

**PROJECT MANUAL**  
**FOR**  
**LAKE CITY FIRE STATION NO 2**  
**AT**  
**383 NW HALL OF FAME DR.**  
**LAKE CITY, FLORIDA 32055**

**PREPARED FOR:**



**DATE: APRIL 1, 2021**

**PREPARED BY:**



**4730 CASA COLA WAY, SUITE 200**  
**ST. AUGUSTINE, FLORIDA 32095**

**PROJECT NUMBER: 20203034.0001**

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- A. City of Lake City
- B. Address:
  - 205 N Marion Ave
  - Lake City, Florida, 32055

**1.02 AND THE OWNER'S REPRESENTATIVE (HEREINAFTER REFERRED TO AS OWNER'S REPRESENTATIVE ):**

- A. Passero Associates
- B. Address:
  - 4730 Casa Cola Way, Suite 200
  - St. Augustine, FL 32095

**1.03 DATE: APRIL 1, 2021****1.04 TO: POTENTIAL BIDDERS**

Your firm is invited to submit an offer under seal to Owner for construction of a Fire Station located at:

383 NW Hall of Fame Dr.  
Lake City, Florida 32055

Before 11 am local standard time on the 18 day of May, 2021, for:

**Project:** Lake City Fire Station No 2

**Project Number:** 20203034.0001

**Project Description:** Project consists of a new west side Fire Station with two apparatus bays, day room, kitchen, bunk rooms and support spaces. The exterior consist of masonry and metal panel walls with metal roofing..

**Mandatory Pre-Proposal Briefing/Site Visit** will be held, at the project site on April 15, 2021 at 11am. Prospective bidders are required to attend.

A complete set of Bid Documents, consisting of the Specifications, Bid, Agreement and Contract Drawings, will be available on **Thursday April 1, 2021** and may be obtained from **City of Lake City's website (<https://secure.procurenw.com/portal/lcfla/projects/8589>)**.

**Additional Information:**

- A. Submit all documents through the City's website.
- B. Each bid (price proposal) must be accompanied by a Qualifications Proposal. The proposal shall include sufficient information to enable the Owner to evaluate the capability of the Design-Build Firm to provide the desired services. Refer to Document 00 21 13 - Instructions to Respondents for Proposal Requirements.
- C. Each bid must be accompanied by a certified check or Bid Bond of a sum no less than 5 percent of the Bid Amount.
- D. Refer to other bidding requirements described in Document 00 21 13 - Instructions to Respondents and Document 00 31 00 - Available Project Information.
- E. The Owner reserves the right to accept or reject any or all offers.

**END OF SECTION**



**SECTION 00 21 13 - INSTRUCTIONS TO RESPONDENTS****SUMMARY****1.01 DOCUMENT INCLUDES**

- A. Definitions
- B. Invitation
- C. Qualifications Proposal Requirements
- D. Price Proposal Requirements
- E. Consideration of Qualifications and Price Proposals
- F. Bid Documents and Contract Documents
- G. Site Assessment

**1.02 RELATED DOCUMENTS**

- A. Document 00 11 13 - Advertisement for Bids.
- B. Document 00 31 00 - Available Project Information.
- C. Document 00 41 00 - Bid Form.
- D. Document 00 43 22 - Unit Prices Form.
- E. Document 00 43 23 - Alternates Form.
- F. Document 00 43 27 - Separate Prices Break-Out Form.

**1.03 DEFINITIONS**

- A. Contract Documents. The term "Contract Documents" includes: Advertisement, the Design and Construction Criteria Package, Design-Builder Qualifications Proposal and Price Proposal, Noncollusion Affidavit, Resolution of Award of Contract, Executed Form of Contract, Performance Bond and Payment Bond, Design Liability Insurance, Specifications, plans (including revisions thereto), Addenda, or other information mailed or otherwise transmitted to the prospective respondents prior to the receipt of bids, work orders and supplemental agreements, all of which are to be treated as one instrument whether or not set forth at length in the form of contract.
- B. Design and Construction Criteria Package (DCC). Criteria for Contractor Prepared Design, Scope of Work and Service, and all other documents attached thereto; and which, together set forth the criteria for work to be provided to complete this Contract.
  - 1. Plans (included within DCC) consist of general drawings showing such details as are necessary to give a comprehensive idea of the construction contemplated. In addition to the work and materials specifically called for in the Contract Documents and any additional incidental work, not specifically mentioned, when so shown in the plans, or if indicated, or obvious and apparent, as being necessary for the proper completion of the work will be included in the Contract Lump Sum Price.
  - 2. Specifications (included within DCC) cover aspects of the design and construction that are not adequately described in the Plans. Specifications may consist of "Performance" or "Prescriptive" requirements.
- C. Design-Build Firm (or "Contractor"). Design-Build Firm means any company, firm, partnership, corporation, association, joint venture, or other legal entity permitted by law to practice engineering, architecture, and construction contracting, as appropriate, in the State of Florida.
- D. Architect/Engineer of Record (A/EOR). The Professional Architect/Engineer or Architectural/Engineering Firm registered in the State of Florida that is responsible for the preparation of the Construction Documents based on the Contract Documents (including the Design and Construction Criteria Package). The Architect/Engineer of Record shall be a part of

the Design Build Firm.

- E. Owner's Representative. The Owner's Representative is the main architectural designer of the project, responsible for Contract Documents, and will act as a representative for the owner for the duration of the project.

#### 1.04 INVITATION

##### A. INTENT

##### 1. General:

- a. The intent of the Contract is to provide for the Architectural and Engineering services, furnishing of materials, construction, and completion in every detail of the work described in this Contract. The Design-Build Firm shall furnish all Architectural/Engineering and all of its associated direct and indirect costs, construction labor, materials, equipment, supervision, tools, transportation, and supplies required to complete the work in accordance with the requirements of the Contract Documents. The terms and conditions of this Contract are fixed price and fixed time. The Contractor's submitted bid (time and cost) is to be a lump sum bid for completing the scope of work detailed in the Contract.
  - b. The Design-Build Firm shall have all liability and responsibility for all unknowns and/or differing site conditions; and including but not limited to any or all utilities, subsoil conditions, permits, etc. of any nature or kind, unless otherwise stated in the Contract. In the event that unforeseeable work is provided for in the Contract, such work shall be paid for in accordance with section 01 20 00 - Price and Payment Procedures.
  - c. No substantial change, as determined at the sole discretion of the Owner's Representative, in general plan or character of the work shall be made without written agreement by the Owner's Representative. The plans shall be dated, stamped, and signed and sealed by the Architect/Engineer of Record and shall be transmitted to the Owner's Representative for review, approval and project records. The Design-Build Firm shall schedule the transmittal so that the Owner's Representative receives the plans and shop drawings at least 15 working days prior to commencement of any portion of work described in the plans or as specifically required in the Request for Proposal.
- ##### 2. Examination of Contract Documents and Scope of Work:
- a. The Design-Build Firm shall be responsible for compliance with Design and Construction Criteria which sets forth requirements for the project.
  - b. The Design-Build Firm shall examine the Contract Documents and the site of the proposed work carefully before submitting a Proposal for the scope of work contemplated and shall investigate the conditions to be encountered, as to the character, quality, and quantities of work to be performed and materials to be furnished and as to the requirements of all Contract Documents. Written notification of differing site conditions discovered during the design or construction phase of the Project will be given to the Owner's Representative.
  - c. The Owner does not guarantee the details pertaining to borings, as shown on the plans, to be more than a general indication of the materials likely to be found adjacent to holes bored at the site of the work, approximately at the locations indicated. The Contractor shall examine boring data, where available, and make his own interpretation of the subsoil investigations and other preliminary data, and shall base his bid on his own opinion of the conditions likely to be encountered.

- d. The Design-Build Firm shall demonstrate good Project management practices while working on this Project. These include communication with the Owner and Owner's Representative and others as necessary, management of time and resources, and documentation.
- e. The respondent's submission of a proposal is prima facie evidence that the respondent has made an examination as described in this Article.

**B. CONTRACT TIME**

1. Owner requires that under the work of this contract be completed as quickly as possible and consideration will be given to time of completion when reviewing the submitted bids.
  - a. Respondent to identify contract time in bid documents.

**1.05 QUALIFICATIONS PROPOSAL REQUIREMENTS**

**A. GENERAL**

1. Each Design-Build Firm being considered for this Project is required to submit a Qualifications Proposal. The proposal shall include sufficient information to enable the Owner to evaluate the capability of the Design-Build Firm to provide the desired services. The data shall be significant to the Project and shall be innovative, when appropriate, and practical.
2. Refer to item 1.07 for process and consideration of bids.

**B. SUBMISSION PROCEDURE**

1. Respondents shall be solely responsible for the delivery of their technical proposals in the manner and time prescribed.
2. Submit (upload) one (1) digital copy of the Qualifications Proposal to the owner's bid site (<https://secure.procurenow.com/portal/lcfla/projects/8589>).
3. An abstract summary of submitted bids will be made available to all respondents following Respondent Qualifications Proposal opening.

**C. SUBMITTAL REQUIREMENTS**

1. The Qualifications Proposal shall be bound with the information, paper size and page limitation requirements as listed herein.
2. Qualifications Proposal must be submitted, in PDF format, including bookmarks for each section. Bookmarks which provide links to content within the Qualifications Proposal are allowed. Bookmarks which provide links to information not included within the content of the Qualifications Proposal shall not be utilized. No macros will be allowed.
3. Paper size: 8½" x 11". The maximum number of pages shall be 30, single-sided, typed pages including text, graphics, tables, charts, and photographs. Double-sided 8½" x 11" sheets will be counted as 2 pages. 11"x17" sheets are prohibited.
  - a. Minimum font size of ten (10) shall be used.
  - b. Times New Roman shall be the required font type.
4. Only upon request by the Owner, provide calculations, studies and/or research to support features identified in the Qualifications Proposal. This only applies during the Qualifications Proposal Evaluation phase.
5. To facilitate the evaluation, respondent shall submit and organize all responses in the same order as listed below. The City only accepts proposals in digital format, uploaded to Owner's Bid Website, and does not accept proposals submitted via any other method.
6. Submittals shall be limited to no more than 30 single sided sheets, not including representative projects.
7. Late proposals will not be accepted.
8. The minimum information to be included:

- a. Cover Letter. Include a cover letter introducing your company, summarizing your qualifications, and detailing any exceptions to this proposal (please note that significant exceptions may make your proposal non-responsive). This letter should also provide principal contact information for this proposal, including address, telephone number, fax number, e-mail, and website (if applicable).
- b. Company Information
  - 1) Provide the following information as listed: Company Name, Address, Phone Number, and Names of Principals.
  - 2) Identify the year in which your company was established.
  - 3) Describe any pending plans to sell or merge your company.
- c. Use of Subcontractors/Partners. There may be areas for use of subcontractors or partners in this project. If you are utilizing this approach, your proposal must list the subcontractors/partners, services to be provided, and include all other applicable information herein requested for each subcontractor/partner. Please keep in mind that the City will contract solely with your company, therefore subcontractors/partners remain your sole responsibility.
- d. Project Approach. Describe how the proposed design solutions and construction means and methods meet the project needs described herein. Provide sufficient information to convey a thorough knowledge and understanding of the project and to provide confidence the design and construction can be completed as proposed.

## **1.06 PRICE PROPOSAL REQUIREMENTS**

### **A. GENERAL**

1. Each Design-Build Firm being considered for this Project is required to submit a Price Proposal.
2. Refer to item 1.07 for process and consideration of bids.

### **B. SUBMISSION PROCEDURE**

1. Respondents shall be solely responsible for the delivery of their technical proposals in the manner and time prescribed.
2. Submit (upload) one (1) digital copy of Price Proposal and associated documents to the owner's bid site (<https://secure.procurenow.com/portal/lcfla/projects/8589>).
3. An abstract summary of submitted bids will be made available to all respondents following the Bidder Price Proposal opening.

### **C. BID INELIGIBILITY**

1. Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may at the discretion of the Owner, be declared unacceptable.
2. Bid Forms, Appendices, and enclosures that are improperly prepared may, at the discretion of Owner, be declared unacceptable.
3. Failure to provide security deposit, bonding or insurance requirements may, at the discretion of Owner, be waived.
4. The enclosed documents must be executed and returned with bid proposal or the proposal may be considered non-responsive. (Conflict of Interest Statement, Disputes Disclosure Form, Drug Free Workplace Certificate, Non-Collusion Affidavit of Proposer, References, Public Entity Crime Statement and E-Verify Affirmation Statement.)
5. Late proposals will not be accepted.

### **D. SUBMITTAL REQUIREMENTS**

1. Complete all requested information in the Bid Form and Appendices.

2. Security Deposit
    - a. Bids shall be accompanied by a security deposit as follows:
      - 1) Bid Bond of a sum no less than 5 percent of the Bid Amount.
    - b. The security deposit will be returned after delivery to the Owner of the required Performance and Payment Bond(s) by the accepted respondent.
    - c. Include the cost of bid security in the Bid Amount.
    - d. After a bid has been accepted, all securities will be returned to the respective respondents and other requested enclosures.
    - e. If no contract is awarded, all security deposits will be returned.
  3. Performance Assurance
    - a. Accepted Respondent: Provide a Performance and Payment bond.
    - b. Include the cost of Performance Bond in the Bid Amount and identify the cost when requested.
  4. Fees for Changes in the Work.
    - a. Include in the Bid Form, the overhead and profit fees on own Work and Work by subcontractors, applicable for Changes in the Work, whether additions to or deductions from the Work on which the Bid Amount is based.
  5. Additional Bid Information
    - a. Submit the following Supplements concurrent with bid submission:
      - 1) Document 00 43 22 - Unit Prices Form: Include a listing of unit prices specifically requested by Contract Documents.
      - 2) Document 00 43 23 - Alternates Form: Include the cost variation to the Bid Amount applicable to the Work described in Section 01 23 00 - Alternates and indicated on Drawings.
      - 3) Document 00 43 27 - Separate Prices Break-Out Form: Include a listing of separate prices as specifically requested in the Contract Documents.
    - b. Selection and Award of Alternates
      - 1) Indicate variation of bid price for Alternates listed in Alternates Form. Unless otherwise indicated, indicate Alternates as a difference in bid price by adding to or deducting from the base bid price.
- E. OFFER ACCEPTANCE/REJECTION
1. Duration of Offer
    - a. Bids shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the bid closing date.
  2. Acceptance of Offer
    - a. Owner reserves the right to accept or reject any or all offers.
    - b. After acceptance by Owner, Owner's Representative on behalf of Owner, will issue to the successful respondent, a written letter of Contract Award.

## **1.07 CONSIDERATION OF QUALIFICATIONS AND PRICE PROPOSALS**

### **A. GENERAL**

1. The Owner shall evaluate the written Qualifications Proposal by each Design-Build Firm. The Design-Build Firm shall not discuss or reveal elements of the price proposal in the written qualifications proposals. Price proposals will only be reviewed after consideration of the Qualifications Proposals are completed and three (3) firms, with highest scores, have been identified as "shortlisted".
2. Price proposals shall include one lump sum price for all design, geotechnical surveys, and construction of the proposed project, and all other data required to complete the project.

- (provide schedule of values, stipulated prices, unit prices, etc. on bid forms)
3. A proposal is irregular or non-responsive if it does not meet the requirements of Contract Documents and may be rejected by the Owner's Representative.
  4. The respondent will be required to identify the Architect/Engineer of Record, who will be responsible for the final design portion on the Contract.
  5. In evaluating Price Proposals, Owner will consider whether or not the Price Proposals comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in Contract Documents or prior to Notice of Award.
  6. In the comparison of Price Proposals, alternates will be applied in the same order of priority as listed in the Bid Forms (alternates form). To determine the Bid prices for purposes of comparison, Owner shall announce to all respondents a "Base Bid plus Alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Forms, until doing so would cause the budget to be exceeded. After determination of the Successful Respondent based on this Comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Respondent on its base Bid and any combination of its additive alternative Bids for which the Owner determines funds will be available at the time of award.

**B. SCHEDULE OF EVENTS**

1. Below is the current schedule of the events that will take place in the procurement process. The Owner reserves the right to make changes or alterations to the schedule as the Owner determines is in the best interest of the City. Respondents will be notified sufficiently in advance of any changes or alterations in the schedule. Unless otherwise notified in writing by the Owner, the dates indicated below for submission of items or for other actions on the part of the Respondent shall constitute absolute deadlines for those activities and failure to comply by the time stated may cause the Respondent to be disqualified.

<b>Date</b>	<b>Event</b>
4/1/2021	Advertisement
4/1/2021	Plans (Contract Documents) Available
4/15/2021	Mandatory Pre-Bid Meeting at 11am
5/4/2021	Deadline for submittal of Questions (5pm)
5/11/2021	Deadline for Owner to post responses and/or final Addendum (5pm)
5/18/2021	Bid Opening at 11am
5/18-21/2021	Selection Committee to review respondent qualifications
5/27/2021	Interview respondents, if necessary
5/28/2021	Shortlist posting date (3 highest qualified respondents)
6/1/2021	Public opening of price proposals from 3 highest qualifying respondents
6/1-2/2021	Review Price Proposals and Determine highest qualified low respondent
6/21/2021	Recommendation to City Council to award highest qualified low respondent
6/21/2021	Anticipated Award/Execution Date

**C. EVALUATION CRITERIA**

1. Qualifications score for each Design-Build Firm will be based on the following criteria:

<b>Item</b>	<b>Value</b>
1. Company and Personnel Experience	35
2. Project Approach	25
3. Innovation	10
4. Value Added	10
5. Schedule	20
<b>Maximum Score</b>	<b>100</b>

2. The following is a description of each of the above referenced items:

- a. Company and Personnel Experience (35 points)
- 1) The Design-Build Firm to address the following in the Qualifications Proposal:
    - (a) Demonstration of the necessary experience, organization, and technical qualifications for the proposed work.
    - (b) List key personnel that will be committed to this project, their resumes, describe their role and title, and availability for contract duration (include in appendices).
    - (c) Provide completed representative projects of similar nature. Include Owner contact information, key personnel assigned, pertinent project information, timeliness of completion, costs control. The City reserves the right to contact the references provided in your proposal as well as other references without prior notification to you.
    - (d) Describe how your team has collaborated successfully on previous projects.
- b. Project Approach (25 points)
- 1) The Design-Build Firm to address the following in the Qualifications Proposal:
    - (a) Explain your understanding of the project objectives.
    - (b) Describe your philosophy to develop and deploy construction techniques that enhance project durability, reduce long term and routine maintenance, and those techniques which enhance public and occupant safety.
    - (c) Describe coordination efforts that will be made to minimize the potential for adverse impacts and project delays.
    - (d) Describe design/construction approaches which shall minimize periodic and routine maintenance.
    - (e) Describe specific project challenges you anticipate and how you propose to resolve these challenges.
    - (f) How will your team manage quality control throughout the completion of the project?
- c. Innovation (10 points)
- 1) The Design-Build Firm to address their approach to innovative design approaches and construction techniques in the Qualifications Proposal. Potential areas include, but are not limited to, the following:
    - (a) Materials.
    - (b) Workmanship.
    - (c) Enhance Design and Construction aspects.
- d. Value Added (10 points)
- 1) The Design-Build Firm to address the following Value Added features in the Qualifications Proposal:

- (a) Exceeding minimum material requirements to enhance durability of project components.
    - (b) Providing additional Value Added project features proposed by the Design-Build Firm.
    - (c) Provide the term, measurable standards, and work plan for any proposed Value Added features.
  - e. Schedule (20 points)
    - 1) Provide a Written Schedule Narrative that describes the Design and Construction phases and illustrates how each phase will be scheduled to meet the Project needs required of this Project
    - 2) The Design-Build Firm is encouraged to identify opportunities to expedite completion as well as associated time savings.
- D. SELECTION FOR DESIGN-BUILD CONTRACT
  - 1. The Owner shall publicly open the price proposals, for the shortlisted Firms, and calculate an adjusted score using the following formula:
 

**BBP/QS = Adjusted Score**

*BPP = Bid Price Proposal*

*QS = Qualifications Score (Combined Scores from Selection Committee based on Qualifications Proposal)*
  - 2. After the Qualifications Scores are calculated and Shortlist is complete, the Owner will hold a public meeting for the announcement of the Qualifications Scores and opening of sealed Bid Price Proposals. Following announcement of the Qualifications Scores, the sealed Bid Price Proposals will be opened and the adjusted scores calculated. The Owner will document the preliminary bid results as presented in the meeting.
    - a. The Selection Committee should meet a minimum of two (2) calendar days (excluding weekends and Owner observed holidays) after the public opening of the Qualifications Scores and Bid Price Proposals.
    - b. The Selection Committee will review the Qualifications Scores and the Bid Price Proposal of each Shortlisted Proposer as to the apparent lowest adjusted score and make a final determination of the lowest adjusted score. The Selection Committee has the right to correct any errors in the evaluation and selection process that may have been made.
    - c. The Owner is not obligated to award the contract and the Selection Committee may decide to reject all proposals. If the Selection Committee decides not to reject all proposals, the contract will be awarded to the Proposer determined by the Selection Committee to have the lowest adjusted score.
  - 3. The Owner reserves the right to consider any proposal as non-responsive if any part of the Qualifications Proposal does not meet established codes and criteria.

## 1.08 BID DOCUMENTS AND CONTRACT DOCUMENTS

### A. DEFINITIONS

- 1. Bid Documents: Contract Documents supplemented with Invitation To Bid, Bid Form Supplements To Bid Forms and Appendices identified.
- 2. Bid, Offer, or Bidding: Act of submitting an offer under seal.
- 3. Bid Amount: Monetary sum identified by the Respondent in the Bid Form.

### B. AVAILABILITY

- 1. Bid documents may be obtained at Owner's Bidding Website (<https://secure.procurenw.com/portal/lcfla/projects/8589>).



2. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes.
- C. EXAMINATION
1. Upon receipt of Bid Documents verify that documents are complete. Notify Owner's Representative should the documents be incomplete.
  2. Immediately notify Owner's Representative upon finding discrepancies or omissions in the Bid Documents.
- D. INQUIRIES/ADDENDA
1. Direct questions through the Owner's Bidding Website.
  2. Addenda may be issued during the bidding period. All Addenda become part of Contract Documents. Include resultant costs in the Bid Amount.
  3. Verbal answers are not binding on any party.
  4. Clarifications requested by respondents must be in writing not less than 7 days before date set for receipt of bids. The reply will be in the form of an Addendum, a copy of which will be posted on the Owner's Bidding Website.
- E. PRODUCT/ASSEMBLY/SYSTEM SUBSTITUTIONS
1. When a request to substitute a product is made, Owner's Representative may approve the substitution and will issue an Addendum to known respondents.
  2. In submission of substitutions to products specified, respondents shall include in their bid all changes required in the work and changes to Contract Time and Contract Sum to accommodate such substitutions. A later claim by the respondent for an addition to the Contract Time or Contract Sum because of changes in work necessitated by use of substitutions shall not be considered.
  3. The submission shall provide sufficient information to determine acceptability of such products.
  4. Provide products as specified unless substitutions are submitted in this manner and accepted.

