

# PROJECT MANUAL

## VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM HAVENSIGHT MALL - BUILDING NO. 3 CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP

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VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
3438 KRONPRINDSES GADE,  
ST. THOMAS U.S. VIRGIN ISLANDS, 00802

JULY 2020 BY:



**Jaredian Design Group**

Architects, Engineers and Construction Managers

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HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP  
HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802**

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# **PROPOSAL REQUIREMENTS AND CONTRACT DOCUMENTS**

**00020 – REQUEST FOR PROPOSAL**  
**GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM OF THE VIRGIN ISLANDS**  
**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
**HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802**

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**GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM OF THE VIRGIN ISLANDS**  
**CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
**HAVENSIGHT MALL-BUILDING NO. 3**  
**HAVENSIGHT MALL, ST. THOMAS, U.S. VIRGIN ISLANDS 00802**

**TO CONTRACTORS:**

Proposals, entitled **GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM OF THE VIRGIN ISLANDS (GERS) CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP ON BUILDING NO. 3 AT HAVENSIGHT MALL, ST. THOMAS, U. S. VIRGIN ISLANDS**, will be received by the GERS' Operations Office electronically at [operations@usvigiers.com](mailto:operations@usvigiers.com) until Friday, August 14, 2020 at 3:00 p.m.. Proposal will be privately opened. Proposers may not be present. The GERS shall convene a pre-proposal meeting on **Monday, August 3, 2020, at 10:00 a.m.** via Zoom by logging in to <https://usvigiers.zoom.us/j/97498658286>. Bidders may also dial-in via telephone by calling: 1 (253) 215-8782; enter the Meeting ID: 974 9865 8286. There will be site tours scheduled immediately following the Pre-Proposal Conference. Potential Bidders should email [aclendinen@usvigiers.com](mailto:aclendinen@usvigiers.com) or call 776-7703 extension 4907 to secure a scheduled site tour time slot.

The Project consist of CONSTRUCTION OF AN EXTERIOR ACCESSIBLE RAMP AT BUILDING No. 3 as shown on the Design Drawings prepared by the Jaredian Design Group – Architects, Engineers and Construction Managers.

The Contract is under and subject to:

- A. Minimum wage rates as established by the Secretary of the U. S. Department of Labor.
- B. Executive Order 11246 of 24 September, 1965, as amended, and to the Equal Employment Opportunity clause.

No Bid may be withdrawn for a period of 30 calendar days after scheduled closing time for receipt of Bids. No Bid Security is required. Proposers shall furnish a Payment Bond, and a Performance Bond if required, each equal to 100% of the Contract Amount. The schedule for completion of the Contract is 120 calendar days after issuance of the Notice To Proceed.

The bid-money value of materials purchased directly by the Contractor together with the bid-money value of the work performed by personnel and facilities provided directly by the Contractor shall be not less than 10 percent of the money value of the work performed under this Contract. Any bid-money value of work performed by Subcontractors for work on the jobsite using Subcontractor' materials, labor, and facilities, will not be included in the percent of work to be completed by the Contractor.

Proposals shall be submitted on reproductions of the forms contained in the specifications, and shall conform to the terms and conditions of Section 00100 "Instructions to Proposals", and Section 00120 "Proposal Requirements and Conditions." Proposers may obtain Contract Drawings and Specifications at a cost of \$50.00 per set from:

**THE VIRGIN ISLANDS GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM**  
**3438 KRONPRINSENS GADE, GERS BUILDING – 3<sup>RD</sup> FLOOR**  
**ST. THOMAS, U.S. VIRGIN ISLANDS**

Contract drawings and specifications may be inspected in the above office at no cost.

The Contractor agrees to use local personnel for the categories of journeymen, mechanics, laborers, apprentices, or trainees and local products to the maximum extent possible whenever such policy does not increase the cost to the Owner. The Contractor agrees to follow the resident employees' requirements as described in Act No. 5174, Bill No. 16-0218 of the Virgin Islands Code.

Any Contract awarded from the Request For Proposal is expected to be funded by GERS.

GERS reserves the right to waive any informalities, technicalities, or irregularities in; or reject any or all Proposals; or to re-advertise for Bids and to award or refrain from awarding the Contract for the Work.

**END OF SECTION**



**SECTION 00100 – INSTRUCTIONS TO PROPOSERS**  
**GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM OF THE VIRGIN ISLANDS**  
**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
**HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802**

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1. **DOCUMENTS** – Bidders may obtain drawings and specifications as noted in the Request For Proposal.
2. **EXAMINATION** – Bidders shall carefully examine the documents and the construction site to obtain first-hand knowledge of existing conditions. Contractors will not be given extra payments for conditions which can be determined by examining the site and documents.
3. **QUESTIONS** – Questions about the Specifications shall be submitted to the Owner via email. Questions must be received by the Owner at least 10 calendar days prior to the date established for submission date. Replies will be issued to Bidders of record and if applicable, will be issued as Addendum to the Specifications and shall become a part of the Contract. The Owner will not be responsible for oral clarification.
4. **SUBSTITUTIONS** – To obtain approval to use unspecified products, Bidder shall submit written requests to the Owner. Requests must be received by the Owner at least 10 calendar days prior to the date established for the submission date. Requests shall clearly describe the product for which approval is asked, including necessary data to demonstrate acceptability. If the product is acceptable, the Owner will approve it in Addendum issued to bidders of record.
5. **BASIS OF BID** – The Bidder shall specify bid prices for the items of work listed and for the total lump-sum bid proposal indicated on a Bid Schedule; failure to comply will be cause for rejection. Segregated bids or assignments will not be considered. Proposers shall provide a Bid Breakdown of major construction tasks, utilizing the Specifications as a format.
6. **PREPARATION OF BIDS** – Bids shall be made and submitted in accordance with the Proposal Requirements and Conditions and Instructions. Bids shall be signed with name typed below signature. Where Bidder is a corporation, Bids shall be signed with the legal name of the corporation and the legal signature of an officer authorized to bind the corporation to a contract.
7. **BID SECURITY** – No Bid Security is required.
8. **PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND** – The Proposer shall furnish and pay for bonds covering faithful performance of the Contract and payment of all obligations arising hereunder, if required by GERS. A Performance Bond and a Payment Bond, each in the amount of 100% of the Contract amount, shall be furnished in such a way as the Owner may prescribe and with a surety company acceptable to the Owner. The Bonds, just be issued by a surety licensed to conduct business in the Virgin Islands or issued by a U.S. Treasury listed surety. The Proposer shall deliver said bonds to the Owner not later that the date of execution of the Contract. Failure or neglecting to deliver said bonds, as specified, shall be considered as having abandoned the Contract. The Owner shall make a determination, prior to Contract Award, whether Performance Bond and Payment Bonds are required.
9. **SUBCONTRACTORS** – Names of principal subcontractors shall be listed and attached to the Proposal. There shall be only one subcontractor named for each classification listed. The listing of subcontractors is critical; as the Contractor will not be able to remove a named subcontractor once construction starts without the approval of the Government Employees' Retirement System of the Virgin Islands (GERS).
10. **SUBMITTAL** – Submit Proposal, including Subcontractors Listing, in an opaque, sealed envelope in accordance with paragraph 7, Delivery of Proposals, of Section 00120.
11. **DISQUALIFICATION** – The Owner reserves the right to disqualify proposals, before or after the submission date, upon evidence of collusion with intent to defraud or other illegal practices on the part of the Proposer.
12. **NON-DISCRIMINATORY PRACTICES** – Contracts for work under the Bid will obligate the contractor and subcontractors not to discriminate in employment practices.
13. **PERMITS** – The Owner shall be responsible for obtaining and paying for the Building and Fire Marshall Permits. Contractor shall be responsible in obtaining and paying for all other regulatory permits such as, but not limited to: Plumbing, Electrical – temporary power, and Occupancy throughout the construction phase.
14. **OPENING** – Proposals will be privately opened.



**SECTION 00100 – INSTRUCTIONS TO PROPOSERS**  
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**HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802**

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15. **AWARD** – The Contract will be awarded by the Owner to the most qualified Proposer whose proposal conforms to the requirements as specified in Section 00120, Proposal Requirements and Conditions, and in Section 00130, Award and Execution of Contract.
16. **EXECUTION OF CONTRACT** – The Owner reserves the right to accept any bid, and to reject any and all proposals, or to negotiate Contract Terms with the various Bidders when such is deemed by the Owner to be in his best interest.

Notwithstanding any delay in the preparation and execution of the formal Contract Agreement, the Bidder shall be prepared, upon written notice of Bid Acceptance, to commence work within 10 days following receipt of official written order of the Owner to proceed, or on date stipulated in such order.

The accepted Bidder shall assist and cooperate with the Owner in preparing the formal Contract Agreement, and within 10 days following its presentation shall execute same and return it to the Owner.

17. **ADDITIONAL REQUIREMENTS –**

- **Cover Letter**  
The Letter of Interest should include a synopsis/description of the firm and agents or sub-agents, the rationale for the team's assembly, the prime firm's project manager and primary contact, the project principal representing the contractual authority of the firm.
- **Firm/Project Management Team Composition and Organization**
  - a. Provide an organization chart identifying the firm/project management team composition. Provide information about each firm(s) that make-up the project management team;
  - b. Identify capabilities and experiences, the number of employees and location and number of years in business under its current name;
  - c. Provide a relevant record of accomplishment of the prime firm and all secondary, subcontracted, or partner firms;
- **Personnel Profiles**
  - a. Provide profile(s) of key members of the firm/team assigned to this project;
  - b. Define key members who will be working on the project and explain their roles and expected responsibilities for the project;
- **Reference Projects - Experience and Expertise**

Please provide a list of projects with the past five (5) years which demonstrate the Team's experience in providing the services as required under this RFP and in the scope of services for this project. Information can contain recent, representative projects of a similar scope, complexity and size performed by the proposed team. Show only completed projects or those currently underway. For each project, please provide the following:

  - Client's name, email and phone number;
  - Businesses (name, address, phone number and email);
  - Description of the scope of work;
  - Month and Year the project was started and completed;
  - Role of the Firm and the responsibilities;
- **Project Approach and Schedule**
  1. Provide a detailed description of the proposed approach to the project. Include a response to the preliminary scope but do not simply restate the scope;
  2. Identify key risks/ challenges/ concerns you anticipate and any mitigation steps to achieve successful delivery;
  3. Describe your Caribbean presence and approach to management of the project in St. Thomas;
  4. Provide information on your firm/team's ability to deliver with innovative methods and tools, including any technology solutions;
  5. Include examples of success particularly in the Caribbean market and methods used to deliver results;
  6. Include cost-effective results and recommend how to achieve innovation with efficiency;
  7. Proposed Fees/Cost of Services
    - a. Respondents should outline their proposed compensation plan.



