

Salt Storage Building Addition Design & Construction

RFP No. 2014-8



Lehi City Corporation
Public Works Department

RESPONSES ARE DUE PRIOR TO:

July 10, 2014
5:00 PM MDT

Preferred method is to submit electronically to:
www.bidsync.com

Responses may be mailed or hand-delivered to:

Lehi City Administration
Attn: Robert Ranc
RFP No. 2014-8
153 North 100 East
Lehi, UT 84043

**Lehi City Corporation
Public Works Department**

Salt Storage Building Addition Design & Construction

REFERENCE NUMBER: RFP No. 2014-8
RFP TITLE: "Salt Storage Building Addition Design & Construction"
RFP LOCATION: Lehi City Corporation, Lehi City, Utah

SUBMISSION DEADLINE: July 10, 2014
SUBMISSION TIME: 5:00 PM MDT
SUBMISSION PLACE: Lehi City Administration
153 North 100 East
Lehi, Utah 84043

PRE-BID MEETING (OPTIONAL): June 30, 2014, 10:00 AM MDT
2538 North 300 West
Lehi, Utah 84043

RFP DESCRIPTION: This is a contract for the design and construction of a new addition to the Lehi City salt storage building located at 2538 North 300 West in Lehi, Utah.

RFP CONTACT: Wade Allred
Streets Division Manager
(801) 836-1106
wallred@lehi-ut.gov

CONTRACTORS: Carefully read all instructions, requirements and specifications. Give all requested information properly and completely. Submit your proposal with appropriate supplements and/or samples. Please submit proposals through Bidsync.com or mail or deliver to the Lehi City Administration address above by the submission deadline. Proposals received after July 10, 2014 at 5:00 PM MDT will not be considered.

Additional instructions for submitting proposal:

- A. It is the responsibility of the Contractor to "Log In" through BidSync. For assistance contact BidSync at 1-800-990-9339.

- B. Questions regarding this proposal should be submitted through BidSync. The Contractor may also contact Wade Allred, Streets Division Manager (see “RFP Contact” above) for specific questions regarding the proposal content. RFP #2014-8 must be referenced on all proposals and correspondence related to the RFP. Significant questions that arise subsequent to the issue of this RFP will be consolidated and answers will be provided to all Contractors on record as receiving this RFP. All questions should be received three (3) working days prior to RFP due date.
- C. The recommended method to submit your proposal is through BidSync. By using alternate methods of delivery, contractor bears all risks if documents are not received at the Administrative Office prior to the submission deadline. Contractor should call to verify Administration has received the hard-copy proposal prior to the RFP closing. If using an alternative method, Contractors may either mail or hand-deliver one (1) bound hardcopy and one (1) CD electronic copy to the Administration Office. Responses should be addressed as follows:

RFP #2014-8: Salt Storage Building Addition Design & Construction
Lehi City Administration
Attn: Robert Ranc
153 North 100 East
Lehi, Utah 84043

Following the deadline, the names of those responding to the RFP will be made public. All other information will remain confidential, as required by law. (See Section 2.10)

Unless specifically authorized by the City’s Administrative Office, telephonic proposals or modifications of proposals will not be considered. However, modifications by email, fax, etc. for proposals already submitted through the proper channels will be considered, if received prior to the time for the submission deadline.

SECTION 1: SERVICE REQUIREMENTS AND PROPOSAL PRICING

1.1 SERVICE REQUIREMENTS

Lehi City (herein also referred to as “City”) is seeking proposals for the design and construction of a new addition to its salt storage building located at 2538 North 300 West in Lehi, Utah. The following is a description of the work Lehi City will require:

1. **Construction and Design of Addition to Salt Storage Building:** This project is to design and construct an addition to the existing salt storage building on Lehi City-owned property in Lehi, Utah per this description and the attached specifications.

The scope of work includes the design and construction of a new building per the requirements contained in the specifications. The dimensions of the requested building are 40 feet by 80 feet. The Contractor will be responsible to verify all existing conditions prior to the bid. The Contractor will be responsible for the final design and construction of the building. The building shall be designed and constructed according to all current applicable State, Local, and National codes.

Contractor may propose an alternate method of construction other than those listed. Any proposed alternate methods of construction not listed must be submitted prior to bid for approval. Approved alternate methods of construction will be issued as an addendum. The exterior of the building must be maintenance free. Building shall have vertical sides with minimum 18 foot eave heights. Building must also meet the following design loads:

- a. Wind-Uplift Resistance: Provide roof panel assemblies that meet requirements of UL 580 for the following wind-uplift resistance:
 - i. Class 90. With additional requirements for resistance to 115 mph (ultimate) winds.
- b. Snow Load: Site specific. The ground snow load must be calculated based upon U.C.A. 1953 § 15A-3-107. Snow loads shown per project are site specific based upon tables in the above mentioned section of Utah Code. Contractor to verify compliance.
 - i. Ground Snow: 43 psf
 - ii. Roof Snow Load: 30 psf
- c. Wind: Site specific. Wind speed per local jurisdiction. Exposure as required by ASCE 7.
- d. Seismic: Site specific. As required by the IBC.
- e. Floor: 400 lb/sq. ft.
- f. IBC Occupancy Classification: S-2
- g. Use: Equipment Maintenance
- h. Construction Type: VB
- i. Occupancy: 0
- j. Soil Bearing Capacity: Per soil reports

Contractor shall be responsible for all site work related to construction of the building only, excavation, backfilling of footing trenches, etc. Final site grading and asphalt paving shall be done by the City. Except for work designated to be done by the City, the Contractor will be responsible for work done within the building footprint. Contractor is responsible for compacted fill and/or excavation as required for construction of building. Contractor shall

backfill and compact footing and foundation excavation. City will finish site grading and asphalt after completion of building.

The Contractor will be required to submit complete construction documents based upon the specifications for approval by the City prior to construction. The building supplied may be of the manufacturer's standard size but shall not be less than the minimum size shown.

There is an optional, but recommended, pre-bid meeting on June 30, 2014 at 10:00 am to be held at 2538 North 300 West in Lehi. The meeting will allow bidders to visit the site and ask any questions regarding the bid. Questions during the bid period must be submitted to Wade Allred in writing (3) three days prior to bid the date. Any inadvertent information obtained from unauthorized questions will not be considered the official position of the City. Relying on such information is done at the bidder's risk.

2. Quality Control:

- a. Quality-control services include inspections, tests, and related actions including reports, performed by Contractor, by independent agencies, and by governing authorities.
- b. City will employ and pay a qualified independent testing agency to perform tests and inspections specified in other sections, and those required by authorities having jurisdiction. Contractor is responsible for scheduling inspections and tests.
- c. Retesting: Contractor shall pay for retesting where results of inspections and tests prove unsatisfactory and indicate noncompliance with requirements.
- d. Auxiliary Services: Contractor shall cooperate with agencies performing inspections and tests. Contractor shall provide auxiliary services as requested. Contractor shall notify testing agency in advance of operations requiring tests or inspections, to permit assignment of personnel. Auxiliary services include the following:
 - i. Access to the work.
 - ii. Incidental labor and facilities to assist inspections and tests.
 - iii. Adequate quantities of samples of materials that require testing, and assisting in taking samples.
 - iv. Facilities for storage and curing of test samples.
 - v. Security and protection of samples and test equipment.
- e. Duties of Testing Agency: Testing agency shall cooperate with the City and Contractor in performing its duties. Testing agency shall provide qualified personnel to perform inspections and tests. Testing agency shall notify the City and Contractor of irregularities or deficiencies observed in the work during performance of its services. Testing agency shall not release, revoke, alter, or enlarge requirements of the contract documents or approve or accept any portion of the work. Testing agency shall not perform duties of Contractor.
- f. Submittals: Testing agency shall submit a certified written report of each inspection and test to the following:
 - i. City
 - ii. Contractor
 - iii. Structural engineer (as applicable)
 - iv. Authorities having jurisdiction, when authorities so direct.
- g. Report Data: Reports of each inspection, test, or similar service shall include at least the following:
 - i. Date of issue

- ii. Project title and number
 - iii. Name, address, and telephone number of testing agency
 - iv. Dates and locations of samples and tests or inspections
 - v. Names of individuals making the inspection or test
 - vi. Designation of the work and test method
 - vii. Identification of product
 - viii. Complete inspection or test data
 - ix. Test results and an interpretation of test results
 - x. Ambient conditions at the time of sample taking and testing
 - xi. Comments or professional opinion on whether inspected or tested work complies with requirements
 - xii. Name and signature of laboratory inspector
 - xiii. Recommendations on retesting or re-inspection
- h. Qualifications for Service Agencies: Engage inspection and testing service agencies that are prequalified as complying with the American Council of Independent Laboratories' "Quality Assurance Manual" and that specialize in the types of inspections and tests to be performed. Each agency shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

3. Construction Document Submittal: The contractor will be required to prepare and submit complete construction plans for review and approval by the City and the Lehi Building Official. Prior to commencement of construction, contractor shall submit 3 sets of plans for review by the City and the Lehi Building Official. It will be the responsibility of the architect or engineer of record to verify the bid elements and provide the necessary engineered plans and calculations for review and approval. Changes required to the bid documents will be addressed as change orders as required. Construction plans shall bear stamps of licensed professionals as required by the State of Utah. Final plan submittal shall include compliance as required with current building and fire codes. A typical construction set will include the following:

- a. Cover sheet indicating project name, location and project number.
- b. Code analysis and special inspection form.
- c. Architectural and engineering plans based on bid documents.
- d. Pre-engineered plans for the metal building (as applicable).
- e. Soils report to determine soil bearing capacity (as applicable).
- f. Structural calculations.
- g. Energy analysis (ComCheck Lighting only).

It will be the Contractor's responsibility to follow through with the review and approval process to ensure that the project remains on schedule. The stamped set, approved by the Lehi City Building Official, shall be maintained on site during the duration of the construction of the project.

4. Certificate of Occupancy: Contractor will be required to arrange for all inspections and letters of acceptance necessary to allow Owner to obtain a Certificate of Occupancy from the Lehi City Building Official. These minimums usually include:

- a. A code inspection report recommending that a certificate of occupancy is issued.
- b. A code inspection report recommending that final approval of the project is given.
- c. A final report from the special inspection agency.
- d. A Certificate of Fire Clearance from the City Fire Marshal.

All work must be completed by September 26, 2014, or as soon as possible.

Contractors should submit proposals by July 10, 2014 at 5:00 PM MDT. Proposal documents and specifications for RFP No. 2014-8, "Salt Storage Building Addition Design & Construction," can be found online at lehi-ut.gov/business/rfp-bid-solicitations/ or on BidSync.com.

1.2 PROPOSAL PRICING

The Contractor shall provide construction services that meet all qualifications as described in the Service Requirements above. The total cost for the Salt Storage Building Addition as referenced above is: \$_____

SECTION 2: INSTRUCTIONS TO CONTRACTORS

2.1 ADMINISTRATIVE GUIDANCE

The information provided in this RFP is designed to provide interested Contractors with sufficient information to submit proposals meeting minimum requirements, but is not intended to limit a proposal's content or to exclude any relevant or essential data therefrom. Contractors are at liberty and are encouraged to expand upon the specifications to give additional evidence of their ability to provide the services requested in this RFP.

2.2 SCOPE OF TERMS & CONDITIONS

Before submitting a proposal, the Contractor shall understand all contract conditions referred to in this document, and any addenda issued before the RFP submission date. It shall be the Contractor's responsibility to ensure that the proposal includes all addenda issued prior to the RFP submission date. By submitting a proposal, the Contractor acknowledges and accepts the Terms and Conditions described herein.

2.3 PROPOSAL RESPONSE OUTLINE

The Contractor must submit a complete and concise response to the RFP, demonstrating the ability to meet the requirements of this RFP. Pertinent supplemental information should be referenced and included as attachments. The contents of the proposal submitted by the successful Contractor may become part of any contract awarded as a result of this solicitation. All proposals must be organized to comply with the following sections:

LETTER OF TRANSMITTAL

The letter of transmittal should include an introduction of the Contractor, including the name, address, telephone number, and fax number of the person to be contacted, along with others who are authorized to represent the Contractor in dealing with this RFP. Any other information not appropriately contained in the body of the proposal should also be included in the letter of transmittal. The letter should also indicate any criteria expected by the City that cannot be met by the Contractor. (See Detailed Discussion below)The transmittal letter should be signed by an authorized representative of the Contractor empowered with the right to bind the Contractor for the amounts estimated and terms proposed.

DETAILED DISCUSSION

This section should be the major portion of the proposal and must contain a specific response to each section in this RFP. Failure to provide written response to items indicated will be interpreted by the City as an inability by the Contractor to provide the requested service. The Contractor should include a detailed discussion including the following:

1. The professional reputation & qualifications of the Contractor. Include a list of clients that you have completed construction services for and the names and telephone numbers of the

contact person in those organizations. This list may include organizations from the public and private sector and from organizations inside and outside of Utah. As appropriate provide pictures and/or plans of previous work.

2. Proposed timeline for the project. Breakdown the timeline by each section of the project and give an estimated date of completion for each section and the project as a whole.

COST PROPOSAL

The Contractor must submit a cost proposal allowing costs to be evaluated independently of other criteria in the proposal. The cost proposal should be itemized and not just include a total price. The pricing for all products and services shall remain firm for the duration of the contract. No price changes, additions, or subsequent qualifications will be honored throughout the duration of the contract except with approved change orders. Pricing on all transportation, mobilization and other charges shall be prepaid by the Contractor and included in the proposal price. The Contractor must indicate any additional charges not mentioned above or forfeit the right to payment for such items.

FINANCIAL REPORT

The Contractor should furnish a current financial report (GAAP compliant) for the past three fiscal years. The financial report should include the size of the Contractor as measured by:

- A. Number of personnel;
- B. Number of clients, including the names of clients in the State of Utah; and
- C. Annual sales.

