussing, supports, etc. equal to or greater than the short circuit current rating indicated. Provide fully-rated systems only. Series-rated systems are not acceptable, unless specifically noted otherwise.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install panelboards in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 IDENTIFICATION:

- A. Provide 1/16" thick black plastic laminate labels with 1/4" high lettering on both the interior and exterior of each panelboard enclosure indicating name of panelboard. Bolt and nut or rivet labels to enclosure. (Sheet metal screws are not acceptable).
- B. All subpanels shall be labeled to identify the main panel that supplies the feeder circuit.
- C. Provide red plastic laminate label for panelboards supplied by emergency power.
- D. Provide orange plastic laminate label for panelboards supplied by UPS power.

3.3 MOUNTING:

- A. Mount panelboards as indicated, but in no case higher than 6'-6" from finished floor to top of panel. Anchor enclosures firmly to walls and structural surfaces.
- B. Provide 4" high concrete pad under floor-standing power distribution panelboards.

3.4 CIRCUIT DIRECTORIES:

- A. For lighting and appliance panelboards, provide typed panelboard circuit directories. Indicate load description or name and location. Utilize actual building room numbers, not architectural room numbers used on drawings. Label the panel and circuit that feed this panel.
- B. For power distribution panelboards, provide 1/16" thick black plastic laminate labels with 1/4" high lettering for each load served.
  - 1. Provide red plastic laminate label for emergency loads.
  - 2. If circuits are changed in a panel, type the new circuit designation and glue on existing circuit directory. Do not discard existing panelboard schedule unless all circuits have been changed.

3.5 WIRING METHODS:

- A. Arrange conductors neatly within enclosure, and secure with suitable nylon ties.
- B. Panelboards shall not be used for junction or splicing boxes or as a raceway.

3.6 ARRANGEMENT OF OVERCURRENT PROTECTIVE DEVICES:

- A. The overcurrent protective devices shall be in the same sequence and labeled as the panel schedule on the drawings.

END OF SECTION 26 0160

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## SECTION 260170 – DISCONNECT SWITCHES

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to disconnect switches.

#### 1.2 DESCRIPTION OF WORK:

- A. Extent of disconnect switch work is indicated by drawings and schedules and is specified herein.
- B. Type of disconnects in this section include the following:
  - 1. General Duty Disconnect Switches
  - 2. Heavy Duty Disconnect Switches
  - 3. Bolted Pressure Switches
  - 4. Fusible Switches

#### 1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.
- B. SUBMITTALS:
  - 1. Product Data: Submit manufacturer's data on disconnect switches including specifications, installation instructions, etc.
  - 2. Shop Drawings: Submit dimensioned drawings of disconnects showing accurately scaled layouts of disconnects and enclosures.
  - 3. Equipment Room Layouts: Submit dimensioned drawings of all equipment rooms indicating spatial relationships to other proximate equipment. Insure that all code required clearances are maintained.

### PART 2 – PRODUCTS

#### 2.1 MANUFACTURERS:

- A. Subject to compliance with all requirements, provide disconnect switches (fusible and non-fusible) and fusible switches (in power panels) from one of the following:
  - 1. General Electric
  - 2. Siemens

3. Square D

B. Subject to compliance with all requirements, provide bolted pressure switches from one of the following:

1. Bolt Switch
2. General Electric
3. Pringle Switch
4. Siemens
5. Square D

2.2 GENERAL:

A. Provide fusible and/or non-fusible disconnect switches and ancillary components of types, sizes, ratings, and electrical characteristics as indicated. Provide enclosures in NEMA ratings suitable for applications. Provide fuses as indicated; See [Section 260180 – Overcurrent Protective Devices](#).

2.3 GENERAL DUTY DISCONNECT SWITCHES:

A. Provide 240 volt rated, general duty switches in sheet steel enclosures as indicated of types, sizes, ratings, and electrical characteristics indicated and as required to suit respective application. Provide general duty switches for circuits rated 240 volts or less. Construct of spring-assisted, quick-make, quick-break mechanisms. Provide solid neutral as required by application. Equip with operating handle capable of being locked in the OFF position. Provide Class R rejection fuse clips for fusible-type switches.

2.4 HEAVY DUTY DISCONNECT SWITCHES:

A. Provide 600 volt rated, heavy duty switches in sheet steel enclosures as indicated of types, sizes, ratings, and electrical characteristics indicated and as required to suit respective application. Provide heavy duty switches for circuits rated greater than 240 volts, but less than 600 volts. Construct of spring-assisted, quick-make, quick-break mechanisms. Provide solid neutral as required by application. Equip with operating handle capable of being locked in the OFF position. Provide Class R rejection fuse clips for fusible-type switches.

2.5 BOLTED PRESSURE SWITCHES:

A. Provide factory-assembled, bolted pressure switches as integral components of floor-standing, distribution switchboards of types, sizes, ratings, and electrical characteristics indicated and as required to suit respective application. Provide pressure contacts that clamp at both ends of the switchblade when the blades are fully closed. Provide silver-plated copper for all current-carrying live parts. As standard features, provide quick-make quick-break mechanisms, capacitor trip mechanism, blown main fuse detection, control transformers, full neutral on four wire systems, operating handle capable of being locked in the OFF position, dual fuse door interlock, and external devices indicating status of switch (ON or OFF). Where indicated or as required by codes and/or standards, provide ground fault relays, key interlocks, meters, etc.

2.6 FUSIBLE SWITCHES:

A. Provide factory-assembled, fusible switch units as integral components of distribution power

panels and switchboards of types, sizes, ratings, and electrical characteristics indicated and as required to suit respective application. Provide quick-make quick-break mechanisms and visible blades. Equip with handle capable of being locked in the OFF position. Provide dual fuse door interlocks. Provide switch with Class R rejection fuse clips. Include copper lugs to accommodate conductors specified.