### **1.09 SITE ASSESSMENT**

- A. SITE EXAMINATION
1. Examine the project site before submitting a bid.
- B. PREBID CONFERENCE
1. A respondents conference has been scheduled as indicated in Section 00 11 13 - Advertisement for Bids.
  2. Representatives of Owner's Representative will be in attendance.
  3. Attendance at the pre-bid meeting is mandatory. Firms failing to attend will be deemed non-responsive and eliminated from further consideration. The purpose of the meeting is to provide a forum for the Owner to discuss with all concerned parties the proposed project, the design and construction criteria, schedule, instructions for submitting proposals, design exceptions, design variations, and other relevant issues. In the event that any discussions at the pre-bid meeting require official additions, deletions, or clarifications, the Owner will issue a written addendum as appropriate. No oral representations or discussions, which take place at the pre-bid meeting, will be binding on the Owner. Respondents shall direct all questions to the Owner's Bid Site.
    - a. All respondents must be present and signed in prior to the start of the mandatory pre-bid meeting. The Owner or Owner's Representative will circulate the attendee sign-in sheet at the time the meeting was advertised to begin. Once all respondents have signed, the sign in sheet will be taken and the meeting will "Officially" begin.

Any respondent not signed in at the "Official" start of the meeting will be considered late and will not be allowed to propose on the Project.

4. Summarized minutes of this meeting will be circulated to all known bidders. These minutes will form part of Contract Documents.
5. Information relevant to the Bid Documents will be recorded in an Addendum, issued to Bid Document recipients through owner's bidding website.

**END OF SECTION**

**SECTION 00 31 00 - AVAILABLE PROJECT INFORMATION****PART 1 GENERAL****1.01 EXISTING CONDITIONS**

- A. Site and Utility Survey: Entitled Map of Boundary & Topographic Survey, dated January 7, 2021.
  - 1. This survey identifies grade elevations prepared primarily for the use of Owner's Representative in establishing new grades and identifying natural water shed.
- B. Geotechnical Report: Entitled Geotechnical Engineering Exploration Report, dated January 5, 2021.
  - 1. This report identifies properties of below grade conditions and offers recommendations for the design of foundations, prepared primarily for the use of Owner's Representative.
  - 2. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from this report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the Contract Sum accruing to Owner.
- C. Geophysical Investigation: Entitled Geophysical Investigation, dated December 30, 2020.
  - 1. This report summarizes and presents the results of the geophysical investigation performed at the project site. The purpose of the geophysical investigation was to determine the presence and location of underground utilities and suspected buried debris areas within the project site. The survey was prepared primarily for the use of the Owner's Representative.
- D. Existing condition information provided is for Design-Builder's information and use. It is the Design-Builder's responsibility to determine if additional site evaluations are required and to include necessary costs in base bid. Cost for additional site investigations will not be allowed after bid.

**PART 2 PRODUCTS (NOT USED)****PART 3 EXECUTION****3.01 OBTAINMENT OF PERMITS**

- A. Owner will obtain the following permits, at no cost to the Design-Builder:
  - 1. Building Permit for all trades.
- B. Building Permit Procedures: When required to obtain this permit:
  - 1. Complete and file permit application(s) with appropriate agency.
  - 2. Advise Owner's Representative if submission of modified documents is necessary to have the authorities having jurisdiction complete the plan review and approval process. Submit modified documents expeditiously.
  - 3. Do not commence execution of any item of work for which a permit has not been obtained.

**END OF SECTION**

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**SECTION 00 41 00 - BID FORM**

**THE PROJECT AND THE PARTIES**

**1.01 TO:**

- A. City of Lake City (Owner)  
205 N. Marion Ave  
Lake City, FL 32055

**1.02 FOR:**

- A. Lake City Fire Station No 2  
383 NW Hall of Fame Dr.  
Lake City, Florida 32055
- B. Project Number: 20203034.0001

**1.03 DATE: \_\_\_\_\_ (BIDDER TO ENTER DATE)**

**1.04 SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)**

- A. Bidder's Full Name \_\_\_\_\_
  - 1. Address \_\_\_\_\_
  - 2. City, State, Zip \_\_\_\_\_

**1.05 OFFER**

- A. Pursuant to, and in compliance with your Invitation to Bidders and the Information to Bidders relative thereto and all of the Contract Documents, including any Addenda issued by the Owner's Representative and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not, we,

\_\_\_\_\_ hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to the **WORK** as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled Lake City Fire Station No 2 all to the satisfaction and approval of the Owner's Representative and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

**BASE BID (GUARANTEED MAXIMUM PRICE):**

\_\_\_\_\_ dollars (\$ \_\_\_\_\_), in lawful money of the United States of America.

**1.06 BIDDERS BID SUBMISSION CHECKLIST:**

- The lump sum Bid price shall include all costs for all design, geotechnical surveys, architectural services, engineering services, construction of the Project, and all other work necessary to fully and timely complete the Project in accordance with the Contract Documents, as well as all job site and home office overhead, and profit, it being understood that payment of that amount for that portion of the Project will be full, complete, and final compensation for the work required to complete that portion of the Project.
- We have included the required security Bid Bond as required by the Instruction to Bidders, in the amount of 5% of the base bid.
- All applicable federal taxes are included and State of Florida taxes are included in the Bid Sum.
- All Cash Allowances described in Section 01 21 00 - Allowances are included in the Bid Sum.

- Include unit price items in the Bid Sum and complete 00 43 22 - Unit Prices Form.
- Items described in Section 00 43 27 - Separate Prices Break-Out Form are included in the Bid Sum.
- Do not include alternates in Base Bid Sum. Provide price for Alternates on Alternates Form.
  - Refer to Section 01 23 00 - Alternates and Drawings for description and scope of Alternates.
- Bidder Read and Understands Advertisement and Requirements.
- Site Visit Performed by Bidder.
- Bidder is licensed to do work in Florida.
- Bid forms completed and calculated correctly.
- Bidder Read and Understands included Florida Public Records Law.

### **1.07 ACCEPTANCE**

- A. This offer shall be open to acceptance for sixty days from the bid closing date.
- B. If this bid is accepted by Owner within the time period stated above, we will:
  - 1. Execute the Agreement within seven days of receipt of Notice of Award.
- C. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.
- D. In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

### **1.08 CONTRACT TIME**

- A. If this Bid is accepted, we will:
  - 1. Complete the Work by the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_. (Bidder to enter day, month, and year. Date given reflects bidders expected date for Substantial Completion.)

### **1.09 CHANGES TO THE WORK**

- A. When Owner's Representative establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions.
  - 1. \_\_\_\_\_ percent overhead and profit on the net cost of our own Work;
  - 2. \_\_\_\_\_ percent on the cost of work done by any Subcontractor.
- B. On work deleted from the Contract, our credit to Owner shall be Owner's Representative-approved net cost plus \_\_\_\_\_ of the overhead and profit percentage noted above.

### **1.10 ADDENDA**

- A. Any addenda will be issued through the City's Procurenow Website and shall become part of the Contract Documents.
- B. Bidders are to acknowledge receipt of each addenda on the ProcureNow website. By acknowledging addenda, the Bidder certifies that modifications to the Bid Documents have been considered and all costs are included in the Bid Sum.

### **1.11 BID FORM SUPPLEMENTS**

- A. The following Supplements are attached to this Bid Form and are considered an integral part of this Bid Form:
  - 1. Document 00 43 22 - Unit Prices Form: Include a listing of unit prices specifically requested by Contract Documents.

2. Document 00 43 23 - Alternates Form: Include the cost variations to the Bid Sum applicable to the Work as described in Section 01 23 00.
3. Document 00 43 27 - Separate Prices Break-Out Form: Include a listing of separate prices as specifically requested in Contract Documents.

**1.12 BIDDER (TYPE OF BUSINESS)**

- A. The undersigned hereby represents that it is a \_\_\_\_\_ (Corporation, Partnership or Individual). If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws and Statutes of the State of Florida and it is authorized to do business in this State.
- B. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed or delivered.

\_\_\_\_\_  
(Name of Contact Person)

\_\_\_\_\_  
(Telephone)

\_\_\_\_\_  
(Email)

**1.13 BID FORM SIGNATURE(S)**

\_\_\_\_\_  
(Bidder - print the full name of your firm)

\_\_\_\_\_  
(Authorized signing officer - Print Name and Title)

\_\_\_\_\_  
(Authorized signing officer - Signature)

Date: \_\_\_\_\_

**END OF SECTION**

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**SECTION 00 43 22 - UNIT PRICES FORM**

**PARTICULARS**

**THE FOLLOWING IS THE LIST OF UNIT PRICES REFERENCED IN THE BID SUBMITTED BY:**

**(BIDDER) \_\_\_\_\_**

**DATED \_\_\_\_\_ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.**

**THE FOLLOWING ARE UNIT PRICES FOR SPECIFIC PORTIONS OF THE WORK AS LISTED, AND ARE APPLICABLE TO AUTHORIZED VARIATIONS FROM THE CONTRACT DOCUMENTS.**

**UNIT PRICE LIST**

**2.01 ITEM #1:**

- A. Description: Structural Fill material as defined on C-104 and recommended in Geotechnical Report.
- B. Quantity: 300 Cubic Yards
- C. Unit Price: \$ \_\_\_\_\_
- D. Total Value: \$ \_\_\_\_\_

**END OF SECTION**

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**SECTION 00 43 23 - ALTERNATES FORM**

**PARTICULARS**

**THE FOLLOWING IS THE LIST OF ALTERNATES REFERENCED IN THE BID SUBMITTED BY:**

**(BIDDER) \_\_\_\_\_**

**DATED \_\_\_\_\_ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.**

**ALTERNATES LIST**

**2.01 THE FOLLOWING AMOUNTS (IF AWARDED) SHALL BE ADDED TO THE BID AMOUNT. REFER TO SECTION 01 23 00 - ALTERNATES.**

**ALTERNATE # 1 (OUT BUILDING): ADD \$ \_\_\_\_\_**

**ALTERNATE # 2 (APPARATUS BAY DOORS): ADD \$ \_\_\_\_\_**

**END OF SECTION**

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**SECTION 00 43 27 - SEPARATE PRICES BREAK-OUT FORM**

**PARTICULARS**

**THE FOLLOWING IS THE LIST OF SEPARATE PRICES REFERENCED IN THE BID SUBMITTED BY:**

**(BIDDER)** \_\_\_\_\_

**DATED** \_\_\_\_\_ **AND WHICH IS AN INTEGRAL PART OF THE BID FORM.**

**ITEM DESCRIPTIONS**

**5.01 ITEM # 1:**

- A. Description: Gear Washer and Gear Dryer
- B. Value: \$ \_\_\_\_\_

**5.02 ITEM # 2:**

- A. Description: Generator
- B. Value: \$ \_\_\_\_\_

**5.03 ITEM # 3:**

- A. Description: Ice Machine
- B. Value: \$ \_\_\_\_\_

**END OF SECTION**

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**SECTION 00 50 00 - CONTRACTING FORMS AND SUPPLEMENTS**

**PART 1 GENERAL**

**1.01 AGREEMENT AND CONDITIONS OF THE CONTRACT**

- A. The Agreement and General Conditions are based on AIA A141.

**1.02 FORMS**

- A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in the Contract Documents.
- B. Bond Forms:
  - 1. Bid Bond Form: AIA A310.
  - 2. Performance and Payment Bond Form: AIA A312.
- C. Post-Award Certificates and Other Forms:
  - 1. Schedule of Values Form: AIA G703.
  - 2. Application for Payment Form: AIA G742 with AIA G743 (for Design-Build Project).
- D. Clarification and Modification Forms:
  - 1. Substitution Request Form: CSI/CSC Form 13.1A (After the Bidding/Negotiating Stage).
  - 2. Change Order Form: AIA G701.
- E. Closeout Forms:
  - 1. Certificate of Substantial Completion Form of a Design-Build Project: AIA G744.

**1.03 REFERENCE STANDARDS**

- A. AIA A141 - Standard Form of Agreement Between Owner and Design-Builder 2014.
- B. AIA A310 - Bid Bond 2010.
- C. AIA A312 - Performance Bond and Payment Bond 2010.
- D. AIA G701 - Change Order 2017.
- E. AIA G703 - Continuation Sheet 1992.
- F. AIA G742 - Application and Certificate for Payment for a Design-Build Project 2015.
- G. AIA G743 - Continuation Sheet - Design-Build Project 2015.
- H. AIA G744 - Certificate of Substantial Completion for a Design-Build Project 2014.
- I. CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase) Current Edition.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

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**SECTION DC 0 - FACILITY DESIGN CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. The construction consists, generally, of a new building.
- B. The occupancy is public service facility consisting of a fire station.

**1.02 RELATED REQUIREMENTS**

- A. Section 00 21 13 - Instructions to Respondents.
- B. Section 00 31 00 - Available Project Information: Additional information about existing conditions.
- C. Section DC A - Substructure Criteria.
- D. Section DC B - Shell Criteria.
- E. Section DC C - Interiors Criteria.
- F. Section 01 30 50 - Design Procedures and Substantiation Requirements.

**1.03 DEFINITIONS**

- A. Code: The code referred to herein consists of various applicable local, state, and federal regulations, and the following:
  - 1. Applicable Construction Codes: The following documents are incorporated into the definition of "the code" for the purposes of this project and shall be the year and edition of the code required or deemed acceptable by the Authority Having Jurisdiction.
    - a. ICC (IBC) - International Building Code.
    - b. FBC - Florida Building Code
- B. Exterior Enclosure: Non-structural vertical exterior elements, including openings and elements closing or covering openings, comprising the exterior skin, the structure supporting the skin unless part of the superstructure, weather barriers, balcony walls and railings, parapets, joint sealers, insulation, exterior ceilings and soffits, and wall mounted appurtenances, but not including the interior finish unless an integral part of the enclosure.
- C. Exterior Surfaces Exposed to View: Surfaces visible from street or ground level, plus surfaces visible from windows of same building and adjacent existing buildings.
- D. Fire Suppression: Automatic fire sprinklers, standpipes, and extinguishing systems.
- E. Fixtures: Fixed elements used by occupants in the functioning of the project but not necessarily having services connections.
- F. Furnishings: Movable elements used by occupants in the functioning of the project, not requiring services connections; not site furnishings.
- G. General Equipment: Equipment that could occur in buildings of any occupancy, such as fire protection specialties, loading dock equipment, solid waste handling equipment and chutes, anchorage systems for working on the roof, and built-in vacuum system.
- H. HVAC: Artificial means of maintaining interior space comfort and air quality, including heating, cooling, ventilation, and energy supply.
- I. Information Specialties: Fixed elements relating to communications but not part of communications services, such as signs and other identifying devices (including those mounted on the roof, exterior walls, or in the site), visual display surfaces, including projection screens, and fixed mountings and enclosures for communications equipment.
- J. Interior Finishes: Applied finishes on the interior of the building, including on the interior side of exterior wall elements; wall finishes, including wall bases, trim, corner guards and other protection; floor finishes, including recessed mats and grilles; suspended ceilings and soffits,

applied ceiling finishes; stair finishes and other finishes.

- K. Interiors: Elements necessary to subdivide and finish the enclosed space, including partitions, doors, interior windows and other openings, stairs, finishes, and specialties, except specialties, fittings, or appurtenances associated with services and specialized equipment.
- L. Landscaping: Plants and turf throughout the site, and elements that contribute to their maintenance, such as irrigation.
- M. Plumbing: Means of delivery of water to points of utilization; automatic heating and conditioning of domestic water; and unattended removal of water, rainwater, and liquid waste.
- N. Proven-by-Mock-Up: See Section 01 30 50 - Design Procedures and Substantiation Requirements.
- O. Proven-in-Use: See Section 01 30 50 - Design Procedures and Substantiation Requirements.
- P. Residential Equipment: Equipment that most often occurs in residential occupancies but which could occur in any other occupancy, including manufactured fireplaces and stoves, kitchen appliances, laundry appliances, saunas and steam baths.
- Q. Roofing: Elements forming weather barriers at the sloped or essentially flat weather-proof enclosure over the entire "top side" of the building, including elements from the top of the deck up, roof coverings, gutters and downspouts, wearing surfaces, roof openings and elements that close openings, such as skylights, vents, and hatches, and roof mounted appurtenances.
- R. Security Zones:
  1. Reception Zone: (Lobby Only) The area to which the general public has access but beyond which access is restricted at all times.
  2. Operations Zone: (Remainder of Building) The area to which only employees and visitors with a legitimate reason to be there have access.
- S. Shell: The superstructure, exterior vertical and horizontal enclosures, and roofing.
- T. Site Specialties and Equipment: Various types of elements installed outdoors, primarily fixed or permanently mounted, such as fences and other barriers, athletic fixtures and equipment, miscellaneous minor structures, site furnishings, and flagpoles (including those mounted on roof or exterior wall).
- U. Site Improvements: Pavements and surfacing, site fixtures and equipment, landscaping, and tunnels that are not part of substructure or a utility structure applicable to a single utility.
- V. Site Elements and Work: Modifications to the site, site improvements, and site portions of services (i.e. utilities).
- W. Storage Specialties: Fixed storage elements, usually modular, and to some extent relocatable, including built-in cabinetry, wardrobe units, lockers, anchored utility shelving, mailboxes and other postal specialties except in post offices.
- X. Substantiation: See Section 01 30 50 - Design Procedures and Substantiation Requirements.
- Y. Substructure: Elements below grade and in contact with the ground.
- Z. Superstructure: Elements of floor and roof construction above grade, and elements required for support, including structural frame and load-bearing walls, and including fireproofing and firestopping, and vapor retarders and air barriers when an integral part of the structure.
- AA. Window Treatment: Fixed elements that control view and natural light, for both exterior and interior openings, such as blinds, shades, shutters, curtain tracks (but not the curtains).

#### **1.04 FIELD CONDITIONS**

- A. Project Site: The project site is currently a vacant parking lot and shared parking for adjacent library..
- B. Do not enter, cross, infringe upon, or limit access to adjacent property without first obtaining written permission from the property owner.

**PART 2 PRODUCTS (NOT USED)****PART 3 DESIGN CRITERIA****3.01 BASIC FUNCTION**

- A. Code: Make every portion of the project comply with applicable code.
- B. Provide built elements and site modifications required to fulfill needs described in the project program and as specified.
- C. Provide permanently enclosed spaces for each functional area included in the project program, unless otherwise indicated.
- D. Provide a physical enclosure that keeps out weather, unwelcome people, animals, and insects without requiring specific action by occupants, while providing convenient movement of occupants between inside and outside, desirable natural light, and views from inside to outside.
- E. Provide appropriately subdivided interiors with level floor areas, comfortable ceiling heights, essentially vertical walls, finishes, and specialties and fixtures suitable for the occupancy
- F. Substantiation: Provide the substantiation specified in Section 01 30 50 - Design Procedures and Substantiation Requirements for built elements and products used, whether or not specifically itemized for that element or product.

**3.02 AMENITY AND COMFORT CRITERIA**

- A. Public Amenity: Conduct operations so as to cause minimum annoyance of the public and adjacent property owners and tenants.
- B. Environmental Responsibility:
  - 1. In addition to other requirements, provide design and construction that minimizes adverse effects on the exterior environment, enhances the quality of the indoor environment, and minimizes consumption of energy, water, construction materials, and other resources.
- C. Thermal Performance: Design and construct to provide comfortable interior environment in accordance with the code.
  - 1. Shell: Provide construction that will have thermal resistance as necessary to maintain interior comfort levels specified and in accordance with code.
- D. Natural Light: Provide fenestration in shell as required to meet requirements for natural light in accordance with code.
- E. Ventilation:
  - 1. Natural Ventilation: Design and construct shell to provide natural ventilation in accordance with code.
  - 2. Equipment Producing By-Product Heat: Ventilate housings and cabinets as required by equipment manufacturer and rooms and spaces as required to maintain specified environmental conditions.
- F. Condensation Resistance: Prevent condensation from forming on interior elements under normal thermal and humidity conditions inside building.
  - 1. Exception: Provide insulated drain pans and piping to remove condensation from cooling coils.
- G. Odors: Eliminate, isolate, or exhaust odors produced by occupant functions and building services.
- H. Sound Transmission and Vibration Resistance:
  - 1. Shell: Design and construct the shell to limit sound transmission as follows:
    - a. Ambient Sound Level: Maintain ambient sound levels in perimeter spaces within Noise Criteria (NC) ranges specified in Section DC C - Interiors Criteria during normal

- hours of occupancy.
  - b. Exterior Noise Level: Maintain maximum average daytime and nighttime noise level from interior sound sources in accordance with local regulations, measured at the project property line.
  - c. Vibration Control: Use shell elements that will not resonate at frequencies that are characteristic of ambient exterior sound sources at the project site.
2. Services:
- a. Maintain the sound transmission characteristics of assemblies through which services must pass.
  - b. Prohibited Plumbing Noises: Any and every sounds of flushing and of liquid running through pipes ("bathroom sounds") are prohibited outside of the rooms housing toilets, bathtubs, and showers, with the exception of when doors to those rooms are open.
  - c. Equipment Noises: Noise level below that which will be objectionable, based on occupancy of spaces.
  - d. When services are located within assemblies that perform sound isolation functions, consider the noise produced by the service itself as one of the external sound sources.
3. Structure-Borne Sound and Vibration: Prevent transmission of perceptible sound and vibration from equipment that rotates, vibrates, or generates sound, by isolating such equipment from superstructure or by isolating equipment support foundations from building foundations.
- I. Cleanliness:
- 1. Exterior Surfaces: Design and select materials to:
    - a. Prevent attraction and adherence of dust and air-borne dirt and soot, and minimize appearance of settled dust and dirt.
    - b. Be washed reasonably clean by normal precipitation.
    - c. Prevent precipitation from washing settled dust and dirt over surfaces exposed to view.
  - 2. Services: Prevent accumulation of debris and dirt at floor mounted equipment, such as air handlers, chillers, pumps, switchgear, and panelboards by one or more of the following methods.
    - a. Provide 4 inch thick, concrete housekeeping pads.
    - b. Provide corrosion-resistant equipment stands.
- J. Appearance:
- 1. Exterior Appearance: Design and select materials to provide exterior appearance with characteristics as follows:
    - a. Matching Owner's concept design and rendering.
    - b. Concealing mechanical equipment, plumbing equipment, electrical equipment, and piping, conduit, and ducts from view from the street.
    - c. Concealing rooftop mechanical equipment, plumbing equipment, electrical equipment, and piping, conduit, and ducts from view from the street.
  - 2. Services Elements:
    - a. Conceal services elements from view to greatest extent possible , with exposed portions of simple, neutral design and color.
      - 1) Exception: Standard designs of manufacturers, without consideration for appearance, may be used for fire suppression sprinkler heads.