**SECTION 00100 – INSTRUCTIONS TO PROPOSERS**  
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**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802

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- The proposal must be clearly labeled and sent to:

**ASIAH I. CLENDINEN**  
**ACTING CHIEF OPERATING OFFICER**  
**GOVERNMENT EMPLOYEES' RETIREMENT SYSTEM**  
**3438 KRONPRINDESENS GADE, GERS BUILDING - 3RD FLOOR**  
**ST. THOMAS, U.S. VIRGIN ISLANDS 00802**  
[operations@usvigiers.com](mailto:operations@usvigiers.com)

Proposals are due Eastern Standard Time. Late proposals and proposals lacking the appropriate signatures and/or business license or Certificate of Good Standing shall be returned. Faxed or e-mailed proposals will not be accepted. Proposals shall accepted at the email address specified above.

**18. SCHEDULE**

The following schedule contains major milestones for the RFP process for this project and may be modified by GERS as deemed appropriate. This schedule is GERS' best space estimate of the schedule that will be followed. If a component of this schedule is delayed, the rest of the schedule will be shifted by the same number of days.

Request for Proposal Announcement	July 20, 2020
Pre-Proposal Conference	August 3, 2020
Last Day to Submit Questions	August 7, 2020
Issue Addendum (if applicable)	August 10, 2020
Deadline for Submissions	August 14, 2020
Selection committee reviews	August 17, 2020
Finalist notified	August 18, 2020
Pre-Contract Interview	August 19, 2020
Contract Preparation	August 20, 2020
Contract Execution & Project Initiation	August 24, 2020

**19. SELECTION CRITERIA (100 POINTS POSSIBLE)**

A panel will review all submissions and recommend interview presentations from firms that demonstrate the following criteria:

- Project Team Composition (Professional qualifications, registration and general reputation of the principals of the firms) - 25%;
- Project Personnel Experience (the extent to which the firms or persons specialized in or has undertaken projects of a type and scope similar to that required + Record of Accomplishment) - 25%;
- Proposed Project Approach (Collaboration, Innovation) - 25 %;
- Proposed Fees/Cost of Services - 15%;
- Other Factors as determined by the Selection Panel (Examples: Familiarity with The Area in Which the Services Are to Be Provided; Capability of Meeting Schedules; and Quality of Performance on Other Projects, Presentation Quality, Responsiveness) - 10%.

**Firms selected for a final interview may be required to:**

- Recommend a successful approach and anticipated timeframe for such;
- Highlight similar examples of other similar projects and success record;
- Outline proposed compensation structure and estimated budget.

**20. CONTRACT AWARD**

GERS anticipates making one award under this solicitation. It may award a contract based on initial applications without discussion or following limited discussion or negotiations. Each offer should be submitted using the most favorable cost and technical terms. GERS may request additional data or material to support applications.

**21. BUSINESS LICENSE REQUIREMENT**

The Bidder at the time of contracting shall be required to submit a current Virgin Islands business license. An award will not be made to any firm or individual doing business in the Virgin Islands to perform work with GERS until evidence is submitted that the said firm or individual has a valid V.I. Business License. Proposers must submit hard copy of a valid V.I. business license within ten (10) working days after award.



**SECTION 00100 – INSTRUCTIONS TO PROPOSERS**  
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**22. CLEAN AIR ACT & FEDERAL WATER POLLUTION CONTROL ACT**

The Contractor hereby agrees to will comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387).

**23. CONTRACT WORK HOURS AND SAFETY**

The Contractor hereby agrees to comply with the provisions and requirements in accordance with 40U.S.C. 3702 and 3704 (29 CFR Part 5).

**24. REQUIREMENTS FOR CORPORATIONS:**

1. Articles of Incorporation
2. Corporate Resolution
3. Certificate of Good Standing

**25. THESE ARE REQUIRED PRIOR TO AWARD OF CONTRACT.**

• **INSURANCE**

The Bidder at the time of contracting shall be required to submit evidence of a general liability insurance policy in an amount not less than \$1,000,000, including completed operations, worker's compensation. The GERS shall be named as an additional insured on the general liability policy. The contractor shall be required to post a performance and payment bond. If the Bidder is a corporation, it shall be in good standing as evidenced by a Certificate of Good Standing from the requisite regulating authority. The contractor shall provide a valid tax identification number at the time of contracting.

**26. FAILURE TO PROVIDE THE CERTIFICATES WITHIN THE STATED TIME PERIOD MAY RESULT IN CANCELLATION OF THE AWARD.**

**27. LIMITATION**

This solicitation does not commit GERS to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. GERS reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in GERS' best interest.

**28. DISCLOSURE REQUIREMENT:**

The bidder shall disclose any indictment for any alleged felony, or any conviction for a felony within the past five years, under the laws of the United States or any state or territory of the United States and shall describe circumstances for each. When a bidder is an association, partnership, corporation, or other organization, this disclosure requirement includes the organization and its officers, partners, and directors or members of any similarly governing body. If an indictment or conviction should come to the attention of GERS after the award of a contract, GERS may exercise its stop-work right pending further investigation or terminate the agreement; the contractor may be subject to penalties for violation of any law, which may apply, in the particular circumstances. Bidders must also disclose if they have ever been debarred or suspended by any agency of the U.S. Government or territory of the United States.

**29. CONFLICT OF INTEREST**

A Proposer filing a proposal hereby certifies that no officer, agent or employee of GERS has a pecuniary interest in this proposal or has participated in contract negotiations on behalf of GERS; that the proposal is made in good faith

without fraud, collusion, or connection of any kind with any other Proposer for the same request for proposals; the Proposer is competing solely in its own behalf without connection with, or obligation to, any undisclosed person or firm.





**SECTION 00100 – INSTRUCTIONS TO PROPOSERS**  
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**30. OTHER TERMS**

The GERS shall not be responsible for costs incurred by bidder in the submittal. This RFP is not to be construed as a contract or as a commitment of any kind. If this RFP results in a contract offer by the GERS, other contractual matters will be determined during contract negotiation. To ensure that the appropriate staff is assigned to the Project, the GERS intends to make the inclusion of a "key persons" clause a part of the contract negotiations.

All responses shall be held confidential from other Bidders by the GERS to the extent allowable by law until after the selection process is completed. Bidders should be aware that at the completion of the selection process the contents of their REQUEST FOR PROPOSALS responses may be subject to the provisions of the Virgin Islands Law and may be made public. Bidders' Proprietary and Confidential information should be space clearly marked as such. The GERS shall have the right, following completion of the selection process, to use and disclose such information in any manner deemed appropriate.

The GERS reserves the sole right to (1) evaluate the Proposals submitted; (2) waive any irregularities therein; (3) select candidates for the submittal of more detailed or alternate proposals; (4) accept any submittal or portion of a submittal; (5) reject any or all Bidders submitting proposals, or (6) discontinue the process, should it be deemed in the GERS' best interest.

Due to (1) the competitive nature of the RFP evaluation, negotiation, and selection process, (2) the fact that subsequent submissions may be required in order to obtain a best and final offer, and (3) the fact that proposals involve economic development negotiations, trade secrets, commercial and financial information, the disclosure of which would cause substantial competitive harm to the Bidders and the interests of the GERS, until the GERS completes its negotiations, and contract execution, any public release of Project information, as well as information from specific proposals, is prohibited. However, Bidders are free to openly discuss any public information regarding their qualifications or experience. Compliance by all Bidders with the GERS foregoing confidentiality requirements is mandatory, and non-compliance by a Bidder may result in the immediate disqualification of that Bidder.

**END OF SECTION**



**00120 – PROPOSAL REQUIREMENTS AND CONDITIONS**  
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1. **ADVERTISEMENT (NOTICE TO PROPOSERS)** – The Owner, or their authorized agent, will publish the advertisement at such places and at such times as are required by local laws or ordinances. The published advertisement will state the time and place for electronically submitted proposals; a description of the proposed work; instructions to Proposers as to obtaining drawings and Specifications; bid security required; and the Owner's right to reject any and all bids.
2. **EXAMINATION OF PLANS, SPECIFICATIONS AND SITE** – The Proposer is required to examine the site of the proposed work, the proposal, plans, specifications and Contract forms. They shall satisfy themselves as to the character, quality and quantities of work to be performed; materials to be furnished; and requirements of the proposed Contract. The submissions of a Bid shall be prima facie evidence that the Proposer has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed Contract, plans and specifications.
3. **PREPARATION OF PROPOSAL** – A Proposer's Submission shall consist of the following items:
  1. Transmittal letter.
  2. A copy of the Bid Proposal, completed and executed by the Proposer.
  3. A brief description of the Proposer's management structure, including a listing of the Contractor's key personnel and resumes.
  4. A brief description of the Proposer's relevant, past project experience,
  5. Names of principal subcontractors shall be listed and attached to the Proposal. There shall be only one subcontractor named for each classification listed.
  6. A current copy of Contractor's V.I. License.

Electronically submitted Bids shall be signed with names typed below signatures. Where the Proposer is a corporation, Bids shall be signed with the legal name of the corporation followed by the name of the State of Incorporation and the legal signature of an authorized to bind the corporation to a Contract. Signature shall be in ink. If the bid is made by an individual, his name and post office address shall be shown. If made by a partnership, the name and post office address of each member of the partnership shall be shown. If made by a corporation, the person signing the Bid shall give the name of the state under the laws of which the corporation was chartered and the names, titles and business addresses of the president, secretary and the treasurer. Anyone signing a Bid as an agent shall file evidence of his authority to do so and that the signature is binding upon the firm or corporation.