### PART 3 – EXECUTION

#### 3.1 GENERAL:

- A. Install disconnects in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

#### 3.2 IDENTIFICATION:

- A. Provide 1/16" thick black plastic laminate labels with 1/4" high lettering on the exterior of each disconnect indicating name of disconnect or load served. Bolt labels to enclosure. Mark on interior cover the source of power by indicating the panel and circuit number.
- B. Provide red plastic laminate label for disconnects supplied by emergency power

#### 3.3 MOUNTING:

- A. Mount disconnects as indicated, but in no case higher than 6'-6" from finished floor to top of disconnect. Anchor enclosures firmly to walls and structural surfaces.
- B. Provide 4" high concrete pad under floor-standing disconnects.

END OF SECTION 26 0170

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B L A N K P A G E

SECTION 26 0180 - OVERCURRENT PROTECTIVE DEVICES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 section making reference to overcurrent protective devices.

1.2 DESCRIPTION OF WORK:

- A. Extent of overcurrent protective devices is indicated by drawings and schedules and is specified herein.
- B. Type of overcurrent protective devices in this section include the following:

- 1. Molded Case Circuit Breakers

1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 - Electrical General Provisions as applicable](#).
- B. SUBMITTALS:
  - 1. SHOP DRAWINGS: Submit manufacturer's data on overcurrent protective devices including specifications, time-current trip characteristics curves, mounting requirements, installation instructions, etc. Submit dimensioned drawings of overcurrent protective devices.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Provide overcurrent protective devices and ancillary components of types, sizes, ratings, and electrical characteristics indicated. Provide enclosures in NEMA ratings as indicated and suitable for applications.

2.2 MOLDED CASE CIRCUIT BREAKERS:

- A. MANUFACTURERS: Subject to compliance with all requirements, provide molded case circuit breakers from one of the following:
  - 1. Match existing panelboards.

B. MOLDED CASE CIRCUIT BREAKERS:

1. Provide factory-assembled, molded case circuit breakers as integral components of lighting and appliance panelboards, power panelboards, switchboards, and for individual mounting as indicated. Provide thermal magnetic, molded case circuit breakers of amperages, voltages, types, and short circuit current ratings indicated. Provide bolt-on type breakers only. Construct with quick-break, quick-break mechanism with inverse-time delay and instantaneous trip protection for each pole. Provide breakers rated for ambient temperatures to suit respective applications. Provide mechanical screw type removable copper connector lugs of size to accommodate conductors specified.
2. Provide breakers that have interrupting ratings greater than or equal to the specified fault current. Provide fully-rated systems only. Series-rated systems are not acceptable, unless specifically noted otherwise.

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install overcurrent protective devices in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 IDENTIFICATION:

- A. Provide 1/16" thick black plastic laminate labels with 1/4" high lettering on the exterior of each disconnect indicating name of disconnect or load served. Bolt labels to enclosure. Mark on interior cover the source of power by indicating the panel and circuit number.
- B. Provide red plastic laminate label for disconnects supplied by emergency power.

3.3 SETTINGS:

- A. Adjust settings of overcurrent protective devices as directed by engineer.

END OF SECTION 26 0180

SECTION 26 0289 - SURGE PROTECTIVE DEVICES

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 Type 2 Surge Protective Devices for low-voltage power.
- B. Related Sections include the following:
  - 1. [Division 26 Section "Panelboards" for factory-installed SPDs.](#)

1.3 DEFINITIONS

- A. ATS: Acceptance Testing Specifications.
- B. VPR: Voltage Protection Rating.
- C. SPD: Surge Protection Device.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating weights, operating characteristics, furnished specialties, and accessories.
- B. Product Certificates: For surge protective devices, signed by product manufacturer certifying compliance with the following standards:
  - 1. UL 1283.
  - 2. UL 1449 3rd Edition.
  - 3. UL 281-1 (fuse)
  - 4. CSA 22.2.
  - 5. NEMA LS-1
- C. Manufacturer Seismic Qualification Certification: Submit certification that surge protective devices, accessories, and components will withstand seismic forces defined in [Division 26 Section "Electrical Supports and Seismic Restraints."](#) Include the following:
  - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
    - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
  - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate

- and describe mounting and anchorage provisions.
  3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Products Testing: For surge protective devices, provide the following product test data:
1. Provide actual let through voltage test data in the form of oscillograph results for the ANSA/IEEE C62.41 Category C3 & C1 (combination wave) and B3 (ringwave) tested in accordance with ANSI/IEEE C62.45.
  2. Provide spectrum analysis of each unit based on MIL-STD-220A test procedures between 50 kHz and 200 kHz verifying the device noise attenuation equal or exceeds 50 db at 100 kHz.
  3. Provide test report in compliance with NEMA LS1 from a recognized independent testing laboratory verifying that surge protection device components can survive published surge current rating on both a per mode and per phase basis using the IEEE C62.41, 8 x 20 microsecond current wave. Note that test data on individual module is not accepted.
- E. Field quality-control test reports, including the following:
1. Test procedures used.
  2. Test results that comply with requirements.
  3. Failed test results and corrective action taken to achieve requirements.
- F. Operation and Maintenance Data: For surge protective devices to include in emergency, operation, and maintenance manuals.
- G. Warranties: Special warranties specified in this Section.
- 1.5 QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - B. Comply with ANSI/IEEE C62.41.1-2002, "IEEE Guide for Surge Environment in Low Voltage (1000 V and Less) AC Power Circuits," IEEE C62.41.2-2002, "IEEE Recommended Practice on Characterization of Surges in Low Voltage AC Power Circuits," and test devices according to IEEE C62.45-2002, "IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits."
  - C. Comply with NEMA LS 1, "Low Voltage Surge Protection Devices."
  - D. Comply with UL 1283, "Electromagnetic Interference Filters," and UL 1449 2nd Edition, "Surge Protective Devices."
  - E. The manufacturer shall be ISO 9000 certified.
  - F. Comply with Military Standards MIL-STD220A.
  - G. Comply with FIPS Pub 94.



H. Comply with NEC 2008, Article 285, “Surge Protective Devices.”

#### 1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

B. Service Conditions: Rate surge protection devices for continuous operation under the following conditions, unless otherwise indicated:

1. Maximum Continuous Operating Voltage: Not less than 115 percent of nominal system operating voltage.
2. Operating Temperature: -40 to 140 deg F.
3. Humidity: 5 to 95 percent, non-condensing.
4. Altitude: Up to 20,000 feet above sea level.