MISCELLANEOUS

The Contractor should provide any supplemental information and attachments relevant to the proposal, including samples, company literature, and catalogs.

2.4 PROPOSAL PREPARATION COSTS

Lehi City is not liable for any cost incurred by the Contractor associated with the preparation of the proposal or the negotiation of a contract for services prior to the issuing of the contract.

2.5 SUBSTANTIVE PROPOSALS

The Contractor certifies that, (a) the Contractor's proposal is genuine and is not made in the interest of, or on behalf of, an undisclosed person, firm, or corporation; (b) the Contractor has not directly or indirectly induced or solicited any other Contractor(s) to submit a false proposal; (c) the Contractor has not solicited or induced any other person, firm, or corporation to refrain or abstain from submitting a proposal; (d) the Contractor has not sought by collusion to obtain for itself any advantage over any other Contractor(s) or over Lehi City; and (e) Contractor shall not violate or cause any person to violate the Utah Municipal Officers and Employees Ethics Act, or any other Federal, State, or Municipal law.

2.6 RESTRICTIONS

All proposals must clearly set forth any restrictions or provisions deemed necessary by the Contractor to effectively service the proposed Contract.

2.7 PROPOSALS SHALL BE BINDING SUBJECT TO ACCEPTANCE

Proposals shall be binding upon the Contractors for sixty (60) calendar days from submission deadline. A Contractor may withdraw or modify its proposal any time prior to the submission deadline by written request, signed by the same authorized officer or agent who signed the original proposal.

2.8 ADDENDUM TO THE RFP

In the event that it becomes necessary to revise this RFP in whole or in part, an addendum will be provided to all Contractors on record as having received this RFP. A statement issued in an addendum shall have the effect of modifying a portion of the proposal documents when the statement in the addendum specifies a section, paragraph, or text, and states that it is to be so modified.

Any other communication, whether verbal or written, which are received by any representative of the Contractor from sources other than official addendum should be confirmed by the Contractor with the RFP Contact as being true and accurate prior to incorporating such information into its response. This refers to both formal and informal conversations and communications.

2.9 ALTERNATIVE PROPOSALS

Contractors may submit more than one proposal, each of which must follow the Proposal Response Outline (Section 2.3 herein) and satisfy the requirements of this RFP. If alternative proposals are submitted, the Contractor must explain the reasons for the alternative(s) and its alternative's comparative benefits. Each proposal submitted will be evaluated on its own merits.

2.10 DISCLOSURE OF PROPOSAL CONTENT

Under the Government Records Access and Management Act, Section 63-2-101 et seq., Utah Code Ann. (1993 and supp. 1996), as amended ("GRAMA") certain information in the submitted proposal may be open for public inspection. If the Contractor desires to have information contained in its proposal protected from such disclosure, the Contractor may request such treatment by providing a "written claim of business confidentiality and a concise statement of reasons supporting the claim of business confidentiality" with the proposal (GRAMA, Section 63G-2-309). Pricing elements of any proposal will not be considered protected. All material contained in and/or submitted with the proposal becomes the property of Lehi City and may be returned only at the City's option.

SECTION 3: PROPOSAL EVALUATION

3.1 EVALUATION PROCESS

All proposals in response to this RFP will be evaluated in a manner consistent with Lehi City policies and procedures, and Utah State Procurement Code 63g-6a-101, et seq. and all applicable rules, regulations, and policies.

In the initial phase of the evaluation process, the evaluation committee will review all proposals timely received. First, non-responsive proposals (those not conforming to RFP requirements) will be eliminated. Second, the remaining proposals will be evaluated in a cursory manner to eliminate from further consideration those proposals, which in the judgment of the evaluation committee, fail to offer sufficient and substantive provisions to warrant further consideration. Each Contractor bears sole responsibility for the items included, or not included, in the response submitted by that Contractor. Lehi City reserves the right to disqualify any proposal that includes significant deviations or exceptions to the terms, conditions, and/or specifications in this RFP.

At the conclusion of this initial evaluation phase, selected proposals will be chosen for detailed review and evaluation. Lehi City reserves the right to be the sole judge as to the overall acceptability of any proposal or to judge the individual merits of specific provisions within competing offers.

3.2 EVALUATION CRITERIA

Lehi City will judge the merit of all proposals received in accordance with the general evaluation criteria listed below. Failure to provide any of the information requested may result in the proposal being removed from further consideration. In evaluating the proposals, the City will consider:

1. Reputation of Contractor
2. Past Performance
3. Availability/Timeframe
4. Cost

3.3 AWARD OF CONTRACT

Upon completion of the evaluation process, Lehi City may negotiate with and award the contract to the Contractor whose proposal is determined to be most advantageous to the City, as determined by the evaluation criteria discussed above. **AWARD OF CONTRACT MAY BE MADE WITHOUT DISCUSSION AFTER PROPOSALS ARE RECEIVED.** Accordingly, each proposal should be submitted with the most favorable price and service available. The contract will incorporate the provisions of this RFP (including any addenda).

3.4 RIGHT TO REJECT

The City reserves the right to reject any and all proposals and to waive any formality in the proposals received, to accept or reject any or all of the items in the proposal, and award the contract in whole or in part, if it is deemed in the City's best interest. The City reserves the right to

negotiate any and all elements of the proposals, if any such action is deemed in the best interest of the City.

SECTION 4: GENERAL TERMS AND CONDITIONS

The Contractor should expect to see Terms and Conditions in the final contract substantially similar to the following. Lehi City reserves the right to add to, delete from, or otherwise amend these Terms and Conditions as the City deems necessary.

4.1 CONTRACT

The intention of the Contract is to include all labor, material, transportation, and all other action necessary for the accomplishment of the project described herein.

The Contract shall be signed in triplicate by Lehi City Corporation (Owner) and the selected firm or agency that will complete the work (Contractor). The accepted proposal will be retained by the Owner for its files.

4.2 THE CONTRACTOR

It is understood and agreed that the Contractor has satisfied itself as to the character of equipment required under this contract and all other matters which can in any way affect its execution and performance of this contract.

No verbal agreement or conversation with any officer, representative, agent, or employee of the Owner, either before or after the execution of this contract, shall affect or modify the terms or obligations herein contained. Any amendment to the Contract must be in writing, and must be executed by both parties to be valid.

4.3 THE OWNER

The Owner shall have responsibility for the general supervision of the project contemplated by the Contract. The Contractor shall have authority to direct the program of manufacture and deliver, as well as the manner of performance and completion of the project to ensure the performance of the Contract.

4.4 ASSIGNMENT

Contractor shall not assign any portion of its obligations under the Contract without the prior written consent of Owner. Assignment or subcontracting shall in no way relieve the Contractor of any of its obligations under this Contract.

4.5 LAWS AND ORDINANCES

The laws of the State of Utah shall govern any contract executed between the successful Contractor and Owner. Further, the place of performance and transaction of business shall be deemed to be in the County of Utah, State of Utah, and in the event of litigation, exclusive venue and place of jurisdiction shall be the State of Utah, and more specifically, the district court of Utah County, Utah.

The Contractor must comply with the foregoing, as well as any other applicable, laws, regulations, rules, and ordinances.

4.6 TERMINATION, SUSPENSION OR ABANDONMENT

4.6.1 The Owner may terminate this agreement at any time upon seven (7) calendar days' written notice, in the event the services of the Contractor, in the sole judgment of the Owner, are unsatisfactory, because of the Contractor's failure to prosecute the work with diligence or within the time limit specified, or in the event that the Contractor, in the sole judgment of the Owner, has materially breached this Contract. However, after receiving the Owner's written notice, Contractor shall have five (5) working days (Monday-Friday) in which to cure any such deficiency. In the event the Contractor fails to adequately cure a deficiency, the Contractor will be liable for any resulting damages from said deficiency and breach of this Agreement, which the Owner may pursue through any available means, whether in law or in equity.

4.6.2 The Owner reserves the right, at its sole discretion, to terminate, suspend or abandon this Agreement at any time upon seven (7) calendar day's written notice. In addition to other factors which may lead the Owner to suspend or abandon this Agreement, the Contractor acknowledges that the Work contemplated herein is in part funded by Federal grant assistance. If any portion of such contemplated assistance is not provided, the Owner would likely terminate, suspend, or abandon this Agreement.

4.6.3 In the event of termination, suspension or abandonment, without cause, the Owner shall pay the Contractor for services performed according to this agreement up to the time of such termination, suspension, or abandonment. The Contractor shall not be entitled to any additional compensation, award, or damages.

4.6.4 All work accomplished by the Contractor prior to the date of any termination, suspension, or abandonment shall be recorded, and tangible work documents shall be transferred to and become the sole property of the Owner. If the Owner has terminated the Project without cause, and then requests to resume the Project with the Contractor after more than three (3) months from the date of termination, the Contractor's compensation shall be subject to renegotiation.

4.7 ACCEPTANCE OF SERVICES RENDERED

Owner, through its designated agents and representatives, will be the sole determining judge of whether services rendered under the Contract satisfy the requirements as identified in the Contract.

4.8 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless Owner, and any subsidiary or affiliate of the Owner, and its past, present and future agents, representatives and employees from and against all claims, damages, lawsuits, losses, liabilities, liens, cost, citations, penalties, fines and expenses, including but not limited to attorneys' fees, arising out of or resulting from the performance of the work, provided that such claims, damages, losses, liabilities, liens, costs, citations, penalties, fines, or expenses are caused in whole or in part by any negligent, grossly negligent, reckless, or intentional act or omission by the Contractor, any

subcontractor, anyone directly or indirectly employed by the Contractor or any subcontractor, or any party for whose acts the Contractor or Owner may be liable, regardless of whether liability is imposed upon such party. This indemnity obligation is intended to include, but is not limited to, the indemnification of Owner indemnified hereunder for damages apportioned to the Contractor, any subcontractor, or any person or entity directly or indirectly employed by any of them or any person or entity for whose acts any of them may be liable. Such obligation shall not be construed to negate, abridge or otherwise reduce any other right or obligation of indemnity, which may otherwise exist in favor of the Owner. In any and all claims against the Owner, or any subsidiary or affiliate, or any of its past, present or future agents, representatives or employees by any employee of the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this paragraph shall not be limited in any way by any limitation on the amount or types of damages, compensations or benefits payable by or for the Contractor, or any subcontractor, the worker's or workman's compensation acts, disability benefit acts or other employee benefit acts.

4.9 INSURANCE

The Contractor shall, at its own expense, provide for the payment of Worker's Compensation benefits to its employees employed on or in connection with the work covered by this RFP, in accordance with applicable laws.

4.9.1 The Contractor shall, at its own expense, carry and maintain Comprehensive General Liability Insurance including but not limited to \$3,000,000.00 per occurrence

4.9.2 The Contractor shall, at its own expense, carry and maintain Automobile Public Liability insurance with Bodily Injury and Death Limits of at least \$250,000 for any one person and \$500,000 for any one occurrence, and Property Damage Limit per occurrences of \$250,000. Such benefits and such coverage as required herein or in any other documents to be considered a part hereof shall not be deemed to limit Contractor's liability under this Contract. It is intended by this section that the limits set forth herein will exceed applicable minimum requirements under Utah law. However, in the event that the foregoing amounts do not satisfy minimum requirements under applicable Utah law, the Contractor must maintain Automobile Public Liability insurance in amounts satisfying applicable Utah law.

4.9.3 The Contractor shall, at its own expense, carry and maintain professional liability/errors and omissions insurance appropriate to the Contractor's profession, with a minimum coverage of \$3,000,000; with neither Contractor nor listed subcontractors having less than \$500,000 individually.

The professional liability/errors and omissions insurance must be project specific with at least a one year extended reporting period (or longer upon request).

4.9.4 The Contractor shall likewise require its subcontractors, if any, to provide for such benefits and carry and maintain such insurance at no expense to the Owner.

4.9.5 Before commencement on the project contemplated herein, and at any time thereafter upon written request by the Owner, the Contractor shall furnish Owner with a copy of certificates of insurance as evidence that policies providing the required coverage's and limits of insurance are in full force and effect.

4.9.6 All insurance coverage furnished under this Contract, with the exception of Worker's Compensation and Employer's Liability, shall include the Owner, directors, officers, agents, and employees as additional insured with respect to the activities of the Contractor and its subcontractors. Any certificate or certificates presented as evidence of insurance shall specify the date when such benefits and insurance expire. The Contractor agrees that said benefits and insurance shall be provided and maintained until after the entire work under the Contract has been performed and accepted. The Contractor shall provide Owner at least sixty (60) days advance written notice prior to cancellation, termination, or material alteration of said policies of insurance.

4.10 PERFORMANCE AND PAYMENT BONDS

The Contractor will be required to furnish a Performance Bond for the work as required by Owner. The Performance Bond shall be in an amount equal to 100% of the Contractor's bid of the project.

The Contractor must also furnish a Payment Bond in the amount of \$25,000 for the purpose of providing payment to any unpaid subcontractor or supplier of the project in the event Contractor fails to make such payments.

These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other Bonds as are required by the Contract Documents.

All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Accept-able Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

If the surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Utah, the Contractor shall within 20 days thereafter substitute another Bond and surety.

4.11 EQUAL EMPLOYMENT OPPORTUNITY POLICY

No Contractor of goods and/or services under this RFP or any contract shall discriminate against any employee, applicant for employment, or recipient of services on the basis of race, religion, color, sex, age, disability, or national origin.

4.12 RECORD KEEPING AND AUDIT RIGHTS

Any Contractor providing goods or services under this contract shall maintain accurate accounting records for all goods and services provided hereunder, and shall retain all such records for a period of at least three (3) years following the termination or completion of the Contract. Upon 48-hours' notice and during normal business hours, the Owner, or any of its duly authorized representatives, shall have access to and the right to audit any records or other documents pertaining to the Contract. The Owner's audit rights shall extend throughout the term of the Contract and for a period of at least three (3) years thereafter. The Contractor also acknowledges that the State of Utah, the Comptroller of the United States, or any of their duly authorized representatives shall also have access to any books, documents, papers, and records of the Contractor, which are directly pertinent to the Work contemplated herein, for the purpose of making audits, examination, excerpts, and transcriptions.