4. **IRREGULAR BIDS** – Bids shall be considered irregular for the following reasons:
  1. Bid is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the Bid form is detached.
  2. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind which may render the Bid incomplete, indefinite or otherwise ambiguous.
  3. If the Bid does not contain a unit price for each pay item listed in the Bid.
    - (a) If the Bid contains unit prices that are unbalanced.
  4. The Owner reserves the right to reject any irregular Bid and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.
5. **DELIVERY OF PROPOSALS** – Each proposal shall be submitted electronically with the Project Name and Name of Proposer in the Subject Line and Project Name, Location of the project, and Name and Business Address of the Proposer in the body of the email. When sent by registered mail, the sealed Proposal, marked as indicated above, shall be enclosed in an additional envelope. No Bid will be considered unless received as specified in the advertisement before the time specified for submission. Proposals received after the submission time will be returned to the Proposer unopened.
6. **WITHDRAWAL OR REVISION OF PROPOSALS** – A Proposer may withdraw or revise (by withdrawal of one Proposal and submission of another) a Bid, provided that the Proposer's request for withdrawal is received by the Owner in writing or by telegram before the time specified for submission. Revised Proposals will be received at the place specified in the advertisement before the time specified for submission. No Proposal may be withdrawn or modified after the Proposal submission except when the award of contract has been delayed for at least 60 days.
7. **PUBLIC OPENING OF BIDS** – Proposals will not be publicly opened. Proposers may not be present. GERS shall evaluate all proposals submitted, and shall transmit the results of the evaluation to each Proposer upon approval of the Governing Board of the recommendations of the evaluation report.
8. **DISQUALIFICATION OF PROPOSERS** – Proposer shall be considered disqualified for any of the following reasons:



**00120 – PROPOSAL REQUIREMENTS AND CONDITIONS**  
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1. Submitting more than one Bid from the same partnership, firm or corporation under the same or different name.
2. Evidence of collusion among Proposers. Proposers participating in such collusion will be disqualified as Proposers for any future work of the Owner until any such participating Proposer has been reinstated by the Owner as a qualified Proposer.
3. If the Proposer is considered to be in "default" for any reason:
  - (a) Lack of competency of subcontractor(s) proposed for portions of the work.
  - (b) Lack of competency by the Proposer or a sub-contractor(s) as revealed by inability to produce a valid Virgin Islands license, as required by law.
  - (c) Inexperienced Proposers or those whose other qualifications are otherwise unsatisfactory.
  - (d) Failure to pay, or satisfactorily settle, bills due for labor and materials on former contracts in force (with the Owner) at the time the Owner issues the proposal to a prospective Proposer.
  - (e) If a Proposer is a party in any unsettled dispute and/or claim under previous contracts with the Owner.
  - (f) Contract default under previous contracts with the Owner.
  - (g) Unsatisfactory work on previous contracts with the Owner.
  - (h) The Owner reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the Proposer or should Proposer be in default for any of the above reasons.

**END OF SECTION**

**SECTION 00130 – AWARD AND EXECUTION OF CONDITIONS**  
**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM**  
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1. **CONSIDERATION OF PROPOSALS** – After the proposals are opened, they will be compared on the basis of the comparison of the following factors:

- (a) Management Structure
- (b) Relevant Past Project Experience
- (c) Financial Strength
- (d) Lump-Sum Cost Proposal

Until the award of a Contract is made, the Owner reserves the right to reject a Proposer's Proposal for any of the following reasons:

- (e) If the proposal is irregular as specified in paragraph 5, Irregular Bids, of Section 00120.
- (f) If the Proposer is disqualified for any of the reasons specified in paragraph 10, Disqualification of Proposers, of Section 00120.

In addition, until the award of a Contract is made, the Owner reserves the right to reject any or all Bids and waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable Insular laws or regulations pertaining to the letting of construction contracts; advertise for new Bids; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

2. **AWARD OF CONTRACT** – The award of a contract, if it is to be awarded, will be made within 60 calendar days of the date specified for the proposal submissions, unless otherwise specified therein. Award of the Contract will be made by the Owner to the most qualified, responsive Proposer whose Proposal conforms to the specified requirements.
3. **CANCELLATION OF AWARD** – The Owner reserves the right to cancel the award without liability to the Proposer, except return of Bid security, at any time before a Contract has been fully executed by all parties and is approved by the owner in accordance with paragraph "Approval of Contract" of this section.
4. **REQUIREMENTS OF CONTRACT BONDS** – If required, at the time of the execution of the Contract, the successful Proposer shall furnish the Owner a surety bond or bonds, which have been fully executed by the Proposer, with the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this paragraph, the surety bonds each shall be in a sum equal to 100% amount of the Contract.
5. **EXECUTION OF CONTRACT** – The successful Proposer shall sign (execute) the necessary agreements for entering into the Contract and return such signed Contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph "Requirements of Contract Bonds" of this section, within 10 calendar days from the date mailed or otherwise delivered to the successful Bidder. If the Contract is mailed, special handling is recommended.
6. **APPROVAL OF CONTRACT** – Under receipt of the Contract and contract bond or bonds that have been executed by the successful Proposer, the Owner shall complete the execution of the Contract in accordance with local laws or ordinances, and return the fully executed Contract to the Contractor. Delivery of the fully executed Contract to the Contractor shall constitute the Owner's approval to be bound by the successful Proposer's Bid and the terms of the Contract.
7. **FAILURE TO EXECUTE CONTRACT** – Failure to the successful Proposer to execute the Contract and furnish the acceptable bond or bonds within 10-calendar day period specified in paragraph "Execution of Contract" of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.

**END OF SECTION**

# **DIVISION 1**

## **GENERAL REQUIREMENTS**

## **PART 1 GENERAL**

### **1.01 PROJECT**

- A. Project Name: GERs HAVENSIGHT BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR HANDICAP RAMP
- B. Owner's Name: VIRGIN ISLANDS GOVERNMENT EMPLOYEES RETIREMENT SYSTEM
- C. Architect's Name: JAREDIAN DESIGN GROUP
- D. The Project consists of the construction of an exterior handicap ramp at the existing Building No. 3 at the Havensight Mall, St. Thomas, U.S. Virgin Islands.
- E. Owner will remove the following items before start of work:
  - 1. N. A.

### **1.02 SALVAGE BY CONTRACTOR**

- A. Contractor shall remove and store the following, for later reinstallation by Contractor, prior to start of work:
  - 1. N. A.

### **1.03 WORK BY OTHERS**

- A. Furniture and Owner Supplied Equipment.
- B. Artwork.

### **1.04 OWNER FURNISHED PRODUCTS**

- A. Products furnished by Owner include the following categories:
  - 1. OFCI: Owner furnished Contractor installed.
  - 2. OFCR: Owner furnished Contractor rough-in:
  - 3. OFOI: Owner furnished Owner Installed.
- B. Owner Responsibilities for products in the following category: OFOI;
  - 1. Arrange for and deliver necessary shop drawings, product data and samples.
  - 2. Arrange and pay for product delivery to the site in accordance with the construction schedule.
  - 3. Promptly inspect delivered products jointly with Contractor. Record shortages, damaged or defective products.
  - 4. Submit claims for transportation damage.
  - 5. Arrange for replacement of damaged, defective or missing items.
  - 6. Arrange for manufacturer's warranties, bonds, service and inspections as required.
  - 7. Assemble, install, connect, adjust, test and calibrate, and finish product.
  - 8. Arrange installation inspections required by regulatory agencies having jurisdiction.
- C. Contractor's Responsibilities (for all categories unless otherwise noted):
  - 1. Coordinate installation of Owner furnished products with other portions of the Work.
  - 2. Designate submittal and delivery date for each product affecting construction schedule.
  - 3. Review submittals of Owner furnished products and verify rough-in requirements prior to installation for products in the following categories: OFCI, OFCR. Notify Architect of discrepancies that would affect installation and rough-ins.
  - 4. Promptly inspect products jointly with the Owner, record shortages, damaged or defective products listed in the following categories: OFCI.
  - 5. Protect products from damage after installation.
  - 6. Assemble, install connect, adjust, test and calibrate, and finish products listed in the following category: OFCI.
  - 7. Provide mechanical, plumbing and electrical connections to Contractor installed products including installation of service fixtures for products listed in the following categories: OFCR, OFCI.
  - 8. Afford Owner's forces a reasonable opportunity for delivery and storage of their products and the execution of their work. Where required, Contractor shall properly connect his work to that installed by the Owner's forces.

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9. Repair or replace items damaged by Contractor.
10. Receive and unload products at the site for products listed in the following categories: OFCI, OFCR. Handle products at the site, including uncrating and storage for products listed in the following categories: OFCI, OFCR.

**1.05 CONTRACTOR FURNISHED PRODUCTS**

- A. Products furnished by Contractor consist of products listed in the following category: CFCI.
- B. Contractor's responsibilities:
  1. As indicated in the Construction Documents.

**1.06 OWNER OCCUPANCY**

- A. Owner intends to occupy the Project throughout the construction period.
- B. Contractor shall take precautions to avoid excessive noise or vibration that would disturb the Owner's and the Owner's Tenants operations. Contractor shall provide temporary protection from inclement weather during construction by removing only as much roofing that can be covered in one day by replacement roofing. Contractor shall provide temporary water-proof seal between the new and existing roofing at the end of each day. Provide temporary barricades and scaffolding as required by the International Building Code: Chapter 33, for protection of the general public throughout the duration of construction. When directed by Owner, Contractor shall perform certain operations at designated time of day or night in order to minimize disturbance to Owner's operations.
- C. Schedule the Work to accommodate the Owner's continued occupancy during construction.

**1.07 CONTRACTOR USE OF SITE AND PREMISES**

- A. Construction Operations: Limited to areas permitted by Law, Ordinances, Permits and Contract Documents.
- B. Arrange use of site and premises to allow:
  1. Owner occupancy and operation.
  2. Use of site and airport premises by the public.
- C. Do not unreasonably encumber site or premises with materials or equipment.
- D. Limit use of site and premises for Work and storage as follows:
  1. Maintain Owner and public access to existing building, parking, drives and walks at all times.
  2. Restrict work and storage to construction areas indicated on Drawings.
  3. Existing building and parking areas may not be used for storage.
  4. Access site only as indicated on the Drawings.
  5. Restrict parking to areas designated by the Owner.
  6. Do not perform operations that would disrupt or delay Owner's daily operations.
  7. Restrict construction personnel from access to other areas of the site and existing building, except as required to perform new and alterations work.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Relocate stored products which interfere with operations of Owner.
- F. Do not load structure with weight that will endanger structure.
- G. Emergency Building/Site Exits During Construction: Keep all existing site exits open during construction period. Provide barricade and signage in accordance with all requirements of the local building authorities during construction.
- H. Utility Outages and Shutdown: To be scheduled with the Owner's representative prior to implementing.