- 2) Exception: Exposed portions are acceptable in utility equipment, building maintenance, and automotive areas.
  - 3) Where exposed portions are acceptable, do not obstruct or diminish clear dimensions of doorways, windows, other operable openings, access panels and cabinet doors, or passageways, stairs, and other exitways.
  - 4) Where exposed piping is acceptable, install it close to walls and overhead structure, parallel and square to finished construction, plumb and nominally horizontal (except where required to slope for drainage).
- b. Cover annular spaces around pipes, ducts, and conduits, where they pass through walls, ceilings, and floors with escutcheons or cover plates.
    - 1) Exception: Escutcheons not required in utility equipment, building maintenance, and automotive areas, provided annular spaces are filled completely.
  - c. Mountings: On finished surfaces, use concealed attachments with cover plates, frames, or trim overlapping finishes.

### 3.03 STRUCTURAL CRITERIA

- A. Structural Performance: Design and select materials to support loads without damage due to loads, in accordance with code. (Engineer shall be registered in the State of Florida)
  1. If design method is not specifically prescribed by code, design in accordance with ASCE 7.
  2. Design and provide shell elements to resist loosening or detachment in winds equivalent to the code design wind speed.
  3. Shell elements engineered by their manufacturer or fabricator, rather than by the engineer-of-record, shall comply with the following additional requirements:
    - a. Manufacturer/fabricator employs licensed structural engineer to accomplish design of structural elements.
    - b. Manufacturer/fabricator has minimum of 5 years experience in the design and manufacture of similar structures.
  4. Substantiation:
    - a. Proposal: Identification of major structural materials and systems.
    - b. Preliminary Design: Detailed listing of design criteria and preliminary analysis, prepared by a licensed structural engineer.
    - c. Construction Documents: Detailed design analysis by licensed structural engineer.
    - d. Construction Documents: Detailed design analysis by licensed structural engineer (for structures engineered by their manufacturer or fabricator, engineer-of-record may provide detailed design criteria, with design analysis postponed until construction stage).
    - e. Construction: For structures engineered by their manufacturer or fabricator, detailed design analysis prepared by and shop drawings stamped by a licensed structural engineer, with approval of engineer-of-record recorded.
- B. Services Components and Their Supports: In accordance with code.
  1. Safety Factor for Component Structural Elements: In accordance with applicable code.
  2. Anchors: Securely and positively attach facility services components to superstructure.
  3. Supports for Piping, Conduit, Ducts, and Other Services Components: Attached to, and supported by, the superstructure, not to or by non-structural construction or sheet metal elements, so that they do not move or sag, using the following:
    - a. Supports that allow movement of the rigid linear elements (pipe, etc.) without undue stress on the piping, tubes, fittings, components, or the superstructure.

- b. Intermediate supports mounted between structural members to limit distance between supports.
  - c. Supports capable of handling seismic forces in accordance with the code.
  - d. Mounting frames, bases, or pads, designed for ease of anchorage or mounting.
  - e. Rigid sway bracing at changes in direction of more than one-half of a right-angle for every pipe.
- C. Concealed or Buried Components: Design cover or concealment so that components are not subjected to damaging stresses due to applied loads.
- D. Construction Loads and Erection Stresses: Accommodate temporary construction loads and erection stresses during construction.

### **3.04 DURABILITY CRITERIA**

- A. Expected Service Life Span: Expected functional service life of the built portions of this project is 50 years.
- 1. Ducts, Piping, and Wiring in Facility Services: Same as the service life of the building.
  - 2. Components Permanently Installed Underground or Encased in Concrete: Not less than service life of building.
  - 3. Software and Firmware Integral to Operation of Services Equipment: Minimum 20 years functional life without reprogramming required.
  - 4. Service life spans of individual elements that differ from the overall project life span are defined in other sections.
- B. Water Penetration Resistance:
- 1. Shell: Design and select materials to prevent water penetration into the interior of shell assemblies, under conditions of rain driven by 35 mph (min.) wind and as required by Code.
    - a. Exception: Controlled water penetration is allowed if materials will not be damaged by presence of water or freezing and thawing, if continuous drainage paths to the exterior are provided, and water passage to the building interior is prevented.
    - b. Substantiation: In addition to requirements specified for proven-in-use and proven-by-mock-up construction, drawings showing paths of water movement, with particular attention to changes in direction or orientation and joints between different assemblies.
  - 2. Component Mountings: Where components are mounted to surfaces that are required to be moisture-resistant, seal mounting surface of components to finish surface so that moisture cannot penetrate under or behind component, using material that is not affected by presence of water, that is mildew-growth resistant, and that has a minimum service life of 10 years.
- C. Moisture Vapor Transmission Resistance: Design to prevent deterioration of materials due to condensation of moisture vapor inside assemblies.
- 1. Use supplementary vapor retarder if necessary to meet requirements.
  - 2. Use method of sealing joints between elements that will be effective given available construction practices.
- D. Corrosion Resistance: Prevent corrosion by using corrosion-resistant materials, by preventing galvanic action, by preventing contact between metals and concrete and masonry, and by preventing condensation on metals.
- 1. Separation of Dissimilar Metals:
    - a. Where different metals subject to galvanic action are exposed to weather or moisture, prevent direct contact between them.

- b. Piping Connections for Piping of Dissimilar Metals: Dielectric adapters.
2. Aluminum: Prevent direct contact of aluminum with concrete or cementitious materials.
3. Steel: Where permitted to be coated with other than zinc, zinc-alloy, or aluminum-zinc alloy, follow the recommendations of Society for Protective Coatings (SSPC) in regard to preparation for coating and coating type.
4. Outdoor Metal Elements Except in Contact with Soil: The following are considered corrosion-resistant metals:
  - a. Aluminum.
  - b. Stainless steel, Type 304 or 316.
  - c. Hot-dipped galvanized steel, with minimum zinc coating of 0.90 oz/sq ft total, both sides, or equivalent aluminum-zinc alloy coating.
  - d. Cadmium-plated steel, with minimum coating of 12 micrometers.
5. Indoor Metal Elements Potentially Exposed to Moisture: The following are considered corrosion-resistant metals:
  - a. Metals listed above for exterior exposure.
  - b. Brass and bronze, but not copper.
  - c. Cast iron, ductile iron, and malleable iron.
  - d. Steel coated with high-build epoxy or coal tar-based paint.
  - e. Chrome-plated steel.
6. Underground Metal Elements: Provide supplementary protection sufficient to prevent corrosion completely for the service life of the element without maintenance, unless otherwise.
  - a. Underground metal elements include, but are not limited to, pipes, tanks, conduits, ducts, structural members.
  - b. 3 inches of concrete cover is considered to be permanent protection.
  - c. Coatings or wrappings are not considered sufficient protection for the following types of elements:
    - 1) Underground elements subject to movement due to structural loads or thermal expansion or contraction.
    - 2) Metal elements buried in a soil environment known to cause corrosion on similar nearby structures.
    - 3) Metal elements buried in a soil environment in which stray DC electrical currents are present.
    - 4) Metal piping carrying petroleum products or other hazardous or toxic materials buried or otherwise installed without means of visual observation of entire exterior surface of piping.
    - 5) Metal tanks holding petroleum products or other hazardous or toxic materials buried or otherwise installed without means of visual observation of entire exterior surface of tank.
  - d. Cathodic protection is not considered sufficient protection.
- E. Weather Resistance: Design and select materials to minimize deterioration due to precipitation, sunlight, ozone, normal temperature changes, salt air, and atmospheric pollutants.
  1. Weather resistance requirements apply to components exposed to the outdoor environment, including services, unless specifically excepted; equipment enclosures are considered the equivalent of the exterior enclosure.
  2. Deterioration includes corrosion, shrinking, cracking, spalling, delamination, abnormal oxidation, decay and rot.

3. Surfaces Exposed to View: Deterioration adversely affecting aesthetic life span includes color fading, crazing, and delamination of applied coatings.
  4. Joint Components and Penetration Seals: Capable of resisting expected thermal expansion and contraction ; use overlapping joints that shed water wherever possible.
  5. Transparent Elements (Glazing): No haze, loss of light transmission, or color change, during entire expected service life.
  6. Service Temperature: Low temperature equal to historically-recorded low; high temperature equal to that expected due to any combination of air temperature and heat gain from solar and other sources.
  7. Freeze-Thaw Resistance: Adequate for climate of project.
  8. Ozone Resistance: Do not use materials that are adversely affected by ozone.
  9. Liquid Storage and Distribution Components: Prevent freezing during longest duration of low temperature anticipated, based on historical weather data; if necessary, provide automatically controlled supplemental heating.
  10. Buried Water Piping: Minimum of 6 inches below lowest recorded level at which the ground freezes.
  11. Services Passing From Inside to Outside: Openings through shell sealed as required to meet performance specified.
- F. Temperature and Humidity Endurance: Design equipment to endure temperature and humidity that will be encountered and to resist damage due to thermal expansion and contraction.
- G. Impact Resistance: Design and select materials to resist damage due to impact in accordance with code and the following:
1. Minimize damage from windborne debris propelled at up to 133 mph.
  2. Design and select materials to resist damage from hail of size up to 1/2 inch.
  3. Minimize damage due to potential vandalism.
  4. Natural Hazards: Design to resist damage from perching, nesting, and feeding birds.
- H. Accidental Damage Resistance:
1. Minimize potential for damage to built elements due to accidents.
  2. Accidental Water Leakage: Locate components that would be damaged by water leakage from pipes or through foundations or roof out of likely paths of water and at least 8 inches above floor level.
  3. Buried Components: Minimum of 12 inches below surface of ground.
  4. Underground Piping and Conduit: Watertight and rootproof.
  5. Finishes on Exposed Components Subject to Touching by Occupants: Durable enough to withstand regular scrubbing using ordinary methods.
  6. Equipment: Provide equipment which has been designed to prevent tampering.
  7. Underground Piping: Protect heating piping and chilled water piping from accidental damage with a warning tape buried 12 inches above the pipe.
- I. Wear Resistance: Design and select materials to provide resistance to normal wear-and-tear in accordance with code and the following:
1. Elements Within Reach of Pedestrians: Minimize degradation from rubbing and scratching caused by pedestrians.
  2. Minimize degradation caused by windblown sand and acid rain.
- J. Resistance to Biological Factors:
1. Animals: Do not use materials that are attractive to or edible by animals or birds.
  2. Insects: Do not use materials that are edible by insects, unless access by insects is prevented.



3. Wood: When wood is used, provide at least the protection recommended by AWPA as contained in AWPA U1.

**END OF SECTION**

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**SECTION DC A - SUBSTRUCTURE CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Facility substructure consisting of foundations, subgrade enclosures, slabs-on-grade, water and gas mitigation, and substructure related activities.
  - 1. Foundations: Standard and special structures responsible for transferring dead loads, live loads, and environmental loads of completed building to the earth in such a way that the building is supported evenly and without movement.
  - 2. Slabs-on-Grade: Structural slabs, individual pavers, that are installed over fill or at excavated and compacted grade, equipment bases, under floor drainage, foundation perimeter drainage, thermal insulation at floor edge, and moisture barriers installed integrally with floor system.
    - a. Slab Depressions: Include required trenches, pits, and sumps.
  - 3. Water and Gas Mitigation: Includes building subdrainage and off-gassing mitigation.
    - a. Building Subdrainage: Systems to collect moisture and water below grade usually located at perimeter of structure or below slabs. Includes excavation, perforated pipe, drainage boards, granular fill, and filter fabrics, and connection to storm sewerage systems or to daylight.
    - b. Off-Gassing Mitigation: Mitigation of gases from underground sources.
  - 4. Substructure Related Activities: Include substructure excavation, construction dewatering, excavation support, and soil treatment.
- B. Products: Where specific products are required or allowed, use products complying with the additional requirements specified elsewhere.

**1.02 RELATED REQUIREMENTS**

- A. Section DC 0 - Facility Design Criteria: Criteria that apply to every pertinent element of the facility.
- B. Section 01 30 50 - Design Procedures and Substantiation Requirements.

**1.03 REFERENCE STANDARDS**

- A. ACI 201.2R - Guide to Durable Concrete 2016.
- B. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.
- C. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers 2020.
- D. ASTM E1155M - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers (Metric) 2014.
- E. EPA/625/R-92/016 - Radon Prevention in the Design and Construction of Schools and Other Large Buildings 1994.

**PART 2 PRODUCTS AND METHODS****2.01 METHODS OF CONSTRUCTION**

- A. Use any of the following methods and techniques:
  - 1. Excavation, backfill, and compaction by machine or hand.

**2.02 FOUNDATIONS**

- A. Use one of the following:
  - 1. Concrete slab on grade throughout project.

2. Reinforced concrete spread footings throughout project.

### **2.03 FOUNDATION WALLS**

- A. Use one of the following:
  1. Reinforced concrete throughout project.
  2. Reinforced masonry throughout project.

### **2.04 FLOORS ON GRADE**

- A. Use one of the following:
  1. Concrete floor slabs throughout the project.

### **2.05 SUBSTRUCTURE RELATED ACTIVITIES**

- A. Fill:
  1. Use any of the following methods and techniques:
    - a. Structural fill.

## **PART 3 DESIGN CRITERIA**

### **3.01 BASIC FUNCTION**

- A. Provide substructure as required to support the completed and occupied building safely and without uncontrolled subsidence or other movement.
- B. Provide floors on grade as required to enclose habitable spaces and support interior functions without subsidence, structural cracking, or other uncontrolled movement.
- C. Prevent deterioration of loadbearing stratum due to accumulation of water in excavation.
- D. Where substructure is integral with elements defined within another element group, meet requirements of both element groups.
- E. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria.

### **3.02 AMENITY AND COMFORT CRITERIA**

- A. Thermal Performance: Provide thermal resistance as necessary to maintain interior comfort levels specified and in accordance with code.
  1. Vapor Retardation: Limit vapor transmission through floor construction to maximum rate of 0.1 perms at locations where impermeable applied interior finishes such as resilient flooring, wood flooring, or acrylic terrazzo are used.
    - a. Use supplementary vapor retarder if necessary to meet requirements.
    - b. Use method of sealing joints between vapor retarder elements that will be effective given available construction practices.
  2. Substantiation:
    - a. Preliminary Design: Identification of major thermal resistant materials and systems.
    - b. Construction Documents: Product data on thermal materials and details of construction to achieve required thermal performance.
- B. Water Accumulation: Prevent accumulation of water in open areas adjacent to substructure.
- C. Floor Flatness (FF): Provide floors on grade engineered and constructed to achieve degree of flatness as follows, when measured in accordance with ASTM E1155 (ASTM E1155M):
  1. Specified Overall Value (SOV): 35.
  2. Minimum Localized Value (MLV): 24.
- D. Floor Levelness (FL): Provide floors on grade engineered and constructed to achieve degree of levelness as follows, when measured in accordance with ASTM E1155 (ASTM E1155M):
  1. Specified Overall Value (SOV): 25.
  2. Minimum Localized Value (MLV): 17.

### 3.03 HEALTH AND SAFETY CRITERIA

- A. Fire Resistance: Design and select materials to provide fire resistance in accordance with code.
  - 1. For elements required to have a fire resistive rating and which are not made of materials and systems specified as acceptable by the code, use proven-by-mock-up construction.
  - 2. For proven-by-mock-up construction, acceptable testing agencies are Underwriters Laboratories Inc.
  - 3. Substantiation:
    - a. Design Development: Identification of assemblies required to have fire resistance rating and method to be used to achieve rating.
    - b. Construction Documents: Identifying numbers on the construction drawings.
- B. Substance Exclusion: Prevent accumulation of harmful chemicals and gases in spaces below substructure and subsequent penetration into occupied spaces.
  - 1. Radon: Prevent accumulation and penetration of radon by any of the following means:
    - a. Airtight construction.
    - b. Impermeable seals at service penetrations of enclosure elements.
    - c. Active soil depressurization system in accordance with recommendations of EPA/625/R-92/016.
    - d. Building pressurization in accordance with recommendations of EPA/625/R-92/016.
  - 2. Substantiation:
    - a. Preliminary Design: Identification of major radon resistant assemblies, chemical resistant assemblies, and ventilation features.
    - b. Construction Documents: Details of proven-in-use or proven-by-mock-up design.
    - c. Occupancy: Field testing to verify the absence of significant levels of harmful gases and chemicals after minimum of 6 months occupancy.
- C. Vermin Resistance: Provide permanent protection against infestation of construction by ground dwelling termites and other vermin, by using any of the following methods:
  - 1. Treatment of soil adjacent to substructure with EPA-approved chemicals prior to construction.
  - 2. Elimination of gaps or cracks in substructure construction.
  - 3. Impermeable seals at facilities services penetrations of enclosure elements.
  - 4. Physical barriers to the movement of termites.
  - 5. No use of untreated wood within 12 inch of soil.
  - 6. No use of continuous planes of exterior foam insulation extending from below grade to areas above grade.

### 3.04 STRUCTURAL CRITERIA

- A. Capacity: Provide loadbearing substructure members as required by code and designed to distribute dead loads, live loads, and environmental loads so that bearing capacity of soil is not exceeded.
  - 1. Extend bearing portions of substructure to levels below frostline at project location; not less than 1 ft below grade.
  - 2. Minimum Wall Thickness: Not less than thickness of superstructure walls supported by foundation walls, but not less than 8 inch.
  - 3. Minimum Wall Reinforcement: Steel with minimum yield strength not less than 60,000 psi and minimum percentages not less than Code requirements.
  - 4. Spread Footings: Designed not to exceed the allowable soil bearing capacity.
  - 5. Footings: Minimum compressive strength of 3000 psi and minimum thickness of 12 inch.

- B. Dead Loads: Accommodate loads from weights of building materials, construction itself, and fixed service equipment.
- C. Live Loads: Accommodate loads from use and occupancy of the building, either uniformly distributed loads as prescribed by code or concentrated loads, whichever are more demanding structurally.
  - 1. Uniformly Distributed Loads: As required by code for building occupancy.
  - 2. Concentrated Loads: As required by project program and building design.
- D. Environmental Loads: Accommodate loads from environmental forces in accordance with code and the following:
  - 1. Lateral Soil Loads: Lateral pressure of soil adjacent to vertical substructure elements, including potential surcharge from fixed or moving loads and potential hydrostatic pressure.
  - 2. Wind: Overturning forces attributable to design wind speed at project location applied to full building height.

### **3.05 DURABILITY CRITERIA**

- A. Expected Service Life Span: Same as building service life without any deterioration.
- B. Corrosion Resistance of Underground Metal Elements: See Section DC 0 - Facility Design Criteria.
- C. Concrete Durability:
  - 1. Monolithic Concrete Floor Slabs on Grade: Composition and finishing as recommended by ACI 302.1R based on type of anticipated traffic and intended use.
    - a. Light Vehicular Traffic, Exposed or Covered Surface: Class 4; minimum 28-day compressive strength of 4000 psi; maximum slump of 5 in; normal steel-troweled finish.
    - b. Foot Traffic, Exposed Surface: Class 1; minimum 28-day compressive strength of 3000 psi; maximum slump of 5 in; single troweling; nonslip finish where required by Volume C - Interiors.
    - c. Foot Traffic, Covered Surface: Class 2; minimum 28-day compressive strength of 3000 psi; maximum slump of 5 in; light steel-troweled finish; curing methods that will not interfere with applied interior finishes.

**END OF SECTION**

**SECTION DC B - SHELL CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. The facility superstructure, consisting of roof construction.
- B. Exterior vertical enclosures comprised of the essentially-vertical separations between exterior and interior conditioned space, including exterior walls, exterior windows, exterior doors and grilles, and exterior louvers and vents.
- C. Exterior horizontal enclosures comprised of the essentially-horizontal or sloped separations between exterior and interior conditioned space, including roofing, roof appurtenances, traffic bearing horizontal enclosures, horizontal openings, and overhead exterior enclosures.
- D. Products: Where specific products are required or allowed, use products complying with the additional requirements specified elsewhere.

**1.02 RELATED REQUIREMENTS**

- A. Section DC 0 - Facility Design Criteria: Criteria that apply to every pertinent element of the facility.
- B. Section 01 30 50 - Design Procedures and Substantiation Requirements.

**1.03 REFERENCE STANDARDS**

- A. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.
- B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- C. ASTM E413 - Classification for Rating Sound Insulation 2016.
- D. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers 2020.

**PART 2 PRODUCTS AND METHODS****2.01 SUPERSTRUCTURE**

- A. Use one or more of the following:
  - 1. Pre-engineered metal building.
  - 2. Structural steel frame, concrete-filled steel deck for floors, and unfilled steel deck for roofs.
  - 3. Cast-in-place reinforced concrete frame and slabs.
  - 4. Precast concrete frame and floor and roof units.
  - 5. Load-bearing masonry walls, open-web steel joists, steel deck, and minor structural steel.

**2.02 ROOF CONSTRUCTION**

- A. Structure Supporting Roofs:
  - 1. Use one or more of the following:
    - a. Structural steel beams, columns, girders, joists, and wind-bracing.
    - b. Cast-in-place reinforced concrete beams, columns, walls, girders, and joists.
    - c. Precast concrete beams, columns, tees, and hollow slabs.
    - d. Open-web steel joists or joist girders.
    - e. Load-bearing concrete masonry walls.
- B. Roof Decks:
  - 1. Use one or more of the following:
    - a. Steel deck without concrete fill.

- b. Steel deck with light-weight insulating concrete.
- c. Cast-in-place reinforced concrete slabs, minimum 4 inches thick.
- d. Precast concrete tees or hollow core slabs without additional concrete covering.
- e. Precast concrete tees or hollow core slabs covered with minimum 1-1/2 inches concrete.

### 2.03 EXTERIOR WALL ELEMENTS

- A. Exterior Skin of Exterior Walls:
  - 1. Use one or more of the following, to achieve design intent reflected on Drawings:
    - a. Split face concrete block.
    - b. Ground face concrete block.
    - c. Galvanized steel panels, prefinished.
    - d. Aluminum-zinc alloy-coated steel panels, prefinished.
    - e. Aluminum panels, prefinished.
  - 2. Insulation:
    - a. Use one of the following:
      - 1) Board insulation.
      - 2) Batt insulation.
      - 3) Foamed-in-place insulation.
- B. Supporting Structure of Exterior Walls:
  - 1. Use one of the following:
    - a. Load-bearing unit masonry assemblies.
    - b. Non-load-bearing unit masonry assemblies.
    - c. Secondary structural steel members.
    - d. Cold formed metal framing.
- C. Exterior Ceilings and Soffits:
  - 1. Use one of the following:
    - a. Linear metal ceiling.

### 2.04 EXTERIOR DOORS

- A. Main Entrance Doors:
  - 1. Use one of the following:
    - a. Glazed aluminum doors .
- B. Patio Door:
  - 1. Provide three panel sliding door, aluminum-framed, full glass.
- C. Other Pedestrian Doors:
  - 1. Provide weatherstripping, thresholds, and additional hardware as noted on plans.
  - 2. Use one of the following:
    - a. Insulated Metal Doors
- D. Apparatus Bay Doors:
  - 1. Base Bid: Use one of the following:
    - a. Sectional overhead doors Base panels to be Aluminum, all other panels to be glazed. (90% glass)
  - 2. Alternative: four-fold apparatus bay doors, Refer to section 01 23 00 - Alternates.
- E. Hardware for Swinging Doors :
  - 1. Use satin, stainless steel finish .
  - 2. Hinges: Ball-bearing butt hinges or continuous hinges.
  - 3. Exit Devices: Unless specifically indicated as one type, mortise type or rim type.