4.13 MANAGEMENT REPORTS

Upon request the Contractor should be able to summarize and concisely report pertinent information to Owner in a timely manner, throughout the duration of this contract resulting from this RFP.

4.14 FURTHER AGREEMENTS

In addition to a proposal, Owner may from time to time require Contractor to execute certain additional documents or agreements, including without limitation, a Contract for the purpose of clarifying the intention of the parties with respect to providing the goods or services hereunder.

4.15 RELATIONSHIP OF THE PARTIES

In assuming and performing the obligations of any contract, Owner and any Contractor shall each be acting as independent parties and neither shall be considered or represent itself as a joint venture, partner, or employee of the other.

4.16 TAXES – CONTRACTOR'S RESPONSIBILITY

Contractor shall be responsible for and pay all taxes which may be levied or incurred against the Contractor in connection with the performance of any services under this Contract, including, but not limited to, taxes levied or incurred against Contractor's income, inventory, property, sales, or other taxes.

4.17 TAXES - OWNER IS EXEMPT

The Owner is exempt from the payment of any federal excise or any Utah sales tax (State of Utah Sales Tax Exemption number: Q41296). Exemption certification information appears on all purchase orders issued by Owner and such taxes will not apply to Owner unless otherwise noted. The price must be net, exclusive of taxes. However, when under established trade practice any federal excise tax is included in the list price, Contractor may quote the list price and shall show separately the amount of federal tax, either as a flat sum or as a percentage of the list price, which shall be deducted by Owner.

4.18 ROYALTIES AND PATENTS

The Contractor shall pay all applicable royalties and license fees. Contractor shall also defend all suits or claims for infringement of any intellectual property rights, and shall hold the Owner harmless from loss on account thereof.

4.19 PAYMENTS

These terms of payment cover payments to be made at the time of completion of the project. Unless otherwise specifically indicated in these contract documents, the terms of payment will be NET, 30 days upon acceptance of the work. A five percent (5%) retainage will be withheld until final product is reviewed and accepted by the City.

Invoices shall be submitted to:

Lehi City
Attn: Accounts Payable
153 North 100 East
Lehi Utah, 84043

4.20 PAYMENT WITHHELD

The Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any estimate to such extent as may be necessary to protect itself from loss on account of:

4.20.1 Defective goods or services not remedied.

4.20.2 Any other violation of or failure to comply with the provisions of this contract.

When the above grounds are removed, payment shall be made for amounts withheld because of them. Owner reserves the right, in case of Contractor default, to procure the goods or services from other sources while holding the defaulting Contractor responsible for any excess costs occasioned thereby.

4.21 ACCEPTANCE AND FINAL PAYMENT

In a timely manner after the work has been completed and accepted, the Owner will make a final estimate stating that the Contract has been completed and that the work has been accepted by it under the terms and conditions thereof, with qualifications, if any, as stated. And the balance found to be due the Contractor according to the terms of payment shall be paid by the Owner, as provided under 4.18 PAYMENTS of this document. Prior to filing a final estimate, Contractor shall file with the Owner a sworn statement that all items of labor entering into the work or services have been paid.

4.22 CHANGE ORDERS

All change orders shall be described on a Change Order Request Form, provided by the Owner, and be authorized in writing by Owner prior to proceeding with the work requested. No payment shall

be made to the Contractor for labor involved in correcting errors or omissions attributable in any way to the Contractor or its agents, subcontractors, and the like.

4.23 WARRANTY

4.23.1 Contractor expressly warrants the workmanship, materials, and manner of construction provided for and contemplated by this Contract and agrees that if the improvement contemplated therein does not remain in good condition for a period of one year from the date of final acceptance by Owner, ordinary wear and tear excepted, because of defects in the workmanship, materials or manner of construction, then and in that event Contractor agrees that any and all repairs and replacements necessary to maintain said improvement and each and every part thereof in such good condition shall be made by said Contractor without additional charge or cost to the Owner.

4.23.2 During the warranty period, Contractor shall make reasonable efforts to correct deficient work or products. Unless the specifications call for a shorter time, when the deficiency involves the health and safety of City residents, the loss of or damage to property, or renders the products or service unusable for its intended purpose; Contractor shall respond and begin to correct the work no later than 24 hours after having received notice.

SIGNATURE OF CONTRACTOR

Upon acceptance of this RFP, the undersigned agrees to complete all required work as described in this RFP document according to the terms and conditions described herein.

By _____

Title _____

Address _____

Date _____

SECTION 5: ATTACHMENTS

5.1 Specifications

SECTION 01500 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Standards: Comply with NFPA 241, "Standard for Safeguarding Construction, Alterations, and Demolition Operations"; ANSI A10 Series standards for "Safety Requirements for Construction and Demolition"; and NECA Electrical Design Library's "Temporary Electrical Facilities."
 - 1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70.
- B. At the earliest possible time, change over from use of temporary utility services to use of permanent utilities.
- C. Remove temporary facilities and controls before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Provide new materials and equipment for construction of temporary facilities and controls.

PART 3 - EXECUTION

TEMPORARY UTILITIES

Provide temporary services to project site for use during construction unless Owner can provide services. Arrange for and coordinate service(s) with local utility companies.

Contractor shall also pay use charges for temporary utilities.

Provide temporary heat for curing or drying of work from adverse effects of low temperatures. Use of gasoline-burning heaters and open-flame heaters is not permitted.

Provide temporary sanitary facilities. Comply with regulations and health codes for type, number, location, and maintenance of facilities.

TEMPORARY CONSTRUCTION FACILITIES

Provide field offices, storage trailers, and other support facilities as necessary for efficient prosecution of the Work.

Temporary facilities located within the construction area or within 30 feet (9 m) of

building lines shall be of noncombustible construction.

Provide temporary enclosures for protection of construction and workers from exposure and inclement weather and for containment of heat.

Collect waste daily and dispose of waste off-site according to local ordinances, when containers are full.

Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material according to applicable laws and regulations.

TEMPORARY CONTROLS

Provide temporary fire protection until permanent systems supply fire-protection needs.

Provide adequate numbers and types of fire extinguishers.

Store combustible materials in fire-safe containers in fire-safe locations.

Prohibit smoking in hazardous fire-exposure areas.

Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

Provide temporary barricades, warning signs, and lights to protect the public and construction personnel from construction hazards. Enclose construction area(s) with fence(s) with lockable entrance gates, to prevent unauthorized access.

Provide temporary environmental controls as required by authorities having jurisdiction including, but not limited to, erosion and sediment control, dust control, noise control, and pollution control.

END OF SECTION 01500

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Provide products of same kind from a single source.
- B. Deliver, store, and handle products according to manufacturer's written instructions, using means and methods that will prevent damage, deterioration, and loss, including theft.

Schedule delivery to minimize long-term storage and to prevent overcrowding construction spaces.

Deliver in manufacturer's original sealed packaging with labels and written instructions for handling, storing, protecting, and installing.

Inspect to ensure compliance with the Contract Documents and to ensure items are undamaged and properly protected.

Store heavy items in a manner that will not endanger supporting construction.

Store items subject to damage above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

Provide items that comply with the Contract Documents, are undamaged, and are new at the time of installation.

Provide products and equipment complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.

Do not attach manufacturer's labels or trademarks, except for required nameplates, on surfaces exposed to view in occupied spaces or on the exterior.

Select products as follows:

Where these Specifications name only a single product or manufacturer, provide the item indicated. No substitutions will be permitted.

Where these Specifications name 2 or more products or manufacturers, provide 1 of the items indicated. No substitutions will be permitted.

Where products or manufacturers are specified by name, accompanied by the term "or equal," comply with provisions concerning "product substitutions" to obtain approval for use of an unnamed product or manufacturer.

Where these Specifications describe a product and list characteristics required, with or without naming a brand or trademark, provide a product that complies with the characteristics and other requirements.

Where these Specifications require compliance with performance requirements,

provide products that comply and are recommended in writing by the manufacturer for the application.

Where these Specifications require compliance with codes, regulations, or reference standards, select a product that complies with the codes, regulations, or reference standards.

Unless otherwise indicated, Owner will select color, pattern, and texture of any product from manufacturer's full range of options.

2.2 PRODUCT SUBSTITUTIONS

Reasonable and timely requests for substitutions will be considered. Substitutions include changes proposed by the Contractor after award of the Contract, in products and methods of construction required by the Contract Documents.

Do not submit unapproved substitutions on Shop drawings.

Submit 1 pdf copy of each request for product substitution. Identify product to be replaced, provide complete documentation showing compliance of proposed substitution with all specified requirements, and include the following:

A full comparison with the specified product.

A list of changes to other Work required to accommodate the substitution.

Any proposed changes in the Contract Sum or Contract Time should the substitution be accepted.

Owner will review the proposed substitution and notify Contractor of its acceptance or rejection.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01600

SECTION 01700 – PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

- A. Record Drawings: Maintain a set of Contract Drawings as Record Drawings. Mark to show installation that varies from the Work originally shown.
- B. Record Specifications: Maintain one copy of the Project Manual, including addenda, as Record Specifications. Mark to show variations in Work performed in comparison with the text of the Specifications and modifications.
- C. Operation and Maintenance Data: Provide a CD containing operations and maintenance data. Mark identification on CD. Include the following:
 - Emergency instructions.
 - Spare parts list.
 - Copies of warranties.
 - Wiring diagrams.
 - Shop Drawings and Product Data.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

EXAMINATION AND PREPARATION

Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, and plumb; substrates within installation tolerances; surfaces that are smooth, clean, and free of deleterious substances; and application conditions within environmental limits. Do not proceed with installation until unsatisfactory conditions have been corrected.

Prepare substrates and adjoining surfaces according to manufacturer's written instructions, including, but not limited to, the application of fillers and primers.

CUTTING AND PATCHING

Do not cut structural members without prior written approval of Architect.

For patching, provide materials whose installed performance will equal or surpass that of existing materials. For exposed surfaces, provide or finish materials to visually match existing adjacent surfaces to the fullest extent possible.

INSTALLATION

Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned. Clean exposed surfaces and protect from damage. If applicable, prepare surfaces for field finishing.

Comply with NFPA 70 for installation of electrically operated equipment and electrical components and materials.

FINAL CLEANING

Clean each surface or item as follows before requesting inspection for certification of Substantial Completion:

- Remove labels that are not permanent.

- Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean.

 - Clean light fixtures and lamps.

- Clean the site. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

CLOSEOUT PROCEDURES

Request Substantial Completion inspection once the following are complete:

- Advise Owner of pending insurance changeover requirements.

- Submit Record Drawings and Specifications, maintenance manuals, warranties, and similar record information.

- Deliver spare parts, extra stock, and similar items.

- Changeover locks and transmit keys to Owner.

- Complete startup testing of systems and instruction of operation and maintenance personnel.

- Remove temporary facilities and controls.

- Complete final cleanup.

- Touch up, repair, and restore marred, exposed finishes.

- Obtain final inspections from authorities having jurisdiction.

- Obtain certificate of occupancy.

Upon receipt of a request for inspection, Owner will proceed with inspection or advise Contractor of unfilled requirements. Owner will advise Contractor of items that must be completed or corrected before the project will be accepted.

Arrange for each installer of equipment that requires operation and maintenance to provide instruction to Owner's personnel. Include a detailed review of the following:

- Startup and shutdown.

- Emergency operations and safety procedures.

- Maintenance manuals.

- Spare parts, tools, and materials.

- Identification systems.

- Hazards.

- Warranties and bonds.

Request inspection for certification of final acceptance and final payment, once the following are complete:

- Submit final payment request with releases of liens and supporting documentation.

Include insurance certificates.

Submit a copy of the Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.

Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion.

Submit consent of surety to final payment.

Owner will reinspect the Work on receipt of notice that the Work has been completed.

On completion of reinspection, Owner will notify Contractor of acceptance of the project. If the Work is incomplete, Owner will advise Contractor of the Work that is incomplete or obligations that have not yet been fulfilled.

END OF SECTION 01700

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. All work shall conform to the recommendations provided in the soils report.
- B. Work includes preparing and grading subgrades, excavating and backfilling for building. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by Owner. Unauthorized excavation and remedial work shall be at Contractor's expense.
- C. Contractor shall be responsible for all site work related to construction of the building only, excavation, backfilling of footing trenches, etc. Owner shall be responsible for construction related to asphalt paving.
- D. For purposes of this bid, Contractor shall assume the removal of existing 4" asphalt paving as required for the new building. Contract will be modified in case of differing conditions.

PART 2 - PRODUCTS

2.1 MATERIALS

Satisfactory Soil: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, or other deleterious matter. In addition, all materials shall conform to the recommendations included in the soils report.

Unsatisfactory Soil: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.

Backfill and Fill: Satisfactory soil materials per soils report.

Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand, ASTM D 2940, with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve. Material shall comply with the recommendations included in the project soils report. Should conflicts exist, the most stringent requirement shall be followed with no additional cost to the Owner.

PART 3 - EXECUTION

EARTHWORK

Protect subgrades and foundation soils from softening and damage by water, freezing temperatures, or frost.

Excavate to subgrade elevations regardless of character of materials and obstructions encountered.

Excavate for structures, building slabs, pavements, and walkways. Trim subgrades to required lines and grades.

When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface, pulverize, moisture-condition or aerate soil, and recompact.

Place backfill and fill in layers not more than 8 inches in loose depth at optimum moisture content. Compact each layer under structures, building slabs, pavements, and walkways to 95 percent of maximum dry density according to ASTM D 1557; elsewhere to 90 percent.

Grade areas to a smooth surface to cross-sections, lines, and elevations indicated. Grade areas within building lines to plus or minus 1/2 inch.