#### 1.7 COORDINATION

A. Coordinate location of field-mounted surge protection devices to allow adequate clearances for maintenance. Coordinate placement of breakers in electrical panelboards feeding field-mounted surge protection devices so that conductor leads are kept to an absolute minimum.

B. Coordinate surge protection devices with [Division 26 Section "Electrical Power Monitoring and Control."](#)

#### 1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge protection devices that fail in materials or workmanship within five years from date of Substantial Completion.

### PART 2 – PRODUCTS

#### 2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Current Technology, Inc.
2. Cutler-Hammer, Inc.; Eaton Corporation.
3. EFI Electronics
4. General Electric Company.
5. LEA International.
6. Leviton Mfg. Company Inc.
7. Liebert Corporation; a division of Emerson.

8. Siemens Energy & Automation, Inc.
9. Square D; Schneider Electric.
10. United Power Corporation.

## 2.2 VOLTAGE SURGE SUPPRESSION – GENERAL

### A. Electrical Requirements:

1. Unit Operating Voltage – Refer to drawings for operating voltage and unit configuration.
2. Maximum Continuous Operating Voltage (MCOV) – The MCOV shall be greater than 115% of the nominal system operating voltage.
3. The suppression system shall incorporate a hybrid designed Metal-Oxide Varistors (MOV) surge protection device for the service entrance and other distribution level. The system shall not utilize silicon avalanche diodes, selenium cell, air gaps or other components that may crowbar the system voltage leading to system upset or create any environmental hazards.
4. Protection Modes – For a wye-configured system, the device must have directly connected suppression elements between line-neutral (L-N), line-ground (L-G), and neutral-ground (N-G). For a delta-configured system, the device must have suppression elements between line to line (L-L) and line to ground (L-G).
5. UL 1449 3rd Edition Voltage Protection Rating (VPR) – The maximum UL 1449 3rd Edition VPR for the device must not exceed the following:
  - a. 208Y/120 V:
    - 1) L-N; L-G; N-G: 700 V.
    - 2) L-L: 1200 V.
  - b. 480Y/277 V:
    - 1) L-N; L-G; N-G: 1200 V.
    - 2) L-L: 2000 V.
6. ANSI/IEEE Cat. C3 Let Through Voltage – The let through voltage based on IEEE C62.41 and C62.45 recommended procedures for Category C3 surges (20 kV, 10 kA) shall be less than:
  - a. 208Y/120 V L-N: 560 V.
  - b. 480Y/277 V L-N: 960 V.
7. ANSI/IEEE Cat. B3 Let Through Voltage – Let through voltage based on IEEE C62.41 and C62.45 recommended procedures for the ANSI/IEEE Cat. B3 ringwave (6 kV, 500 amps) shall be less than:
  - a. 208Y/120 V L-N: 160 V.
  - b. 480Y/277 V L-N: 165 V.

### B. SPD Design

1. Balanced Suppression Platform – The surge current shall be equally distributed to all MOV components to ensure equal stressing and maximum performance. The surge suppression platform must provide equal impedance paths to each matched MOV. Designs incorporating SPD modules shall not be acceptable.
2. Electrical Noise Filter – Each unit shall include a high-performance EMI/RFI noise rejection filter. Noise attenuation for electric line noise shall be 50 dB at 100 kHz using the MIL-STD-220A insertion loss test method. Products not able to demonstrate noise attenuation of 50 dB @ 100 kHz shall be rejected.
3. Extended Range Filter – The Surge Protective Device shall have a High Frequency Extended Range Tracking Filter in each Line to Neutral mode with compliance to UL

1283 and NEMA LS1. The filter shall have published high frequency attenuation rating in the attenuation frequencies:

- a. Insertion Loss (ratio):
    - 1) 50kHz: 40
    - 2) 100kHz: 316
    - 3) 500kHz: 316
    - 4) 1MHz: 89
    - 5) 10MHz: 200
    - 6) 100MHz: 79
  - b. Insertion Loss (dB):
    - 1) 50kHz: 32
    - 2) 100kHz: 50
    - 3) 500kHz: 50
    - 4) 1MHz: 39
    - 5) 10MHz: 46
    - 6) 100MHz: 38
4. Internal Connections – No plug-in component modules or printed circuit boards shall be used as surge current conductors. All internal components shall be hardwired with connections utilizing low impedance conductors and compression fittings.
  5. Standard Monitoring Diagnostics – Each SPD shall provide integral monitoring options:
    - a. Each unit shall provide a green / red solid state indicator light shall be provided on each phase. The absence of a green light and the presence of a red light shall indicate which phase(s) have been damaged.
    - b. Contacts for Remote Status Monitoring – The SPD device must include form C dry contacts (one NO and one NC) for remote annunciation of unit status. The remote alarm shall change state if any of the three phases detect a fault condition.
  6. Overcurrent Protection Fusing: In order to isolate the SPD under any fault condition, the manufacturer shall provide:
    - a. Individual Fusing: MOVs shall be individually fused via Copper Fuse Trace. The Copper Fuse shall allow protection during high surge (kA) events. SPD shall safely reach an end-of-life condition when subjected to fault current levels between 0 and 200 kA, including low level fault currents from 5 to 5000 amperes.
    - b. Thermal Protection: MOVs shall be equipped with Thermal Fuse Spring (TFS) technology which allows disconnection of the suppression component at the overheated stage common during temporary over voltage condition. For small fault currents between 100mA to 30Amp, or if the occurrence is over a longer period of time, the TFS will disconnect first. Manufacturers that utilize fuse trace only shall not be approved since there is no fault current protection between 100mA to 30A,
    - c. All overcurrent protection components shall be tested in compliance with UL 1449-Limited Current Test and AIC rating test.