4. Locksets: Unless specifically indicated as one type, mortise, bored (cylindrical), or interconnected lockset and deadbolt.
  5. Door Closers: Unless specifically indicated as one type, surface overhead door-mounted type.
  6. Door Stops: Unless specifically indicated as one type, wall-mounted type or overhead door/frame mounted type.
  7. Door Hold-Opens: Unless specifically indicated as one type, overhead door/frame mounted type.
- F. Glazing in Doors: Glass .
1. Type: Double pane insulated glass units.
  2. Use one of the following:
    - a. Fully tempered glass .
    - b. Laminated glass .

## **2.05 WINDOWS**

- A. Fixed Glazing:
1. Glazing: Double pane insulated units.
  2. Use one of the following:
    - a. Aluminum-framed storefront.
- B. Glazing: Glass.
1. Use one of the following:
    - a. Fully tempered glass.
    - b. Low E glass.
    - c. Laminated glass.
    - d. Double pane insulated glass units.

## **PART 3 DESIGN CRITERIA**

### **3.01 BASIC FUNCTION**

- A. Provide structural elements, above grade and within basements, capable of supporting anticipated loads without failure or damage.
- B. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria.

### **3.02 AMENITY AND COMFORT CRITERIA**

- A. Thermal Performance: As specified in Section DC 0 - Facility Design Criteria and the following:
- B. Convenience:
1. Provide a fixed ladder leading to access to roof equipment.
- C. Acoustical Isolation:
1. Provide composite STC value as noted on drawings, tested in accordance with ASTM E90 and classified in accordance with ASTM E413.
- D. Acoustical Performance:
1. Window Sound Transmission Class: Minimum 39 STC, as measured in accordance with ASTM E90 and classified in accordance with ASTM E413.
- E. Water Penetration Resistance: Where roof coverings as specified are not used over roofs provide supplementary waterproof construction providing equivalent protection.
- F. Vibration Resistance: Isolate structure from sources of vibration.

### **3.03 STRUCTURAL CRITERIA**

- A. Structural Design: In addition to the requirements of the code, design to comply with ASCE 7.

- B. Capacity: Design and provide load-bearing structural members of capacities required by code.
- C. Dead Loads: Design to resist loads from weights of materials, construction, and fixed service equipment.
- D. Live Loads:
  - 1. Floors: Resist uniformly distributed, concentrated, and impact loads with code permitted live load reductions.
  - 2. Roofs: Resist uniformly distributed, concentrated, and impact loads.
- E. Environmental Loads:
  - 1. Wind: Basic wind speed in accordance with code, Importance Factor in accordance with code, Exposure in accordance with code, Wind design pressure in accordance with ASCE 7.
  - 2. Rain: Resist loads from ponding rainwater when the primary drainage system is blocked and in accordance with ASCE 7.
- F. Structural Serviceability: Comply with requirements and recommended design procedures of ASCE 7.

### **3.04 DURABILITY CRITERIA**

- A. Expected Service Life Span: Same as for facility as a whole, except as follows:
  - 1. Load-Bearing Structural Members: Minimum of 50 years with no anticipated deterioration.
  - 2. Protective Elements: Minimum 25 years.
- B. Moisture Resistance of Load-Bearing Members: Use materials that are not damaged by contact with water or moisture vapor.
- C. Impact Resistance of Load-Bearing Members: Use materials that are not easily damaged by common hand tools.

### **END OF SECTION**

**SECTION DC B3 - EXTERIOR HORIZONTAL ENCLOSURES CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Roofing consisting of every element forming weather and thermal barriers at the sloped or essentially flat weather-proof enclosure over the entire "top-side" of building and over exposed floor superstructure, including plaza decks, balconies, and other exposed floors; including roof coverings, closures for roof openings, roof fixtures, and other roof elements, not including the structural supporting elements of the roof.
  - 1. Low-Slope Roofing: Includes membrane roofing of various types and protected membrane roofing, including fastening and flashing products.

**PART 2 PRODUCTS****2.01 ROOF COVERINGS**

- A. Roof Coverings In General:
- B. Sloped Roofs:
  - 1. Use one of the following:
    - a. Factory-fabricated metal roof panels of aluminum.
- C. Essentially Flat Roofs:
  - 1. Use one of the following:
    - a. Elastomeric roofing membrane, EPDM .
      - 1) Installed over insulation and mechanically attached or fully-adhered.
    - b. Modified bituminous roofing membrane .
      - 1) Installed over insulation and fully adhered.

**PART 3 DESIGN CRITERIA****3.01 BASIC FUNCTION**

- A. Provide a weather-proof enclosure over the entire "top-side" of building that also excludes unwelcome people, animals, and insects without requiring specific action by occupants, while shedding water and preventing uncontrolled water infiltration, withstanding anticipated loading conditions, providing required access, and permitting the entry of desirable natural light.
- B. Where roofing elements also must function as elements defined within another element group, meet requirements of both element groups.
- C. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria.

**3.02 AMENITY AND COMFORT CRITERIA**

- A. Thermal Performance: As specified in Section DC 0 - Facility Design Criteria .
- B. Run-Off: Direct water run-off away from foundations without splashing or dripping.
- C. Appearance:
  - 1. Ponding: Arrange drainage of roof so no ponding will occur, regardless of whether roofing material will withstand ponding of water or not.

**END OF SECTION**

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**SECTION DC C - INTERIORS CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Interior construction consisting of interior partitions, interior doors, suspended ceiling construction, and interior specialties, except for elements classified as equipment or services fixtures.
- B. Interior Finishes: Functional and decorative applied interior finishes, including wall finishes, interior fabrications, floor, ceiling finishes, and interior finish schedules, and field-applied finishes on other elements.

**1.02 RELATED REQUIREMENTS**

- A. Section DC 0 - Facility Design Criteria: Criteria that apply to every pertinent element of the facility.

**1.03 REFERENCED STANDARDS**

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2021.

**PART 2 PRODUCTS AND METHODS****2.01 INTERIOR PARTITIONS**

- A. Use the following:
  - 1. Unit masonry is acceptable at bearing walls.
  - 2. Metal framing.
  - 3. Gypsum wallboard.

**2.02 INTERIOR DOORS, GRILLES, GATES, AND FRAMES**

- A. Interior Pedestrian Doors:
  - 1. Use the following as indicated on Drawings:
    - a. Hollow steel doors and frames.
    - b. Flush wood doors.
- B. Door Frames:
  - 1. Use the following:
    - a. Steel frames.

**2.03 INTERIOR SPECIALTIES**

- A. Information Specialties: Include the following types:
  - 1. Interior Signage: Include room and door signs and interior directional and informational signs.
- B. Toilet, Bath, and Laundry Accessories:
  - 1. Toilet, Bath, and Laundry Accessories: as noted on drawings.
- C. Storage Specialties:
  - 1. Use the following:
    - a. Built-in clothing lockers at bunk rooms.
    - b. Storage specialties at bunker gear storage.

## **PART 3 DESIGN CRITERIA**

### **3.01 BASIC FUNCTION**

- A. Interiors: Provide appropriately finished interiors for every space and type of space indicated in the program, equipped with interior specialties as required to function properly for specific occupancies.
- B. Interior Partitions: Provide physical separation between spaces, constructed to achieve fire ratings required by code, appropriate security between adjacent spaces, and visual, acoustical, olfactory, and atmospheric isolation as necessary to maintain desirable conditions in each space.
- C. Interior Doors: Provide doors between adjacent spaces where required by the program or where proper functioning of adjacent spaces requires movement of people or objects between them.
- D. Suspended Ceiling Construction: Provide suspended panels with specific characteristics for acoustical purposes. Include hangers and/or framing to suspend ceiling construction and sound isolation components.
- E. Interior Finishes: Provide finishes for interior surfaces that are appropriate for the functions of each space.
- F. Interior Specialties: Provide interior specialties that are necessary for the proper functioning of each space.
- G. Where interiors elements also must function as elements defined within another element group, meet requirements of both element groups.
- H. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria.

### **3.02 HEALTH AND SAFETY CRITERIA**

- A. Flammability: Provide interior specialties made of materials with flame spread index of 25 or less and smoke developed index of 450 or less when tested in accordance with ASTM E84 at every location throughout the project.
- B. Fire Resistance: Design and select materials to provide fire resistance in accordance with code.
- C. Safety: Design and provide interior construction to protect building occupants in accordance with code and the following:
  - 1. Egress: Provide egress from every interior space in accordance with code.
  - 2. Tripping: Protect building occupants from tripping hazards due to uneven floor surfaces or abrupt changes in floor elevation of more than 1/4 inch.

### **3.03 DURABILITY CRITERIA**

- A. Humidity Endurance: At interior spaces exposed to high humidity, such as laundry rooms and shower rooms, provide interior construction that will withstand continuous or intermittent exposure without significant changes in dimension, excessive deflection, or sagging.
- B. Corrosion Resistance: At laundry rooms, toilet rooms, shower rooms, and bathrooms, provide interior construction materials and fixtures that are inherently resistant to corrosion and rot.

### **3.04 OPERATION AND MAINTENANCE CRITERIA**

- A. Frequency of Servicing: Owner expects that refilling/emptying will occur at the following intervals; provide capacity appropriate to servicing interval and expected use, based on project occupancy:
  - 1. Paper Towel Dispensers: Weekly.
  - 2. Toilet Paper Dispensers: Daily .

3. Waste Receptacles: Daily.
- B. Ease of Cleaning:
1. Waste Receptacles: Disposable liners or bags.

**END OF SECTION**

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**SECTION DC D2 - PLUMBING CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Plumbing elements comprised of the following:
  - 1. Water Supply: Water sources.
    - a. Water source for fire suppression systems.
  - 2. Domestic Water: Elements required to distribute water to fixtures, including piping and equipment for water cooling, heating and storage.
    - a. Water Distribution: Piping within the building, serving fixtures, specialties, and equipment.
    - b. Plumbing Equipment: Tanks.
  - 3. Sanitary Waste: Elements required for removal of sanitary waste, including piping, venting, discharge and disposal, and equipment.
  - 4. Rain Water Drainage: Elements required for drainage of rain water from building areas in which it may accumulate and drainage of clear wastes from building services; not including gutters and downspouts or subdrainage.
  - 5. Plumbing Fixtures: Fixtures necessary for sanitation, occupancy, and use, that are connected to water supply or drainage; not including water heating or conditioning equipment or kitchen appliances.
    - a. Types Required: Include commercial fixtures with rough-in piping, trim, fittings, and connection to vent piping.
    - b. Fixtures Required: As specified by code and as indicated on drawings .
- B. Utility Sources and Outlets:
  - 1. Water Source: Existing public utility.
  - 2. Sewage Disposal: Connect building sewer to the existing public sewage system.
  - 3. Rain Water Drainage Outlet: Existing public utility storm drainage system independent of sanitary sewer.
- C. Products: Where specific products are required or allowed, use products complying with the additional requirements specified elsewhere.

**1.02 RELATED REQUIREMENTS**

- A. Section DC 0 - Facility Design Criteria: Criteria that apply to every pertinent element of facility.

**1.03 REFERENCE STANDARDS**

- A. ASME A13.1 - Scheme for the Identification of Piping Systems 2020.
- B. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes 2020.
- C. ASTM B88 - Standard Specification for Seamless Copper Water Tube 2020.
- D. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric) 2020.

**PART 2 PRODUCTS****2.01 DOMESTIC WATER PIPING AND EQUIPMENT**

- A. Water Piping, Buried:
  - 1. Use one of the following:
    - a. Copper pipe (ASTM B42), with brazed or soldered cast copper or wrought copper or bronze fittings, or flared cast bronze fittings.
- B. Water Piping, Not Buried:

1. Use one of the following:
  - a. Copper tube, cast copper, wrought copper, or bronze fittings, and soldered joints.
  - b. Chlorinated polyvinyl chloride (CPVC) plastic pipe and fittings, with solvent welded joints.
- C. Insulating Materials:
  1. Use one of the following:
    - a. Flexible cellular elastomeric.
- D. Valves For Shut-Off or Isolation of Equipment, Fixtures, and Parts of Systems:
  1. Use one of the following:
    - a. Ball valves.
- E. Valves For Flow Control, Throttling, or Bypass:
  1. Use one of the following:
    - a. Ball valves.
    - b. Gate valves.
- F. Method of Removing Air from Supply Piping:
  1. Use one of the following:
    - a. Automatic air vents.
    - b. Manual air vents.
- G. Water Heating Method:
  1. Use one of the following:
    - a. Gas instantaneous water heater.

## **2.02 SANITARY WASTE AND VENT PIPING AND EQUIPMENT**

- A. Sanitary Waste and Vent Piping, Buried:
  1. Use one of the following:
    - a. Polyvinyl chloride (PVC) DWV pipe and fittings, with solvent welded or gasketed joints.
- B. Sanitary Waste and Vent Piping, Not Buried:
  1. Use one of the following:
    - a. Polyvinyl chloride (PVC) DWV pipe and fittings, with solvent welded joints.
- C. Cleanout Plugs:
  1. Use one of the following:
    - a. Brass.
    - b. Stainless steel.
- D. Cleanout Caps:
  1. Use one of the following:
    - a. Brass.
- E. Floor Drains:
  1. Use one of the following:
    - a. Cast iron.

## **2.03 RAIN WATER PIPING AND DRAINS**

- A. Rain Water Piping, Not Buried:
  1. Use one of the following:
    - a. Polyvinyl chloride (PVC) DWV pipe and fittings, with solvent welded joints.
- B. Rain Water Piping, Buried:
  1. Use one of the following:
    - a. Polyvinyl chloride (PVC) pipe and fittings, with solvent welded or gasketed joints.

- C. Roof Drains, Area Drains, and Floor Drains:
  - 1. Use one of the following:
    - a. Galvanized cast iron.

## **2.04 PLUMBING FIXTURES**

- A. Water Closets:
  - 1. Use one of the following:
    - a. Tank type.
    - b. External flush valve type.
    - c. Wall mounted fixtures.
    - d. Floor mounted fixtures.
- B. Lavatories:
  - 1. Use one of the following:
    - a. Vitreous china.
    - b. Solid plastic resin.
    - c. Countertop-mounted fixtures.
    - d. Undercounter-mounted fixtures.
    - e. Wall-hung fixtures.
- C. Kitchen Sinks:
  - 1. Use one of the following:
    - a. Stainless steel.
    - b. Countertop-mounted fixtures.
- D. Showers:
  - 1. Use one of the following:
    - a. Concrete floor sloped to drain. Walls to be ceramic tile, per drawings..
- E. Faucets and Trim:
  - 1. Use one of the following:
    - a. Polished chrome-plated finish.
- F. Utility (Mop or Janitor's) Sinks:
  - 1. Use one of the following:
    - a. Precast terrazzo.
    - b. Floor-mounted fixtures.

## **PART 3 DESIGN CRITERIA**

### **3.01 BASIC FUNCTION**

- A. Provide water supply necessary for building occupancy and use.
- B. Provide delivery of domestic water to points of utilization.
- C. Provide water supply for fire sprinkler system.
- D. Provide drainage for disposal of waste as required by the code and for the following:
  - 1. Fixtures and equipment which have a waste connection or a domestic water connection.
    - a. Waste connections are not required on icemakers, refrigerators with icemakers, exterior hose bibbs, and coffee makers.
  - 2. Emergency Drainage: Floor drains located in, and as indicated on drawings:
    - a. Laundry rooms.
    - b. Toilet/shower rooms.
    - c. Apparatus bay.
    - d. Ice room.

- e. Mechanical/Storage rooms.
- 3. Cleaning Drainage: Floor drains located as indicated in program and in:
  - a. Hose-down areas.
- 4. Indirect Drainage: Floor drains to receive piping from:
  - a. Equipment drain pans.
  - b. Condensate drains.
  - c. Other equipment that produces clear wastes.
  - d. Other equipment specified to have indirect drain.
- E. Provide drainage for disposal of rain water and clear wastes, as required by the code.
- F. Provide plumbing fixtures necessary for occupancy, use, and sanitation.
- G. Equipment That is Not Part of Services Systems: Specified in the project program and in Section DC E.
- H. Where plumbing elements must also function as elements defined within another element group, meet the requirements of both element groups.
- I. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria.
- J. Substantiation:
  - 1. Proposal: Description of systems required, sources, input-side capacities, and means of distribution.
  - 2. Design Development: Engineering calculations showing input- and output-side capacities and loads and sizes of distribution elements.
  - 3. Construction Documents: Complete system details.
  - 4. Construction and Closeout: Functional performance testing, as specified in Section 01 30 50.

### **3.02 AMENITY AND COMFORT CRITERIA**

- A. Hot Water Supply:
  - 1. Provide pressure balanced shower valves which limit the water temperature to 120 degrees F.
- B. Noise:
  - 1. Design to prevent noise due to air trapped in piping systems.
  - 2. Provide water hammer arrestors on each fixture branch to eliminate noise produced by the domestic water fixtures.
  - 3. Locate risers in dedicated and sound attenuated chases.
  - 4. Minimize noise produced by fixtures.
- C. Convenience:
  - 1. Water Heaters:
    - a. Locate water heaters in utility room.
    - b. Do not locate water heaters where the public has access to them.
  - 2. Fixture Heights: As specified in code.
  - 3. Fixture Configurations: As specified in code.
  - 4. Maneuvering Space: Provide space between and around fixtures as required by code.
  - 5. Water Connections: Hot water on the left side of fixtures and cold water on the right side of fixtures.
  - 6. Faucets: Single action operation.
  - 7. Install floor drains flush with the surface on which they are installed, out of pedestrian traffic patterns wherever possible.
  - 8. Do not locate floor drains and floor cleanouts in doorways or directly in traffic paths.

- D. Condensation:
1. Insulate horizontal and vertical rain water piping, including the underbody of roof drains, using material of sufficient insulating value to prevent condensation.
- E. Odors:
1. Locate odor producing elements in areas separate from human occupancy outdoors.
  2. Do not locate sanitary waste vent openings where odors are noticeable by occupants or by occupants of adjacent properties or where odor-bearing air may enter building spaces.
    - a. Do not terminate vents within 10 feet horizontally of doors, windows, air intake or exhaust openings, or other openings in the exterior enclosure, unless vent termination is at least 3 feet above the top of the opening.
    - b. Do not locate vent openings under overhangs.
    - c. Do not locate vent openings closer than 10 feet to lot line.
    - d. Extend vent pipes at least 6 inches above the surface of roofs.
      - 1) Exception: Where roof areas are to be occupied for normal building functions, extend vent pipes at least 7 feet above the roof surface.
    - e. Extend vent pipes at least 12 inches above overflow level of the highest fixture served by the vent.
    - f. Provide an automatic means of priming traps which may evaporate enough water to break the trap seal allowing sewer gases to enter the building.
  3. Connect fixtures to prevent entry of sewer gases into occupied spaces.
  4. Provide traps for indoor drains connected to rain water drainage system.
  5. If rain water drainage system connects to sanitary sewer system, provide a trap at the connection.
- F. Appearance:
1. Do not locate rain water leaders or downspouts where they are visible from the outside of the building.
  2. Vents: Conceal vents from view.
  3. Fixtures:
    - a. Smooth, corrosion-resistant, non-absorbent, with no crevices to collect dirt.
    - b. Aesthetically pleasing and easy and comfortable to use .
    - c. Color: White, except where metal fixtures are required.

### **3.03 HEALTH AND SAFETY CRITERIA**

- A. Health: Provide safe and potable water.
1. Public utility water can be considered to be potable.
  2. Maintain the safety of potable water source.
  3. Do not connect the potable water source to any non-potable water source.
  4. Do not connect private potable water source to public potable water source.
  5. Keep animals and vermin out of open pipes, tanks, and other system components.
  6. Keep other contaminants out of the distribution systems, equipment, and water source.
  7. Provide potable water supply with backflow preventers in accordance with code requirements.
  8. Permanently seal openings and edges around the sides and bottom of each fixture with waterproof material.
  9. Do not locate indirect drains in toilet rooms, unventilated or inaccessible rooms, or in air distribution or return plenums.
  10. Provide a backflow prevention device in the sewer discharge to prevent back-up into plumbing fixtures and floor drains.

- B. Waste Disposal: Connect each fixture to sanitary drainage system for proper disposal of waste and harmful materials.
- C. Pressure Control: Control pressures to protect the building, fixtures, equipment, and occupants from harm.
  - 1. Maximum Water Distribution Working Pressure: 80 psi.
  - 2. Pressure Reduction: Use pressure reducing valves or regulators.
  - 3. Air Removal: Remove air trapped in water distribution system.
- D. Excess Pressure Hazard: Include devices to reduce accidental excess pressure to acceptable level, with maximum overpressure of 10 percent over specified system operating pressure, for the following items:
  - 1. Water heaters.
  - 2. Hot water recirculating pumps.
- E. Prevention of Sewer Gas Leaks:
  - 1. Provide waste system vents as required by code to avoid trap siphonage or compression.
  - 2. Prevent entry of sewer gases from the sanitary sewer into building's sewer system.
- F. Protection of Potable Water Supply: As required by code.
- G. Toxic Materials:
  - 1. Lead: Do not use lead or lead-containing materials in potable water systems.
- H. Waste Drainage: Provide food handling equipment, food storage equipment, commercial dishwashing, clear-water wastes, and air conditioning equipment with indirect waste pipe for drainage.
- I. Burn Hazards:
  - 1. Maximum Fixture Discharge Temperature: 120 degrees F.
  - 2. Maximum Exposed Surface Temperature: 95 degrees F.
  - 3. Protect wheelchair occupants from hot water pipes and drains.
- J. Fire Hazards:
  - 1. Do not use combustible piping materials inside the building.
- K. Vermin Resistance: Provide grated coverings for rain water drains to prevent entry of rodents, insects, birds, and miscellaneous foliage.
- L. Hazard Labeling: Clearly label domestic hot water, domestic cold water, rain water drainage, and sanitary waste and vent systems indicating the nature of contents and direction of flow.
  - 1. Comply with requirements of ASME A13.1.
- M. Hazardous Material Drainage: Prevent damage to public utility drainage systems by removing or neutralizing hazardous materials before discharging.
- N. Supplementary Drinking Water:
  - 1. Provide lead-free water from treated municipal source, which utilizes multi-barrier processing methods, such as reverse osmosis, micron filtration, and distillation.