**1.08 WORK SEQUENCE**

- A. Coordinate construction schedule and operations with Owner.

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**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**



**01045 | CUTTING AND PATCHING**

VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
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**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
  - 1. Requirements of this Section apply to mechanical and electrical installations. Refer to Division – 15 and Division – 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.
  - 2. Demolition of selected portions of the building for alterations is included in Section "Selective Demolition."

**1.2 SUBMITTALS**

- A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:
  - 1. Describe the extent of cutting and patching required and how it is to be performed indicate why it cannot be avoided.
  - 2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
  - 3. List products to be used and firms or entities that will perform Work.
  - 4. Indicate dates when cutting and patching is to be performed.
  - 5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
  - 6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.
  - 7. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

**1.3 QUALITY ASSURANCE**

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
  - 1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
    - a. Bearing and retaining walls.
    - b. Structural concrete.
    - c. Structural steel.
    - d. Lintels.
    - e. Timber and primary wood framing.
    - f. Structural decking.
    - g. Miscellaneous structural metals.
    - h. Exterior curtain wall construction.
    - i. Equipment supports.
    - j. Piping, ductwork, vessels and equipment.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
  - 1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
    - a. Shoring, bracing, and sheeting.
    - b. Primary operational systems and equipment.
    - c. Air or smoke barriers.
    - d. Water, moisture, or vapor barriers.
    - e. Membranes and flashings.
    - f. Fire protection systems.

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- g. Noise and vibration control elements and systems.
  - h. Control systems.
  - i. Communication systems.
  - j. Conveying systems.
  - k. Electrical wiring systems.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
  - 1. If possible retain the original installer or fabricator to cut and patch the following categories of exposed Work, or if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm:
    - a. Preformed metal panels.
    - b. Stucco and ornamental plaster.
    - c. Aggregate wall coating.
    - d. Wall covering.
    - e. HVAC enclosures, cabinets or covers.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS**

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

## **PART 3 – EXECUTION**

### **3.1 INSPECTION**

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
  - 1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

### **3.2 PREPARATION**

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

### **3.3 PERFORMANCE**

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.

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1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
  4. Comply with requirements of applicable Sections of Division – 2 where cutting and patching requires excavating and backfilling.
  5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
    - a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat.
  4. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.
- D. Plaster Installation: Comply with manufacturer's instructions and install thickness and coats as indicated.
1. Unless otherwise indicated provide 3-coat Work.
  2. Finish gypsum plaster with smooth-toweled finish. Sand lightly to remove trowel marks and arises.
  3. Cut, patch, point-up and repair plaster to accommodate other construction and to restore cracks, dents and imperfections.

### **3.4 CLEANING**

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

**END OF SECTION**

**SECTION 01095 | REFERENCE STANDARDS AND DEFINITIONS**  
**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM**  
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**PART 1 – GENERAL**

**1.1 DEFINITIONS**

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Indicated: The term indicated refers to graphic representations, notes, or schedules on Drawings, or other Paragraphs of Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference. There is no limitation on location.
- C. Directed: Terms such as directed, requested, authorized, selected, approved, required and permitted mean directed by the Architect, requested by the Architect, and similar phrases.
- D. Approved: The term approved, when used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.
- E. Regulations: The term regulations includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. Furnish: The term furnish means supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. Install: The term describes operations at the Project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. Provide: The term provide means to furnish and install, complete and ready for the intended use.
- I. Installer: An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - 1. Trades: Using terms such as carpentry is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as carpenter. It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
- J. Project site is the space available to the Contractor for performing construction activities either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
- K. Testing Agencies: A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to reports on and, if required, to interpret results of those inspections or tests.

**1.2 SPECIFICATION FORMAT AND CONTENT EXPLANATION**

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specification Institute's 16-Division Format and MASTER FORMAT numbering system.
- B. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
  - 1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated, shall be interpolated as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicate.
  - 2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subject language is

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used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor, or by other means when so noted.

- a. The words “shall be” are implied wherever a colon (:) is used within a sentence or phrase.

**1.3 INDUSTRY STANDARDS**

- A. **Applicability of Standards:** Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. **Publication Dates:** Comply with the standards in effect as of the date of the Contract Documents.
- C. **Conflicting Requirements:** Where compliance with two or more standard is specified and where the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different but apparently equal and other uncertainties to the Architect for a decision before proceeding.
1. **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 the requirements. Refer uncertainties to the Architect for a decision before proceeding.
- D. **Copies of Standards:** Each entity engaged in construction on the project is required to be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.
- E. **Abbreviations and Names:** Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authority having jurisdiction, or other entity applicable to the context of the Text provision. Refer to the “Encyclopedia of Associations,” published by Gale Research Co., available in most libraries.

**1.4 SUBMITTALS**

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

**PART 2 – PRODUCTS (NOT APPLICABLE)**

**PART 3 – EXECUTION (NOT APPLICABLE)**

**END OF SECTION**

**01200 | PRICE AND PAYMENT PROCEDURES**  
VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
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**PART 1 – GENERAL**

**1.1 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. Procedures for preparation and submittal of application for final payment.

**1.2 RELATED SECTIONS**

- A. Section 01270 – Unit Prices (if required): Monetary values of unit prices, payment and modification procedures relating to unit prices.

**1.3 SCHEDULE OF VALUES**

- A. Submit a printed schedule on AIA Form G703 – Application and Certificate for Payment Continuation Sheet.
- B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization, bonds, and insurance, and site demobilization.
- D. Revise schedule to list approved Change Orders, with each Application for Payment.

**1.4 APPLICATIONS FOR PROGRESS PAYMENT**

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Present required information as typewritten/computer-generated form.
- C. Form: AIAG702 Application and Certificate for Payment and AIA G703 – Continuation Sheet including continuation sheets when required.
- D. For each item, provide a column for listing each of the following:
  - 1. Item Number.
  - 2. Description of Work.
  - 3. Scheduled Values.
  - 4. Previous Applications
  - 5. Work in Place and Stored Materials under this Application.
  - 6. Total Completed and Stored to Date of Application.
  - 7. Percentage of Completion.
  - 8. Balance to Finish.
  - 9. Retainage.
- 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 and for stored Products.
- G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original time of Work.
- H. Submit three copies of each Application for Payment.
- I. Include the following with the application:
  - 1. Transmittal Letter as specified for Submittals in Section 01300.

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2. Construction progress schedule, revised and current as specified in Section 01300.
  3. Current construction photographs specified in Section 01300.
  4. Partial release of liens from major Subcontractors and Vendors.
  5. Affidavits attesting to off-site stored products.
- J. When Architect 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.

## **1.5 MODIFICATION PROCEDURES**

- A. Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on AIA Form G710.
- B. Construction Change Directive: Architect may issue a document, signed by Owner, instructing Construction Manager to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. The document will describe changes in the Work, and will designate method of determining any change in Contract Sum or Contract Time.
  2. Promptly execute the change in Work.
- C. Proposal Request: Architect may issue a document which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Construction Manager shall prepare and submit a fixed price quotation within 15 days.
- D. Computation of Change in Contract Amount:
1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Construction Manager's price quotation.
  2. For change requested by Construction Manager, the amount will be based on the Construction Manager's request for a Change Order as approved by Owner.
  3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
  4. For change ordered by Architect without a quotation from the Construction Manager, the amount will be determined by Architect based on the Construction Manager's substantiation of costs as specified for Time and Material Work.
- E. Substantiation of Costs: Provide full information required for evaluation.
1. Provide the following data:
    - a. Quantities of products, labor, and equipment.
    - b. Taxes, insurance, and bonds.
    - c. Overhead and profit.
    - d. Justification for any change in Contract Time.
    - e. Credit for deletions from Contract, similarly documented.
  2. Support each claim for additional costs with additional information:
    - a. Origin and date of claim.
    - b. Dates and times work was performed, and by whom.
    - c. Time records and wage rates paid.
    - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
  3. 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.
- F. Execution of Change Orders: Architects will issue Change Orders for signatures of parties as provided in the Conditions of the Contract on AIA G701.
- G. After execution of Change Order, promptly revise Schedules of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- H. 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.

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**1.6 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 01700.

**PART 2 – PRODUCTS – NOT USED**

**PART 3 – EXECUTION – NOT USED**

**END OF SECTION**



**PART 1 – GENERAL**

**1.1 SECTION INCLUDES**

- A. Project coordination.
- B. Preconstruction meeting.
- C. Progress meetings.
- D. Progress photographs.

**1.2 RELATED SECTIONS**

- A. Section 01700 – Execution Requirements: Additional coordination requirements.

**1.3 PROJECT COORDINATION**

- A. Contractor: The Contractor shall be responsible for overall project coordination between subcontractors and trade contractors.
- B. Cooperate with the Owner in allocation of mobilization areas of site; for field offices and storage, for personnel access, traffic, and parking facilities.
- C. During construction, coordinate use of site and facilities through the Contractor.
- D. Comply with Owner procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts. Particular attention should be given to the Contractor's subcontractor safety policy.
- E. Comply with instructions of the Owner for use of temporary utilities and construction facilities.
- F. Coordinate field engineering and layout work with the Owner.
- G. Make the following types of submittals to the Architect through the Owner:
  - 1. Requests for Interpretation.
  - 2. Requests for Substitution.
  - 3. Shop Drawings, Product Data, and Samples.
  - 4. Test and Inspection Reports.
  - 5. Manufacturer's Instructions and Field Reports.
  - 6. Applications for Payment and Change Order requests.
  - 7. Progress Schedules.
  - 8. Coordination of Drawings.
  - 9. Closeout Submittals.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 – EXECUTION**

**3.1 PRECONSTRUCTION MEETING**

- A. Owner will schedule a meeting after Notice of Award and prior to mobilization.
- B. Attendance Required:
  - 1. Owner.
  - 2. Architect and invited Consultants.
  - 3. Contractor: Project Manager and Job Superintendent.
  - 4. Major Sub-contractors as requested by the Owner, Architect and Contractor.
- C. Minimum Agenda:

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1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Submission of progress schedule.
4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal requests, Change Orders, and Contract closeout procedures.
5. Use of premises by Owner and Contractor.
6. Construction facilities and controls provided by Owner.
7. Temporary utilities provided by Owner.
8. Survey and building layout.
9. Security and housekeeping procedures.
10. Schedules.
11. Application for payment procedures.
12. Procedures for testing.
13. Procedures for maintaining record documents.
14. Scheduling.
15. Scheduling activities of Material Testing.