C. Minimum Repetitive Surge Current Capability as per ANSI/IEEE C62.41 and ANSI/IEEE C62.45 – 2002:

1. The suppression filter system shall be repetitive surge tested in every mode utilizing a 1.2 x 50 microseconds, 20kV open circuit voltage. 8 x 20 microsecond, 10kA short circuit current Category C3 bi-wave at one minute intervals without suffering either performance degradation or more than 10% deviation of clamping voltage at a specified surge current. The minimum repetitive surge current capability as per ANSI/IEEE

C62.41 and ANSI/IEEE C62.45 – 1992 shall be:

- a. Service Entrance: 5000 impulse per mode.
- b. Distribution Locations: 5000 impulse per mode.
- c. Branch Locations: 5000 impulse per mode.

### 2.3 SYSTEM APPLICATION

- A. Locations – Electrical drawings indicate the location and IEEE Category requirements of all required SPD's.
- B. Surge Current Capacity – The minimum total surge current 8 x 20 microsecond waveform that the device is capable of withstanding shall be as follows:
  1. IEEE Category "C" Locations:
    - a. Per Phase: 250kA.
    - b. Per Mode: 125kA.
  2. IEEE Category "B" Locations:
    - a. Per Phase: 160kA.
    - b. Per Mode: 80kA.
  3. IEEE Category "A" Locations:
    - a. Per Phase: 120kA.
    - b. Per Mode: 60kA.
- C. Lighting and Appliance Panelboard Requirements – Any one of the following options are acceptable:
  1. Factory-Installed SPD Option:
    - a. The SPD shall not limit the use of Through-feed lugs, Sub-feed lugs and Sub-feed breaker options.
    - b. The SPD shall be immediately installed on the load side of the main breaker or main lugs.
    - c. The panelboard shall be capable of re-energizing upon removal of the SPD.
    - d. A direct bus bar connection shall be used to mount the SPD component to the panelboard bus bar to reduce the impedance of the shunt path.
    - e. The SPD panelboard shall be constructed using a direct bus bar connection (cable connection between bus bar and SPD device in not acceptable). SPD units that use a cable connection do not meet the intent of this specification. For this option, the breaker shown on the electrical drawings shall be deleted.
    - f. The SPD shall be included and mounted within the panelboard by the manufacturer of the panelboard.
    - g. The SPD shall be of the same manufacturer as the panelboard.
    - h. The complete panelboard including the SPD shall be UL67 listed.
  2. Electronic grade Panelboard Extension Option:
    - a. The SPD shall not limit the use of Through-feed lugs, Sub-feed lugs and Sub-feed breaker options.
    - b. The SPD shall be installed in an panelboard extension consisting of a box and trim as follows:
      - 1) Box: The unit's box shall be formed of galvanized and chemically cleansed metal and all breaks in galvanizing shall be painted with metallic paint. Minimum size shall be 16" high and in width and depth to match the panelboard dimensions. It shall have removable tope and

bottom end-plates to facilitate attachment to the top of bottom of a panelboard (also with removable end-plates) in order to provide a continuous barrier-free volume for routing feeder or branch wiring through the extension box. Collar hardware shall be provided to mate the panelboard and the box.

- 2) Trim: The unit shall be constructed with gray baked enamel sheet metal trim suitable for attachment to the panelboard. Trim shall be flush- or surface mounted to match panelboard trim requirements. Refer to panelboard schedules.
  - c. Provide a multi-pole circuit breaker in the panelboard in size as recommended by the manufacturer to feed the surge protection device. The size of the breaker shall supersede the size of the breaker shown on the electrical drawings.
  - d. Provide copper conductors in size as recommended by the manufacturer for connecting the phases, neutral, and ground between the surge protection device and the circuit breaker in the panelboard. The size of the conductor shall supersede the size of the conductors shown on the electrical drawings.
- D. Power Distribution Panelboard and Switchboard Requirements – Any one of the following options are acceptable:
1. Factory-Installed SPD Option:
    - a. The SPD shall be of the same manufacturer as the power distribution panelboard, motor control center, or switchboard.
    - b. The SPD shall be factory installed inside the power distribution panelboard, motor control center, or switchboard at the assembly point by the original equipment manufacturer.
    - c. Locate surge protection device on load side of main disconnect device or main lugs, as close as possible to the phase conductors and ground/neutral bar.
    - d. Provide a disconnect sized in accordance with all manufacturer's recommendations. The disconnect shall be directly integrated to the surge protection device and assembly bus by using bolted bus bar connections. The disconnect is the preferred method. If otherwise recommended by the manufacturer, provide a multi-pole circuit breaker in the panelboard in size as recommended by the manufacturer to feed the surge protection device. The size of the breaker shall supersede the size of the breaker shown on the electrical drawings. Provide copper conductors in size as recommended by the manufacturer for connecting the phases, neutral, and ground between the surge protection device and the circuit breaker in the panelboard. The size of the conductor shall supersede the size of the conductors shown on the electrical drawings.
    - e. The SPD shall be integral to power distribution panelboard, motor control center, or switchboard as factory standardized design.
    - f. All monitoring diagnostics features shall be visible from the front of the equipment.

## 2.4 ENCLOSURES

- A. Provide enclosures suitable for locations as indicated on the drawings or as described below:
1. NEMA 12 dust-tight enclosures intended for indoor use primarily to provide protection against circulating dust, falling dirt and dripping non-corrosive liquids. (Panelboards

Only)

### PART 3 – EXECUTION

#### 3.1 INSTALLATION OF SURGE PROTECTION DEVICES

- A. Install devices at service entrance on load side, with ground lead bonded to service entrance ground.
- B. Install devices for panelboard and auxiliary panels with conductors or buses between surge protection device and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground at SPD.

#### 3.2 PLACING SYSTEM INTO SERVICE

- A. Do not energize or connect electrical equipment to their sources until surge protection devices are installed and connected.

#### 3.3 FIELD QUALITY CONTROL

- A. Testing: Perform the following field tests and inspections and prepare test reports:
  - 1. After installing surge protection devices, but before electrical circuitry has been energized, test for compliance with requirements.
  - 2. Complete startup checks according to manufacturer's written instructions.
  - 3. Perform each visual and mechanical inspection and electrical test stated in NETA ATS, "Surge Arresters, Low-Voltage Surge Protection Devices" Section. Certify compliance with test parameters.
- B. Remove and replace malfunctioning units and retest as specified above.