### **3.04 STRUCTURAL CRITERIA**

- A. Rain Water Drains:
  - 1. Locate drains to avoid ponding loads in excess of structural capacity.
  - 2. Prevent inadvertent ponding by protecting drain openings from clogging, using raised strainers with minimum height of 4 inches wherever possible and flat gratings in other locations.
- B. Insulated Pipes: Prevent compression of insulation by using pipe shields or saddles or dense insulation inserts.
- C. Fixtures:

1. Anchored to support weight of fixtures and a minimum of 400 pounds without failure or stress on the connecting pipes.
2. Wall Mounted Fixtures: Carriers concealed inside fixture and in wall or floor.

### **3.05 DURABILITY CRITERIA**

- A. Expected Service Life Span: Same as service life of building unless otherwise indicated.
  1. Piping, Wiring, and Flues: Same as the service life of the building.
  2. Shut-Off Valves and Similar Components: Same as service life of building.
  3. Electrically- and Fuel-Operated Equipment: Minimum 20 years.
  4. Other Moving Components: Minimum 20 years.
  5. Plumbing Fixtures: Same as building service life.
  6. Faucet Valves: 20 years.
    - a. Substantiation: Manufacturer's unconditional warranty.
  7. Flushing Mechanisms: 20 years.
    - a. Substantiation: Manufacturer's unconditional warranty.
- B. Water Penetration: Reinforce weather barrier around roof and deck drains using extremely durable, permanently watertight material; one acceptable method is using 4 pound sheet lead, extending minimum of 10 inches from center of drain.
- C. Moisture: Do not locate water heaters where leakage would cause damage to surrounding building materials , unless drip pans piped to floor drains are provided.
- D. Condensation:
  1. Provide insulation on cold water pipes, fittings, valves, and equipment to limit condensation.
  2. Prevent condensation from forming on or dripping from sanitary drain piping, floor drain bodies, condensate piping, and p-traps.
- E. Temperature Changes: Provide method of allowing thermal expansion of domestic water in the hot water system.
  1. Provide expansion tanks with bladders.
- F. Wear Resistance:
  1. Shutoff Valves: Resistant to corrosion, breakage, and scratching due to continual contact with water, human usage, and cleaning with abrasive materials.
  2. Fixtures, Trim and Accessories: Resistant to corrosion, breakage, scratching, burning, fading and chipping due to continual contact with water, human usage, and cleaning with abrasive materials.
    - a. Acid resistant finish at lavatories, sinks, tubs, and water closets.
- G. Shock Resistance: Do not use cast iron fittings, valve bodies, materials, and components where thermal or mechanical shock is expected.
- H. Freeze Protection: Protect piping from freezing.
- I. Joint Durability: Provide watertight joints.
- J. Electrical Component Protection:
  1. Do not route piping through electrical rooms unless it is absolutely necessary.
    - a. Where piping must be routed near electrical equipment, shield the electrical equipment with drip pans which drain to the nearest floor drain.
  2. Substantiation: See tests specified under Operation and Maintenance.
- K. Equipment Protection:
  1. Domestic Water Distribution System: Provide a filtration device upstream of equipment which may be damaged by debris in the distribution system.
- L. Maximum Discharge Temperature into Sewer: 120 degrees F.

- M. Abuse: Protect rain water drainage conductors and leaders by placing in dedicated locations, by using protective coverings or shields, and by recessing in walls.
- N. Resistance to Corrosive Wastes:
  - 1. Where corrosive wastes can be neutralized or diluted below harmful levels, removal is not required; otherwise, provide appropriate interceptors to remove corrosive wastes, including solids.
  - 2. Oil Interceptors: Located as indicated in program.

### **3.06 OPERATION AND MAINTENANCE CRITERIA**

- A. Fixture Functions:
  - 1. Lavatories: Standard spout, with integral overflow.
  - 2. Showers: With single-action hot-cold mixing valve and hand-held shower head.
  - 3. Kitchen Sinks: Gooseneck spout, water spray nozzle and swivel spout.
  - 4. Utility (Mop or Janitor's) Sinks: Filling of standard rolling mop bucket required ; spout designed to support full bucket of water.
- B. Water Consumption:
  - 1. Water Closets: 1.28 gallons per flush, maximum, with complete waste removal in one flush.
  - 2. Lavatory Faucets: 0.5 gallon per use.
  - 3. Shower Heads: 2.5 gallons per minute, maximum.
- C. Capacity of Water Service: Provide adequate water flow and pressure to supply peak demand requirements. Comply with requirements specified in the code and the following.
  - 1. Water Delivery: If the water source has insufficient flow or pressure, provide means of increasing to required level.
    - a. Use booster pumps, if required.
    - b. Substantiation:
      - 1) Final Design: Identification of pressure and flow requirements (design conditions) for the building; verification of source availability at design conditions.
      - 2) Construction Documents: Equipment to be used to deliver water at design conditions;
      - 3) Construction: Test of system flow and pressure; submit report verifying performance.
  - 2. Water Flow:
    - a. Maximum Velocity: 8 fps at the design flow rate.
  - 3. Water Supply Pressures:
    - a. Water Pressure/Flow At Fixtures: 8 psi, minimum, except as otherwise required by code.
      - 1) Showers: 20 psi, minimum.
      - 2) Blowout Water Closets: 25 psi, minimum.
      - 3) Flush Valves at Water Closets: 15 psi, minimum.
    - b. Water Distribution Working Pressure: 40 psi at 75 degrees F.
    - c. Pressure Classification: Provide pipe, pipe components, and equipment with a pressure classification of 125 psi.
  - 4. Substantiation:
    - a. Final Design: Piping design calculations and entrance locations.
    - b. Construction: Prior to installation of plumbing fixtures and prior to concealment of piping, air and water tests of piping systems at 110 percent of operating pressure,



- maintaining pressure for 2 hours to demonstrate system is watertight.
- c. Construction: Functional tests of fixtures and equipment.
  - d. Occupancy: Observation of function during full occupancy.
- D. Waste Pipe Sizing:
1. Size piping as required by code.
  2. Building Drain: 4 inches diameter, minimum.
  3. Buried Piping Below Slabs: 3 inches diameter, minimum.
  4. Pipes 3 inches in Diameter and Smaller: Sloped at 1/4 inch per foot, minimum, downward in the direction of flow.
  5. Pipes 4 inches in Diameter and Larger: Sloped at 1/8 inch per foot, minimum, downward in the direction of flow.
  6. Substantiation:
    - a. Final Design: Drainage design calculations and documentation of piping outlets.
    - b. Construction: Air and water pressure tests of piping systems; functional tests of drains and equipment under simulated full occupancy loads.
    - c. Occupancy: Observation of function during full occupancy.
- E. Rain Water Drainage Capacity: As specified in the code and as follows:
1. Design Rainfall Rate: Short storm intensity of 4.5 inches in any 1 hour period.
  2. Secondary Drainage: Required for roofs and exterior structural decks that do not drain naturally. Provide secondary roof drains connected to a secondary drainage system.
  3. Rain Water Drainage Capacity:
    - a. Roof Areas of 10,000 sq ft and Less: Minimum of two roof drains.
  4. Drainage Outlets: As specified above and as follows:
    - a. Secondary Drainage: Drain to completely redundant drain piping system.
  5. Substantiation:
    - a. Final Design: Drainage design calculations and documentation of piping outlets.
    - b. Construction: Air pressure test to verify continuity of piping; functional tests of each drain.
    - c. Occupancy: Field observation of performance during at least two storms.
- F. Maintenance of Drainage:
1. Sanitary Drainage:
    - a. Where sewer discharge is higher than item to be drained, provide a means of lifting the waste for drainage.
      - 1) Method of Lifting Waste: Provide a sewage pump and vented sump to lift waste to the sanitary sewer for drainage.
    - b. Fittings, Joints, and Offsets: As required to ensure optimal flow through horizontal and vertical piping and at changes of direction.
    - c. Transitions Between Horizontal Piping and Vertical Risers:
      - 1) Sanitary Waste: Sanitary tees, wyes, or wyes and eighth bends.
      - 2) Vents: Wyes, wyes and eighth bends, and short radius fittings.
  2. Rain Water Drainage:
    - a. Pipes sloped at 1/8 inch per foot, minimum, downward in direction of flow.
- G. Energy Efficiency:
1. Circulation Heat Loss: Provide recirculating pumps to limit the domestic hot water temperature drop to 2 degrees F within 100 feet of fixtures requiring domestic hot water. In addition, provide insulation to limit heat loss of domestic hot water, as required.

2. Equipment Heat Loss: Provide insulation on the following equipment to limit domestic hot water heat loss to maximum of 2 degrees F per hour, without energy input:
  - a. Water heaters.
- H. Minimization of Cleaning:
  1. Grease Interceptors: Located at drains specifically intended for disposal of grease, as indicated in program.
- I. Ease of Cleaning:
  1. Provide adequate access for cleaning each fixture and the areas around it.
  2. Floor Drains: At low points in floor and flush with finish floor surface.
  3. Cleanout Plugs: Flush with floor surface.
  4. Drain equipment which produces or collects clear waste, such as condensation from cooling coils. Provide piping for the clear waste to the nearest floor drain.
  5. Oil Interceptors: Located as indicated on drawings.
- J. Ease of Maintenance and Repair:
  1. Do not locate underground piping beneath electrical service, equipment, or footings.
  2. Provide a shutoff valve at the utility service main and the service entry point.
  3. Provide devices at service entrance into building which allow insertion of measurement devices to monitor flow and pressure levels in the water distribution system.
  4. Isolation of Piping Segments and Equipment: Provide a means of isolating the following:
    - a. Each building from main water service. Provide a shut-off valve located inside a valve box whose removable access cover is at grade level.
    - b. Water meter from building piping.
    - c. Each vertical riser from piping below.
    - d. Each water branch to fixtures or equipment from main vertical riser.
    - e. Each plumbing fixture, storage tank, and item of equipment, so that removal of one will not necessitate shutdown of others.
    - f. Individual fixtures and equipment. Provide an isolation device within 3 feet of pipe connection to item.
  5. Provision for Drainage of Water Distribution Piping:
    - a. Slope Piping Toward Drain: 1/4 inch per 10 feet.
    - b. Provide a system drain at discharge above grade and outside of the building.
    - c. Provide an adequately sized drain for the volume of water inside the distribution system.
    - d. Drain valve (or fixture shut-off valve) located at each low point.
  6. Provision for Cleaning of Drainage Piping: Provide a cleanout as required by code and as follows:
    - a. At the upstream end of each horizontal sanitary drainage pipe, for cleaning in direction of flow.
    - b. At the dead end of each dead-end pipe.
    - c. Pipe 3 inches and Smaller: At intervals of 50 foot, maximum.
    - d. Pipe 4 inches to 6 inches: At intervals of 80 foot, maximum.
    - e. Pipe 8 inches and Larger: At intervals of 100 foot, maximum.
    - f. Clearance: As required by code to allow for cleaning and rodding of pipe.
  7. Interceptors That Must be Manually Cleaned:
    - a. Designed for minimum of 2 months operation between cleanings.
    - b. Located close to or in the same area as drains that receive the harmful wastes, for supervision and maintenance by occupants creating the waste.

- c. Removable waste container, with spare.
- d. Substantiation:
  - 1) Final Design: Manufacturer's maintenance schedule and recommended methods.
- 8. Plumbing Fixtures:
  - a. Faucet valves easily removable and replaceable as a single unit.
  - b. Each pipe connection to each fixture provided with a stop valve, for easy disconnection from water service.
  - c. Provide access to concealed connections, such as floor and wall cleanouts and slip-joint connections.

**END OF SECTION**

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**SECTION DC D3 - HVAC CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. HVAC: Artificial means of maintaining interior space comfort and air quality, including heating, cooling, ventilation, and energy supply.
- B. The HVAC system consists of the following elements used to maintain occupant comfort:
  - 1. Energy Supply: Elements which provide energy.
  - 2. Heat Generation: Elements required to heat building.
    - a. Heat generation elements comprise furnaces and radiant heaters.
  - 3. Refrigeration: Elements necessary to generate the cooling required.
    - a. Refrigeration elements comprise condensing units.
  - 4. Air Distribution: Elements required to supply, return, and exhaust air associated with heating or cooling the building.
  - 5. Refrigerant Distribution: Elements required to distribute refrigerant for heating or cooling.
  - 6. Other HVAC elements required to maintain occupant comfort.
- C. Products: Where specific products are required or allowed, use products complying with the additional requirements specified elsewhere.

**1.02 RELATED REQUIREMENTS**

- A. Section DC 0 - Facility Design Criteria: Criteria that apply to every pertinent element of the facility.
- B. Section DC E - Equipment and Furnishings Criteria.
- C. Section 01 30 50 - Design Procedures and Substantiation Requirements.

**1.03 REFERENCE STANDARDS**

- A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition 2016.
- B. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment 2008, Including All Addenda.
- C. AHRI 340/360 - Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment 2011.
- D. AHRI 365 I-P - Performance Rating of Commercial and Industrial Unitary Air-Conditioning Condensing Units 2009.
- E. AHRI 880 (I-P) - Performance Rating of Air Terminals 2017.
- F. AMCA 210 - Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating 2016.
- G. ASHRAE (HVACA) - ASHRAE Handbook - HVAC Applications Most Recent Edition Cited by Referring Code or Reference Standard.
- H. ASHRAE Std 15 - Safety Standard for Refrigeration Systems and Designation and Classification of Refrigerants 2019, with Errata (2020).
- I. ASHRAE Std 55 - Thermal Environmental Conditions for Human Occupancy 2020.
- J. ASHRAE Std 62.1 - Ventilation for Acceptable Indoor Air Quality Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. ICC (IFGC) - International Fuel Gas Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- L. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible 2005 (Revised 2009).

**PRODUCTS****2.01 HVAC SYSTEM TYPES**

- A. Use one or more of the following:
  - 1. Stand-Alone HVAC Systems:
    - a. Rooftop unit.
    - b. Variable air volume, self-contained, air-conditioning unit.
    - c. Cooling only ductless split system.

**2.02 ENERGY SUPPLY**

- A. Pipe:
  - 1. Use one or more of the following:
    - a. Materials permitted by code.
    - b. Copper pipe with flared joints.
- B. Fittings:
  - 1. Use one or more of the following:
    - a. Materials permitted by code.
    - b. Copper.

**2.03 HEAT GENERATION**

- A. Furnaces:
  - 1. Use one or more of the following:
    - a. Gas-fired furnaces.

**2.04 REFRIGERATION**

- A. Do not use:
  - 1. CFC-based refrigerants.
  - 2. HCFC-based refrigerants.
- B. Refrigeration Units:
  - 1. Use one or more of the following:
    - a. Condensing units.

**2.05 AIR DISTRIBUTION**

- A. Ductwork:
  - 1. Use one or more of the following:
    - a. Galvanized sheet metal duct.
- B. Diffusers, Registers, and Grilles:
  - 1. Use one or more of the following:
    - a. Aluminum diffusers.
- C. Fans:
  - 1. Use one or more of the following:
    - a. Aluminum fan housing with an aluminum propeller.
    - b. Aluminum fan housing with an aluminum centrifugal wheel.
- D. Air Filters:
  - 1. Use one or more of the following:
    - a. Pleated panel filters.

**2.06 HVAC CONTROLS**

- A. Operators and Sensors:
  - 1. Use one or more of the following:

- a. Electric thermostats.

### **PART 3 DESIGN CRITERIA**

#### **3.01 BASIC FUNCTION**

- A. Provide natural gas for use by HVAC and plumbing equipment as follows:
  1. System Capacity: Provide a fuel supply line (pipe) with capacity to serve the facility plus 10 percent reserve capacity.
- B. Provide the necessary equipment and infrastructure to deliver heat to the conditioned spaces.
- C. Provide the necessary equipment to generate the cooling required to maintain building comfort.
- D. Distribute air to maintain the required space conditions.
  1. Maximum Air Velocity:
    - a. For 1 Inch W.G. Duct Pressure Class: 1500 feet per minute.
- E. Provide the elements necessary to control and monitor the building's indoor environment.
  1. Provide a programmable thermostat for each zone to maintain the required space conditions and local, packaged control for each major piece of HVAC equipment. A building control system is not required.
  2. Zoning and Space Temperature Control:
    - a. Dedicated terminal unit and thermostat for each separated space.
    - b. Single thermostat and terminal unit for spaces with similar function, exposure, and location.
    - c. Zone each bunk room, separately. Dedicate at least one terminal unit and thermostat to each zone.
    - d. Provide each IT room with dedicated zone. Provide humidity and temperature control.
- F. Control the following equipment:
  1. Fan coil units.
- G. Where HVAC elements also must function as elements defined within another element group, meet the requirements of both element groups.
- H. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria.
- I. Substantiation:
  1. Proposal: Description of systems required, sources, input-side capacities, and means of distribution.
  2. Final Design: Design calculations; documents showing zoning, air handlers, air terminals, equipment locations, equipment sizes, and air distribution; sample manufacturer data showing capacity available.
  3. Construction Documents: Complete system details.
  4. Construction: Manufacturer's data showing performance, certified by independent testing agency.
  5. Construction: Testing, adjusting, and balancing report indicating initial airflow, final airflow, initial temperature, and final temperature of each conditioned space.  
Measurement of parameters when space is occupied and during summer when the outside air temperature is within 10 percent of the summer design conditions.

#### **3.02 AMENITY AND COMFORT CRITERIA**

- A. Space Temperature Setpoint: As specified in Section DC 0 and as follows:
  1. IT Room: 68 deg F, plus or minus 0.5 deg F.

- B. Space Temperature Control: Coordination of air distribution system's design and installation with zoning and space temperature requirements.
  - 1. Maintain winter effective temperature as defined by ASHRAE Std 55 between 68 degrees F and 74 degrees F.
  - 2. Maintain summer effective temperature as defined by ASHRAE Std 55 between 73 degrees F and 79 degrees F.
- C. Humidity Control:
  - 1. Maintain relative humidity between 50 and 55 percent in habitable spaces.
- D. Air Movement:
  - 1. Provide an air distribution system that limits the air velocity to 50 fpm, maximum.
  - 2. Adjustments: Provide an air distribution system which allows adjusting direction of airflow from supply diffusers, adjusting dampers, and changing the thermostat setpoint.
  - 3. Substantiation:
    - a. Occupancy: Measure air movement at work station in accordance with ASHRAE Std 55 in lobbies, common spaces, or bunk rooms and adjust air distribution system to make occupants comfortable.
- E. Acoustical Performance:
  - 1. Air Distribution Background Noise: Provide systems which comply with the acoustical requirements of Section DC C - Interiors Criteria and the following RC Levels as defined in ASHRAE HVAC Applications Handbook. Do not exceed the sound pressure level for any octave band at the specified RC.
    - a. Bunk Rooms: 25-35,neutral.
    - b. Common Areas (day room, kitchen, lobby): 25-35, neutral.
    - c. Substantiation:
      - 1) Final Design: Equipment product data that predicts sound levels for anticipated use.
- F. Indoor Air Quality: Provide sufficient ventilation to obtain acceptable indoor quality, determined using the Ventilation Rate Procedure of ASHRAE Std 62.1.
- G. Appearance:
  - 1. Diffuser Shape: Provide square diffusers.
  - 2. Diffuser Face: Provide perforated, louvered, or plaque face diffusers.
  - 3. Diffuser Color: Provide diffusers with ceiling matching color.

### **3.03 HEALTH AND SAFETY CRITERIA**

- A. Life Safety: Provide interconnection and coordination of HVAC controls with other life safety systems.
- B. Fire Sources:
  - 1. Provide products which are rated for the specific locations where they are installed.
  - 2. Provide distribution elements constructed from incombustible materials.
- C. Fire Spread: Provide interlocks to prevent operation or start-up of air distribution elements when fire or smoke detection systems are in alarm condition.
- D. Systems Safety:
  - 1. Condensing Units: Construct condensing units to ASHRAE Std 15, Safety Standard for Refrigeration Systems.
- E. Refrigerants:
  - 1. Comply with the requirements of ASHRAE Std 15.
  - 2. Prevent release of refrigerant to atmosphere.



**3.04 STRUCTURAL CRITERIA**

- A. Seismic Protection:
  - 1. Provide fuel distribution system with the ability to flex where differential movement is anticipated.
  - 2. Provide fuel distribution system supports capable of supporting twice its installed weight.

**3.05 DURABILITY CRITERIA**

- A. Expected Service Life Span:
  - 1. HVAC:
    - a. Shut-Off Valves: Minimum 10 years.
    - b. Dampers, Louvers, Registers, Grilles: Same as service life of building.
    - c. Main Heat Generation and Cooling Equipment: Minimum 20 years.
    - d. Secondary Equipment: Minimum 10 years.
    - e. Control Components, Except Wiring: Minimum 10 years.
  - 2. Energy Supply System: Provide a system which will last a minimum of 10 years in service without major repairs or operating expense.
  - 3. Air Distribution System: Provide a system which will last a minimum of 10 years in service without major repairs or operating expense.
  - 4. HVAC Control System: Provide a system which will last a minimum of 10 years in service without major repairs or operating expense.
- B. Aesthetic Life Span: Provide units exposed within the occupied space which will not fade, chip, or peel for a minimum of 10 years.
- C. Corrosion Control: Drain condensate from cooling coils to prevent corrosion of associated equipment.
- D. Underground Piping Corrosion Control: See Section DC 0 - Facility Design Criteria.

**3.06 OPERATION AND MAINTENANCE CRITERIA**

- A. Energy Efficiency:
  - 1. Condensing Unit Integrated Part Load Value (IPLV): 12, calculated as specified in AHRI 365 I-P.
  - 2. Condensing Unit Energy Efficiency Ratio (EER): 11, minimum, at standard rating conditions specified in AHRI 365 I-P.
  - 3. Control System: Provide the following control functions or features:
    - a. Holiday scheduling.
    - b. Night setback.
    - c. Outside air economizer.
- B. Fan Efficiency:
  - 1. Propeller Fans: Do not use propeller fans at static pressure above 1 inch water gauge.
  - 2. Fans: Match fan pressure characteristics to the air distribution system pressure characteristics including the system effect factors; pressure characteristics based on AMCA 210 fan ratings and system characteristics based on engineering calculations.
  - 3. Substantiation:
    - a. Final Design: Calculations showing the air distribution pressure characteristics and data supporting the selection of the fan.
    - b. Construction: Calculations showing the air distribution systems pressure characteristics; AMCA seal and ratings on each fan used.
- C. Air Distribution Efficiency: Provide duct construction in accordance with SMACNA (DCS), based on the following:

1. Supply Duct Pressure Class: 2 inches w.g..
  2. Return Duct Pressure Class: 2 inches w.g..
  3. Outside Air Duct Pressure Class: 2 inches w.g..
  4. Exhaust Duct Pressure Class: 2 inches w.g..
  5. Transfer Duct Pressure Class: 2 inches w.g..
- D. Ease of Service:
1. Provide shut-off valves as required by code and at each branch connection.
  2. Air Distribution: Provide units which are modular in design, which allow access to and removal of compressor and fan through front panel, and with filter access without removal of the front panel.