- D. Contractor shall record minutes and distribute copies within five days after meeting to participants, with one copy to Architect, Owner, participants, and those affected by decisions made.

### **3.2 PROGRESS MEETINGS**

- A. Contractor shall schedule and administer meetings throughout the progress of the Work at maximum bi-monthly intervals. A representative from each major trade contractor shall be required to attend these meetings, as requested by the Contractor.
- B. The Contractor shall make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required:
1. Contractor: Project Manager and Job Superintendent.
  2. Owner's Representative.
  3. Architect.
  4. Major Sub-contractors as appropriate to agenda topics for each meeting.
- D. Minimum Agenda:
1. Review minutes of previous meetings.
  2. Review of Work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems which impede planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Maintenance of progress schedule.
  7. Corrective measures to regain projected schedules.
  8. Planned progress during succeeding work period.
  9. Maintenance of quality and work standards.
  10. Effect of proposed changes on progress schedule and coordination.
  11. Other business relating to Work.

- E. Contractor shall record minutes and distribute copies within five days after meeting to participants, with one copy to Architect, Owner, participants, and those affected by decisions made.

### **3.3 PROGRESS PHOTOGRAPHS**

- A. Provide photographs of site and construction throughout progress of Work produced by an experienced photographer, acceptable to Architect.
- B. Take photographs on date for each application for a payment and as follows:
1. Site clearing.
  2. Excavations.

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3. Foundations.
  4. Structural framing.
  5. Enclosure of building.
  6. Final completion.
- C. Views:
1. Provide non-aerial photographs from three cardinal views at each specified time, until Date of Substantial Completion.
  2. Consult with Architect for instructions on views required.
  3. Provide factual presentation.
  4. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
- D. Prints: Full color; three prints of each view.
1. Glossy; smooth texture; white tint; single weight; contrast grade 4, extra hard.
  2. Size: 8 x 10 inch; mounted for binder and tabs.
  3. Identify each print on back. Identify name of Project, contract number, phrase, orientation of view, date and time of view, name and address of photographer, and photographer's numbered identification of exposure.
- E. Deliver prints with Application for Payment with transmittal letter specified in this Section.

**END OF SECTION**

**01325 | CONSTRUCTION PROJECT SCHEDULE**  
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**PART 1 – GENERAL**

**1.1 SECTION INCLUDES**

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

**1.2 RELATED SECTIONS (NOT APPLICABLE)**

**1.3 SUBMITTALS**

- A. Within 10 days after date established in Notice To Proceed, submit preliminary schedule defining planned operations for the first 30 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. Within 30 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.
- F. Submit the number of opaque reproductions that the Contractor requires, plus four copies which will be retained by the Architect.
- G. Submit under transmittal letter form specified in Section 01300.

**1.4 QUALITY ASSURANCE**

- A. Scheduler: Contractor's personnel specialist Consultant specializing in CPM scheduling with two years minimum experience in scheduling construction work of a complexities comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

**1.5 SCHEDULE FORMAT**

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable Specification Section number.
- B. Sheet Size: Multiples of 8-1/2 x 11 inches.
- C. Scale and Spacing: To allow for notations and revisions.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 – EXECUTION**

**3.1 PRELIMINARY SCHEDULE**

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

**3.2 CONTENT**

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by Specification Section number.
- C. Identify Work of separate stages and other logically grouped activities.

- D. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, Products identified under Allowances, and dates reviewed submittals will be required by the Architect. Indicate decision dates for selection of finishes.
- E. Indicated delivery dates for owner-furnished products.
- F. Provide legend for symbols and abbreviations used.

### **3.3 BAR CHARTS**

- A. Include a separate bar for each major portion of Work or operation.

### **3.4 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with Architect 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.

### **3.5 UPDATING SCHEDULE**

- A. Maintain schedules t 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.

### **3.6 DISTRIBUTION OF SCHEDULE**

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, Suppliers, Architect, Owner's Representative, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

**END OF SECTION**

**PART 1 – GENERAL****1.1 SECTION INCLUDES**

- A. Quality assurance – control of installation.
- B. Tolerances.
- C. References and standards.
- D. Mock-up.
- E. Inspecting and testing laboratory services.
- F. Manufacturers' field services.

**1.2 RELATED SECTIONS**

- A. Section 01000 General Specifications: Contractor's Shop and Working Drawings.

**1.3 QUALITY ASSURANCE – 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 Architect/Engineer 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. Perform Work 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, or disfigurement.

**1.4 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 conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

**1.5 REFERENCES AND STANDARDS**

- A. For Products or workmanship specified by association, trade, or other consensus standards, complies with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.
- C. Obtain copies of standards where required by product Specification Sections.

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- D. Neither the contractual relationships, duties, nor responsibilities of the parties in Contract, nor those of the Architect/Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

**1.6 MOCK UP (NOT USED)**

**1.7 INSPECTION AND TESTING LABORATORY SERVICES**

- A. Owner may appoint, employ, and pay for specified services of an independent firm to perform construction testing services.
- B. The independent firm will perform testing and other services specified in individual sections and as required by the Owner.
- C. Testing reports will be submitted by the independent firm to the Owner indicating services and indicating compliance or non-compliance with the Contract Documents.
- D. Cooperate with independent firm; furnish safe access and assistance by incidental labor as requested.
  - 1. Notify Architect/Engineer and/or independent firm 48 hours prior to expected time for operations requiring services. These operations include, but are not necessarily limited to:
    - a. Cast-in-place concrete placement.
    - b. Bituminous pavement construction.

**1.8 INSPECTION SERVICES**

- A. Owner may appoint, employ, and pay for specified services of an independent firm to perform observation.
- B. The independent firm will perform observations and other services specified in individual Specification Sections and as required by the Owner.
- C. Reports will be submitted by the independent firm to the Owner, in duplicate, indicating observations and indicating compliance or non-compliance with Contract Documents.
- D. Cooperate with independent firm; furnish safe access and assistance by incidental labor as requested.
  - 1. Notify Architect/Engineer and /or independent firm 48 hours prior to expected time for operations requiring services.
- E. Observations do not relieve Contractor to perform Work to the contract requirements.

**1.9 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, as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect/Engineer 30 days in advance of required observations. Observer subject to approval of Architect/Engineer.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

**PART 2 – PRODUCTS (NOT USED)**

**PART 3 – EXECUTION**

**3.1 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new 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.

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- C. Examine and verify specific conditions described in individual Specification Sections.
- D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

**3.2 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.

**END OF SECTION**



**01500 | TEMPORARY FACILITIES**

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**PART 1 – GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
- B. Temporary utilities required include but are not limited to:
  - 1. Water service and distribution.
  - 2. Temporary electric power and light.
  - 3. Telephone service.
  - 4. Storm and sanitary sewer.
- C. Temporary construction and support facilities required include but are not limited to:
  - 1. Storage sheds.
  - 2. Sanitary facilities, including drinking water.
  - 3. Temporary closures.
  - 4. Temporary Project identification signs and bulletin boards.
  - 5. Waste disposal services.
  - 6. Rodent and pest control
  - 7. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities required include but are not limited to:
  - 1. Temporary fire protection.
  - 2. Barricades, warning signs, lights.
  - 3. Sidewalk bridge or enclosure fence for the area.

**1.3 SUBMITTALS**

- A. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

**1.4 QUALITY ASSURANCE**

- A. Regulations: Comply with industry standards and applicable laws and regulations if authorities having jurisdiction, including but not limited to:
  - 1. Building Code requirements.
  - 2. Health and Safety regulations.
  - 3. Utility Company regulations.
  - 4. Police, Fire Department and Rescue Squad rules.
  - 5. Environmental Protection regulations.
- B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
  - 1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services," prepared jointly by AGC and ASC, for industry recommendations.
  - 2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

**1.5 PROJECT CONDITIONS**

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

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS**

- A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. Lumber and Plywood: Comply with requirements in Division – 6 Section “Rough Carpentry.”
  - 1. For job-built temporary offices, shops and sheds within the construction areas, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.
  - 2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to Ps-1, of sizes and thickness indicated.
  - 3. For fences and vision barriers, provide minimum 3/8” thick exterior plywood.
  - 4. For safety barriers, sidewalk bridges and similar uses provide minimum 5/8” thick exterior plywood.
- C. Paint: Comply with requirements of Division 9 – Section “Finish Painting.”
  - 1. For job-built, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.
  - 2. For sign panels and applying graphics, provide exterior grad alkyd gloss enamel over exterior primer.
  - 3. For interior walls of temporary offices, provide two coats of interior latex flat wall paint.
- D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- E. Water: Provide potable water approved by local health authorities.
- F. Open-Mesh Fencing: Provide 11-gauge, galvanized 2-inch, chain link fabric fencing 6-feet high with galvanized barbed wire top strand and galvanized steel pipe posts, 1-1/12” I.D. for line posts and 2-1/2” I.D. for corner post.

### **2.2 EQUIPMENT**

- A. General: Provide new equipment; if applicable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide ¾” heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords; use “hard-service” cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide waterproof connectors to connect separate lengths of electric cord, if single lengths will not reach areas where construction activities are in progress.

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- F. Temporary Toilet Units: Provide self-contained single occupant toilet units of the chemical, aerated recirculation, or combustion-type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar non-absorbent material.
- G. First-aid Supplies: Comply with governing regulations.
- H. Fire Extinguishers: Provide hand-carried, portable UL-rated, Class "A" fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, and UL-rated. Class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
  - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

### **PART 3 – EXECUTION**

#### **3.1 INSTALLATION**

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

#### **3.2 TEMPORARY UTILITY INSTALLATION**

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
  - 1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.
  - 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect, and will not be accepted as a basis of claims for a Change Order.
- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.
  - 1. Sterilization: Sterilize temporary water piping prior to use.
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.
  - 1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be non-metallic sheathed cable where overhead and exposed for surveillance.

#### **3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION**

- A. Located field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access..
  - 1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.
- C. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site.