#### 3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain surge protective devices. Refer to [Division 1 Section "Closeout Procedures"](#) or ["Demonstration and Training"](#) as may be applicable.

END OF SECTION 26 0289

SECTION 26 0452 – GROUNDING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections making reference to grounding.

1.2 DESCRIPTION OF WORK:

- A. Extent of grounding work is indicated by drawings and schedules and is specified herein.
- B. Ground the complete electrical installation including the system neutral, metallic conduits and raceways, boxes, fittings, devices, cabinets, equipment, and separately derived systems in accordance with the NEC and all other applicable codes to provide a permanent, continuous, low impedance, grounding system.
- C. Provide grounding system such that the resistance from the service entrance ground bus, through the grounding electrode to earth is not greater than 5 ohms.

1.3 QUALITY ASSURANCE:

- A. STANDARDS: Refer to [Section 260001 – Electrical General Provisions](#) as applicable.
- B. TESTING: Submit results of ground resistance testing as specified in this section. Include name of testing agency with report. Include test results in operation and maintenance manuals.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Provide grounding equipment and accessories of types, sizes, ratings, and electrical characteristics indicated or as otherwise required to provide a complete system.

2.2 GROUNDING CONDUCTORS:

- A. Unless noted otherwise, provide grounding conductors with stranding and insulation types to match phase conductors. Provide conductors with green insulation if possible; otherwise wrap with green tape. Size ground conductors as indicated on drawings. Do not size ground conductors smaller than that allowable by NEC.

2.3 GROUND RODS:

- A. Provide copper clad, steel, 3/4" diameter by 10' long, ground rods ( Weaver, Cadweld, or equivalent).

2.4 INSULATED GROUNDING BUSHINGS:

- A. Provide plated malleable iron body with 150 degree Centigrade molded plastic insulating throat, lay-in grounding lug with hardened stainless steel fasteners (OZ Gedney BLG or equivalent).

2.5 BONDING JUMPERS:

- A. Provide bonding jumpers with hot dip galvanized malleable or ductile iron clamps, hot dip galvanized steel U-bolts, and tinned copper braids (OZ Gedney BJ Series or equivalent).

PART 3 – EXECUTION

3.1 GENERAL:

- A. Install grounding systems in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 CLEANING:

- A. Thoroughly clean all metal contact surfaces prior to installation of clamp-on connectors.

3.3 EQUIPMENT BONDING AND GROUNDING:

- A. Provide an NEC sized conductor, whether indicated or not on the drawings, in raceways as follows:
  1. Non-metallic conduits and ducts.
  2. Distribution feeders.
  3. Motor and equipment branch circuits.
  4. Device and lighting branch circuits.
  5. Full length of all multi-outlet assemblies and other surface wireways.

3.4 ADDITIONAL GROUNDING INSTALLATION REQUIREMENTS:

- A. Provide grounding bushings on all service conduit and conduits installed in concentric/eccentric knock-outs or reducing washer at panelboards, cabinets, and gutters.
- B. Provide bonding jumpers across expansion and deflection couplings in conduit runs, across pipe connections at water meters, and across dielectric couplings in metallic cold water piping system. Connection to water piping system shall be made electrically continuous by connecting to the street side of the water main valve and/or installing additional bonding jumpers across the meter, valves or service unions that might be disconnected.
- C. Provide bonding wire in all flexible conduits.

3.5 TESTING:



- A. Obtain and record ground resistance measurements both from service entrance ground bus to the ground electrode and from the ground electrode to earth. Install additional bonding and grounding electrodes as required to comply with resistance limits specified under this Section. Use independent testing agency for all testing.

END OF SECTION 26 0452

B L A N K P A G E

SECTION 26 3200 - TURNKEY PHOTOVOLTAIC COLLECTORS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.
- B. This section is a Division 26 General Provisions section, and is part of each Division 26, 27, and 28 sections referring to Turnkey Photovoltaic Collectors.

1.2 DESCRIPTION OF WORK:

- A. The following outlines general requirements for Turnkey Photovoltaic Systems:
  - 1. Provide engineered stamped drawings, energy model, shop drawings, and project documentation.
  - 2. Provide a complete fully-operational photovoltaic system consisting of, but not necessarily limited to the following:
    - a. Photovoltaic modules.
    - b. Combiner boxes, junction boxes, etc.
    - c. Power Optimizers.
    - d. Inverters.
    - e. DC wiring (conduits and conductors) from photovoltaic panels to inverter inputs.
    - f. AC wiring (conduits and conductors) from inverter outputs to breakers in distribution panels.
    - g. Circuit breakers in AC panelboards as may be required to feed inverter units.
    - h. installation, labor, equipment, tools, testing, commissioning, training, etc. for a complete photovoltaic power system.
    - i. Commissioning and testing.
    - j. On-line monitoring.
  - 3. Specify layout and location of the system at the approved project site to maximize production.
  - 4. Minimize the risk of vandalism, theft and personal injury in the installation and operation of the systems.
  - 5. System layout, spacing, and construction shall comply with all current zoning, building, and fire codes requirements.
  - 6. Other items as may be included in other scope of work documents.

1.3 REFERENCE STANDARDS

- A. ASCE 7-10 - Minimum Design Loads for Buildings and Other Structures; 2010.
- B. IEC 61215 - Crystalline Silicon Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval; 2005.
- C. IEEE 1262-1995 Recommended Practice for Qualifications of Photovoltaic (PV) Modules.

- D. IEEE 1547 - Standard for Interconnecting Distributed Resources with Electric Power Systems; 2018.
- E. NEC – Article 690 – Solar Photovoltaic (PV) Systems; 2017.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- G. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2008.
- H. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- I. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings; Current Edition, Including All Revisions.
- J. UL 1703 - Flat Plate Photovoltaic Modules and Panels; Current Edition, Including All Revisions.
- K. UL 1741 - Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources; Current Edition, Including All Revisions.