**END OF SECTION**

**SECTION DC D4 - FIRE PROTECTION CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Fire Sprinkler and Extinguishing Systems: Elements which automatically extinguish fires; automatic fire protection is required for the entire building.
- B. Fire Protection Specialties: Fire fighting devices and storage cabinets not including devices connected to a fire suppression system.
- C. Other Fire Protection Elements: Elements that are not covered in other fire protection Sections.
- D. Products: Where specific products are required or allowed, use products complying with the additional requirements specified elsewhere.

**1.02 RELATED REQUIREMENTS**

- A. Section DC 0 - Facility Design Criteria: Criteria that apply to every pertinent element of the facility.
- B. Section DC D2 - Plumbing Criteria: Water source.
- C. Section DC D3 - HVAC Criteria: Smoke control and evacuation.
- D. Section 01 30 50 - Design Procedures and Substantiation Requirements.

**1.03 REFERENCE STANDARDS**

- A. NFPA 10 - Standard for Portable Fire Extinguishers 2017, with Errata (2018).
- B. NFPA 13 - Standard for the Installation of Sprinkler Systems Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. NFPA 14 - Standard for the Installation of Standpipe and Hose Systems 2019.
- D. NFPA 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems 2016 (Amended 2017).

**PART 2 PRODUCTS****2.01 FIRE SUPPRESSION SYSTEM TYPES**

- A. Use one or more of the following:
  - 1. Wet pipe sprinkler system.
  - 2. Dry pipe sprinkler system.
  - 3. Preaction sprinkler system.
- B. Do not use:
  - 1. Deluge sprinkler system.
  - 2. Non-water extinguishing systems.
  - 3. Standpipe system.
  - 4. Standpipe and hose system.

**2.02 FIRE SPRINKLER AND EXTINGUISHING SYSTEM COMPONENTS**

- A. Pipe:
  - 1. Use one or more of the following:
    - a. Materials permitted by code.
    - b. Steel pipe with welded joints or grooved joints with seals and couplings.
  - 2. Do not use:
    - a. Copper pipe.
    - b. CPVC pipe.
    - c. PB pipe.

- B. Fittings:
  - 1. Use one or more of the following:
    - a. Materials permitted by code.
    - b. Steel.
    - c. Cast iron.
  - 2. Do not use:
    - a. Copper.
    - b. CPVC.
    - c. PB.

### **2.03 FIRE PROTECTION SPECIALTIES**

- A. Fire Protection Specialties: Include the following specialties:
  - 1. Fire Extinguishers: Include the following types:
    - a. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
      - 1) Class: A:B:C type.

## **PART 3 DESIGN CRITERIA**

### **3.01 BASIC FUNCTION**

- A. Provide code-required fire suppression regardless of type or coverage specified.
- B. Fire Sprinklers: Types as indicated for specific spaces and areas.
  - 1. Design and construction in accordance with code and NFPA 13.
  - 2. Provide wet pipe sprinkler systems unless otherwise indicated or required by code.
  - 3. General Use (Not Indicated As Another Type): Wet pipe.
    - a. Occupancy: Light Hazard.
    - b. Density/Area: 0.08 gpm per sq ft over 2000 sq ft.
  - 4. Lobby, Bunks, and Day Room:
    - a. System Type: Wet pipe.
    - b. Occupancy: Light Hazard.
    - c. Density/Area: 0.08 gpm per sq ft over 2000 sq ft.
  - 5. Storage:
    - a. System Type: Wet pipe.
    - b. Occupancy: Ordinary (Group 1) Hazard.
    - c. Density/Area: 0.13 gpm per sq ft over 2000 sq ft.
  - 6. Kitchen:
    - a. System Type: Wet pipe.
    - b. Occupancy: Ordinary (Group 1) Hazard.
    - c. Density/Area: 0.13 gpm per sq ft over 2000 sq ft.
  - 7. Mechanical Room:
    - a. System Type: Wet pipe.
    - b. Occupancy: Ordinary (Group 1) Hazard.
    - c. Density/Area: 0.13 gpm per sq ft over 2000 sq ft.
  - 8. Apparatus Bay/Decon:
    - a. System Type: Wet pipe.
    - b. Occupancy: Ordinary (Group 2) Hazard.
    - c. Density/Area: 0.17 gpm per sq ft over 2000 sq ft.
- C. Water Source: Provide water supply as required by NFPA 14.

1. Determine minimum water supply requirements for each sprinkler system using the hydraulic calculation method defined by NFPA 13.
2. Provide water from a public service main.
3. Substantiation:
  - a. Final Design: Water supply for each system on drawings.
- D. Fire Protection Specialties: Provide equipment and fixtures to facilitate manual fire-fighting in accordance with the code and the following:
  1. Provide portable fire extinguishers throughout the facility, of the type and size and in the locations required by NFPA 10 and the code.
  2. Provide portable fire extinguishers as follows:
    - a. Kitchens: One 10-B:C sodium bicarbonate or potassium bicarbonate extinguisher, conspicuously located along path of exit travel, not more than 10 feet or less than 5 feet from cooking equipment. (locate in cabinetry)
  3. Substantiation:
    - a. Final Design: Types, locations, and calculations of travel distances.
- E. Where fire protection elements also must function as elements defined within another element group, meet the requirements of both element groups.
- F. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria.
- G. Substantiation:
  1. Proposal: Description of systems required, sources, input-side capacities, and means of distribution.
  2. Final Design: Fire protection zones indicated on drawings, with riser locations identified.
  3. Final Design: Engineering calculations showing input- and output-side capacities and loads and sizes of distribution elements.
  4. Fi: System equipment locations indicated on drawings, and manufacturer's product data indicating products to be used.
  5. Construction Documents: Complete system details.
  6. Construction and Closeout: Functional performance testing.

### **3.02 AMENITY AND COMFORT CRITERIA**

- A. Leakage: Provide systems that are leak-free.
- B. Accessibility: Provide clearances around system components for service and use.
  1. Provide fire department connections as required by code.
- C. Appearance:
  1. Every space: Concealed sprinklers, except as follows:
    - a. Lobby: Sidewall sprinklers.
    - b. Day Room and Kitchen: Upright sprinklers.
    - c. Storage, Mechanical, Laundry, and Apparatus Bays: Upright sprinklers.
  2. Provide valves with brass finish.
  3. Provide fire department connections with brass finish.

### **3.03 HEALTH AND SAFETY CRITERIA**

- A. Path of Egress: Provide systems which safeguard path of egress.
- B. Fire Source: Provide system materials which do not contribute to the spread of the fire.
- C. Fire Spread: Provide systems which control spread of fire throughout facility.
- D. Sprinkler Head Performance: As required by code and NFPA 13.

- E. Fire Safety: Mount extinguishers in permanent location using mounting fixtures that will inhibit casual removal but allow ready use in case of fire.
- F. Locate extinguishers and cabinets so that means of egress is not impeded, in accordance with code.

### **3.04 STRUCTURAL CRITERIA**

- A. Seismic Design:
  - 1. Provide a sprinkler system which allows movement where differential movement is anticipated.
  - 2. Provide sprinkler system supports capable of supporting twice its installed wet weight.

### **3.05 DURABILITY CRITERIA**

- A. Expected Service Life Span:
  - 1. Provide a sprinkler system which will be viable for the life of building when maintained as specified in NFPA 25.
    - a. Substantiation:
      - 1) Final Design: Identification of a similar system in use in an existing facility for 3 years and consisting of components from the same manufacturers.
  - 2. Sprinkler Heads, Valves, and Other Inlet and Outlet Components: Same as building service life.
- B. Corrosion Resistance: Use corrosion resistant materials; ferrous metal is not considered corrosion resistant unless it is hot dipped galvanized, chrome plated, or coated with rust inhibitive paint.
- C. Vandalism: Provide systems which are tamper-resistant.

### **3.06 OPERATION AND MAINTENANCE CRITERIA**

- A. Capacity: As required by code.
- B. Ease of Use: Provide easy access to and working clearances around system components.
- C. Ease of Service:
  - 1. Spare Sprinkler Heads: Provide additional sprinkler heads as required by code to service the system.
- D. Unauthorized Use: Provide systems which minimize activation and use by unauthorized persons.
- E. Ease of Operation:
  - 1. For extinguishers intended for the use of occupants other than trained fire brigade members, weight of extinguisher may not exceed 12 pounds.
- F. Ease of Alteration: Locate extinguishers and cabinets so that minor relocation of rooms and spaces normally expected during occupancy do not result in violation of the location requirements of NFPA 10.
- G. Maintenance:
  - 1. Provide sprinkler system maintenance in accordance with NFPA 25.

### **END OF SECTION**

**SECTION DC D5 - ELECTRICAL CRITERIA****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Electrical: Provision and distribution of electrical power to operate every electrically-operated device, including those included under other facility services and those provided separately by the Owner; artificial lighting to illuminate spaces and tasks, both interior and exterior, independent of reliance on natural light; and grounding systems.
- B. Electrical Energy Supply and Generation: Utility power sources, engine-generator systems, battery power systems, uninterruptible power supply systems and unit power conditioners.
  - 1. Electrical Power Source: Existing public utility.
- C. Service and Distribution: Service entrance equipment, distribution equipment, transformers, motor control equipment, service and feeder wiring (conductors and raceways), monitoring, safety and control equipment, and other elements required for a complete functional system.
  - 1. Main Electrical Service: The utility will provide a service transformer to convert its distribution voltage to the building's utilization voltage.
- D. Branch Circuits: Branch circuit wiring and receptacles and other branch circuit wiring systems, comprising the following elements:
  - 1. Branch circuit breakers.
  - 2. Conductors and cable from panelboards to fixtures, wiring devices, and mechanical equipment.
  - 3. Raceways and boxes.
  - 4. Wiring devices, including, but not limited to, receptacles, floor boxes and plates, wall switches, wall dimmers, remote control switching devices, and wall plates.
- E. Interior Lighting: Comprising the following elements:
  - 1. Luminaires for general illumination.
  - 2. Accent lighting.
  - 3. Emergency lighting.
  - 4. Illuminated exit signs.
- F. Exterior Area Lighting : General lighting of exterior spaces including driveways, walkways, and parking areas; comprising exterior luminaires, poles, standards, or other means of mounting the luminaires, power supply, and controls.
- G. Cathodic Protection: Supplementary corrosion prevention using cathodic protection; see Section DC 0 - Facility Design Criteria for elements for which cathodic protection is a permitted measure.

**1.02 RELATED REQUIREMENTS**

- A. Section DC 0 - Facility Design Criteria: Criteria that apply to every pertinent element of the facility.
- B. Section DC C - Interiors Criteria: Requirements for natural lighting.
- C. Section 01 30 50 - Design Procedures and Substantiation Requirements.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. IEEE 142 - IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems 2007, with Errata (2014).
- C. IEEE 241 - IEEE Recommended Practice for Electric Power Systems in Commercial Buildings 1990 (Reaffirmed 1997).

- D. IEEE 493 - IEEE Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems 2007.
- E. IEEE 739 - IEEE Recommended Practice for Energy Management in Industrial and Commercial Facilities 1995.
- F. IEEE 1100 - IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment 2005.
- G. IEEE C57.12.00 - IEEE Standard for General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers 2015.
- H. IES (LH) - Lighting Handbook 2011, with Errata (2015).
- I. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- J. NFPA 780 - Standard for the Installation of Lightning Protection Systems 2020.

## **PART 2 PRODUCTS**

### **2.01 UTILITY SERVICE ENTRANCE**

- A. Configuration:
  - 1. Pole mounted utility transformer with underground service entrance.

### **2.02 ELECTRICAL ENERGY GENERATION**

- A. Generator Sets:
  - 1. Natural Gas and as indicated on drawings.

### **2.03 SERVICE AND DISTRIBUTION**

- A. Secondary Service and Distribution Feeders:
  - 1. Conduits:
    - a. Use one of the following:
      - 1) Below Grade: PVC conduit.
      - 2) Interior, Exposed: EMT.
      - 3) Interior, Concealed: EMT.
  - 2. Conductors:
    - a. Use one of the following:
      - 1) Copper.
- B. Main Service Equipment:
  - 1. Types of Equipment:
    - a. Use one of the following:
      - 1) Low voltage switchgear.
      - 2) Switchboards.
      - 3) Distribution panels.
  - 2. Main Devices:
    - a. Use one of the following:
      - 1) Molded case circuit breakers.
      - 2) Fused switches.
  - 3. Branch Devices:
    - a. Use one of the following:
      - 1) Circuit breakers.
      - 2) Fused switches.
  - 4. Busbars:
    - a. Use one of the following:



- 1) Copper.
  - 2) Plated aluminum.
- C. Branch Circuit Panelboards:
1. Busbars:
    - a. Use one of the following:
      - 1) Copper.
      - 2) Plated aluminum.
  2. Circuit Breakers:
    - a. Use one of the following:
      - 1) Molded case circuit breakers.

## 2.04 BRANCH CIRCUITS

- A. Branch Circuit Wiring:
- B. Receptacle Cover Plates:
1. Use the following:
    - a. Material and Finish: Plastic, off-white.

## 2.05 LIGHTING

- A. Interior Lighting:
1. Use a combination of the following and according to lighting schedule on plans:
    - a. Direct lighting units.
    - b. General diffuse lighting units.
    - c. Direct-indirect lighting units.
    - d. LED lamps.
- B. Emergency Lighting:
1. Use the following types:
    - a. Self-contained battery-powered lighting units.
- C. Exterior Area Lighting Luminaires:
1. Use one of the following types:
    - a. Direct lighting units.

## PART 3 DESIGN CRITERIA

### 3.01 BASIC FUNCTION

- A. Provide stored or generated electrical power with the appropriate characteristics to operate every electrically operated device, including those in specified in other criteria.
1. Capacity: Calculated in accordance with NFPA 70.
  2. General Receptacle System Voltage: 120 volts/3-phase/60 Hz.
    - a. Provide 208 volt/ 3 -phase/ 60 Hz receptacles in the following locations:
      - 1) Laundry and Decon.
  3. Service Transformers: As required to serve connected load plus 10 percent spare capacity.
    - a. Kilovoltampere (kVA) Rating: Provide transformers with preferred ratings according to IEEE C57.12.00.
    - b. Secondary Voltage: 208Y/120 V.
    - c. Connection Method: Coordinate with local utility for connection method.
  4. Branch Circuit Panelboards: As required to serve building circuits plus 10 percent spare capacity.
- B. Emergency Power: Provide emergency power as required by code including the following:
1. Exit Lights, Signs, and Egress Lighting: Duration as required by code.

2. Fire Detection and Alarm System: Duration as required by code.
- C. Standby Power: Provide standby power as required by code including the following:
  1. Standby Generator:
    - a. Electrical Characteristics: 208 volts/ 3 phase/ 60 Hz.
    - b. Generator Fuel Supply: Natural gas.
- D. Distribution: Distribute electric power for equipment circuits, lighting circuits, receptacle circuits, and electrical utilization devices.
  1. Branch Circuits: Provide adequate electrical power and safe and efficient distribution from panelboards to lighting, wiring devices, equipment, and appliances, based on the project program, requirements of other sections, and as follows:
- E. Lighting: Provide artificial means of lighting interior and exterior spaces.
  1. Interior Lighting: Provide artificial lighting for interior spaces that is adequate in quality and distribution for the performance of tasks typical for the type of space and the characteristics of the intended population, regardless of the availability of natural light.
  2. Exterior Lighting: Provide artificial lighting for exterior spaces, as required by the project program, that is adequate in quantity, quality, and distribution for the performance of tasks typical for the type of outdoor space and the characteristics of the intended user population.
- F. Grounding: Provide grounding systems that:
  1. Provide protection from lightning strikes; scope and design of protection as defined in Section DC 0 - Facility Design Criteria.
  2. Comply with applicable recommendations of IEEE 142 and IEEE 1100.
- G. Where electrical elements also must function as elements defined within another element group, meet the requirements of both element groups.
- H. In addition to the requirements of this section, comply with applicable requirements of Section DC 0 - Facility Design Criteria - Facility Design Criteria.
- I. Substantiation:
  1. Proposal: Description of systems required, sources, input-side capacities, identification of service voltages and amperage, means of distribution, and major equipment.
  2. Final Design: Single-line diagrams, showing feeder and equipment sizes; engineering calculations showing input- and output-side capacities and loads and sizes of distribution elements; required electrical room sizes.
  3. Construction Documents: Complete system details, riser diagrams, equipment characteristics, and calculations.
  4. Construction: Continuity test of wiring systems prior to functional performance testing.
  5. Construction and Closeout: Functional performance testing.

### **3.02 AMENITY AND COMFORT CRITERIA**

- A. Accessibility: Comply with ADA Standards for Accessible Design.
- B. Artificial Light Levels: Provide maintained ambient illuminance values for various activities based on the primary visual tasks to be accommodated and that are within the ranges specified in IES (LH)
- C. Artificial Light Quality: Provide luminous environment in each space that is designed to complement the functions and the character of the space.
  1. Interior Lighting:
    - a. Distribution: In keeping with geometry of space and location of visual tasks.
- D. Sound and Noise:
  1. Provide generator enclosures of the sound attenuated type.

- E. Appearance:
  - 1. Location of Service Transformer: pole mounted, coordinate exact location with local utility.
  - 2. Do not locate switchboards, transformers, and panelboards in corridors, lobbies, or public spaces.
  - 3. Character of Lighting Fixtures: Coordinated with architecture and other building systems and appropriate to finish level.
  - 4. Provide emergency lights which appear to be normal space luminaires.
  - 5. Provide exterior area lighting that is compatible with overall project appearance and coordinated with site layout and building organization.
    - a. Luminaire Design:
      - 1) Material and finish of housing compatible with mounting.

### **3.03 HEALTH AND SAFETY CRITERIA**

- A. Fire Hazard:
  - 1. Locate electrical energy generation equipment away from flammable materials.
    - a. Generators and Fuel Supplies: Located out-of-doors.
  - 2. Provide branch circuit elements in compliance with code and that are UL listed or labeled.
- B. Lightning Hazard: See Section DC 0 - Facility Design Criteria for portions of the project that must be protected and coordinate protection elements with other built elements.
- C. Electrical Hazards: Design in accordance with NFPA standards that apply to the occupancy, application, and design.
  - 1. Control access to spaces housing electrical components and allow access only by qualified personnel.
  - 2. Provide electrical distribution equipment with locking cabinets, doors, and panels when it is located in public areas.
  - 3. Comply with NFPA 70 requirements for hazardous locations applications.
- D. Hazardous Locations: Comply with requirements of NFPA 70 chapter on Hazardous (Classified) Locations, in the following areas:
  - 1. Flammable gas storage.
  - 2. Flammable liquid storage.
- E. Accidental Explosion: Ventilate electrical energy generation equipment to prevent the build-up of explosive gases.
- F. Intrusion: Protect electrical energy generation and service and distribution equipment from unauthorized access.

### **3.04 STRUCTURAL CRITERIA**

- A. Seismic Design:
  - 1. Provide electrical energy generation elements with flexible joints where differential movement is anticipated.
  - 2. Provide electrical energy generation equipment supports capable of supporting twice equipment's normal weight.
  - 3. Provide service and distribution elements with the ability to move where differential movement is anticipated.

### **3.05 DURABILITY CRITERIA**

- A. Expected Service Life Span:
  - 1. Electrical:
    - a. Power Distribution Equipment: Same as building service life.
    - b. Power Generation Equipment: Minimum 20 years.

- c. Every Component of Life Safety-Related Systems: Minimum 20 years.
- d. Control Components, Except Wiring: Minimum 10 years.

**3.06 OPERATION AND MAINTENANCE CRITERIA**

- A. Energy Efficiency:
  - 1. Comply with requirements of IEEE 739.
  - 2. Interior Lighting Controls: Provide level of control of lighting appropriate to type of space and Owner's requirements for energy conservation.
  - 3. Exterior Area Lighting Controls: Provide level of control of lighting appropriate to type of area and Owner's requirements for energy conservation.
- B. Ease of Use:
  - 1. Configuration: Design wiring and protective devices so that outages caused by local overloads do not affect unrelated areas or systems.
  - 2. Provide main busway centrally located to minimize branch wiring runs.

**END OF SECTION**

**SECTION 01 10 00 - SUMMARY****PART 1 GENERAL****1.01 PROJECT INFORMATION**

- A. Project Identification: Lake City Fire Station No 2.
- B. Owner: City of Lake City.
- C. Owner's Representative: Passero Associates.
- D. Web-Based Project Software: Project software administered by Owner's Representative will be used for purposes of managing communication and documents during the Final Design and Construction stages.
- E. The Project generally consists of the final design and construction of a new west side Fire Station with two apparatus bays, day room, kitchen, bunk rooms and support spaces. The exterior consist of masonry and metal panel walls with metal roofing.

**1.02 CONTRACT DESCRIPTION**

- A. Contract Type: A single prime contract based on a Stipulated Price (Guaranteed Maximum Price).

**1.03 OWNER OCCUPANCY**

- A. Owner intends to occupy the Project upon Substantial Completion.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

**1.04 CONTRACTOR USE OF SITE AND PREMISES**

- A. Construction Operations: Limited to areas indicated at pre-construction meeting.
- B. Arrange use of site and premises to allow:
  - 1. Owner occupancy at substantial completion.
- C. Provide access to and from site as required by law and by Owner:
  - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
  - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.

**1.05 WORK SEQUENCE**

- A. Coordinate construction schedule and operations with Owner's Representative.

**1.06 SPECIFICATION AND DRAWING CONVENTIONS**

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
  - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

### **1.07 DEFINITIONS**

- A. Construction Documents. The signed and sealed plans prepared by the Design-Build Firm and accepted by the Owner's Representative, including reproductions thereof, showing the location, character, dimensions, and details of the work. Upon review and approval by the Owner's Representative, the plans will be stamped "Released for Construction" dated and initialed by the reviewer.

### **1.08 ADDITIONAL CONTRACT REQUIREMENTS**

- A. Corrections for Construction Errors.
  1. For work that the Contractor constructs incorrectly or does not meet the requirements of the Contract Documents, the Contractor has the prerogative to submit an acceptance proposal to the Owner's Representative for review and disposition. The acceptance proposal shall describe the error or defect and either describe remedial action for its correction or propose a method for its acceptance. In either case, the acceptance proposal shall address structural integrity, aesthetics, maintainability, and the effect on Contract Time. The Owner's Representative will judge any such proposal for its effect on these criteria and also for its effect on Contract Administration.
  2. When the Owner's Representative judges that a proposal infringes on the structural integrity or maintainability of the structure, the Contractor's Architect/Engineer of Record will perform a technical assessment and submit it to the Owner's Representative for approval. Do not take any corrective action without the Owner's Representative's approval.
  3. Carry out all approved corrective construction measures at no expense to the Owner.
  4. Notwithstanding any disposition of the compensation aspects of the defective work, the Owner's Representative's decision on the technical merits of a proposal is final.
- B. Coordination of Contract Documents.
  1. These Specifications, the plans, Special Provisions, and all supplementary documents are integral parts of the Contract; a requirement occurring in one is as binding as though occurring in all. In addition to the work and materials specifically called for in the Contract Documents and any additional incidental work, not specifically mentioned, when so shown in the plans, or if indicated, or obvious and apparent, as being necessary for the proper completion of the work will be included in the Contract Lump Sum Price.
  2. Computed dimensions govern over scaled dimensions.
- C. Errors or Omissions in Construction Documents.
  1. Errors and omissions discovered in the Construction Documents are the total responsibility of the Design-Build Firm. The errors and omissions shall be brought to the attention of the Architect/Engineer of Record as well as the Owner's Representative. Resolution of the question by the Architect/Engineer of Record is intended, and will be at no additional cost to the Owner. All such modifications are subject to approval of the Owner's Representative.