**01500 | TEMPORARY FACILITIES**

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- D. Sanitary facilities include temporary toilets, wash facilities, and drinking water fixtures. Comply with regulations and health codes for the type, number, location and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
  - 1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
- E. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- F. Temporary Enclosures: Provide temporary closure protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
- G. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner. The Contractor is restricted from the storage of petroleum products (including waste oil) in staging area.

### **3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the Architect.
- B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard of Portable Fire Extinguishers and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
  - 1. Locate fire extinguishers where convenient and effective for their intended purpose.
  - 2. Store combustible materials in containers in fire-safe locations.
  - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
- C. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- D. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
  - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- E. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from firms near the site.

### **3.5 OPERATION, TERMINATION AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  - 1. Maintain operation of temporary enclosures, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.

**01500 | TEMPORARY FACILITIES**

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- C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete, or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.
  2. After Substantial Completion, clean and renovate permanent facilities that have been uses during the construction period.

**END OF SECTION**

**01600 | MATERIAL AND EQUIPMENT HANDLING**  
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**PART 1 – GENERAL**

**1.1 REQUIREMENTS INCLUDED**

- A. Products.
- B. Transportation and Handling.
- C. Storage and Protection.
- D. Product Options.
- E. Products List.
- F. Substitutions.

**1.2 RELATED REQUIREMENTS**

- A. Section 01400 – Quality Control: Submittal of manufacturer's data.
- B. Section 01700 – Contract Closeout: Operation and maintenance data.

**PART 2 – PRODUCTS**

**2.1 GENERAL**

- A. Products include the material, equipment, and systems used on this Project.
- B. Comply with the Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.

**2.2 TRANSPORTATION AND HANDLING**

- A. Transport products by methods that will avoid product damage and deliver them in undamaged condition in the manufacturer's unopened containers or packaging.
- B. Provide equipment and personnel to handle unloading and storage of the products by methods to prevent soiling or damage.
- C. Promptly inspect the shipments to assure that the products comply with requirements, the quantities are correct, and the products are undamaged.

**2.3 STORAGE AND PROTECTION**

- A. Store products in accordance with the manufacturer's instructions, with intact and legible seals and labels.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover the products subject to deterioration with an impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area. Prevent mixing of the materials with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure that products are undamaged, and are maintained under required conditions.

**2.4 PRODUCT OPTIONS**

- A. Products specified by Reference Standards or by Description Only: Furnish any product meeting those standards.

**01600 | MATERIAL AND EQUIPMENT HANDLING**  
**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM**  
**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
**HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802**

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- B. Products specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named.
- C. Products specified by Naming Several Manufacturers: Products of named manufacturers meeting Specifications: No options, no substitutions will be allowed.

**2.5 PRODUCTS LIST**

- A. Within 15 days after the date of Owner-Contractor Agreement, submit a complete list of major products proposed for use, with name of the manufacturer, trade name, and model number of each product.

**2.6 SUBSTITUTIONS**

- A. Only within 15 days after date of the Agreement will the Architect/Engineer consider requests from the Contractor for substitutions. Subsequently, substitutions will be considered only when a product becomes unavailable due to no fault of the Contractor.
- B. Document each request with complete data substantiating the compliance of the proposed substitution with the Contractor Documents.
- C. The request constitutes a representation that the Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds, in all respects, the specified product.
  - 2. Will provide the same warranty for substitution as for the specified product.
  - 3. Will coordinate installation and make other changes which may be required for the Work to be complete in all respects.
  - 4. Waives claims for additional cost which may subsequently become apparent.
  - 5. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, or when acceptance will require substantial revision of the Contract Documents.
- D. Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals without separate written request, or when acceptance will require substantial revision of the Contract Documents.
- E. The Architect/Engineer will determine acceptability of the proposed substitution, and will notify the Contractor of acceptance or rejection in writing within a reasonable time.
- F. Only one request for the substitution will be considered for each product. When substitution is not accepted, provide the specified product.

**2.7 SYSTEM DEMONSTRATION**

- A. Prior to the final inspection, demonstrate operation of the entire system to the Owner.

**PART 3 – EXECUTION (NOT USED)**

**END OF SECTION**

**01620 | TRANSPORTATION AND HANDLING**  
**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM**  
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**GENERAL**

- A. The Contractor shall provide transportation of all equipment, materials and products furnished under these Contract Documents to the site of the Work. In addition, the Contractor shall provide preparation for shipment and storage, unloading, handling and re-handling, short-term storage, extended storage, storage facilities, maintenance and protection during storage, preparation for installation, and all other work and incidental items necessary or convenient to the Contractor for the satisfactory prosecution and completion of the Work.

**TRANSPORTATION**

- A. All equipment shall be suitably boxed, crated, or otherwise protected during transportation.
- B. All equipment shall be shipped and delivered in the largest assembled sections practical or permitted by carrier regulations to minimize the number of field connections.
- C. The Contractor shall be responsible for ensuring that the equipment is assembled and transported in such a manner so as to clear buildings, power lines, bridges, and similar structures encountered during shipment or delivery to the site of the Work.
- D. Where equipment will be installed using existing cranes or hoisting equipment, the Contractor shall ensure that the weights of the assembled sections do not exceed the capacity of the cranes or hoisting equipment.
- E. Small items and appurtenances such as gauges, valves, switches, instruments, and probes, which could be damaged during shipment shall be removed from the equipment prior to shipment and packaged and shipped separately. All openings shall be plugged or sealed to prevent the entrance of water or dirt.
- F. Temporary shipping braces and supports shall be painted orange or yellow for easy identification.

**HANDLING**

- A. All equipment, materials, and products shall be carefully handled to prevent damage or excessive deflections during unloading or transportation. All equipment, materials, and products damaged during transportation or handling shall be repaired or replaced by the Contractor at no additional cost to the Authority prior to being incorporated into the Work.
- B. Lifting and handling drawings and instructions furnished by the manufacturer or supplier shall be strictly followed. Eyebolts or lifting lugs furnished on the equipment shall be used in handling the equipment. Shafts and operating mechanisms shall not be used as lifting points. Spreader bars or lifting beams shall be used when the distances between lifting points exceeds that permitted by standard industry practice. Slings and chains shall be padded as required to prevent damage to protective coatings and finishes.
- C. Under no circumstances shall equipment or products such as pipe, structural steel, castings, reinforcement, lumber, piles, poles, etc., be thrown or rolled off of trucks onto the ground. Tossing of pipes and pipe fittings and accessories is an unacceptable practice. Items tossed shall be inspected by the Architect/Engineer and/or Project Manager. If the Architect/Engineer or Project Manager determines that the product has been comprised, Contractor shall replace product at no additional cost to Authority.
- D. Items such as non-metallic pipe, non-metallic conduit, flagpoles, and lighting poles shall be handled using non-metallic slings or straps. Under no circumstance shall chains or steel cables be used to transport or handle non-metallic products.

**END OF SECTION**



**01630 | STORAGE AND PROTECTION**

VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
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**GENERAL**

- A. Equipment shall be received, inspected, unloaded, handled, stored, maintained, and protected by the Contractor in a suitable location on or off site, if necessary, until such time as installation is required.
- B. Storage and protection of Contractor-furnished equipment shall be strict conformance with the requirements of the Section entitled "General Equipment Stipulations" of these Specifications.

**STORAGE**

- A. The Contractor shall be responsible for providing satisfactory storage facilities that are acceptable to the Architect/Engineer. In the event that satisfactory facilities cannot be provided on site, satisfactory warehouse, acceptable to the Architect/Engineer, will be provided by the Contractor for such time until the equipment, materials, and products can be accommodated at the site.
- B. Equipment, materials, and products that are stored in a satisfactory warehouse acceptable to the Architect/Engineer will be eligible for progress payments as though they had been delivered to the job site.
- C. The Contractor shall be responsible for the maintenance and protection of all equipment, materials, and products placed in storage and shall bear all costs of storage, preparation for transportation, transportation, re-handling, and preparation for installation and replacement if lost or damaged.
- D. Equipment and products stored outdoors shall be supported above the ground on suitable wooden blocks or braces arranged to prevent excessive deflection or bending between supports. Items such as pipe, structural steel, and sheet construction products shall be stored with one end elevated to facilitate drainage.
- E. Unless otherwise permitted in writing by the Architect/Engineer, building products and materials such as cement, grout, plaster, gypsum-board, particle-board, resilient flooring, acoustical tile, paneling, finish lumber, insulation, wiring, etc., shall be stored indoors in a dry location. Building products such as rough lumber, plywood, concrete block, and structural tile may be stored outdoors under a properly secured waterproof covering.
- F. Tarpaulins and other coverings shall be supported above the stored equipment or materials on wooden strips to provide ventilation under the cover and minimize condensation. Tarpaulins and covers shall be arranged to prevent ponding of water.
- G. PVC pipe, if stored outside, shall be suitably protected from sunlight (UV) by covering with a tarp. Such covering shall be completed and continual.

**EXTENDED STORAGE**

- A. In the event that certain items of major equipment such as air compressors, pumps, and mechanical aerators have to be stored for an extended period of time, the Contractor shall provide satisfactory long-term storage facilities that are acceptable to the Architect/Engineer. The Contractor shall provide all special packaging, protective coverings, protective coatings, power, nitrogen purge, desiccants, lubricants, and exercising necessary or recommended by the manufacturer to properly maintain and protect the equipment during the period of extended storage.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.1 SUMMARY**

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

### **1.2 SUBSTANTIAL COMPLETION**

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
  - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
    - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
  - 2. Advise Owner of pending insurance change-over requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
  - 4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
  - 5. Deliver tools, spare parts, extra stock, and similar items.
- B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
  - 1. The Architect will repeat inspection when requested and assured that the Work has been substantially completed.
  - 2. Results of the completed inspection will form the basis of requirements for final acceptance.

### **1.3 FINAL ACCEPTANCE**

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
  - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
  - 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  - 3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
  - 4. Submit consent of surety to final payment.
  - 5. Submit a final liquidated damages settlement statement.
  - 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.
  - 1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
  - 2. If necessary, reinspection will be repeated.

#### **1.4 RECORD DOCUMENT SUBMITTALS**

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

#### **PART 2 – PRODUCTS (NOT APPLICABLE)**

#### **PART 3 – EXECUTION**

##### **3.1 CLOSEOUT PROCEDURES**

- A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:
  - 1. Record documents.
  - 2. Spare parts and materials.
  - 3. Tools.
  - 4. Cleaning.
  - 5. Warranties and bonds.