Under slabs-on-grade, place drainage fill on prepared subgrade and compact to required cross- section and thickness.

Allow testing agency to inspect and test each subgrade and each fill or backfill layer and verify compliance with requirements.

Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

SECTION 03054 – OLIOPHOBIC SEALER

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. This section specifies a topical concrete waterproofing system of all interior concrete floor slabs. This system utilizes a clear, breathable, high performance silane concrete sealer with an oliophobic additive for protecting new concrete surfaces. This low VOC compliant treatment forms an effective chloride screen that reduces surface erosion and corrosion of rebar and seals out water, chloride ions, and acids thereby reducing staining caused by motor oils and grease.

B. This section includes: Furnishing of all labor, materials, services and equipment necessary for the supply and installation of waterproofing placement as indicated on drawings and as specified. Related Work: Documents affecting work of this Section include, but are not necessarily limited to: General Conditions, Supplementary Conditions, and Sections in Division 1 of these specifications.

C. This section includes: provision of concrete curing, hardening, and sealing and cleaning of concrete surface.

D. All concrete surfaces exposed to view shall have the application of this sealer.

1.2 SUBMITTALS

A. Comply with pertinent provisions of Section 01300.

B. Product data: Within 35 calendar days after the contractor has received the owner's notice to proceed, submit the following material:

1. Materials list of items proposed to be provided under this section.
2. Manufacturer's specifications, test data and other data required to prove compliance with the specified requirements.
3. Manufacturer's recommended installation procedures which, when approved by the Owner, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.4 PRODUCT HANDLING:

A. Protect the materials of this Section before and after installation. Protect the work and materials of all other trades.

B. In the event of damage, immediately make replacements and repairs to the approval of the Owner and at no additional cost to the owners.

C. Store materials in clean, dry area in accordance with manufacturer's instructions. Keep containers sealed until ready for use. Keep from freezing.

PART 2- PRODUCTS

2.1 HARDENING/SEALING AGENT:

- A. Where concrete hardener and sealer is called for on the Drawing or is specified herein, provide one of the products as follows:
 - 1. Hydrozo 100 Plus
 - 2. Stand Off SLX 100
 - 3. Or, pre-approved equal.
- C. Chemical Resistance: The manufacturer shall provide a chemical resistance guide listing test results by independent laboratories.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS:

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION:

- A. Prepare the surface in strict accordance with the manufacturers recommendations as approved by the Owner.
- B. Cure concrete in accordance with manufacturer's instructions and as specified in Section 03300.

3.3 APPLICATION:

- A. Test a small area of the surface at least 4' by 4' square on a representative area of concrete slab and stem wall. Allow 5 – 7 days for the product to fully react before evaluating for the desired results and coverage rates. Keep test area available for evaluation throughout the sealing project.
- B. Application should be made once the concrete has achieved 3000 psi strength.
- C. Clean all surfaces of all sand, surface dust, and dirt, oil, grease, chemical films or coatings, and other contaminants prior to application. Use waterblast, sandblast, or shotblast as necessary to achieve a clean surface condition.
- D. Crack control, caulking, patching, and expansion joint sealants should be installed prior to application of the sealer. Paint any line stripping prior to the application of product. Allow adequate curing time following sealant manufacturer's recommendations.
- E. Application shall be made according to manufacturer's recommendations. Apply in a single, saturating application. Brush and/or broom drips and heavy runs thoroughly

into the surface. All concrete surfaces shall be kept wet as required for complete coverage and penetration of product.

- F. Achieve waterproofing without changing the natural appearance of the material, except for a latent waxy sheen on smooth troweled surfaces.
- G. Do not dilute sealer.
- H. Do not apply sealer if air temperature is expected to be above 90 degrees F or below 40 degrees F at the time of or within 24 hours after application or when rain is expected within 4 hours of application. Avoid application on hot, windy days.
- I. Apply at least two applications of sealer. Apply the second coat within a few minutes after the first coat has penetrated and appears dry. Determine if additional applications of concrete sealer are necessary by testing surfaces in accordance with manufacturer's instructions.
- J. Protect surfaces from traffic until sealer has cured.

3.4 WARRANTY:

- A. Upon Completion of the work, as a condition of its acceptance, furnish the owner a written warranty signed by an officer of the manufacturer.

END OF SECTION 03054

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
- B. Cast-in-place concrete includes but is not limited to the following:
 - 1. Foundations and footings.
 - 2. Slabs-on-grade.

1.3 SUBMITTALS

- A. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, joint systems, curing compounds, and others if requested by Owner.
- B. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures.
- C. Laboratory test reports for concrete materials and mix design test.
- D. Material certificates in lieu of material laboratory test reports when permitted by Owner. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of:
 - 1. International Building Code, Chapter 19.
 - 2. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
 - 3. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - 4. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."
- B. Concrete Testing Service: Provide a qualified independent testing agency , acceptable to Owner, to provide testing and material evaluation tests.
- C. Special Inspection: Owner will provide special inspection services for concrete work as required by Contract Documents and IBC Chapter 17..

1.5 WARRANTY

- A. Provide two year written guarantee to the End User, in form approved by the Owner to promptly remove and/or repair defective concrete (cracking, spalling, pitting or honeycombing) as directed by Owner and at Contractor's expense. New replacement work shall carry a similar new two year written guarantee. Guarantee shall start from Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint and exposed form tie system shown on drawings. Plywood shall meet U.S. Product Standards P51-74 for doug fir plywood "Plyform", exterior grade.
- A. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer exterior corners and edges of permanently exposed concrete 3/4" by 3/4".

2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I / II.
- B. Fly Ash: Conform to ASTM C 618 Class C or F.
- C. Normal-Weight Aggregates: ASTM C 33 Class 4S.
- D. Water: Potable.
- E. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.
- F. Air-Entraining Admixture: ASTM C 260
- G. Water-Reducing Admixture: ASTM C 494, Type A.
- H. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.

2.4 PROPORTIONING AND DESIGNING MIXES

- A. Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:

1. Footings, 3000 psi 28-day compressive strength; water-cement ratio: 0.5 maximum.
2. Foundations, 4000 psi, 28-day compressive strength; water-cement ratio: 0.5 maximum.
3. Slabs-on-grade and all other concrete: 4,000 psi, 28-day compressive strength; water-cement ratio: 0.5 maximum.
4. Fly Ash Conform to ASTM C 618 Class C or F.
5. Air-entrainment requirements: exterior exposed to freeze thaw 5.5 to 7%, 2 to 4% elsewhere
6. Slump Limits: Not more than 4 inches at point of placement.

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate the installation of joint materials, vapor barrier, and other related materials with placement of forms and reinforcing steel.

3.2 FORMS

- A. General: Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with ACI 347 limits for class A concrete exposed to view and class C concrete elsewhere.
- B. Install construction, isolation and control joints.
- C. Provide standard 3/4" chamfer at all exposed corners and edges unless noted otherwise.
- D. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades.

3.3 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.

3.4 INSTALLING EMBEDDED ITEMS

- A. General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.

3.5 CONCRETE PLACEMENT

- A. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
- B. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.
- C. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.
- D. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified. Concrete should not be placed when temperature is above 95.F unless approved by the Architect/Engineer.

3.8 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: Provide a rough-formed finish on formed concrete surfaces not exposed to view in the finished Work.
- B. Smooth-Formed Finish: Provide a smooth-formed architectural finish on formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.9 MONOLITHIC SLAB FINISHES

- B. Trowel Finish: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic tile, paint, or another thin film-finish coating system.
- C. Non-slip Broom Finish: Apply a non-slip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.10 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete slabs from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

3.11 REMOVING FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after maintaining not less than 50 deg F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing operations are started and protection operations are maintained.

3.12 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: Owner to provide a testing agency to perform material tests, special inspections and to submit test reports. Contractor to coordinate with testing agency for sequence of work and inform testing agency when work is ready for testing and inspections.

END OF SECTION 03300

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS

1. Shop Drawings showing details of fabrication and installation.

1.2 SUMMARY

A. This Section includes the following metal fabrications:

1. Rough hardware.
2. Loose bearing and leveling plates.
3. Shelf and relieving angles.
4. Miscellaneous framing and supports for the following:
 - a. Overhead doors.
 - b. Applications where framing and supports are not specified in other sections.
 - c. Miscellaneous steel trim, including the following:
 - 1) Edgings.
 - 2) Floor plate and supports.
 - 3) Pipe bollards.

PART 2 - PRODUCTS

A. METALS

1. Steel Plates, Shapes, and Bars: ASTM A 36.
2. Rolled Steel Floor Plates: ASTM A 786.
3. Steel Pipe: ASTM A 53, standard weight (Schedule 40), galvanized finish.

B. GROUT

1. Nonshrink, Nonmetallic Grout: ASTM C 1107; recommended by manufacturer for exterior applications.

C. FABRICATION

1. Fabricate pipe bollards from Schedule 40.

D. STEEL AND IRON FINISHES

1. Hot-dip galvanize steel fabrications at exterior locations.
2. Prepare uncoated ferrous metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning," and paint with a rust-inhibitive primer complying with performance requirements of FS TT-P-664.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack.
- B. Fit exposed connections accurately together to form hairline joints.
- C. Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.
- D. Install pipe guards at exposed vertical pipes in parking garage where not protected by curbs or other barriers. Install by bolting to floor and wall or column with drilled-in expansion anchors.
- E. Anchor bollards in concrete and fill solidly with concrete, mounding top surface.

END OF SECTION 05500

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.02 DESCRIPTION

A. Work Included

1. This Section of the Work includes, but is not limited to the following:
 - a. The work incidental to laying out and the general progress of the structure, including furnishing in place of batter boards; temporary barricades for protection of the work, workmen and the public; temporary stairs and ladders; refuse chutes, etc.
 - b. Furnishing in place of all wood bucks, wood nailing blocks, strip grounds and wood furring as shown in the Drawings or as may be required for carpentry work of other trades.
 - c. Furnishing and placing of all rough carpentry, framing, etc., as required and shown in the Contract Drawings and/or specified herein.

B. Related Work Described Elsewhere

PART 2 – PRODUCTS

2.01 GENERAL

The following shall apply to respective rough carpentry wood items on this Project where called for in the Contract Drawings and/or as specified herein:

A. All lumber shall conform to the following requirements:

1. New lumber for each specific purpose shall be sound, thoroughly commercially dry lumber, or kiln-dried if the nature of the work requires, and free of all defects not permissible under the grading rules of the Association under whose classification it falls.
2. All lumber furnished shall be of a quality equal or superior to the minimum requirements of the specified grade for the species furnished. The current grading rules of the Association of Lumber Manufacturers producing the materials specified and recognized by the National Lumber Manufacturing Association shall govern the grading of all rough and finish lumber furnished under this Specification.
3. Each piece of lumber, or bundle in case of bundled stock, shall be marked with the grade and trademark using the recognized association marks. If shipment is accompanied by association certificate of inspection, grade and trade marks on each piece of bundle will not be required.

4. Stack framing lumber to insure proper ventilation and drainage. Protect lumber from the elements. Protect millwork against dampness during and after delivery. Store under cover in a well-ventilated building and where not exposed to extreme changes of temperature or humidity. Do not store or install millwork in any part of the building until concrete, masonry and plaster work are dry.
- B. ALL JOISTS, PLATES, STUDS, PLANKS, and other framing members shall be construction grade or better.
- C. PINE used for ground, furring, nailing strips, and blocks shall be kiln dried No.3 and better, common white Ponderosa pine.
- D. FIR PLYWOOD PANEL FOR INTERIOR USE is to be Grade AD, and of the ply and thickness noted on the Drawings or specified herein.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION

- A. ALL ROUGH CARPENTRY WORK shall be installed in accordance with the best practices of the trade by skilled workmen.
- B. FURNISH AND INSTALL ALL GROUNDS required in connection with Carpentry and Millwork. These shall be set level, true, and plumb, and properly placed to receive and engage materials.

END OF SECTION

SECTION 07200 - BUILDING INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Included

Provide and install all building insulation as shown on the drawings. Building insulation includes but is not limited to foundation insulation, faced batt insulation, blown fiberglass insulation and sound batt insulation in interior walls.

B. Related Work Specified Elsewhere

1. Section 03300 - Poured In Place Concrete
2. Section 06100 - Rough Carpentry
3. Section 07100 - Membrane Waterproofing and Damproofing
4. Section 09250 - Light Gage Metal Framing
5. Section 16000 - Electrical

1.02 PRODUCT DELIVERY, STORAGE & HANDLING

A. Protection

1. Deliver all materials in unbroken cartons, free from visible exterior damage and store in a dry place.
2. Handle all materials to protect against breaks, tears, etc, before, during, and after installation.
3. Store materials flat to prevent insulation edge damage.

B. Replacements

In the event of damage, replace the insulation and remove damaged material from the site.

PART 2 - PRODUCTS

2.01 WALL CEILING INSULATION

A. Metal Building Wall and Ceiling Insulation:

Continuous Fiberglass insulation shall be R-19 walls and R-19 ceiling, as manufactured Johns Manville (Microlite L with Lamtec (or equal) WMP-50 Polypropylene vapor retarded facing) or equal by Owens-Corning Fiberglas Corp.

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PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installer shall place insulation in ALL AREAS NECESSARY to complete the total insulation envelope of the building.
- B. BATT INSULATION shall be installed complete, with no gaps, holes, or tears in vapor barrier. Use taping when required to hold tightly together.
- C. In walls, all cavities shall be snug fit to stud spaces and secured. All other voids shall be filled tightly.

END OF SECTION

SECTION 07901 - JOINT SEALANTS

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 this Section.