#### 1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
  - 1. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
  - 2. Roof-top Arrays: Coordinate layout of photovoltaic modules and mounting systems with roof and associated equipment.
  - 3. Notify Architect of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Pre-installation Meeting: Convene one week prior to commencing work of this section; require attendance of all affected installers. Include adequate instruction on the electrical hazards associated with photovoltaic systems and appropriate safety procedures to be followed.
- C. Utility Interconnection:
  - 1. Coordinate design and construction with Rocky Mountain Power and consulting electrical engineer. Comply with all applicable requirements regarding photovoltaic systems.
  - 2. Prepare and submit documentation as required for securing utility interconnection agreement between the School District (Owner) and Rocky Mountain Power.
  - 3. Pre-installation Meeting: Convene one week prior to commencing work of this section to review interconnection requirements and details with local power company representative.
  - 4. Coordinate net metering agreement with local power company and consulting electrical engineer.
  - 5. Arrange for inspections and secure permits necessary to obtain local power company approval of system.

1.5 SUBMITTALS

- A. Design Documents: Prepare and submit all information required for plan review and permitting by authorities having jurisdiction, including but not limited to plans, electrical diagrams, riser diagrams, mounting details, and description of operation.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product. Include ratings, configurations, standard wiring diagrams, outline and support point dimensions, finishes, weights, service condition requirements, and installed features.
- C. Shop Drawings: Include dimensioned plan views and sections indicating locations of system components, required clearances, attachment locations and details, and proposed size, type, and routing of conduits and cables. Include system interconnection schematic diagrams showing all factory and field connections.
- D. Energy Model: a complete model showing energy production data for a complete year including anticipated reductions due to shading.
- D. Design Data:
  - 1. Include structural calculations, certified by structural engineer, for equipment and mounting system.
  - 2. Include electrical calculations, certified by electrical engineer or qualified electrical contractor, for array and associated equipment other than the basis of design products and configuration.
- E. Certify that work of this section does not void roof warranty.
- F. Installer's Qualifications: Include evidence of compliance with specified requirements.
- G. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.
- H. Utility interconnection documentation.
- I. Field quality control test reports.
  - 1. Include manufacturer's field reports.
- J. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.
- K. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.
- L. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. Extra Photovoltaic Modules: Ten (10).

1.6 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with Utility Company requirements for interconnection.
- D. Structural Designer Qualifications: Registered structural engineer licensed in the State of Utah.
- E. Electrical Designer Qualifications: Registered electrical engineer licensed in the State of Utah and experienced in the design of photovoltaic systems.
- F. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
  - 1. Provide 3 references, minimum, with bid.
- G. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience with photovoltaic systems of similar size, type, and complexity.
  - 1. Licensed in the State of Utah as a General Electrical Contractor (S200).
  - 2. Licensed in the State of Utah as a Solar Photovoltaic Contractor (S202).
  - 3. Manufacturer's authorized installer.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging, keep dry and protect from damage until ready for installation.

#### 1.8 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Photovoltaic Modules: Provide a minimum 25-year manufacturer warranty covering repair or replacement due to defective materials or workmanship.
- C. Photovoltaic Module Mounting System: Provide minimum 10-year manufacturer warranty covering repair or replacement due to defective materials or workmanship.
- D. Photovoltaic Inverters and Other Components: Provide a minimum 10-year manufacturer warranty covering repair or replacement due to defective materials or workmanship.

### PART 2 – PRODUCTS

#### 2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products from one of the following for each component:
- B. Photovoltaic Modules:
  - 1. Basis-of-Design Products:

- a. REC Twinpeak 2S Mono 72 Series, 380 W
- b. LG Neon 2 Nic-A5, 335 W

Refer to drawings for additional information.

2. Subject to compliance with requirements, other products equivalent to the Basis-of-Design Product may also be provided from one of the following for each component:
    - a. CanadianSolar.
    - b. Hanwa Q-CELLS.
    - c. LG Electronics.
- C. Photovoltaic Inverters:
1. Basis-of-Design Product: Solaredge Three Phase Inverter with Synergy Technology, Model SE14.4KUS, 480-volt, three-phase, 4-wire output. Inverters must comply with IEEE-1547-2018 and all other Rocky Mountain Power requirements.
  2. Subject to compliance with all requirements, other products equivalent to the Basis-of-Design Product may also be provided from one of the following for each component:
    - a. SMA.
    - b. Yaskawa Solectria Solar
- D. Power Optimizer:
1. Basis-of-Design Product: Solaredge P370 for connecting single modules; Solaredge P730p for connecting two (2) modules.
  2. Subject to compliance with all requirements, other products equivalent to the Basis-of-Design Product may also be considered, but must be approved during the bidding period by addendum.
- E. Photovoltaic Module Mounting Structures:
1. Basis-of-Design Product: UniRac RM-Ballasted Flat Roof 10-degree tilt System with integrated bonding clips and optional roof-pads.
  2. Subject to compliance with all requirements, other products equivalent to the Basis-of-Design Product may also be considered, but must be approved during the bidding period by addendum.
  3. Provide roof-mounted self-ballasted racking system with anchoring to withstand local wind conditions of min 120 miles/hr and per all IBC requirements.
- F. Source Limitations: For each type of component, furnish products produced by a single manufacturer and obtained from a single supplier.

## 2.2 INSTALLERS

- A. Subject to compliance with all requirements, the system shall be provided by one of the following installation companies:

1. Gardner Engineering, (801) 689-2618.
2. Creative Energies, (801) 487-6489.
3. Intermountain Wind and Solar, Inc. (801) 298-5255.
4. JC Electric, Inc., (801) 391-2024.
5. Solar Ready Solutions, (844)212-4485

## 2.3 PHOTOVOLTAIC SYSTEM REQUIREMENTS

- A. Provide complete photovoltaic system consisting of photovoltaic modules and associated balance of system components necessary for connection to facility electrical system.
- B. System Description:
1. System includes interconnection with utility grid (grid-tied system).
    - a. Utility metering configuration: Net metering.
  2. System includes monitoring system.
- C. Capacity:
1. Total Nominal Rated Power Output of Array: Refer to electrical drawings for energy production requirements. Maximum degradation shall be 1% per year.
- D. Size:
1. Array: Designed to fit on roof-top of building.
  2. Individual Modules: Not less than 350 W or 335 W (refer to drawings for additional information).
- E. Appearance:
1. Arrange array such that modules are aligned with uniform spacing.
  2. Final determination of acceptable appearance is by Owner.
- F. Provide photovoltaic system and associated components suitable for wind loads, snow loads, seismic loads, and other structural design considerations of the installed location.
1. Comply with ASCE 7-10.
- G. Provide photovoltaic system and associated components suitable for continuous operation under the service conditions at the installed location.
- H. Provide products listed, classified, and labeled by Underwriter's Laboratories Inc. (UL) or Intertek (ETL) as suitable for the purpose indicated.
- I. Unless specifically indicated to be excluded, provide all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system.