### **PART 2 PRODUCTS - NOT USED**

### **PART 3 EXECUTION - NOT USED**

### **END OF SECTION**

**SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Design-Builder submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

**1.02 SCHEDULE OF VALUES**

- A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Owner's Representative for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.
- E. Include in each line item, the amount of Allowances specified in this section.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

**1.03 APPLICATIONS FOR PROGRESS PAYMENTS**

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Use Form AIA G742 and AIA G743, edition stipulated in the Agreement.
- C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Owner's Representative for approval.
- D. Forms filled out by hand will not be accepted.
- E. Execute certification by signature of authorized officer.
- F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.
- G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- H. Submit one electronic of each Application for Payment.
- I. Include the following with the application:
  - 1. Transmittal letter as specified for submittals in Section 01 30 00.
  - 2. Construction progress schedule, revised and current as specified in Section 01 30 00.
  - 3. Partial release of liens from major subcontractors and vendors.
- J. When Owner's Representative requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

**1.04 MODIFICATION PROCEDURES**

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Owner's Representative will issue instructions directly to Design-Builder.
- B. For other required changes, Owner's Representative will issue a document signed by Owner instructing Design-Builder to proceed with the change, for subsequent inclusion in a Change Order.

1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
2. Promptly execute the change.
- C. For changes for which advance pricing is desired, Owner's Representative will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Design-Builder shall prepare and submit a fixed price quotation within 5 days.
- D. Design-Builder may propose a change by submitting a request for change to Owner's Representative, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation.
- E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
  1. For change requested by Owner's Representative for work falling under a fixed price contract, the amount will be based on Design-Builder's price quotation.
  2. For change requested by Design-Builder, the amount will be based on the Design-Builder's request for a Change Order as approved by Owner's Representative.
  3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
  4. For change ordered by Owner's Representative without a quotation from Design-Builder, the amount will be determined by Owner's Representative based on the Design-Builder's substantiation of costs as specified for Time and Material work.
- F. Substantiation of Costs: Provide full information required for evaluation.
  1. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- G. Execution of Change Orders: Owner's Representative will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

#### **1.05 APPLICATION FOR FINAL PAYMENT**

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
  1. All closeout procedures specified in Section 01 70 00.

#### **END OF SECTION**



**SECTION 01 21 00 - ALLOWANCES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Cash allowances.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

**1.03 CASH ALLOWANCES**

- A. Costs Included in Cash Allowances: Cost of product to Design-Builder or subcontractor, less applicable trade discounts
- B. Costs Not Included in Cash Allowances: Product handling at the site, including unloading, uncrating, and storage; protection of products from elements and from damage; and labor for installation and finishing. Required blocking or other construction necessary for installation .
- C. Owner's Representative Responsibilities:
  - 1. Consult with Design-Builder for consideration and selection of products .
  - 2. Prepare Change Order.
- D. Design-Builder Responsibilities:
  - 1. Assist Owner's Representative in selection of products, suppliers, and installers.
  - 2. Obtain proposals from suppliers and installers and offer recommendations.
  - 3. On notification of which products have been selected, execute purchase agreement with designated supplier and installer.
  - 4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
  - 5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- E. Differences in costs will be adjusted by Change Order.
- F. At closeout of Contract, funds remaining in Allowance will be credited to Owner.

**1.04 ALLOWANCES SCHEDULE**

- A. Allowance No. 1 (Cash Allowance): Include the sum of \$20,000.
  - 1. This allowance includes furniture and equipment items as indicated on A-603. Items not listed as "by allowance" are to be included in the Base Bid.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

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**SECTION 01 22 00 - UNIT PRICES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. List of unit prices, for use in preparing Bids.
- B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

**1.02 RELATED REQUIREMENTS**

- A. Document 00 21 13 - Instructions to Respondents: Instructions for preparation of pricing for Unit Prices.
- B. Document 00 43 22 - Unit Prices Form: List of Unit Prices as supplement to Bid Form
- C. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

**1.03 COSTS INCLUDED**

- A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

**1.04 UNIT QUANTITIES SPECIFIED**

- A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

**1.05 MEASUREMENT OF QUANTITIES**

- A. Assist by providing necessary equipment, workers, and survey personnel as required.
- B. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- C. Perform surveys required to determine quantities, including control surveys to establish measurement reference lines. Notify Owner's Representative prior to starting work.

**1.06 PAYMENT**

- A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Owner's Representative, multiplied by the unit price.
- B. Payment will not be made for any of the following:
  - 1. Products wasted or disposed of in a manner that is not acceptable.
  - 2. Products determined as unacceptable before or after placement.
  - 3. Products not completely unloaded from the transporting vehicle.
  - 4. Products placed beyond the lines and levels of the required Work.
  - 5. Products remaining on hand after completion of the Work.
  - 6. Loading, hauling, and disposing of rejected Products.

**1.07 SCHEDULE OF UNIT PRICES**

- A. Item: Fill as indicated on Drawings and Geotechnical .

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION - NOT USED****END OF SECTION**

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**SECTION 01 23 00 - ALTERNATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Description of Alternates.

**1.02 RELATED REQUIREMENTS**

- A. Document 00 21 13 - Instructions to Respondents: Instructions for preparation of pricing for Alternates.
- B. Document 00 43 23 - Alternates Form: List of Alternates as supplement to Bid Form.

**1.03 ACCEPTANCE OF ALTERNATES**

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Design Builder Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

**1.04 SCHEDULE OF ALTERNATES**

- A. Alternate No. 1 - "Out" Building, consisting of storage shed, trash and generator enclosure:
  - 1. Base Bid Item: Provide slab on grade for trash and generator only.
  - 2. Alternate Item: Provide storage shed, trash and generator enclosure as shown on civil drawings and A-700.
- B. Alternate No. 2 - Apparatus Bay Doors:
  - 1. Base Bid Item: Provide overhead sectional doors, operator and associated hardware, as specified in Section DC B and as noted on Drawings.
  - 2. Alternate Item: Provide bi-parting (four fold) apparatus bay doors, operator and associated hardware, as specified in Section DC B and as noted on Drawings.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

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**SECTION 01 25 00 - SUBSTITUTION PROCEDURES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Procedural requirements for proposed substitutions.

**1.02 RELATED REQUIREMENTS**

- A. Section 00 21 13 - Instructions to Respondents: Restrictions on timing of substitution requests.
- B. Section 01 21 00 - Allowances, for cash allowances affecting this section.
- C. Section 01 23 00 - Alternates, for product alternatives affecting this section.
- D. Section 01 30 00 - Administrative Requirements: Submittal procedures, coordination.
- E. Section 01 60 00 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

**1.03 DEFINITIONS**

- A. Substitutions: Changes from Contract Documents requirements proposed by Design-Builder to materials, products, assemblies, and equipment.
  - 1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Design-Builder's control.
    - a. Unavailability.
    - b. Regulatory changes.
  - 2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
    - a. Substitution requests offering advantages solely to the Design-Builder will not be considered.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.01 GENERAL REQUIREMENTS**

- A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
  - 2. Agrees to provide the same warranty for the substitution as for the specified product.
  - 3. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
- C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
  - 1. No specific form is required. Design-Builder's Substitution Request documentation must include the following:
    - a. Project Information:
      - 1) Official project name and number, and any additional required identifiers established in Contract Documents.

- b. Substitution Request Information:
    - 1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
    - 2) Indication of whether the substitution is for cause or convenience.
    - 3) Issue date.
    - 4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
    - 5) Description of Substitution.
    - 6) Reason why the specified item cannot be provided.
    - 7) Differences between proposed substitution and specified item.
    - 8) Description of how proposed substitution affects other parts of work.
  - c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
    - 1) Physical characteristics.
    - 2) In-service performance.
    - 3) Expected durability.
    - 4) Visual effect.
    - 5) Warranties.
    - 6) Other salient features and requirements.
    - 7) Include, as appropriate or requested, the following types of documentation:
      - (a) Product Data:
      - (b) Samples.
      - (c) Certificates, test, reports or similar qualification data.
      - (d) Drawings, when required to show impact on adjacent construction elements.
  - d. Impact of Substitution:
    - 1) Savings to Owner for accepting substitution.
    - 2) Change to Contract Time due to accepting substitution.
- D. Limit each request to a single proposed substitution item.
- 1. Submit an electronic document, combining the request form with supporting data into single document.

### **3.02 SUBSTITUTION PROCEDURES DURING CONSTRUCTION**

- A. Submit request for Substitution for Cause immediately upon discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Owner's Representative, in order to stay on approved project schedule.
- B. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Owner's Representative, in order to stay on approved project schedule.
  - 1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
  - 2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
  - 3. Bear the costs engendered by proposed substitution of:
    - a. Owner's compensation to the Owner's Representative for any required redesign, time spent processing and evaluating the request.
    - b. Other unanticipated project considerations.



- C. Substitutions will not be considered under one or more of the following circumstances:
  - 1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
  - 2. Without a separate written request.
  - 3. When acceptance will require revisions to the Contract Documents.

**3.03 RESOLUTION**

- A. Owner's Representative may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
- B. Owner's Representative will notify Design-Builder in writing of decision to accept or reject request.

**3.04 ACCEPTANCE**

- A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

**3.05 CLOSEOUT ACTIVITIES**

- A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.
- B. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

**END OF SECTION**

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**SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. General administrative requirements.
- B. Electronic document submittal service.
- C. Preconstruction meeting.
- D. Progress meetings.
- E. Construction progress schedule.
- F. Coordination drawings.
- G. Number of copies of submittals.
- H. Requests for Interpretation (RFI) procedures.
- I. Submittal procedures.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 60 00 - Product Requirements: General product requirements.

**1.03 REFERENCE STANDARDS**

- A. AIA G716 - Request for Information 2004.
- B. AIA G810 - Transmittal Letter 2001.
- C. CSI/CSC Form 12.1A - Submittal Transmittal Current Edition.
- D. CSI/CSC Form 13.2A - Request for Information Current Edition.

**1.04 GENERAL ADMINISTRATIVE REQUIREMENTS**

- A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
- B. Make the following types of submittals to Owner's Representative:
  - 1. Requests for Interpretation (RFI).
  - 2. Requests for substitution.
  - 3. Shop drawings, product data, and samples.
  - 4. Test and inspection reports.
  - 5. Design data.
  - 6. Manufacturer's instructions and field reports.
  - 7. Applications for payment and change order requests.
  - 8. Progress schedules.
  - 9. Coordination drawings.
  - 10. Correction Punch List and Final Correction Punch List for Substantial Completion.
  - 11. Closeout submittals.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE**

- A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.

1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Design-Builder's correction punchlist, and any other document any participant wishes to make part of the project record.
  2. Design-Builder and Owner's Representative are required to use this service.
  3. It is Design-Builder's responsibility to submit documents in allowable format.
  4. Subcontractors, suppliers, and Owner's Representative's consultants will be permitted to use the service at no extra charge.
  5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, [www.adobe.com](http://www.adobe.com), or Bluebeam PDF Revu, [www.bluebeam.com](http://www.bluebeam.com)), unless such software capability is provided by the service provider.
  6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
  7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.
- B. Submittal Service: The selected service is:
1. Newforma Info Exchange, provided by Owner's Representative.
- C. Project Closeout: Owner's Representative will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

### **3.02 PRECONSTRUCTION MEETING**

- A. Owner's Representative will schedule a meeting after Notice of Award.
- B. Attendance Required:
1. Owner.
  2. Owner's Representative.
  3. Design-Builder.
- C. Agenda:
1. Execution of Owner-Design-Builder Agreement.
  2. Submission of executed bonds and insurance certificates.
  3. Distribution of Contract Documents.
  4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
  5. Submission of initial Submittal schedule.
  6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  7. Scheduling.
- D. Owner's Representative will record minutes and distribute copies within two days after meeting.

### **3.03 PROGRESS MEETINGS**

- A. Owner's Representative will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- B. Attendance Required:
1. Design-Builder.
  2. Owner.
  3. Owner's Representative.

4. Special consultants.
  5. Design-Builder's superintendent.
  6. Major subcontractors.
- C. Agenda:
1. Review minutes of previous meetings.
  2. Review of work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems that impede, or will impede, planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Review of RFIs log and status of responses.
  7. Review of off-site fabrication and delivery schedules.
  8. Maintenance of progress schedule.
  9. Corrective measures to regain projected schedules.
  10. Planned progress during succeeding work period.
  11. Coordination of projected progress.
  12. Maintenance of quality and work standards.
  13. Effect of proposed changes on progress schedule and coordination.
  14. Other business relating to work.
- D. Owner's Representative will record minutes and distribute copies within two days after meeting.

### **3.04 CONSTRUCTION PROGRESS SCHEDULE- SEE SECTION 01 32 16**

### **3.05 COORDINATION DRAWINGS**

- A. Review drawings prior to submission to Owner's Representative.
- B. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
      - 1) Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
      - 2) Show location and size of access doors required for access to concealed dampers, valves, and other controls.
      - 3) Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Owner's Representative indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- C. Coordination Drawing Organization: Organize coordination drawings as follows:
1. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
  2. Structural Penetrations: Indicate penetrations and openings required for all disciplines.

3. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
  4. Mechanical and Plumbing Work: Show the following:
    - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
    - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
  5. Electrical Work: Show the following:
    - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
    - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
    - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
    - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
  6. Fire-Protection System: Show the following:
    - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
  7. Review: Owner's Representative will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Owner's Representative determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Owner's Representative will so inform Contractor, who shall make suitable modifications and resubmit.
- D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Submittal Format: Submit or post coordination drawing files using PDF format.
  2. Owner's Representative will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
    - a. Owner's Representative makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

### **3.06 REQUESTS FOR INTERPRETATION (RFI)**

- A. Definition: A request seeking one of the following:
  1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in the Contract Documents.
  2. A resolution to an issue which has arisen due to field conditions and affects design intent.
- B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
- C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
  1. Prepare in a format and with content acceptable to Owner.
    - a. Use AIA G716 - Request for Information .
    - b. Use CSI/CSC Form 13.2A - Request for Interpretation.

2. Prepare using software provided by the Electronic Document Submittal Service.
- D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
  1. Unacceptable Uses for RFIs: Do not use RFIs to request the following:
    - a. Approval of submittals (use procedures specified elsewhere in this section).
    - b. Approval of substitutions (see Sections 01 25 00 - Substitution Procedures and 01 60 00 - Product Requirements)
    - c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
  2. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response.
  3. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, the Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
    - a. The Owner reserves the right to assess the Design-Builder for the costs (on time-and-materials basis) incurred by the Owner's Representative, and any of its consultants, due to processing of such RFIs.
- E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
  1. Official Project name and number, and any additional required identifiers established in Contract Documents.
  2. Discrete and consecutive RFI number, and descriptive subject/title.
  3. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
  4. Annotations: Field dimensions and/or description of conditions which have engendered the request.
  5. Design-Builder's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.
- F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.
- G. Review Time: Owner's Representative will respond and return RFIs to Design-Builder within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 3:00 PM will be considered as having been received on the following regular working day.
  1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.
- H. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Design-Builder's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
  1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith.

- Identify the amended RFI with an R suffix to the original number.
2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
  3. Notify Owner's Representative within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

### **3.07 SUBMITTAL SCHEDULE**

- A. Submit to Owner's Representative for review a schedule for submittals in tabular format.
  1. Coordinate with Design-Builder's construction schedule and schedule of values.
  2. Format schedule to allow tracking of status of submittals throughout duration of construction.
  3. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.

### **3.08 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  1. Product data.
  2. Shop drawings.
  3. Samples for selection.
  4. Samples for verification.
- B. Samples will be reviewed for aesthetic, color, or finish selection.
- C. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

### **3.09 NUMBER OF COPIES OF SUBMITTALS**

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
- B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Owner's Representative.
  1. After review, produce duplicates.
  2. Retained samples will not be returned to Design-Builder unless specifically so stated.

### **3.10 SUBMITTAL PROCEDURES**

- A. General Requirements:
  1. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
  2. Identify: Project; Design-Builder; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
  3. Apply Design-Builder's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents. Owner's Representative will not review submittals unless certified by Design-Builder.
  4. Schedule submittals to expedite the Project, and coordinate submission of related items.
    - a. For each submittal for review, allow 15 days excluding delivery time to and from the Design-Builder.
  5. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.



6. When revised for resubmission, identify all changes made since previous submission.
  7. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
  8. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
  9. Submittals not requested will not be recognized or processed.
- B. Product Data Procedures:
1. Submit only information required by individual specification sections.
  2. Collect required information into a single submittal.
  3. Submit concurrently with related shop drawing submittal.
  4. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
  2. Do not reproduce the Contract Documents to create shop drawings.
  3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
- D. Samples Procedures:
1. Transmit related items together as single package.
  2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

### 3.11 SUBMITTAL REVIEW

- A. Submittals for Review: Owner's Representative will review each submittal, and approve, or take other appropriate action.
- B. Submittals for Information: Owner's Representative will acknowledge receipt and review. See below for actions to be taken.
- C. Owner's Representative's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.
- D. Owner's Representative's and consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
    - a. "Approved", or language with same legal meaning.
    - b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
      - 1) At Design-Builder's option, submit corrected item, with review notations acknowledged and incorporated.
    - c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
  2. Not Authorizing fabrication, delivery, and installation:
- E. Owner's Representative's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
    - a. "Received" - to notify the Design-Builder that the submittal has been received for record only.
  2. Items for which action was taken:
    - a. "Reviewed" - no further action is required from Design-Builder.

### END OF SECTION

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**SECTION 01 30 50 - DESIGN PROCEDURES AND SUBSTANTIATION REQUIREMENTS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Procedures for design of the facility, based on the design criteria specified.
- B. Substantiation requirements.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 20 00 - Price and Payment Procedures: Modifications procedures.

**1.03 DEFINITIONS**

- A. Substantiation: All forms of evidence that are used to predict whether the design will comply with the requirements or to verify that the construction based on the design actually does comply. During Final Design and Construction Documents, requirements to submit substantiation are primarily intended to forestall use of designs or constructions that will not comply. At any time before completion of construction, substantiation is presumed to be only a prediction and may subsequently be invalidated by actual results. The term substantiation is used to distinguish these forms of evidence from traditional submittals commonly required during the construction phase.
- B. Proven-In-Use: Proven to comply by having actually been built to the same or very similar design with the same materials as proposed and functioning as specified.
- C. Proven-by-Mock-Up: Compliance reasonably predictable by having been tested in full-scale mock-up using the same materials and design as proposed and functioning as specified. Testing need not have been accomplished specifically for this project; when published listings of independent agencies include details of testing and results, citation of test by listing number is sufficient (submittal of all test details is not required).

**1.04 REFERENCE STANDARDS**

- A. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection 2020.

**1.05 SUBMITTALS**

- A. Phase Submittals:
  - 1. The Design-Build Firm shall provide the documents for each phase submittal listed below to the Owner's Representative. The particular phase shall be clearly indicated on the documents. The Owner's Representative will review and comment, as necessary. Once all comments requiring a response from the Design-Build Firm have been satisfactorily resolved as determined by the Owner's Representative, the Owner's Representative will initial and date the plans and specifications.
  - 2. Owner/Owner's Representative Review:
    - a. Documents produced by Design-Builder are to be reviewed and approved by the Owner's Representative prior to construction. Approval by the Owner's Representative does not indicate an approval of any deviation from the Contract Documents. Deviations to the Contract Documents must be clearly indicated and approved by Change Order or other approved method for contract modification.
    - b. Review's by the Owner/Owner's Representative are not meant to be a complete and detailed review. No failure by the Owner/Owner's Representative in discovering details in the submittal that are released for construction and subsequently found not to be in compliance with the requirements of the contract shall constitute a basis for

the Design-Build Firm's entitlement to additional monetary compensation, time, or other adjustments to the contract. The Design-Build Firm shall cause the Architect/Engineer of Record to resolve the items not in compliance with the contract, errors or omissions at no additional cost to the Owner and all revisions are subject to the Owner's approval.

- c. The Design-Build Firm may choose to begin construction prior to completion of the Phase Submittals and the Owner's "Release" for Construction. To begin construction the Design-Build Firm shall submit signed and sealed plans for the specific activity; submit a signed and sealed Construction Specifications Package or Supplemental Specifications Package; obtain regulatory permits as required for the specific activity; obtain utility agreements and permits, if applicable; and provide five (5) days notice before starting the specific activity. The plans to begin construction may be in any format including report with details, 8 1/2" X 11" sheets, or 11" X 17" sheets, and only the information needed by the Design-Build Firm to construct the specific activity needs to be shown. Beginning construction prior to the Owner approving the plans and specifications for Construction does not reduce or eliminate the Phase Submittal requirements.
3. 60% Phase Submittal:
    - a. Plans and Specifications reflecting further development of the set based on the Design Criteria Documents.
    - b. Supporting design documentation, if applicable.
    - c. Provide a list of all changes or variations from the Contract Documents.
    - d. All information above shall be submitted electronically, in .pdf format.
  4. 90% Phase Submittal:
    - a. Plans and Specifications reflecting further development of the project.
    - b. Material, equipment, furniture and other finish selections/recommendations.
    - c. Supporting design documentation, if applicable.
    - d. Provide a list of all changes made to the plans and specifications that were not directly related to the 60% review comments.
    - e. All information above shall be submitted electronically, in .pdf format.
  5. Final Submittal:
    - a. Signed and Sealed plans.
    - b. Signed and Sealed specifications.
    - c. Provide a list of all changes made to the plans and specifications that were not directly related to the 90% review comments.
      - 1) Significant changes (determined by Owner or Owner's Representative) made as part of the Final Submittal, that were not reviewed or provided in response to the 90% submittal comments, may require an additional review phase prior to approving the plans or specifications for Construction.
    - d. The Design-Build Firm shall provide a signed certification that all Electronic Review Comments have been resolved to the Owner's satisfaction as a requirement before obtaining "Release for Construction".
    - e. All information above shall be submitted electronically, in .pdf format.
- B. Substantiation Submittal Procedures:
1. Time Frames: As specified. If there is a conflict between the degree of detail or completion specified and the progress of the design or construction, obtain a clarification before submitting.