##### **3.2 FINAL CLEANING**

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- A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
  - 1. Complete the following cleaning operations before requesting inspection for Final Acceptance.
    - a. Remove labels that are not permanent labels.
    - b. Clean exposed exterior hard-surfaced finishes to a dust-free condition, free of stains, film and similar foreign substances.
    - c. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean light fixtures and lamps.
    - d. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
  - 1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

**END OF SECTION**

**01710 | CLEANING UP**

**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP  
HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802**

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**GENERAL**

During its progress, the Work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.

Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipe structures, as a result of Work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the Work, and the ditches, channels, drains, pipes, structures, and work, etc., shall upon completion of the Work, be left in a clean and neat condition.

On or before the completion of the Work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.

Upon completion of the Work, the Contractor shall remove from the sites of the subsurface explorations all of his plant, machinery, tools, equipment, temporary work, and surplus materials; shall, unless otherwise directed or permitted in writing, remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.

The Contractor shall thoroughly clean all materials and equipment installed by him and his subcontractors, and on completion of the Work shall deliver it undamaged and in fresh and new-appearing condition. All mechanical equipment shall be fully charged with lubricant and ready for operation.

The Contractor shall restore or replace, when and as directed, any public or private property damaged by his Work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end, the Contractor shall do as required all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable as work progresses and shall not be left until the end of the contract period.

**END OF SECTION**

**1 – GENERAL**

- A. The Contractor shall warrant all equipment, materials, products, and workmanship provided by the Contractor under the Contract for a period of twelve (12) months after the date of final acceptance of the Work by the Authority.
- B. If, during the warranty period: (a) Any equipment, materials, or products furnished and/or installed by the Contractor are found to be defective in service by reason on the Contractor's faulty process, structural and/or mechanical design or Specifications; or (b) Any equipment, materials, or products furnished by the Contractor shall, as soon as possible after receipt such defective equipment, materials or products, or replace such defective equipment, materials or products.
- C. In the event of multiple equipment failures or major consequences prior to the expiration of the one-year warranty described above, the affected equipment shall be disassembled, inspected, and modified or replaced as necessary to prevent further occurrences. All related components that may have been damaged or rendered non-serviceable as a consequence of the equipment failure shall be replaced. A new twelve (12) month warranty against defective or deficient design, workmanship, and materials shall commence on the day that the item of equipment is reassembled and placed back into operation. As used herein, multiple equipment failures shall be interpreted to mean two (2) or more successive failures of the same kind in the same item of equipment or failures of the same kind in two (2) or more items of equipment. Major equipment failures may include, but are not limited to, cracked or broken housings, piping, or vessels, excessive deflections, bent or broken shafts or structural members, broken or chipped gear teeth, overheating, premature bearing failure, excessive wear, or excessive leakage around seals. Equipment failures which are directly and clearly traceable to operator abuse, such as operating the equipment in conflict with published operating procedures, or improper maintenance, such as substitution of unauthorized replacement parts, use of incorrect lubricants or chemicals, flagrant over-or-under lubrication, and using maintenance procedures not conforming with published maintenance instructions, shall be exempted from the scope of the one-year warranty. Should multiple equipment failures occur in a given item or type of equipment, all equipment of the same size and type shall be disassembled, inspected, modified or replaced, as necessary, and re-warranted for one (1) year.

**2 – START-UP OF OPERABLE COMPONENTS**

- A. Because of the need to maintain operation during construction, it will be necessary to accept and start-up operable components of the project at various times prior to the completion and final acceptance of the entire project.
- B. A component of the project, as used herein, shall mean a complete process subsystem and shall include all associated structures, equipment, piping, controls, etc.
- C. When a component of the project has been completed, checked out, field tested, and made ready for operation, the Contractor shall notify the Architect/Engineer in writing that the component is substantially complete and request an inspection for substantial completion. The Architect/Engineer will schedule the inspection within ten (10) days of the Contractor's request. If he concurs in the Contractor's statement, the Architect/Engineer will notify the Contractor in writing that the component is accepted as substantially complete. At the same time, the Architect/Engineer will submit to the Contractor a list of items that must be completed or corrected before final acceptance can be given.
- D. If a component of the project is needed in order to maintain operation during construction and if it has been accepted as substantially complete, the Contractor shall start up the component when directed by the Architect/Engineer. Once the component has achieved stable and satisfactory operation (minimum 95 percent availability over a 7-day period), the Contractor shall request beneficial occupancy by the Authority. The Authority, if he concurs in the Contractor's statement, that stable and satisfactory operation has been achieved, will notify the Contractor in writing within ten (10) days that he is assuming beneficial occupancy of the component.
- E. On the date that the Authority assumes beneficial occupancy, the following shall occur:
  - 1. The one-year warranties for the component specified in Part 1-A of this section will begin; and
  - 2. The Authority will assume responsibility for operating and maintaining the component.

**END OF SECTION**

## **DIVISION 2**

### **SITE CONSTRUCTION**

**02070 | SELECTIVE DEMOLITION**

**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP  
HAVENSIGHT MALL, ST. THOMAS U.S. VIRGIN ISLANDS, 00802**

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**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of a building.
  - 2. Patching and repairs.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 1 Section “Summary of Work” for use of the building and phasing requirements.
  - 2. Division 1 Section “Cutting and Patching” for cutting and patching procedures for selective demolition operations.
  - 3. Division 1 Section “Construction Facilities and Temporary Controls” for temporary utilities, temporary construction and support facilities, temporary security and protection facilities, and environmental protection measures for selective demolition operations.
  - 4. Division 1 Section “Contract Closeout” for record document requirements.
  - 5. Division 6 Section “Rough Carpentry” for material and construction requirements for temporary closures.

**1.2 DEFINITIONS**

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

**1.3 MATERIALS OWNERSHIP**

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner’s property, demolished materials shall become the Contractor’s property and shall be removed from the site with further disposition at the Contractor’s option.
- B. Comply with manufacturers’ tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

**1.4 SUBMITTALS**

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.
- B. Proposed dust-control measures.
- C. Proposed noise-control measures.
- D. Schedule of selective demolition activities indicating the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
  - 2. Interruption of utility services.
  - 3. Coordination of shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.



**02070 | SELECTIVE DEMOLITION**

**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
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5. Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
  6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
  7. Locations of temporary partitions and means of egress.
- E. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
- F. Record drawings at Project closeout according to Division 1 Section "Contract Closeout."
1. Identify and accurately locate capped utilities and other subsurface structural, electrical or mechanical conditions.

## **1.5 QUALITY ASSURANCE**

- A. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Pre-demolition Conference: Conduct conference at Project site to comply with pre-installation conference requirements of Division 1 Section "Project Meetings."

## **1.6 PROJECT CONDITIONS**

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

## **1.7 SCHEDULING**

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

## **1.9 WARRANTY**

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

## **PART 2 – PRODUCTS (NOT APPLICABLE)**

### **2.1 REPAIR MATERIALS**

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

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped.

**02070 | SELECTIVE DEMOLITION**

**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
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- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.
- E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### **3.2 UTILITY SERVICES**

- A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by the Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
    - a. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.
- B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving building to be selectively demolished.
  - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
  - 2. Arrange to shut off indicated utilities with utility companies.
  - 3. Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.
  - 4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.
- C. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utility services. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

### **3.3 PREPARATION**

- A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- B. Conduct demolition operations to prevent injury to people and facilities that remain. Ensure safe passage of people around selective demolition areas.
  - 1. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.
  - 2. Protect existing site improvements, appurtenances, and landscaping to remain.

### **3.4 POLLUTION CONTROLS**

- A. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 1. Remove debris from elevated portions of buildings by chute, hoist, or other device that will convey debris to grade level.

### **3.5 DEMOLITION**

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use

hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.

2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  4. Maintain adequate ventilation when using cutting torches.
  5. Remove decayed, vermin-infested, or otherwise dangerous, damaged or unsuitable materials and promptly dispose of off-site.
  6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  7. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors or framing.
  8. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
  9. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- B. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain, using power-driven masonry saw or hand tools; do not use power-driven impact tools.
- C. Remove no more existing roofing than can be covered in one day by new roofing. Provide temporary waterproof seal between new and existing roofing at the end of each day.

### **3.6 PATCHING AND REPAIRS**

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

### **3.7 DISPOSAL OF DEMOLISHED MATERIALS**

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

### **3.8 CLEANING**

- A. Sweep the roof clean on completion of selective demolition operation.
- B. Change filters on air-handling equipment on completion of selective demolition operations.

**END OF SECTION**

## **DIVISION 5**

### **METALS**

**SECTION 05500 – MISCELLANEOUS METAL WORK**  
**VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM**  
**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
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**PART 1 – GENERAL**

**1.01 DESCRIPTION**

**A. Work Included in This Section:**

1. Provide all engineering, labor, materials, equipment, and services, etc., required to engineer, furnish, and install all miscellaneous metal work and related accessories as indicated on the Drawings, specified herein, or otherwise required for a complete and proper job.
2. The Work shall include, but shall not necessarily be limited to:
  - a. Miscellaneous structural steel.
  - b. Miscellaneous steel plates and angles.
  - c. Miscellaneous steel brake metal, pans, closures, trim, and other configurations.
  - d. Miscellaneous carpenter's iron as required.
  - e. Miscellaneous frames, brackets, and supports for hardware, window systems, and equipment including all mechanical, electrical, medical, athletic, and theatrical equipment. Including seismic bracing for all miscellaneous metal frames, stands, and supports.
  - f. Miscellaneous frames and supports for special doors, operable walls, mesh partitions, overhead supported toilet partitions.
  - g. Loose lintels and relieving angles not furnished under SECTION 05100: STRUCTURAL STEEL.
  - h. Steel handrails and guardrails.
  - i. Ladders.
  - j. Bollards.
  - k. Pit covers and frames.
  - l. Expansion joint covers.
  - m. Steel corner guards.
  - n. Trench drains.
  - o. Expanded steel treads and landings.
  - p. Abrasive nosings for concrete stairs.
  - q. Support frames for benches and counters.
  - r. Roof blocking fastening requirements.
  - s. Masonry wall top clips.
3. It shall be a requirement of the Work of this Section to thoroughly review all of the Contract Documents and provide any and all miscellaneous metal work required for a complete and proper job.