- J. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- K. Arrange array to provide adequate access to rear of string(s) for maintenance.
- L. Arrange array to minimize shading during peak production periods.
- N. Roof-Mounted Arrays:
  - 1. Arrange array such that normal roof drainage is not affected.
  - 2. Arrange array to maintain required safety clearances from edge of roof per IBC or OSHA requirements as may be enforced by Authority Having Jurisdiction.
  - 3. Arrange array to maintain access and clearance requirements for other roof-mounted equipment.
  - 4. Arrange array to avoid spanning of expansion joints.

## 2.4 PHOTOVOLTAIC MODULES

- A. Acceptable Module Types: Multicrystalline silicon flat-plate 72-cell or 60-cell PV modules (refer to drawings for additional information) are acceptable.
- B. General Requirements:
  - 1. Photovoltaic Modules: Factory assembled; consisting of photovoltaic cells, frame, junction box, cables for series connection, and bypass diodes for shade tolerance; rated for 1000 V DC; listed as complying with UL 1703.
  - 2. Crystalline Silicon Photovoltaic Modules: Comply with IEC 61215.
  - 3. Frame: Anodized aluminum.
  - 4. Factory-Installed Junction Box: Weatherproof, with factory-installed terminals and bypass diodes.
  - 5. Factory-Installed Cables: Type USE-2 or listed photovoltaic (PV) wire with polarized locking connectors.
  - 6. Fire Resistance Rating: UL 790, Class equal to or better than required fire rating of roof.
  - 7. Unless otherwise indicated, specified module performance characteristics are rated under Standard Test Conditions (STC).

## 2.5 PHOTOVOLTAIC INVERTERS

- A. General Requirements:
  - 1. Provide inverter(s) as indicated or as required for connection of the photovoltaic array DC system to the AC system indicated.
  - 2. Inverters: Suitable for the requirements of the connected array; output configuration compatible with connected system; listed as complying with UL 1741; furnished with the following features:
    - a. Maximum power point tracking (MPPT).
    - b. LCD display.
  - 3. Grid-Tied Inverters: Comply with IEEE 1547, including over/under grid voltage and frequency protection, and anti-islanding protection to automatically disconnect upon loss of utility power and to remain disconnected until utility power restoration has been

maintained for five minutes.

4. Total Harmonic Distortion: Less than five percent.
5. Enclosure Environment Type: NEMA 3R.
6. Provide low forward power relays or other protection devices as may be required by local power company that ensures no export of power from each inverter, including inadvertent export (under fault conditions) that could adversely affect protective devices on the local power company network. Coordinate all work with local power company.
7. Shall comply with all NEC rapid-shut down requirements.

## 2.6 PHOTOVOLTAIC MODULE MOUNTING SYSTEM:

### A. General Requirements:

1. Provide complete self-ballasted mounting system compatible with modules including all necessary hardware and accessories.
2. Support Structure and Associated Hardware Materials: 0.050 inch (nominal thickness) mill certified aluminum with stainless steel fasteners.
3. Ballast mounting system with concrete blocks to hold system in place.
3. Wind loading: Meets ASCE 7-05 wind loading criteria for 150 mph minimum.
4. Fire Rating: Meets IBC required fire testing levels and have an A Class fire rating.
5. Mechanical Load Testing: Meets IBC snow loading requirements.

## 2.7 PHOTOVOLTAIC COMBINER BOXES:

### A. Photovoltaic Combiner Boxes:

1. Provide combiner box(es) for termination of strings as indicated or as required for the array configuration installed.
2. Combiner Boxes: Rated for 1000 V DC; current ratings suitable for connected strings; equipped with circuit breakers; listed as complying with UL 1741.
3. Number of Input Circuits: As required for termination of strings, with minimum of 20 percent spare capacity for future expansion.
4. Enclosure: NEMA 250, Type 3R.
5. Provide with capability of current monitoring for individual strings.

## 2.8 ON-LINE MONITORING:

### A. On-line monitoring:

1. Shall display the data from the photovoltaic system via internet connection through a database.
2. The data retrieved from the photovoltaic system such as CO2 savings, module/system output, trees saved, etc. through the web-connected data monitoring system can be viewed publicly online through a link on the DSD website.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that field measurements are as shown on the Drawings.
- B. Verify that ratings and configurations of system components are consistent with the indicated requirements.
- C. Verify that mounting surfaces are ready to receive system components.
- D. Verify that conditions are satisfactory for installation prior to starting work.

### 3.2 PREPARATION

- A. Use open circuiting, short circuiting, or opaque covering to disable modules, array or portions of array prior to installation and service.
- B. Roof-Mounted Arrays: Protect roof and adjacent roof-mounted items from damage. Provide walking mats and rigid insulation, as necessary.