1.2 SUMMARY

- A. This Section includes joint sealants for the following locations:
 - 1. Exterior joints in vertical surfaces as indicated below:
 - a. Control and expansion joints in cast-in-place concrete.
 - b. Perimeter of door, window and mechanical openings.
 - 2. Exterior joints in horizontal traffic surfaces as indicated below:
 - a. Control, expansion, and isolation joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
 - 3. Interior joints in vertical surfaces and horizontal non traffic surfaces as indicated below:
 - a. Perimeter joints of exterior openings where indicated.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 - c. Other joints as indicated.
- B. Related Sections: The following Sections contain requirements that relate to this Section:

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data from manufacturers for each joint sealant product required.
- C. Samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.
- D. Certificates from manufacturers of joint sealants attesting that their products comply with

specification requirements and are suitable for the use indicated.

- E. Qualification data complying with requirements specified in "Quality Assurance" article. Include list of completed projects with project names addresses, names of Architects and Owners, plus other information specified.
- F. Compatibility and adhesion test reports from elastomeric sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.
- G. Product test reports for each type of joint sealants indicated, evidencing compliance with requirements specified.
- H. Preconstruction field test reports indicating which products and joint preparation methods demonstrate acceptable adhesion to joint substrates.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
- B. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer.
 - 2. When joint substrates are wet.
- B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until

contaminants capable of interfering with their adhesion are removed from joint substrates.

1.8 SEQUENCING AND SCHEDULING

- A. Sequence installation of joint sealants to occur not less than 21 or more than 30 days after completion of waterproofing, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors: Provide color of exposed joint sealants to comply with the following:
 - 1. Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated.

2.2 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920 and other requirements indicated on each Elastomeric Joint Sealant Data Sheet at end of this Section, including those requirements referencing ASTM C 920 classifications for Type, Grade, Class, and Uses.
 - 1. Additional Movement Capability: Where additional movement capability is specified in Elastomeric Joint Sealant Data Sheet, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at time of installation and remain in compliance with other requirements of ASTM C 920 for Uses indicated.
- B. Available Products: Subject to compliance with requirements, elastomeric sealants that may be incorporated in the Work include, but are not limited to, the products specified in each Elastomeric Sealant Data Sheet.

2.3 LATEX JOINT SEALANTS

- A. General: Provide manufacturer's standard one-part, nonsag, mildew-resistant, paintable latex sealant of formulation indicated that is recommended for exposed applications on interior and protected exterior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.
- B. Acrylic-Emulsion Sealant: Provide product complying with ASTM C 834 that accommodates joint movement of not more than 5 percent in both extension and

compression for a total of 10 percent.

- C. Available Products: Subject to compliance with requirements, latex joint sealants that may be incorporated in the Work include, but are not limited to, the following:

1. Acrylic-Emulsion Sealant:

- a. "AC-20," Pecora Corp.
- b. "Sonolac," Sonneborn Building Products Div., ChemRex, Inc.
- c. "Tremco Acrylic Latex 834," Tremco, Inc.

2.4 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

- B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Open-cell polyurethane foam.

2.5 JOINT FILLERS FOR CONCRETE PAVING

- A. General: Provide joint fillers of thickness and widths indicated.

- B. Bituminous Fiber Joint Filler: Performed strips of composition below, complying with ASTM D 1751:

1. Asphalt saturated fiberboard.

2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate tests and field tests.

- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

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

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Installation of Sealant Backings: Install sealant backings to comply with the following

requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.
 - c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
 - D. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.
 - E. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
 1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- 3.4 CLEANING
- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.
- 3.5 PROTECTION
- A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

ELASTOMERIC JOINT SEALANT DATA SHEET

Elastomeric Joint Sealant Designation: ES-1

Base Polymer: Urethane.

Type: S (single component).

Grade: P (pourable).

Class: 25.

Use Related to Exposure: T (traffic).

Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated.

Use O Joint Substrates: Galvanized steel, brick, concrete, ceramic tile, and wood.

Available Products: "NR-201 Urexpan," Pecora Corp.; "Vulkem 45," Mameco; "Sonolastic SL 1," Sonneborn Building Products Division.

ELASTOMERIC JOINT SEALANT DATA SHEET

Elastomeric Joint Sealant Designation: ES-2

Base Polymer: Urethane silicone.

Type: M (multi component).

Grade: NS (nonsag).

Class: 25.

Additional Movement Capability: 50 percent movement in extension and 50 percent in compression for a total of 100 percent movement.

Use Related to Exposure: NT (nontraffic).

Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

Use O Joint Substrates: Coated glass, color anodized aluminum, aluminum coated with a high-performance coating, galvanized steel, brick, ceramic tile, and wood.

Available Products: "Dynatrol II," Pecora Corp.; "Vulkem 922," Mameco; Sonolastic NP2," Sonneborn Building Products Division.

ELASTOMERIC JOINT SEALANT DATA SHEET

Elastomeric Joint Sealant Designation: ES-3

Base Polymer: Acid-curing silicone.

Type: S (single component).

Grade: NS (nonsag).

Class: 25.

Use Related to Exposure: NT (nontraffic).

Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.

Use O Joint Substrates: Coated glass, color anodized aluminum, aluminum coated with a high-performance coating, galvanized steel, brick, and ceramic tile.

Available Products: "786 Mildew Resistant," Dow Corning; "Sanitary 1700," GE Silicones.

JOINT SEALANT SCHEDULE		
SEALANT DESIGNATIONS	JOINT SEALERS	DESCRIPTION OF JOINT CONSTRUCTION AND LOCATION WHERE SEALANT IS TYPICALLY APPLIED*.
ES1	One-Part Pourable Urethane Sealant	Exterior and interior joints in horizontal surfaces of concrete; between metal and concrete, mortar and masonry.
ES2	Multi-Part Nonsag Urethane Sealant	Exterior and interior joints in vertical surfaces of concrete and masonry; between metal and concrete or mortar; interior and exterior perimeter joints of metal frames in exterior walls; exterior overhead joints.
ES3	One-Part Mildew-Resistant Silicone Sealant	Interior joints in vertical surfaces of ceramic tile in toilet rooms, and perimeter of plumbing fixture/ceramic tile joints.

LS	Acrylic-Emulsion Sealant	Interior joints in field-painted vertical and overhead surfaces at perimeter of hollow metal door frames; in gypsum drywall, plaster, concrete, and concrete masonry; and all other interior joints not indicated otherwise.
* Install sealant indicated in joints fitting descriptions listed.		

END OF SECTION 07901

SECTION 08360 – SECTIONAL OVERHEAD DOORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. The work of this Section includes the furnishing and complete installation of upward-acting sectional doors. Scope of work shall include, but is not limited to, upward-acting sectional doors, miscellaneous metal, metal framing and supports, finish hardware, key cylinders for locks, painting, field painting, and electrical wiring.
- B. Submit Product Data.
- C. Installer: Installation of sectional doors shall be performed by the authorized representative of the manufacturer.
- D. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.
- E. Design and reinforce sectional overhead doors to withstand a 20-lbf/sq. ft. wind-loading pressure.
- F. Design overhead coiling door components and operator to operate for not less than 100,000 cycles.

1.2 WARRANTY

- A. Provide warranty on door components as follows:
 - 1. Doors - One year parts and labor; ten year rust through
 - 2. Warranty shall cover all costs of covered repairs, parts, labor and travel expenses.

PART 2 - PRODUCTS

2.1 SECTIONAL OVERHEAD DOORS

- A. Sectional Door Assembly
 - 1. Metal/foam/metal sandwich panel construction, with EPDM thermal break and ship-lap design with rounded water channels. Units shall have the following characteristics:
 - a. Panel Thickness: 2".
 - b. Exterior Surface: Ribbed, textured.
 - c. Exterior Steel: 0.016", hot-dipped galvanized.
 - d. End Stiles: 16 gauge with thermal break.
 - e. Heavy Duty Springs; 100,000 cycles.
 - f. Insulation: CFC-free and HCFC-free polyurethane, fully encapsulated.
 - g. Thermal Values: R-value of 17.50; U-value of 0.057.

- h. Air Infiltration: 0.08 cfm at 15 mph; 0.13 cfm at 25 mph.
 - i. High-Usage Package: Required.
- B. Full Glazing of Steel Panels: Insulated double strength glass.
 - C. Finish and Color: Two coat baked-on polyester with white exterior and interior color.
 - D. Windload Design: Design and reinforce doors to withstand a 20 psf wind-loading pressure. Deflection of the door in the horizontal position will not exceed 1/120 of the door width. Meet ANSI/NAGDM 102 standards.
 - E. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
 - F. Lock: Interior mounted slide lock.
 - G. Weatherstripping: EPDM rubber tube seals fitted inside joints between sections. EPDM rubber bulb-type strip at bottom. (Header seal and jamb weatherstripping.)
 - H. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
 - I. Door Operator Type: Provide center mounted jack shaft operator with solenoid activated primary drive and, chain and sprocket secondary drive at the side of the door.
 - J. Electric Motor Operation: Provide UL listed electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Provide solenoid brakes.
 - K. Entrapment Protection: Electric sensing edge.
 - L. Operation Controls: Push-button operated control stations with open, close, and stop buttons for surface mounting, for interior location.
 - M. Remote Control: Heavy duty transmitter with rocker switch. Provide one per door.
 - N. Provide disengaging auxiliary chain hoist. Hoist chain must run only when hoist is engaged.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Take field dimension and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Correct any unsatisfactory conditions before proceeding with door installation.

3.2 INSTALLATION

- A. Strictly comply with manufacturer's installation instructions and recommendations. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
- B. Instruct Owner's personnel in proper operating procedures and maintenance schedule.

3.3 ADJUSTING AND CLEANING

- A. Test sectional doors for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Touch-up damaged coatings and finishes, and repair minor damage. Clean exposed surfaces using non-abrasive materials and methods recommended by manufacturer of material or product being cleaned.

END OF SECTION 08360

SECTION 10522 - FIRE EXTINGUISHERS AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Provide fire extinguishers approved and listed with UL or FM, and bearing UL or FM markings, for the type, rating, and classification of extinguisher.

1.2 SUBMITTALS

- A. Submit Product Data.

2.1 PRODUCTS

A. FIRE EXTINGUISHERS

1. Fire Extinguishers: Multipurpose dry-chemical type, with UL rating of 2-A:10B:C, 5-lb. nominal capacity in enameled steel container.
2. Provide 2 extinguishers.
3. Provide wall mounting bracket.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Provide a mounting bracket for each fire extinguisher.
- B. Install brackets at heights indicated or, if not indicated, at heights to comply with applicable regulations of authorities having jurisdiction.
- C. Identify bracket-mounted extinguishers with "FIRE EXTINGUISHER" in red letter decals applied to wall surface. Letter size, style, and location as selected by Owner.

END OF SECTION 10522

SECTION 13125 - METAL BUILDING SYSTEMS

PART I - 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 for a Nucor metal building addition: (Existing Building and addition is a Nucor building).
 - 1. Structural framing.
 - 2. Roof panels.
 - 3. Wall panels.
 - 4. Fascia and soffit panels.
 - 5. Building components, as follows: provide and install misc. framing for mechanical units and grills, framing for lighting support, overhead door frames, doors, windows, equipment and other items not listed which will rely on the building for support.
 - 6. Accessories and trim.
- B. Related Sections include the following:
 - 1. Division 3 Section "Cast-in-Place Concrete" for concrete foundations and anchor-bolt installation including concrete waterproofing systems.
 - 2. Division 16 Section "Interior Exterior Building Lighting" for required coordination of equipment with wall, and soffit.

1.3 DEFINITIONS

- A. Bay Spacing: Dimension between main frames measured normal to frame (at centerline of frame) for interior bays, and dimension from centerline of first interior main frame measured perpendicular to end wall (outside face of end-wall girt).
- B. Building Length: Dimension of the building measured perpendicular to main framing from end wall to end wall (outside face of girt to outside face of girt).
- C. Building Width: Dimension of the building measured parallel to main framing from sidewall to sidewall (outside face of girt to outside face of girt).
- D. Clear Span: Distance between supports of beams, girders, or trusses (measured from lowest level of connecting area of a column and a rafter frame, or knee).
- E. Eave Height: Vertical dimension from finished floor to eave (the line along the sidewall formed by intersection of the planes of the roof and wall).
- F. Clear Height under Structure: Vertical dimension from finished floor to lowest point of any part of primary or secondary structure, not including crane supports, located within

clear span.

- G. Terminology Standard: Refer to MBMA's "Low Rise Building Systems Manual" for definitions of terms for metal building system construction not otherwise defined in this Section or in referenced standards.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide a complete, integrated set of metal building system manufacturer's standard mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior. Include primary and secondary framing, roof and wall panels, and accessories complying with requirements indicated, including those in this Article.
- B. Metal Building System Design: Of size, spacing, slope, and spans indicated, and as follows:
 - 1. Primary Frame Type: Provide the following: Rigid Clear Span: Solid-member structural-framing system.
 - a. Exterior columns shall be straight or tapered type.
 - b. Rafters shall be straight or tapered type.
 - 2. End-Wall Framing: Manufacturer's standard, for buildings required to be non-expandable as follows:
 - a. Provide primary frame, capable of supporting one-half of a bay design load, and end-wall columns.
 - b. Flush-framed girts.
 - 3. Eave Height: Manufacturer's standard height, as indicated by nominal height on Drawings.
 - 4. Bay Spacing: See plans.
 - 5. Roof Slope: 1 inch per 12 inches (See plans).
 - 6. Roof System: Manufacturer's standard standing-seam roof panels with high clip.
 - 7. Exterior Wall System: Manufacturer's standard field-assembled insulated wall panels.
- C. Structural Performance: Provide metal building systems capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Engineer metal building systems according to procedures in MBMA's "Low Rise Building Systems Manual."
 - 2. Design Loads: As indicated in Supplementary General Conditions.
 - 3. Live Loads: Include vertical loads induced by the building occupancy indicated on Drawings. Include loads induced by maintenance workers, materials, and equipment for roof live loads. Building Occupancy: As indicated.
 - 4. Roof Snow Loads: Include vertical loads induced by the weight of snow as indicated. Allow for unbalanced and drift loads.
 - 5. Wind Loads: Include horizontal loads induced by an ultimate wind speed corresponding IBC 115 mph, Exposure C, Wind Importance Factor 1.0.