2. Recipient: Owner's Representative.
  3. For time periods that constitute Milestones, all substantiation submittals required during that period must be complete and accepted before the Milestone can be considered achieved.
  4. Resubmissions: Clearly identified as such, with all changes made since the original submittal clearly marked.
- C. Owner's Review of Substantiation: Unless otherwise indicated, Owner will make formal acceptance of substantiation submittals.
1. If a submittal is not acceptable Owner will notify Design-Builder within 10 working days.
  2. Allow minimum of 15 working days for review of major "end of period" submittals.

#### **1.06 QUALITY ASSURANCE**

- A. Qualifications of Testing/Inspection Agencies Performing Substantiation:
1. Qualified and equipped to perform applicable tests/inspection.
  2. Regularly engaged in testing and inspection activities on a commercial basis.
  3. Authorized to operate in the State in which the project is located.
  4. Substantiation: Submittal of qualifications, based on ASTM E329.

### **PART 2 PRODUCTS**

#### **2.01 DESIGN-BUILDER FURNISHED PRODUCTS**

- A. In addition to requirements specified in other sections, provide products and elements that comply with the following.
- B. Elements Made Up of More Than One Product:
1. Where an element is specified by performance criteria, use construction either proven-in-use or proven-by-mock-up, unless otherwise indicated.
    - a. The Design-Builder may choose whether to use elements proven-in-use or proven-by-mock-up, unless either option is indicated as specifically required.
    - b. Where test methods accompany performance requirements, use those test methods to test the mock-up.
  2. Where a type of product is specified, without performance criteria specifically applicable to the element, use the type of product specified.
  3. Where more than one type of product is specified, without performance criteria specifically applicable to the element, use one of the types of products specified.
  4. Where a type of product is specified, with applicable performance criteria, use either the type of product specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.
  5. Where more than one type of product is specified, with applicable performance criteria, use either one of the types of products specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.
  6. Where neither types of products nor performance criteria are specified, use products that will perform well within the specified life span of the building.
- C. Products:
1. Where a product is specified only by a manufacturer name and model number/brand name, use model/brand product or similar product approved by Owner's Representative as an equivalent.
  2. Where the properties of a product are specified by description and/or with performance criteria, use products that comply with the description and/or performance criteria.

3. Where manufacturers are listed for a particular product, use a product made by one of those manufacturers that also complies with other requirements.
- D. Reference Standards: Where products or workmanship is specified by reference to a document not included in Contract Documents, comply with the requirements of the document, except where more stringent requirements are specified.
  1. Date of Issue: As indicated in each instance except where a specific date is established by code.

### **PART 3 EXECUTION**

#### **3.01 DESIGN**

- A. During Design Development Final Design, the design criteria and the design itself must be refined, finalized, and documented.
- B. Design Documentation: Record all design and performance criteria that will be of use during occupancy and operation of the project, including all items specified for maintenance manuals, below.
  1. Design Criteria Documentation Included in Construction Documents: Organized logically (from the point of view of operations staff) and placed in a prominent location in drawing sets.
  2. If desired, documentation may consist of annotated modifications to and amplification of the Design Documents, with changes that affect Contract Times or Contract Price documented as required for modifications.
  3. If required, shop drawings may be used to accomplish design documentation.
  4. Owner's Representative will maintain the project program document, modified to reflect changes made during refinement of the design.
  5. Mock-Ups: Where necessary to clarify design intent and obtain approvals, construct full-scale mock-ups.
- C. Design Modifications:
  1. Minor modifications are those items that, in the opinion of the Owner's Representative, do not significantly affect Design Intent, or the quantity of measured work, or the integrity or maintainability of the structure or its components.
  2. Major modifications are any modifications that, in the opinion of the Owner's Representative, significantly affect the design intent, or quantity of measured work, or the integrity or maintainability of the structure or its' components.
  3. The Owner's Representative's decision on the delineation between a minor and a major modification and the disposition of a proposal is final.

#### **3.02 PERFORMANCE OF SUBSTANTIATION**

- A. In addition to the requirements stated in other sections, provide the following substantiation of compliance at each stage of the project:
  1. If a substantiation requirement is specified without an indication of when it is to be submitted, submit or execute it before the end of Construction Documents.
- B. Proven-In-Use: Where elements proven-in-use are used to comply with performance requirements:
  1. In the Proposal, identify which elements will be accomplished using proven-in-use elements.
  2. During Final Design, identify proven-in-use elements proposed for use, including building name, location, date of construction, owner contact, and description of design and

materials in sufficient detail to enable reproduction in this project.

- C. Proven-By-Mock-Up: Where elements proven-by-mock-up are used to comply with performance requirements:
1. In the Proposal, identify which elements will be accomplished using proven-by-mock-up elements.
  2. During Final Design, identify proven-by-mock-up elements proposed for use, with test report including date and location of test, name of testing agency, and description of test and mock-up.
  3. Mock-up testing need not have been performed specifically for this project, provided the mock-up is substantially similar in design and construction to the element proposed.
- D. Design Analyses (including Engineering Calculations):
1. Where a design analysis or calculation is specified without identifying a particular method, perform analysis in accordance with accepted engineering or scientific principles to show compliance with specified requirements, and submit report that includes analysis methods used and the name and qualifications of the designer.
  2. Where engineering design is allowed to be completed after commencement of construction, substantiation may be in the form of shop drawings or other data.
  3. Submit design analyses at the end of Final Design unless otherwise indicated.
  4. Where design analysis is specified to be performed by licensed design professional, use a design professional licensed in the State in which the Project is located.
- E. Substantiation for Products:
1. Where actual brand name products are not identified by either the Owner or the Design-Builder, identify the products to be used.
  2. In the Proposal:
    - a. Identify one or more product types for each system, assembly, or element.
    - b. For each product type, provide brief descriptive or performance specifications.
    - c. For manufactured products that are commonly purchased by brand name, and any other products so indicated, identify at least one manufacturer that will be used.
  3. During Final Design:
    - a. Where more than one product type is identified for a particular system, assembly, or element, identify exactly which type will be used.
    - b. For each product type, provide descriptive or performance specifications; early submittals may be brief specifications, but complete specifications are required prior to completion of construction documents.
    - c. For each product type, identify at least one manufacturer that will be used.
    - d. For major manufactured products that are commonly purchased by brand name, and any other products so indicated, provide manufacturer's product literature on at least one actual brand name product that meets the specifications, including performance data and sample warranty.
  4. During Construction:
    - a. Identify actual brand name products used for every product, except commodity products specified by performance or description.
    - b. Where a product is specified by performance requirements with test methods, and if so specified, provide test reports showing compliance.
    - c. Provide manufacturer's product literature for each brand name product.
    - d. Provide the manufacturer's certification that the product used on the project complies with Contract Documents.

5. Before End of Closeout:
  - a. Provide copies of all manufacturer warranties that extend for more than one year after completion.
- F. Regardless of whether substantiation is specified or not, the actual construction must comply with the specified requirements and may, at the Owner's discretion, be examined, inspected, or tested to determine compliance.
  1. Substantiation submittals will not be approved or accepted, except to the extent that they are part of documents required to be approved or accepted in order to proceed to the next stage of design or construction. However, approval or acceptance of substantiation will not constitute approval or acceptance of deviations from the specified requirements unless those deviations are specifically identified as such on the submittal.
  2. The Owner accepts the responsibility to review substantiation submittals in a timely manner and to respond if they are unacceptable.

**3.03 FIELD TESTING AND INSPECTION AS SUBSTANTIATION**

- A. Perform all testing, observation, and inspection required by code and as specified.
- B. Reports: Written report of each test/inspection; including complete details of conditions, methods, and results, signed by responsible individual.

**END OF SECTION**



**SECTION 01 32 16 - CONSTRUCTION PROGRESS SCHEDULE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.

**1.02 SUBMITTALS**

- A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Submit updated schedule with each Application for Payment.

**1.03 SCHEDULE FORMAT**

- A. Diagram Sheet Size: Maximum 11x17 inches.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.01 PRELIMINARY SCHEDULE**

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

**3.02 CONTENT**

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Provide sub-schedules to define critical portions of the entire schedule.
- C. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- D. Provide separate schedule of submittal dates for shop drawings, product data, and samples, products identified under Allowances, and dates reviewed submittals will be required from Owner's Representative. Indicate decision dates for selection of finishes.
- E. Indicate delivery dates for products identified under Allowances.
- F. Coordinate content with schedule of values specified in Section 01 20 00 - Price and Payment Procedures.
- G. Provide legend for symbols and abbreviations used.

**3.03 BAR CHARTS**

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

**3.04 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with Owner's Representative at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

**3.05 UPDATING SCHEDULE**

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

- C. Annotate diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.
- G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.

**3.06 DISTRIBUTION OF SCHEDULE**

- A. Distribute copies of updated schedules to Design-Builder's project site file, to subcontractors, suppliers, Owner's Representative, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

**END OF SECTION**

**SECTION 01 40 00 - QUALITY REQUIREMENTS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Submittals.
- B. References and standards.
- C. Testing and inspection agencies and services.
- D. Design-Builder's design-related professional design services.
- E. Control of installation.
- F. Tolerances.
- G. Manufacturers' field services.
- H. Defect Assessment.

**1.02 CONTRACTOR'S DESIGN-RELATED PROFESSIONAL DESIGN SERVICES**

- A. Coordination: Design-Builder's professional design services are subject to requirements of project's Conditions for Construction Contract.
- B. Base design on performance and/or design criteria indicated in individual specification sections.
  - 1. Submit a Request for Interpretation to Owner's Representative if the criteria indicated are not sufficient to perform required design services.
- C. Scope of Design-Builder's Professional Design Services:
  - 1. The Design-Builder shall provide design services to finalize design for all aspects of the project acting as the Architect and Engineer of Record. Documents produced by Design-Builder are to be reviewed and approved by Owner's Representative prior to construction. Approval by Owner's Representative does not indicate an approval of any deviation from the Contract Documents. Deviations to Contract Documents must be clearly indicated and approved by Change Order or other approved method for contract modification.

**1.03 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Design Data: Submit for Owner's Representative's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
  - 1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
  - 2. Include required product data and shop drawings.
  - 3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
  - 4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.

**1.04 CONFLICTING REQUIREMENTS**

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirements. Refer conflicting requirements that are different, but apparently equal, to Owner's Representative for direction before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the

minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner's Representative for a decision before proceeding.

### **1.05 REFERENCES AND STANDARDS**

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Owner's Representative before proceeding.

### **1.06 TESTING AND INSPECTION AGENCIES AND SERVICES**

- A. Design-Builder shall employ and pay for services of an independent testing agency to perform code required testing and inspection.
- B. Owner may employ and pay for services of an independent testing agency (at its discretion) to perform additional testing and inspection.
- C. Employment of agency in no way relieves Design-Builder of obligation to perform Work in accordance with requirements of Contract Documents, code and other regulatory requirements.

## **PART 2 PRODUCTS - NOT USED**

## **PART 3 EXECUTION**

### **3.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Owner's Representative before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

### **3.02 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Owner's Representative before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

**3.03 TESTING AND INSPECTION**

- A. Design-Builder Responsibilities:
  - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
  - 3. Provide incidental labor and facilities:
    - a. To provide access to Work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    - c. To facilitate tests/inspections.
    - d. To provide storage and curing of test samples.
  - 4. Notify Owner's Representative and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
- B. Re-testing required because of non-compliance with specified requirements shall be paid for by Design-Builder.

**3.04 MANUFACTURERS' FIELD SERVICES**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

**3.05 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Owner's Representative, it is not practical to remove and replace the work, Owner's Representative will direct an appropriate remedy or adjust payment.

**END OF SECTION**

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**SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS****PART 1 GENERAL****1.01 RELATED DOCUMENTS**

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

**1.02 SECTION INCLUDES**

- A. Temporary sanitary facilities.
- B. Waste removal facilities and services.
- C. Project identification sign.

**1.03 TEMPORARY UTILITIES**

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.
- B. New permanent facilities may be used.
- C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

**1.04 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.

**1.05 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

**1.06 FENCING**

- A. Construction: Design-Builder's option.
- B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

**1.07 EXTERIOR ENCLOSURES**

- A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

**1.08 VEHICULAR ACCESS AND PARKING**

- A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.
- B. Coordinate access and haul routes with governing authorities and Owner.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.
- E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.
- F. Designate one parking space for Owner and Owner's Representative use.

**1.09 WASTE REMOVAL**

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

**1.10 PROJECT IDENTIFICATION**

- A. Provide project identification sign of design and construction indicated on drawings.
- B. Erect on site at location indicated.
- C. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
  - 1. Provide temporary, directional signs for construction personnel and visitors.
- D. Maintain and touch up signs so they are legible at all times.
- E. No other signs are allowed without Owner permission except those required by law.

**1.11 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore new permanent facilities used during construction to specified condition.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.01 TEMPORARY FACILITIES, GENERAL**

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

**3.02 INSTALLATION, GENERAL**

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

**3.03 SUPPORT FACILITIES INSTALLATION**

- A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- B. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.



### 3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- C. Pest Control: Engage pest-control services to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.
- D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- E. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

### 3.05 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
  - 1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
  - 2. Indicate sequencing work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
  - 3. Indicate methods to be used to avoid trapping water in finished work.
- B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
  - 1. Protect porous materials from water damage.
  - 2. Protect stored and installed material from flowing or standing water.
  - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
  - 4. Remove standing water from decks.
  - 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
  - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
  - 2. Keep interior spaces reasonably clean and protected from water damage.
  - 3. Periodically collect and remove waste containing cellulose or other organic matter.
  - 4. Discard or replace water-damaged material.
  - 5. Do not install material that is wet.
  - 6. Discard and replace stored or installed material that begins to grow mold.

7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- D. Controlled Construction Period: After completing and sealing of the building enclosure by prior to the full operation of permanent HVAC systems, maintain as follows:
  1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
  2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
  3. Comply with manufacturer's written installation instructions for temperature, relative humidity, and exposure to water limits.

**END OF SECTION**

**SECTION 01 60 00 - PRODUCT REQUIREMENTS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Re-use of existing products.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 10 00 - Summary: Lists of products to be removed from existing building.
- B. Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

**1.03 SUBMITTALS**

- A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
  - 1. Submit within 15 days after date of Notice to Proceed.
  - 2. For products specified only by reference standards, list applicable reference standards.
- B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

**1.04 PRODUCT WARRANTIES**

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

- C. Submittal Time: Comply with requirements in Section 01 70 00 - Execution and Closeout Requirements.

## **PART 2 PRODUCTS**

### **2.01 EXISTING PRODUCTS**

- A. Specific Products to be Reused: The reuse of certain materials and equipment already existing on the project site is required.
  - 1. See Section 01 10 00 for list of items required to be salvaged for reuse and relocation.

### **2.02 NEW PRODUCTS**

- A. Use of products having any of the following characteristics is not permitted:
  - 1. Made using or containing CFC's or HCFC's.
  - 2. Containing lead, cadmium, or asbestos.
- B. Where other criteria are met, Design-Builder shall give preference to products that:
  - 1. If used on interior, have lower emissions.
  - 2. If wet-applied, have lower VOC content.
  - 3. Are extracted, harvested, and/or manufactured closer to the location of the project.
  - 4. Have longer documented life span under normal use.

### **2.03 PRODUCT SELECTION PROCEDURES**

- A. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.
- B. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
- C. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- D. Visual Matching Specification: Where Specifications require "match Owner's Representative's sample," provide a product that complies with requirements and matches Owner's Representative's sample. Owner's Representative's decision will be final on whether a proposed product matches.
- E. Visual Selection Specification: Where Specifications include the phrase "as selected by Owner's Representative from manufacturer's full range" or similar phrase, select a product that complies with requirements. Owner's Representative will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

### **2.04 COMPARABLE PRODUCTS**

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
  - 1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of

proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.

- a. Evidence that proposed product provides specified warranty.
2. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

## **2.05 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

## **2.06 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

## **PART 3 EXECUTION**

### **3.01 SUBSTITUTION LIMITATIONS**

- A. See Section 01 25 00 - Substitution Procedures.

### **3.02 TRANSPORTATION AND HANDLING**

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.03 STORAGE AND PROTECTION**

- A. Provide protection of stored materials and products against theft, casualty, or deterioration.
- B. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- C. Store and protect products in accordance with manufacturers' instructions.
- D. Store with seals and labels intact and legible.

- E. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- F. For exterior storage of fabricated products, place on sloped supports above ground.
- G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- H. Comply with manufacturer's warranty conditions, if any.
- I. Do not store products directly on the ground.
- J. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- K. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- L. Prevent contact with material that may cause corrosion, discoloration, or staining.
- M. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- N. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

**SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Demonstration and instruction of Owner personnel.
- H. Closeout procedures, including Design-Builder's Correction Punch List, except payment procedures.
- I. General requirements for maintenance service.

**1.02 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
  - 1. On request, submit documentation verifying accuracy of survey work.
  - 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
  - 3. Submit surveys and survey logs for the project record.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of Owner or separate Contractor.
- D. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
  - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
  - 5. Submit testing, adjusting, and balancing records.

- E. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
  - 1. Submit a final Application for Payment according to Section 01 20 00 - Price and Payment Procedures.
  - 2. Certified List of Incomplete Items: Submit certified copy of Owner's Representative's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner's Representative. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  - 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- F. Submittal of Project Warranties
  - 1. Time of Submittal: Submit written warranties on request of Owner's Representative for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
  - 2. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
  - 3. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
  - 4. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
  - 5. Warranties in Paper Form:
    - a. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
- G. Project Record Documents: Accurately record actual locations of capped and active utilities.

### **1.03 QUALIFICATIONS**

- A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Owner's Representative. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

### **1.04 PROJECT CONDITIONS**

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.



- E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

### **1.05 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

## **PART 2 PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Sections 01 25 00 - Substitution Procedures and 01 60 00 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

**3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

**3.03 PREINSTALLATION MEETINGS**

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Owner's Representative four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
  - 1. Review conditions of examination, preparation and installation procedures.
  - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Owner's Representative, Owner, participants, and those affected by decisions made.

**3.04 LAYING OUT THE WORK**

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Owner's Representative of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Owner's Representative the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Owner's Representative.
- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Grid or axis for structures.
- H. Periodically verify layouts by same means.
- I. Maintain a complete and accurate log of control and survey work as it progresses.
- J. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

**3.05 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

**3.06 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.

3. Provide openings for penetration of mechanical, electrical, and other services.
  4. Match work that has been cut to adjacent work.
  5. Repair areas adjacent to cuts to required condition.
  6. Repair new work damaged by subsequent work.
  7. Remove samples of installed work for testing when requested.
  8. Remove and replace defective and non-complying work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material , to full thickness of the penetrated element.
- I. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  2. Match color, texture, and appearance.
  3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.07 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.08 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

**3.09 SYSTEM STARTUP**

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- D. Verify that wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable Design-Builder personnel and manufacturer's representative in accordance with manufacturers' instructions.
- F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

**3.10 GENERAL INSPECTION REQUIREMENTS**

- A. Cooperation by Contractor: Do not perform work or furnish materials without obtaining inspection by the Owner's Representative. Furnish the Owner's Representative with every reasonable facility for ascertaining whether the work performed and materials used are in accordance with the requirements and intent of the Contract Documents. If the Owner's Representative so requests at any time before final acceptance of the work, remove or uncover such portions of the finished work as directed. After examination, restore the uncovered portions of the work to the standard required by the Contract Documents. If the Owner's Representative determines that the work so exposed or examined is unacceptable, perform the uncovering or removal, and the replacing of the covering or making good of the parts removed, at no expense to the Owner. However, if the Owner's Representative determines that the work thus exposed or examined is acceptable, the Owner will pay for the uncovering or removing, and the replacing of the covering or making good of the parts removed.
- B. Failure of Owner's Representative to Reject Work During Construction: If, during or prior to construction operations, the Owner's Representative fails to reject defective work or materials, whether from lack of discovery of such defect or for any other reason, such initial failure to reject in no way prevents the later rejection when such defect is discovered, or obligates the Owner to final acceptance. The Owner is not responsible for losses suffered due to any necessary removals or repairs of such defects.
- C. Failure to Remove and Renew Defective Materials and Work: If the Contractor fails or refuses to remove and renew any defective materials used or work performed, or to make any necessary repairs in an acceptable manner and in accordance with the requirements of the Contract within the time indicated in writing, the Owner's Representative has the authority to repair, remove, or renew the unacceptable or defective materials or work as necessary, all at the Contractor's expense. The Owner will obtain payment for any expense it incurs in making these repairs, removals, or renewals, that the Contractor fails or refuses to make, by deducting such expenses from any moneys due or which may become due the Contractor, or by charging such amounts against the Contract bond.

**3.11 DEMONSTRATION AND INSTRUCTION**

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

- D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

### **3.12 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### **3.13 FINAL CLEANING**

- A. Execute final cleaning prior to final project assessment.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Clean filters of operating equipment.
- G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.
- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.14 SUBSTANTIAL COMPLETION PROCEDURES**

- A. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 3. Complete startup and testing of systems and equipment.
  - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
  - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
  - 6. Advise Owner of changeover in utility services.
  - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
  - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 9. Complete final cleaning requirements.
  - 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Owner's Representative will either proceed with inspection or notify

Contractor of unfulfilled requirements. Owner's Representative will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner's Representative, that must be completed or corrected before certificate will be issued.

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

### **3.15 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
  1. Provide copies to Owner's Representative and Owner.
- B. Notify Owner's Representative when work is considered ready for Owner's Representative's Substantial Completion inspection.
- C. Submit written certification containing Design-Builder's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Owner's Representative's Substantial Completion inspection.
- D. Conduct Substantial Completion inspection and create Final Correction Punch List containing Owner's Representative's and Design-Builder's comprehensive list of items identified to be completed or corrected and submit to Owner's Representative.
- E. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- F. Notify Owner's Representative when work is considered finally complete and ready for Owner's Representative's Substantial Completion final inspection.
- G. Complete items of work determined by Owner's Representative listed in executed Certificate of Substantial Completion.

### **3.16 REPAIR OF THE WORK**

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

**3.17 MAINTENANCE**

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

**END OF SECTION**

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**SECTION 01 78 00 - CLOSEOUT SUBMITTALS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

**1.02 RELATED REQUIREMENTS**

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Individual Product Sections: Specific requirements for operation and maintenance data.
- C. Individual Product Sections: Warranties required for specific products or Work.

**1.03 SUBMITTALS**

- A. Project Record Documents: Submit documents to Owner's Representative with claim for final Application for Payment.
- B. Operation and Maintenance Data:
  - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
  - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Owner's Representative comments. Revise content of all document sets as required prior to final submission.
  - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
  - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
  - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.01 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed shop drawings, product data, and samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.

- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 3. Field changes of dimension and detail.
  - 4. Details not on original Contract drawings.

### **3.02 OPERATION AND MAINTENANCE DATA**

- A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- B. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

### **3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES**

- A. For Each Product, Applied Material, and Finish:
  - 1. Product data, with catalog number, size, composition, and color and texture designations.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

### **3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS**

- A. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- D. Provide Design-Builder's coordination drawings, with color coded piping diagrams as installed.

### **3.05 WARRANTIES AND BONDS**

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for

items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

**END OF SECTION**

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