### 3.3 INSTALLATION

- A. Perform work in a neat and workmanlike manner in accordance with NECA 1.
- B. Install products in accordance with manufacturer's instructions.
- C. All PV arrays shall be oriented facing from southeast to southwest, at tilt angles for maximum solar energy exposure, but not less than 10 degrees to allow for proper draining. Arrays should be located to prevent shading from trees, utility poles, Overhead power lines, fences, or other structure at any time between 9 am and 3 pm solar time, any day of the year.
- D. To promote cooling, to maximize air circulation around PV arrays, and to keep the arrays above the snow line, ground-mounted arrays shall be a minimum of 6 inches between any photovoltaic module and the roof, with no obstruction preventing air flow between (beneath) the array and the roof.
- E. Inverters shall be mounted on the roof or as otherwise noted on the drawings. Provide C-Channel mounting frames and hardware as may be required for proper support and seismic restraint to meet all applicable structural codes and to meet all electrical code requirements pertaining to grounding of PV systems. Provide a deferred submittal consisting of a stamped drawing from a licensed structural engineer prior to installation.
- F. Install weather seal fittings and flanges where PV panel assemblies penetrate exterior elements such as roofs. Seal around openings to make weathertight.
- G. Circuiting Requirements:
  - 1. Wiring Methods:
    - a. Unless otherwise indicated, use 1000 Volt Type RPVU PV Photovoltaic single-conductor building wire in suitable raceway for wiring between combiner box(es) and point of interconnection. Use IMC as raceway where exposed to moisture and weather.
    - b. Secure exposed cables in accordance with NFPA 70. Where possible, conceal behind array.

- c. Install cables in suitable raceway where readily accessible or where required by authority having jurisdiction.
- d. Use suitable twist-on insulated spring connectors, mechanical connectors, or compression connectors for photovoltaic circuit splices and taps.
2. Photovoltaic DC System Conductor Color Code:
  - a. Positive Grounded System:
    - 1) Positive/Grounded: White.
    - 2) Negative: Black.
3. Maintain separation of photovoltaic and non-photovoltaic circuits in accordance with NFPA 70.

H. Grounding and Bonding Requirements:

1. Ensure that there is only one AC System bonding connection between grounding system and grounded/neutral conductor, including external connections and connections internal to equipment.

I. Identification Requirements:

1. Use identification nameplate or means of identification acceptable to authority having jurisdiction to identify the presence of multiple power sources and the location of main service disconnecting means and each photovoltaic system disconnecting means. Locate at main service disconnecting means and each photovoltaic system disconnecting means. Verify format and descriptions with authority having jurisdiction.
2. Use identification nameplate to identify each photovoltaic system disconnecting means with text "PHOTOVOLTAIC SYSTEM DC DISCONNECT" or "PHOTOVOLTAIC SYSTEM AC DISCONNECT" as applicable.
3. Use identification nameplate or identification label to identify each photovoltaic system DC disconnecting means with the following information:
  - a. Rated maximum power-point current (operating current).
  - b. Rated maximum power-point voltage (operating voltage).
  - c. Maximum system voltage.
  - d. Short-circuit current.
4. Use identification nameplate or identification label to identify the interactive system point of interconnection at the disconnecting means as a power source and with the rated AC output current and the nominal operating AC voltage.
5. Use warning labels, identification nameplates, or identification labels to identify electrical hazards for photovoltaic system disconnecting means. Include the word message "Warning - Electric Shock Hazard; Do not touch terminals; Terminals on both the line and load sides may be energized in the open position" or approved equivalent.
6. Use wire and cable markers to identify photovoltaic system source, output, and inverter circuit conductors at all points of termination, connection, and splices.
7. Use voltage markers, identification labels, stenciled text, or suitable permanent marking approved by authority having jurisdiction to identify exposed raceways, cable trays, pull boxes, junction boxes, and conduit bodies with the text "Photovoltaic Power Source" at maximum intervals of 10 feet (3 m) in accordance with NFPA 70.

3.4 FIELD QUALITY CONTROL

- A. See article "SYSTEM STARTUP" below for additional requirements related to testing and inspection.

- B. Provide services of a manufacturer's authorized representative to observe installation and assist in inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.
- C. Inspection and testing to include, at a minimum:
  - 1. Inspect each system component for damage and defects.
  - 2. Verify that equipment enclosures, boxes, and associated connections installed outdoors are weatherproof.
  - 3. Verify proper wiring connections have been made and check for conductor continuity. Verify proper polarity.
  - 4. Verify tightness of mechanical and electrical connections is according to manufacturer's recommended torque settings.
  - 5. Measure and record voltages at the inverter AC and DC inputs.
  - 6. Measure and record AC output power.
  - 7. Perform inverter functional test.
    - a. Grid-Tied Inverters: Include simulation of loss of utility power and subsequent power restoration.
  - 8. Verify proper operation of monitoring system.
- D. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.
- E. Diagnostic Period: After successful completion of inspections and tests, operate system in normal mode for at least 14 days without any system or equipment malfunctions.
  - 1. Record all system operations and malfunctions.
  - 2. If a malfunction occurs, start diagnostic period over after correction of malfunction.
- F. Submit detailed reports indicating inspection and testing results and corrective actions taken.
- G. Repair roof or adjacent roof-mounted items damaged as a result of work of this section.

### 3.5 SYSTEM STARTUP

- A. Provide services of a manufacturer's authorized representative to assist in performing system startup. Include manufacturer's detailed startup procedures with submittals.
- B. Obtain Owner's approval prior to performing system startup.
- C. Grid-Tied Systems: Obtain Utility Company's approval prior to performing system startup.
- D. Prepare and start system in accordance with manufacturer's instructions.

### 3.6 CLEANING

- A. Clean modules using only methods recommended by manufacturer to avoid scratches and other damage. Clean exposed surfaces on other components to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.7 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or adjust as directed.
- B. Training: Train Owner's personnel on operation, adjustment, and maintenance of photovoltaic system.
  - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
  - 2. Provide minimum of four hours of training.

3.8 PROTECTION

- A. Protect installed products from subsequent construction operations.

3.9 MAINTENANCE

- A. Conduct site visit at least once every six months to perform inspection, testing, and preventative maintenance. Conduct tests similar to those made during original field quality control testing. Submit report of Owner comparing test results with those of original tests along with evaluations and recommendations.
- B. Provide Trouble call-back service upon notification by Owner:
  - 1. Include allowance for call-back service during normal working hours at no cost to Owner.
  - 2. Owner will pay for call-back service outside of normal working hours on an hourly basis, based on actual time spent at site and not including travel time; include hourly rate and definition of normal working hours in maintenance contract.

END OF SECTION 26 3200