6. Collateral Loads: Include additional dead loads other than the weight of metal building system for permanent items such as sprinklers, mechanical systems, electrical systems, and ceilings.
 7. Load Combinations: Design metal building systems to withstand the most critical effects of load factors and load combinations.
 8. Deflection Limits: Engineer assemblies to withstand design loads with deflections no greater than the following:
 - a. Purlins and Rafters: Vertical deflection of $1/240$ of the span.
 - b. Girts: Horizontal deflection of $1/180$ of the span.
 - c. Roof Panels: Vertical deflection of $1/180$ of the span.
 - d. Wall Panels: Horizontal deflection of $1/180$ of the span.
 9. Design secondary framing system to accommodate deflection of primary building structure and construction tolerances, and to maintain clearances at openings.
- D. Seismic Performance: Design and engineer metal building systems capable of withstanding the effects of earthquake motions determined according to the International Building Code.
- E. Thermal Movements: Provide metal building roof and wall panel systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- F. Air Infiltration for Roof Panels: Provide roof panel assemblies with permanent resistance to air leakage through assembly of not more than 0.09 cfm/sq. ft. of fixed roof area when tested according to ASTM E 1680 at a static-air-pressure difference of 4 lbf/sq. ft.
- G. Air Infiltration for Wall and Soffit Panels: Provide wall panel assemblies with permanent resistance to air leakage through assembly of not more than 0.09 cfm/sq. ft. of fixed wall area when tested according to ASTM E 283 at a static-air-pressure difference of 4 lbf/sq. ft.
- H. Water Penetration for Roof Panels: Provide roof panel assemblies with no water penetration as defined in the test method when tested according to ASTM E 1646 at a minimum differential pressure of 20 percent of inward-acting, wind-load design pressure of not less than 6.24 lbf/sq. ft. and not more than 24 lbf/sq. ft.
- I. Water Penetration for Wall and Soffit Panels: Provide wall panel assemblies with no water penetration as defined in the test method when tested according to ASTM E 331 at a minimum differential pressure of 20 percent of inward-acting, wind-load design pressure of not less than 6.24 lbf/sq. ft. and not more than 12 lbf/sq. ft.
- J. Wind-Uplift Resistance: Provide roof panel assemblies that meet requirements of UL 580 for the following wind-uplift resistance:

1. Class 90. With additional requirements for resistance to 115 mph winds.

1.5 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, finishes and available colors as indicated on the drawings for each type of the following metal building system components:
1. Structural-framing system.
 2. Roof panels.
 3. Wall panels.
 4. Vapor retarders.
 5. Trim and closures.
 6. Accessories.
 7. Mechanical louvers.
 8. Mechanical roof penetrations.
- B. Shop Drawings: For the following metal building system components. Include plans, elevations, sections, details, and attachments to other Work.
1. For installed components indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 2. Anchor-Bolt Plans: Include location, diameter, and projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.
 3. Structural-Framing Drawings: Show complete fabrication of primary and secondary framing. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
 4. Roof and Wall Panel Layout Drawings: Show layouts of panels on support framing, details of edge conditions, joints, panel profiles, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work.
 5. Accessory Drawings: Include details of the following items, at a scale of not less than 2 inches per 12 inches: Include details of reinforcement and installation requirements for all accessories specified in other sections.
 - a. Ventilators. Coordinate with mechanical.
 - b. Louvers. Coordinate with mechanical.
 - c. Lighting.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of the following products with factory-applied color finishes as required to match the selected colors: Design intent is to match the colors of the existing open storage building on-site; roof, walls and trim & closure colors as used on existing building.
1. Roof panels.
 2. Wall panels.

3. Soffit panels.
 4. Trim, gutter and closures.
 5. Accessories.
- D. Samples for Verification: For the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected, in the profile and style indicated. Prepare Samples from the same material to be used for the Work.
1. Roof Panels: 12-inches long by actual panel width (24"). Include clips, caps, battens, fasteners, closures, and other exposed panel accessories.
 2. Architectural Wall Panels: 12-inches long by actual panel width (36"). Include clips, caps, battens, fasteners, closures, and other exposed panel accessories.
 3. Soffit Panels: 12-inches long by actual panel width (12"). Include clips, caps, battens, fasteners, closures, and other exposed panel accessories.
 4. Trim and Closures: 12-inches long. Include fasteners and other exposed accessories.
 5. Vapor Retarders: 6-inch square samples.
 6. Accessories: 12-inch long samples for each type of accessory.
- E. Product Certificates: Signed by manufacturers of metal building systems certifying that products furnished comply with requirements.
1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:
 - a. Name and location of Project.
 - b. Order number.
 - c. Name of manufacturer.
 - d. Name of Contractor.
 - e. Building dimensions, including width, length, height, and roof slope.
 - f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
 - g. Governing building code and year of edition.
 - h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic zone or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
 - i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
 - j. Building-Use Category: Indicate category of building use and its effect on load importance factors.
 - k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.
- F. Welding Certificates: Copies of certificates for welding procedures and personnel.
- G. Erector Certificates: Signed by manufacturer certifying that erectors comply with requirements.
- H. Manufacturer Certificates: Signed by manufacturers certifying that they comply with

requirements. Include evidence of manufacturing experience.

- I. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- J. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, indicating the following current products comply with requirements:
 - 1. Insulation and Vapor Retarders: Include reports for thermal resistance, fire-test-response characteristics, water-vapor transmission, and water absorption.
- K. Surveys: Show final elevations and locations of major members. Engage a qualified engineer or land surveyor to perform surveys and certify their accuracy. Indicate discrepancies between actual installation and the Contract Documents.
- L. Warranties: Special warranties specified in the provisions of the contract documents.

1.6 QUALITY ASSURANCE

- A. Erector Qualifications: An experienced erector who has specialized in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of metal building systems that are similar to those indicated for this Project in material, design, and extent.
- C. Manufacturer Qualifications: A firm experienced in manufacturing metal building systems similar to those indicated for this Project and with a record of successful in-service performance.
 - 1. Member of MBMA.
 - 2. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components, AISC-Certified Facility, Category I.
 - 3. Engineering Responsibility: Preparation of Shop Drawings, testing program development, test result interpretation, and comprehensive engineering analysis by a qualified professional engineer.
- D. Surveyor Qualifications: A land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing surveying services of the kind indicated.
- E. Source Limitations: Obtain each type of metal building system component through one source from a single manufacturer.

- F. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sight lines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, or in-service performance.
1. Do not modify intended aesthetic effects, as judged solely by Owner, except with Owner's approval. If modifications are proposed, submit comprehensive explanatory data to Owner for review.
- G. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel"; and AWS D1.3, "Structural Welding Code--Sheet Steel." All welding shall be done by certified welders per AWS in the last 12 months.
- H. Regulatory Requirements: Fabricate and label structural framing to comply with special inspection requirements at point of fabrication for welding and other connections required by authorities having jurisdiction.
- I. Structural Steel: Comply with AISC S335, "Specification for Structural Steel Buildings--Allowable Stress Design, Plastic Design"; or AISC S342, "Load and Resistance Factor Design Specification for Structural Steel Buildings," for design requirements and allowable stresses.
- J. Cold-Formed Steel: Comply with AISI SG-671, "Specification for the Design of Cold-Formed Steel Structural Members," and AISI SG-911, "Load and Resistance Facet Design Specification for Steel Structural Members," for design requirements and allowable stresses.
- K. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Review methods and procedures related to metal building systems including, but not limited to, the following:
1. Inspect and discuss condition of foundations and other preparatory work performed by other trades.
 2. Review structural load limitations.
 3. Review and finalize construction schedule and verify availability of materials, Erector's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Review required testing, inspecting, and certifying procedures.
 5. Review weather and forecasted weather conditions and procedures for unfavorable conditions.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package roof and wall panels for protection during transportation and handling.

- B. Handling: Unload, store, and erect roof and wall panels to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight and ventilated covering. Store roof and wall panels to ensure dryness. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.

1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when weather conditions permit roof and wall panel installation to be performed according to manufacturer's written instructions and warranty requirements.
- B. Field Measurements: Verify metal building system foundations by field measurements before metal building fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Established Dimensions for Foundations: Where field measurements cannot be made without delaying the Work, establish foundation dimensions and proceed with fabricating structural framing without field measurements. Coordinate anchor-bolt installation to ensure that actual anchorage dimensions correspond to established dimensions.
 - 2. Established Dimensions for Panels: Where field measurements cannot be made without delaying the Work, either establish framing and opening dimensions and proceed with fabricating roof and wall panels without field measurements, or allow for field-trimming panels. Coordinate roof and wall construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

1.9 COORDINATION

- A. Coordinate size and location of concrete foundations and casting of anchor-bolt inserts into foundation walls and footings. Concrete, reinforcement, and form work requirements are specified in Division 3 Section "Cast-in-Place Concrete."
- B. Coordinate installation of roof curbs, equipment supports, roof, wall and soffit penetrations.

1.10 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty on Panels: Written warranty, executed by manufacturer agreeing to repair or replace roof and wall panels that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.
- C. Special Warranty on Panel Finishes: Written warranty, signed by manufacturer agreeing to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period. Deterioration of finish includes, but is not limited to, color fade, chalking, cracking, peeling, and loss of film integrity.
1. Warranty Period for Roof Panels: 20 years from date of Substantial Completion.
 2. Warranty Period for Wall Panels: 20 years from date of Substantial Completion.
- D. Special Warranty on Standing-Seam Roof Panel Weather tightness: Written warranty, signed by manufacturer agreeing to repair or replace standing-seam roof panel assemblies that fail to remain weather tight within specified warranty period.
1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, any manufacturer that has been approved by DFCM is approved for bidding. The list of approved manufacturers can be accessed at http://www.dfcu.utah.gov/downloads/bldg_official/approved_fabricator_list_13.pdf.
1. Other manufactures meeting the requirements may be accepted. Approval prior to bid from DFCM is required. See section 01631 for substitution requirements.
- B. Acceptable alternate structure: Subject to compliance with requirements, rolled structural steel shapes and/or open-web members may be used in lieu of a pre-engineered steel frame.

2.2 STRUCTURAL-FRAMING MATERIALS

- A. Structural-Steel Shapes: ASTM A 36/A 36M or ASTM A 529/A 529M.
- B. Steel Plate, Bar, or Strip: ASTM A 529/A 529M, ASTM A 570/A 570M, or ASTM A 572/A 572M; 50,000-psi minimum yield strength.
- C. Steel Tubing or Pipe: ASTM A 500, Grade B or ASTM A 53, Grade B.
- D. Structural-Steel Sheet: Hot-rolled, ASTM A 570/A 570M, Grade 50 or Grade 55; hot-rolled, ASTM 568/A 568M; or cold-rolled, ASTM A 611, structural-quality, matte (dull) finish.
- E. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, structural quality, Grade 50, with G60 (Z180) coating designation; mill phosphatized.
- F. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet metallic coated by

the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M and the following requirements:

1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality. Galvalume accepted.
- G. High-Strength Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, heavy hex steel structural bolts, heavy hex carbon-steel nuts, and hardened carbon-steel washers. Size bolts for primary systems but not less than 5/8" diameter.
1. Finish: Hot-dip zinc coating, ASTM A 153, Class C.
- H. Anchor Rods, Bolts, Nuts, and Washers: As follows:
1. Unheaded Rods: ASTM A 572/A 572M, Grade 50 (Grade 345).
 2. Headed Bolts: ASTM A 325 (ASTM A 325M), Type 1, heavy hex steel structural bolts and heavy hex carbon-steel nuts.
 3. Washers: ASTM A 36/A 36M.
- I. Primers: As selected by manufacturer for resistance to normal atmospheric corrosion, compatibility with finish paint systems, capability to provide a sound foundation for field-applied topcoats despite prolonged exposure, and as follows:
1. Primer: Manufacturer's standard, lead- and chromate-free, nonasphaltic, rust-inhibiting primer.

2.3 PANEL MATERIALS

- A. Metallic-Coated Steel Sheet Pre-painted with Coil Coating: Steel sheet metallic coated by the hot-dip process and pre-painted by the coil-coating process to comply with ASTM A 755/A 755M and the following requirements:
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality. Aluminum-zinc alloy-coated steel accepted.
 2. Surface: Smooth, flat, mill finish.
 3. Trapezoidal Structural Standing Seam Roof System, 24" wide, 24 gauge minimum, field seamed system, 3" High. Roof panels begin and end with a 3" high seam, and concealed fasteners as manufactured by MBCI, Model Double-Lok or prior approved equal.
 4. Architectural wall panel, 36" wide, 24 gauge minimum, smooth with beads at 4" on center. Concealed fastener system. MBCI, model number FW120-2 or prior approved equal.
 5. Architectural Soffit panel, 24 gauge minimum, smooth with beads at 4" on center. Concealed fastener system. MBCI, Artisan series L12 with beads or prior approved equal.
- B. Panel Sealants: Provide the following:
1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic,

- nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
2. Joint Sealant: ASTM C 920; one-part elastomeric polyurethane, polysulfide, or silicone-rubber sealant; of type, grade, class, and use classifications required to seal joints in panels and remain weathertight; and as recommended by metal building system manufacturer. Non hardening.

2.4 MISCELLANEOUS MATERIALS

- A. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- B. Nonmetallic, Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with ASTM C 1107, of consistency suitable for application, and with a 30-minute working time.
- C. Shop Primer for Galvanized Metal Surfaces: Zinc dust, zinc-oxide primer selected by manufacturer for compatibility with substrate. Comply with FS TT-P-641.
- D. Flexible weather resistant EPDM pipe flashing. Isolates piping from building movement. Acceptable product, Dektite as manufactured by ITW Buildex (708-595-3500) or prior approved equal.

2.6 FABRICATION, GENERAL

- A. General: Design components and field connections required for erection to permit easy assembly and disassembly.
 1. Fabricate components in a manner that once assembled in the shop, they may be disassembled, repackaged, and reassembled in the field.
 2. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
 3. Fabricate framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Cold-formed members shall be free of cracks, tears, and ruptures.
- B. Primary Framing: Shop-fabricate framing components to indicated size and section with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.
 1. Make shop connections by welding continuous or by using high-strength bolts.
 2. Join flanges to webs of continuous built-up members by a continuous submerged arc-welding process.
 3. Brace compression flange of primary framing by angles connected between frame web and purlin or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
 4. Weld clips to frames for attaching secondary framing members.
 5. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 2. Shop prime primary structural members with specified primer after fabrication.

- C. Secondary Framing: Shop-fabricate framing components to indicated size and section by roll-forming or break-forming, with base plates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.
 - 1. Make shop connections by welding or by using high-strength bolts.
 - 2. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 2. Shop prime secondary structural members with specified primer after fabrication.
- D. Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply the specified air-dried primer immediately after cleaning and pretreating.
 - 1. Prime primary, secondary, and end-wall steel framing members with specified primer to a minimum dry film thickness of 1 mil. Prime secondary steel framing formed from metallic-coated steel sheet with red-oxide polyester paint, with a minimum dry film thickness of 0.5 mil on each side.
 - 2. Prime galvanized members, after phosphoric acid pretreatment, with manufacturer's standard zinc dust, zinc-oxide primer.
- E. Tolerances: Comply with MBMA's "Low Rise Building Systems Manual": Chapter IV, Section 9, "Fabrication and Erection Tolerances."

2.7 STRUCTURAL FRAMING

- A. Primary Framing: Manufacturer's standard structural primary framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing. If build-up sections are used out of plate, continuous welding shall be employed on at least one side and intermittent welds on the opposite side to suite design requirements.
 - 1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.
 - 2. Rigid Frames: I-shaped frame sections fabricated from continuous shop-welded, built-up steel plates Minimum plate thickness of 1/4" or structural-steel shapes.
 - 3. Frame Configuration: See plans.
 - 4. Exterior Column Type: Straight.
 - 5. Rafter Type: Tapered.
- B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:
 - 1. End-Wall and Corner Columns: I-shaped sections fabricated from structural-steel shapes; shop-welded, built-up steel plates; or C-shaped, cold-formed, structural-steel sheet; with minimum thickness of 0.125 inch.
 - 2. End-Wall Rafters: C-shaped, cold-formed, structural-steel sheet; with minimum thickness of 0.0598 inch.

- C. Secondary Framing: Manufacturer's standard secondary framing members, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Fabricate framing from cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet prepainted with coil coating, unless otherwise indicated, to comply with the following:
1. Purlins: C- or Z-shaped sections; fabricated from minimum 0.0598-inch thick steel sheet, built-up steel plates, or structural-steel shapes; minimum 2-1/2-inch wide flanges.
 2. Girts: C- or Z-shaped sections; fabricated from minimum 0.0598-inch thick steel sheet, built-up steel plates, or structural-steel shapes. Form ends of Z-sections with stiffening lips angled 45 to 50 degrees to flange and with minimum 2-1/2-inch wide flanges.
 3. Eave Struts: Unequal-flange, C-shaped sections; fabricated from 0.0598-inch thick steel sheet, built-up steel plates, or structural-steel shapes; to provide adequate backup for both roof and wall panels.
 4. Flange and Sag Bracing: Minimum 1-5/8-by-1-5/8-inch structural-steel angles, with a minimum thickness of 0.0598 inch, to stiffen primary frame flanges.
 5. Base or Sill Angles: Minimum 3-by-2-by-0.0747-inch zinc-coated steel sheet.
 6. Purlin and Girt Clips: Minimum 0.0747-inch thick, steel sheet.
 7. Secondary End-Wall Framing: Manufacturer's standard sections fabricated from minimum 0.0747-inch thick, steel sheet.
 8. Framing for Openings: Channel shapes; fabricated from minimum 0.0598-inch thick, cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings, and head, jamb, and sill of other openings.
 9. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or steel sheet; designed to withstand required loads.
- D. Bracing: Provide adjustable wind bracing as follows:
1. Rods: ASTM A 36/A 36M; ASTM A 572/A 572M, Grade D; or ASTM A 529/A 529M, Grade 50; 1/2-inch diameter steel minimum; threaded full length or threaded a minimum of 12 inches at each end.
 2. Cable bracing is not allowed.
 3. Angles fabricated from structural-steel shapes to match primary framing, of size required to withstand design loads.
 4. Rigid Portal Frames: Fabricate from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
 5. Fixed-Base Columns: Fabricate from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
 6. Diaphragm Action of Panels: Design metal building to resist wind forces through diaphragm action of roof, wall panels and rod bracing.
 7. Bracing: Provide wind bracing using any method specified above, at manufacturer's option.
- E. Bolts: Provide shop-painted bolts unless structural-framing components are in direct contact with roof and wall panels. Provide zinc-plated bolts when structural-framing

components are in direct contact with roof and wall panels. The primary frame shall use a minimum bolt size of 5/8" diameter A325 or higher strength.

2.8 ROOF PANELS

A. Structural Standing-Seam Roof Panels: Manufacturer's standard panels complying with the following:

1. Ribbed Roof Panels: Fabricate from metallic-coated steel sheets prepainted with coil coating, factory formed to provide 24-inch coverage; with 3-inch high (including seam), raised trapezoidal major ribs at panel edges, and intermediate stiffening ribs symmetrically spaced between major ribs for full length of panel. Field seamed. Comply with the following:

- a. Material: Zinc-coated (galvanized) steel.
- b. Yield Strength: 50 ksi.
- c. Metal Thickness: 0.0239 inch minimum.
- d. Joint Type: Folded, mechanically seamed type.
- e. Clip System: Floating to accommodate thermal movement (high clip system).

B. Roof Panel Accessories: Provide components required for a complete roof panel assembly including trim, copings, fasciae, mullions, sills, corner units, ridge closures, clips, seam covers, battens, flashings, gutters, sealants, gaskets, fillers, closure strips, and similar items. Match materials and finishes of roof panels, unless otherwise indicated.

1. Closures: Provide closures at eave and ridge, fabricated of same metal as roof panels.
2. Clips: Minimum 0.0625-inch thick, stainless-steel panel clips designed to withstand negative-load requirements.
3. Cleats: Mechanically seamed cleats formed from minimum 0.0250-inch thick, stainless-steel or nylon-coated aluminum sheet.
4. Thermal Spacer Blocks: Where panels attach directly to purlins, provide 1-inch thick, thermal spacer blocks; fabricated from extruded polystyrene.
5. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.

C. Exterior Finish: Apply the following coil coating to roof panels and accessories:

1. Modified Silicone-Polyester Two-Coat System: 0.20 – 0.25 mil primer with 0.7 – 0.8 mil color coat.
 - a. Basis of Design: MBCI, Signature 200.
 - b. Durability: Provide coating field tested under normal range of weather conditions for a minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of a chalk rating of five according to ASTM D 4214; and without fading in excess of seven Hunter units.
2. Colors, Textures, and Glosses: As selected by Architect from manufacturer's full

range for these characteristics. Match existing metal building panels.

- D. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored backer finish, consisting of prime coat and wash coat with a total minimum dry film thickness of 0.5 mil.

2.9 WALL PANELS

- A. Wall Panels: Provide manufacturer's standard Architectural panels complying with the following:
 - 1. Beaded Panels: Fabricate from metallic-coated steel sheets prepainted with coil coating, factory formed to provide 36-inch coverage, beads at 4-inches o.c. Design panels for mechanical attachment to structure using concealed fasteners, lapping major ribs at panel edges. Comply with the following:
 - a. Material: Zinc-coated (galvanized) steel. Or Aluminum-zinc alloy-coated steel.
 - b. Yield Strength: 50 ksi.
 - c. Metal Thickness: 24 gauge minimum or as required for wind exposure.
 - d. Panel Thickness: 1.5 inches.
- B. Wall Panel Accessories: Provide components required for a complete wall panel assembly, including trim, copings, mullions, sills, corner units, clips, seam covers, battens, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match materials and finishes of panels.
 - 1. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
- C. Exposed Finish for Exterior Panels: Apply the following coil coating:
 - 1. Modified Silicone-Polyester Two-Coat System: 0.20 – 0.25 mil primer with 0.7 – 0.8 mil color coat.
 - a. Basis of Design: MBCI, Signature 200.
 - b. Durability: Provide coating field tested under normal range of weather conditions for a minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of a chalk rating of eight according to ASTM D 4214; and without fading in excess of five Hunter units.
 - 2. Colors, Textures, and Glosses: As selected by Architect from manufacturer's full range for these characteristics. Match existing metal building panels.
- D. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored backer finish, consisting of prime coat and wash coat with a total minimum dry film thickness of 0.5 mil.

2.10 FASCIA AND SOFFIT PANELS

- A. Fascia Panels: Manufacturer's standard panels complying with the following:
1. Match roof panel profile and material.
 2. Flat-Pan Panels: Fabricate from metallic-coated steel sheets prepainted with coil coating, factory formed to provide 12-inch coverage; with 1-inch high, inverted-L, standing-seam, vertical ribs at panel edges. Design panels for mechanical attachment to fascia supports using concealed clips in side laps. Factory apply sealant at each interlocking joint. Comply with the following:
 - a. Material: Zinc-coated (galvanized) steel.
 - b. Yield Strength: 50 ksi.
 - c. Metal Thickness: 24 gauge minimum.
 - d. Joint Type: As standard with manufacturer.
 - e. Clip System: Floating to accommodate thermal movement.

2.11 ACCESSORIES

- A. General: Provide accessories as standard with metal building system manufacturer, and complying with the following:
1. Provide sheet metal accessories of same material and in same finish as roof and wall panels, unless otherwise indicated.
- B. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of roof or wall sheets by means of plastic caps or factory-applied coating. Comply with the following:
1. Fasteners for Roof and Wall Panels: Self-drilling or self-tapping 410 stainless or zinc-alloy steel hex washer head, with EPDM or PVC washer under heads of fasteners bearing on weather side of panels.
 2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
 3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
- C. Flashing and Trim: Form from 0.0179-inch thick, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent roof or wall panels.
1. Opening Trim: Painted subframing of suitable thickness to protect overhead door operation. Trim head and jamb of door openings, and head, jamb, and sill of other openings.
- D. Closures: Closed-cell, laminated polyethylene; minimum 1-inch thick, flexible closure strips; cut or premolded to match roof and wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

- E. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

2.13 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.14 SOURCE QUALITY CONTROL

- A. Owner may employ an independent testing agency to perform source quality-control testing and special inspections, and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether test specimens comply with or deviate from requirements.
 - 2. Allow Owner's testing agency access to places where structural framing is being fabricated or produced. Cooperate with Owner's testing agency and provide samples of materials as may be requested for additional testing and evaluation.
 - 3. Special inspections will not be required when fabrication is performed by a fabricator registered and approved by authorities having jurisdiction to perform such work without special inspection.
- B. Correct deficiencies in or remove and replace structural framing that inspections and test reports indicate do not comply with requirements.
- C. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with requirements.
- D. Shop-bolted connections will be tested and inspected according to RCSC's "Allowable Stress Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- E. Shop-bolted connections will be tested and inspected according to RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 1. Direct-tension indicator gaps will be verified to comply with ASTM F 959, Table 2.
- F. In addition to visual inspection, shop welding will be inspected and tested according to AWS D1.1 and the inspection procedures listed below, at testing agency's option:
 - 1. Liquid-Penetrant Inspection: ASTM E 165.
- G. In addition to visual inspection, shop-welded shear connectors will be inspected and tested according to requirements of AWS D1.1 for stud welding and as follows:
 - 1. Bend tests may performed when visual inspections reveal either less than a

- continuous 360-degree flash or welding repairs to any shear connector.
2. Tests may be conducted on additional shear connectors when weld fracture occurs on shear connectors already tested, according to requirements of AWS D1.1.
- H. Testing agency will report test results promptly and in writing to Owner, Contractor and Architect/Engineer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of metal building system.
- B. Before erection proceeds, survey elevations and locations of concrete and masonry bearing surfaces, baseplates, and anchor bolts to receive structural framing. Verify compliance with requirements and metal building system manufacturer's tolerances.
 1. Engage land surveyor to perform surveying.

3.2 PREPARATION

- A. Clean substrates of substances, including oil, grease, rolling compounds, incompatible primers, and loose mill scale that impair bond of erection materials.
- B. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

3.3 ERECTION

- A. Erect metal building system according to manufacturer's written instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing in locations and to elevations indicated and according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Baseplates and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces before setting baseplates and bearing plates. Clean bottom surface of baseplates and bearing plates.
 1. Set baseplates and bearing plates for structural members on wedges, shims, or setting nuts.
 2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of

- baseplate or bearing plate before packing with grout.
3. Pack grout solidly between bearing surfaces and plates so no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
 4. Comply with manufacturer's written instructions for proprietary grout materials.
- E. Align and adjust framing members before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact. Make adjustments to compensate for discrepancies in elevations and alignment.
1. Level and plumb individual members of structure.
 2. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
- F. Primary Framing and End Walls: Erect framing true to line, level, plumb, rigid, and secure. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist cure grout for not less than seven days after placement.
1. Make field connections using high-strength bolts. Tighten bolts by turn-of-the-nut method.
- G. Secondary Framing: Erect framing true to line, level, plumb, rigid, and secure. Fasten secondary framing to primary framing using clips with field connections using non-high-strength bolts. Hold rigidly to a straight line by sag rods.
1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
 2. Locate and space wall girts to suit door and window arrangements and heights.
 3. Locate canopy framing as indicated.
 4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.
- H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
1. Tighten rod bracing to avoid sag.
 2. Locate interior end bay bracing only where indicated.
- I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to building structural frame.
- ### 3.4 ROOF PANEL INSTALLATION
- A. General: Provide roof panels of full length from eave to ridge when possible. Install panels perpendicular to purlins.
1. Field cutting by torch is not permitted.
 2. Rigidly fasten eave end of roof panels and allow ridge end free movement due to thermal expansion and contraction. Pre-drill panels.

3. Provide weatherseal under ridge cap.
 4. Flash and seal roof panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
 5. Install screw fasteners with power tools having controlled torque adjusted to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
 6. Use aluminum or stainless-steel fasteners for exterior applications and galvanized fasteners for interior applications.
 7. Locate and space fastenings in true vertical and horizontal alignment.
 8. Install ridge caps as roof panel work proceeds.
 9. Locate panel splices over, but not attached to, structural supports. Stagger panel splices to avoid a four-panel lap splice condition.
 10. Provide weather-resistant escutcheons for pipe and conduit penetrating roofing panels.
- B. Standing-Seam Roof Panels: Fasten roof panels to purlins with concealed clips at each standing-seam joint. Install clips at location and spacing determined by manufacturer.
1. Install clips to supports with self-drilling fasteners.
 2. Crimp standing seams with manufacturer-approved motorized seamer tool so clip, panel, and factory-applied side-lap sealant are completely engaged.
 3. At panel splices, nest panels with minimum 6-inch end lap, sealed with butyl sealant and fastened together by interlocking clamping plates.

3.5 WALL PANEL INSTALLATION

- A. General: Provide panels full height of building. Install panels perpendicular to girts.
1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Install panels with vertical edges plumb. Lap ribbed or fluted sheets one full rib corrugation. Apply panels and associated items for neat and weather tight enclosure. Avoid "panel creep" or application not true to line.
 2. Unless otherwise indicated, begin panel installation at corners with center of rib lined up with line of framing.
 3. Field cutting by torch is not permitted.
 4. Align bottom of wall panels and fasten with blind rivets, bolts, or self-tapping screws.
 5. Fasten flashing and trim around openings and similar elements with self-tapping screws.
 6. When two rows of panels are required, lap panels 4 inches minimum. Locate panel splices over structural supports.
 7. Install continuous thermal break on all girts.
 8. Install screw fasteners with power tools having controlled torque adjusted to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
 9. Provide weather-resistant escutcheons for pipe and conduit penetrating exterior walls.
 10. Flash and seal wall panels with weather closures under eaves and rakes, along lower panel edges, and at perimeter of all openings.
 11. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as necessary for waterproofing. Handle and apply sealant

- and backup according to sealant manufacturer's written instructions.
12. Use aluminum or stainless-steel fasteners for exterior applications and galvanized fasteners for interior applications.
 13. Locate and space fastenings in true vertical and horizontal alignment.
 14. Align wall panel joints with soffit panels and roof panel.

3.6 FASCIA AND SOFFIT PANEL INSTALLATION

- A. General: Provide panels full width of fasciae and soffits. Install panels perpendicular to support framing.
1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Install panels with vertical edges plumb. Lap ribbed or fluted panels one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
 2. Field cutting by torch is not permitted.
 3. Fasten flashing and trim around openings and similar elements with self-tapping screws.
 4. Install screw fasteners with power tools having controlled torque adjusted to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
 5. Use aluminum or stainless-steel fasteners for exterior applications and galvanized fasteners for interior applications.
 6. Locate and space fastenings in true vertical and horizontal alignment.
 7. Align all seams with wall panels.
- B. Fascia Panels: Align bottom of panels and fasten with blind rivets, bolts, or self-tapping screws. Flash and seal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.7 ACCESSORY INSTALLATION

- A. General: Install ventilators, louvers, and other accessories according to manufacturer's written instructions, with positive anchorage to building and weathertight mounting. Coordinate installation with flashings and other components.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10-feet with no joints allowed within 24-inches of corner or intersection. Where lapped or bayonet-type expansion provisions

- cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with mastic sealant (concealed within joints).
3. Separations: Separate metal from incompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
- C. Pipe Flashing: Form EPDM flashing around pipe penetration and roof panels. Fasten and seal to roof panel as recommended by manufacturer.
- D. Louvers: Set louvers complete with necessary hardware, anchors, dampers, weather guards, and equipment supports according to manufacturer's written instructions. Locate and place louver units level, plumb, and at indicated alignment with adjacent work.
1. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
 2. Provide perimeter reveals and openings of uniform width for sealants and joint fillers.
 3. Protect galvanized- and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
 4. Install concealed gaskets, flashings, joint fillers, and insulation, as louver installation progresses, where required to make louver joints weathertight. Comply with Division 7 Section "Joint Sealants" for sealants applied during louver installation.

3.8 ERECTION AND LOCATION TOLERANCES

- A. Structural-Steel Erection Tolerances: Comply with erection tolerance limits of AISC S303, "Code of Standard Practice for Steel Buildings and Bridges."
- B. Roof Panel Installation Tolerances: Shim and align units within installed tolerance of 1/4 inch in 20-feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Wall Panel Installation Tolerances: Shim and align units within installed tolerance of 1/4 inch in 20-feet on level, plumb, and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing agency to perform field quality-control testing.
- B. Extent and Testing Methodology: Testing and verification procedures will be required of high-strength bolted connections. AISC and RCSC allow turn-of-the-nut method, calibrated wrench, alternative design bolts, and direct-tension indicators for bolt-tension testing. Add actual requirements if other than AISC's "10 percent" will be inspected.
1. Bolted connections will be visually inspected.
 2. High-strength, field-bolted connections will be tested and verified according to

procedures in RCSC's "Load and Resistance Factor Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

- C. Testing agency will report test results promptly and in writing to Contractor and Owner.

3.10 CLEANING AND PROTECTION

- A. Touchup Painting: Immediately after erection, clean, prepare, and prime or reprime welds, bolted connections, and abraded surfaces of prime-painted primary and secondary framing, accessories, and bearing plates.

- 1. Clean and prepare surfaces by hand-tool cleaning, SSPC-SP 2, or power-tool cleaning, SSPC-SP 3.
- 2. Apply compatible primer of same type as shop primer used on adjacent surfaces.

- B. Repair damaged galvanized coatings on exposed surfaces with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

- C. Roof and Wall Panels: Remove temporary protective coverings and strippable films, if any, as soon as each panel is installed. On completion of panel installation, clean finished surfaces as recommended by panel manufacturer and maintain in a clean condition during construction.

- 1. Replace panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 13125

SECTION 16100 - WIRING METHODS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Summary: Building wires and cables and associated splices, connectors, and terminations for wiring systems rated 600 V and less, and twisted-pair cable; and raceways and boxes.

PART 2 - PRODUCTS

2.1 WIRES AND CABLES

Building Wires and Cables: Type XHWN/THWN copper conductor.

Connectors and Splices: Wiring connectors of size, ampacity rating, material, and type and class for application and for service indicated.

2.2 RACEWAYS

Provide metal conduit, tubing and fittings of types, grades, sizes and weights as indicated, minimum trade size $\frac{3}{4}$ ".

1. RMC - FS WW-C-0581 and ANSI C80.1.
2. IMC - FS WW-C-581
3. EMT - FS WW-C-563 and ANSI C80.3.
4. Aluminum conduit is not acceptable.
5. Provide fittings for each type of conduit as required.
6. Install service entrance conductors in RMC. For feeders under 600 volts, install feeders rated greater than 100 amps in RMC or IMC except that buried feeders shall be installed in non-metallic conduit. Circuits rated less than 100 amps shall be installed in EMT except in poured walls, with one side in contact with grade, below concrete slab on grade or in earth fill use non-metallic duct. In areas exposed to weather, moisture or physical damage, use RMC or IMC.

CONDUCTORS AND CABLES

1. Provide copper conductors for all applications rated less than 600 volts. Provide factory-fabricated conductors of sizes, ratings, materials and types indicated for each service. Where not indicated, provide proper selection to comply with project's installation requirements and NEC standards.
- C. Outlet and Device Boxes: UL listed and labeled sheet metal boxes.
1. Provide outlet boxes, junction boxes, pull boxes, conduit bodies, bushings, locknuts, knockout closures and miscellaneous boxes and fittings as required. Comply with NEC, NEMA, ANSI and other applicable codes.
 2. Interior outlet boxes shall be one piece, galvanized flat rolled sheet, minimum size 4"x4"x1 $\frac{1}{2}$ ". Provide accessories as required. Provide corrosion-resistant cast metal

weatherproof outlet boxes as required.

D. Pull and Junction Boxes

1. Junction and pull boxes shall be of code-gage steel with screw on covers.
2. Provide galvanized cast-metal conduit bodies.
3. Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts and malleable steel conduit bushings and offset connectors.

2.2 SUPPORTING DEVICES

- A. Provide supporting devices complying with manufacturer's standard materials, design and construction in accordance with published product information and as required for a complete installation.

PART 3 - EXECUTION

INSTALLATION

Install wires and cables according to the NECA's "Standard of Installation."

Wiring at Outlets: Install with at least 12 inches of slack conductor at each outlet.

Outdoors Wiring Methods: As follows:

- Exposed: Rigid or intermediate metal conduit.
- Concealed: Rigid or intermediate metal conduit.
- Underground, Single Run: Rigid nonmetallic conduit.
- Underground, Grouped: Rigid nonmetallic conduit.

Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid or Motor-Driven Equipment): Liquidtight flexible metal conduit.

Indoors Wiring Methods: As follows:

- Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid or Motor-Driven Equipment): Flexible metal conduit, except in wet or damp locations use liquidtight flexible metal conduit. Use armored cable and nonmetallic sheathed cable in applications allowed by NFPA 70.
- Damp or Wet Locations: Rigid steel conduit.
- Exposed: Electrical metallic tubing or rigid nonmetallic conduit.
- Concealed: Electrical metallic tubing, electrical nonmetallic tubing, or rigid nonmetallic conduit.
- Boxes and Enclosures: NEMA 250, Type 1, except in damp or wet locations use NEMA 250, Type 4, stainless steel.
- Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.
- Conceal conduit and electrical metallic tubing, unless otherwise indicated, within finished walls, ceilings, and floors.

Use raceway fittings compatible with raceway and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, unless otherwise indicated.

Raceways Embedded in Slabs: Install in middle third of the slab thickness where practical, and leave at least 1-inch concrete cover.

Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.

Join raceways with fittings designed and approved for the purpose and make joints tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight. Use insulating bushings to protect conductors.

Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line having not less than 200-lb tensile strength. Leave not less than 12 inches of slack at each end of the pull wire.

Install raceway sealing fittings and locate at suitable, approved, accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings where required by the NEC.

Stub-up Connections: Extend conductors to equipment with rigid steel conduit; flexible metal conduit may be used 6 inches above the floor.

Flexible Connections: Use maximum of 72 inches of flexible conduit for lighting fixtures; and for all motors. Use liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.

Install a separate green ground conductor in surface metal raceway from the junction box supplying the raceway to receptacle or fixture ground terminals.

END OF SECTION 16100

SECTION 16140 - WIRING DEVICES GENERAL

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Types of wiring devices include receptacles, switches, cord caps and cord connectors.
- B. Submit Product Data.

1.2 SCOPE OF WORK

- A. Provide and install the following;
 - 1. Power
 - a. Wire to existing 200 amp panel at existing building. Connect to new breakers in existing panel.
 - b. Provide 20 amp outlets as follows:
 - i. One waterproof outlet each at front corners of building (NW & SW) (exterior).
 - ii. 3 outlets at Grid A/ 2,3,4 (interior) .
 - c. Provide power to overhead doors.

PART 2 - PRODUCTS

2.1 DEVICES

Provide factory-fabricated wiring devices in types and electrical ratings for applications indicated and complying with NEMA standards Pub. No. WD 1.

- B. Provide general-duty duplex receptacle ground-fault circuit interrupters, feed thru types capable of protecting connected downstream receptacles on a single circuit.
- C. General Purpose Wiring Devices: Comply with NEMA WD1.

Color: galv. metal.

Receptacles: UL 498, heavy-duty grade except as indicated otherwise.

Ground-Fault Circuit Interrupter Receptacles: UL 943, feed-through type, with integral NEMA 5-20R duplex receptacle; for installation in a 2-3/4-inch- (70-mm-) deep outlet box without an adapter.

Snap Switches: Quiet-type AC switches, 120/277 V, 20 A, complying with UL 20.

Wall Plates: Galvanized steel wall coverplates for all wiring devices. fastened with metal screws having heads matching plate color.

Multioutlet Assemblies: Comply with UL 5.

PART 3 - EXECUTION

INSTALLATION

Install devices and assemblies plumb and secure.

Mount devices flush, with long dimension vertical, and grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

END OF SECTION 16140

SECTION 16500 - LIGHTING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submit Product Data for each fixture type, including lamps.
- B. Coordinate ceiling-mounted fixtures with ceiling construction.

PART 2 - PRODUCTS

2.1 LIGHT FIXTURES

- A. Provide and install the following;

- 1. Interior Lighting

- a. Provide high bay lighting to match existing equally spaced as required for proper lighting levels
- b. Provide a/b switching.

- 2. Exterior Lighting

- a. Provide 250 watt exterior wall pack fixtures as follows:

- i. 3 fixtures equally spaced on Grid A on Grids 2, 3, & 4.
- ii. Mount at elevation 15'- 0".

- 3. Lighting Control

- a. Provide photocell and override switch for all exterior lighting.
- b. Provide separate switches for interior and exterior lights. Lights and outlets on separate circuits.

PART 3 - EXECUTION

INSTALLATION

Set units plumb, square, and level with ceiling and walls, and secure.

Lamping: Where specific lamp designations are not indicated, lamp units according to manufacturer's written instructions.

END OF SECTION 16500