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**B. Related Work Specified Elsewhere:**

1. SECTION 03300: CAST-IN-PLACE CONCRETE
2. SECTION 04200: UNIT MASONRY AND MORTAR
3. SECTION 05100: STRUCTURAL STEEL
4. DIVISION 15: MECHANICAL
5. DIVISION 16: ELECTRICAL

**1.02 SUBMITTALS**

**A. Product Data:** Submit product data for manufactured products specified herein.

**B. Shop Drawings:**

1. Submit shop drawings for each item or assembly. Shop drawings shall accurately and clearly show in detail the construction, sizes, gauges, dimensions, methods of assembly, supports, finishes, and all other pertinent data and information.
  - a. Submit stair, ladder, and railing shop drawings drawn at not less than 1/4" scale with components shown in related positions. Provide larger scale custom details, control details and dimensions not governed by job conditions. Show all required field measurements.
  - b. Submit lintel fabrication schedule including location, type, size, length, and finish (primed or galvanized coating class).

**C. Certifications:**

1. Submit manufacturer's certification that the stairs, platforms, railings, and ladders provided are in full compliance with the requirements of the Contract Documents, and are totally suitable for the proposed installations when installed in accordance with the shop drawings.
2. Submit certificates indicating that each welder has satisfactorily passed AWS qualification tests for welding processes involved and if pertinent, has undergone re-certification.
3. Steel fabricator's in-plant special inspections program including: registration of special inspections program, written procedural and quality control manuals and evidence of periodic auditing of fabrication practices by an approved inspection agency.

**1.03 PRODUCT HANDLING**

**A. Delivery of Materials:** Deliver, store and handle components in such a manner as to prevent damage to finished surfaces.

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- B. Storage of Materials: Store components in a dry, clean location, away from uncured masonry and concrete. Cover with tarpaulin or polyethylene sheeting.

1.04 QUALITY ASSURANCE

- A. Welding Standards: Comply with applicable provisions of ASW D1.1 “Structural Welding Code – Steel” and ASW D1.3 “Structural Welding Code – Sheet Steel”.
- B. Stair and railing fabricator shall be a certified member of AISC who participates in a recognized quality assurance program and who is regularly inspected by an independent testing/inspection agency.
1. In the absence of the above requirements, the fabricator shall be required to hire and pay for an independent testing/inspection agency approved by the Owner, to monitor fabrication and perform random testing of all stair and railing fabrication procedures.
  2. The fabricator shall submit evidence to the Owner indicating satisfactory completion of projects of similar scope and that fabrication facilities are adequate to meet production requirements.
- C. Fabricator’s Qualifications: Only fabricators that maintain an agreement with an approved independent inspection or quality control agency to conduct periodic in-plant inspections at the fabricator’s plant, at a frequency that will assure the fabricator’s conformance to the requirements of the inspection agency’s approved quality control program will be approved for this project.

1.05 TESTING AND INSPECTIONS

- A. General: Stair and railing materials and fabrication procedures are subject to inspection and tests in mill, shop, and field, conducted by a qualified testing agency. Such inspections and tests shall not relieve the Contractor of responsibility for providing his own inspections, quality control and materials and fabrication procedures in compliance with specified requirements. Any non-compliant materials or fabricated components shall be removed and replaced.
- B. The fabricator shall submit evidence of in-plant inspections in conformance with IBC “Structural Tests and Inspections – Inspection of Fabricators (1700).
- C. Testing and inspection shall be performed as required by the building code, the Contract Documents or as otherwise directed by the Architect. The cost of field-testing and inspection shall be paid for by the Owner. If Work is found not to conform to the Contract Documents, the Contractor shall be responsible for the cost of all further testing.
- D. The Contractor shall cooperate with and facilitate testing and inspection by the testing agency. The Contractor shall, at his own expense, furnish the testing agency stair and railing shop drawings.
- E. Shop and field bolted connections and shop and field welded connections shall be inspected.

1.06 STRUCTURAL PERFORMANCE

- A. Handrails and Guardrails: Engineer, fabricate, and install handrails and guardrails to comply with requirements of ASTM E985. ASTM E894 and to withstand the following structural loads without

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exceeding the allowable design working stress of the materials involved, including anchors and connections. Apply each load to produce the maximum stress in each of component.

1. Handrails shall be rigid, free of vibration and able to withstand a concentrated force of 200 pounds applied at any point in any direction and, but not simultaneously, a uniform load of 50 pounds per foot applied in any direction.
2. Top Guardrail Member shall be rigid and able to withstand a concentrated force of 200 pounds applied at any point and in any direction and, but not simultaneously, a uniform load of 50 pounds per foot applied in any direction, and a simultaneous uniform load of 100 pounds per foot applied vertically downward to the top of the guard.
  - a. Infill areas of guardrails shall be rigid and able to withstand a horizontal concentrated force of 200 pounds applied on one square foot at any point in the system including panels, intermediate rails, balusters, or other elements. This loading condition shall not be applied simultaneously with the other loading conditions for guardrails.
  - b. Guardrail System: Shall withstand stresses resulting from railing system loads specified above.
- C. Ladders: Engineer, manufacture and install ladders to support in excess of 300 pounds force concentrated live load.

1.07     **WARRANTIES**

- A. Ladders: Provide manufacturer's standard product warranty for ladders against material and manufacturing defects for five (5) years.
- B. Color Galvanizing: Provide manufacturer's standard product warranty against excessive corrosion, peeling, chipping, or other failure for a period of twenty (20) years.

**PART 2 - PRODUCTS ("Green")**

2.01     GENERAL

- A. NOTE: It is the Owner's intent to use energy conserving, environmentally friendly materials to the greatest extent practical. The Contractor is therefore encouraged to use recycled steel products.
- B. Miscellaneous metal items shall be standard approved products, fabricated in accordance with best shop practices and, wherever possible, shop assembled, ready for erection.
- C. Metals shall be free from defects impairing strength, durability, or appearance and shall be best commercial quality for purposes specified. Metals shall be made with structural properties, to safely sustain and withstand strains, stresses, to which they will be normally subjected.
- D. Gauges herein specified are minimums and shall refer to U.S. Standard for sheet steel, plate iron, and steel.

2.02     MATERIALS



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- A. Steel Plates, Shapes and Bars: ASTM A-36.
- B. Sheet Steel: Cold-rolled: ASTM A-366; Hot-rolled: ASTM A-569.
- C. Steel Tubing: Cold-formed: ASTM A-500, Hot-formed: ASTM A-501.
- D. Steel Pipe: ASTM A-53.
- E. Fasteners: Provide plated fasteners complying with ASTM B33, Class FE/Zn 25 for electro-plated zinc coating, for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.
  - 1. Bolts and Nuts: ASTM A307, Grade A; ASTM A563.
  - 2. Machine Screws: ANSI B18.6.3.
  - 3. Lag Bolts: ANSI B18.2.1.
  - 4. Plain Washers: Round, carbon steel, ANSI B18.22.1.
  - 5. Lock Washers: Helical, spring type, carbon steel, ANSI B18.21.1.
  - 6. Expansion Anchors: Carbon steel components zinc-plated to comply with ASTM B633.
- F. NOTE: The fabricator shall not stamp, stencil, or otherwise place his identification on any portion of miscellaneous metals intended to remain exposed to view.

**2.03 PAINTING AND PROTECTIVE COATING**

- A. General: All ferrous metal herein Specified shall be properly cleaned and shop primed, except at the following locations:
  - 1. Anchors that are built into masonry shall be coated with bituminous paint, unless specified to be galvanized.
  - 2. Ferrous metal to be encased in concrete shall be left unpainted, unless specified or noted otherwise. Aluminum to be encased in concrete shall be coated with bituminous paint.
  - 3. Where hot-dip galvanized metal is specified or shown, it shall not be shop primed.
  - 4. Where sprayed-on fireproofing is specified or shown, metal shall not be shop primed.
  - 5. Where metal is scheduled to receive ceramic tile finish it shall not be shop primed.
- B. Surface Preparation:
  - 1. Exterior steel shall meet requirements of the Steel Structures Painting Council, SS PC-SP6 Commercial Blast Cleaning Standard.

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- 2. Interior steel and steel to be fireproofed shall meet requirements of SS PC-SP3 Power Tool Cleaning Standard.
- C. Shop Primer for Ferrous Metal: Shall be Tnemec “37 H Chem Prime Universal Phenolic Primer”, at 2.0 - 3.0 mils DFT.
- D. Galvanizing Repair Paint: Shall be high zinc content paint Tnemec 90-97.
- D. Bituminous Paint: Shall be cold-applied mastic complying with SSPC-Paint 12 except containing no asbestos fibers.

**2.04 GALVANIZING**

- A. All exterior steel, including lintels, rails, bollards, grates, frames, and all other steel that has any portion exposed to the weather, shall be hot-dip galvanized. Interior steel shall be hot-dip galvanized where so noted or specified. Hot-dip galvanized products shall not be shop primed.
- B. Products fabricated from rolled, pressed and forged steel shapes, plates, bars and strips shall be hot-dip galvanized in accordance with ASTM A-123, latest edition.
- C. Iron and steel hardware shall be hot-dip galvanized in accordance with ASTM A-153, latest edition.
- D. Assembled steel products shall be hot-dip galvanized in accordance with ASTM A-386, latest edition.
- E. The weight of coating shall be as designated in ASTM “Comparison of Coating Weight Requirements for Hot-Dip Galvanized Products” in accordance with the class and thickness of material.
- F. Where hot-dip galvanizing prior to completion of fabrication (cutting or welding operations) cannot be avoided, joints and cuts shall be finished with four (4) full coats of touch-up galvanizing repair paint as recommended by the fabricator.
- G. Hot-dip galvanizing shall be done by a member of the American Galvanizers Association, Inc.
- H. All hot-dipped galvanized material shall be stamped to indicate ASTM designation and ounces per square foot of zinc coating required by the specifications.
- I. A notarized affidavit of compliance to the galvanizing specified shall be submitted from the galvanizer upon request.
- J. The galvanizing bath shall contain high grade zinc and other earthly materials. Immediately before galvanizing the steel shall be immersed in a bath of zinc ammonium chloride. The use of wet kettle process is prohibited.

**2.04 SHOP COATING OF GALVANIZED STEEL**

- A. The following miscellaneous metals components shall receive factory applied architectural finish over hot-dip galvanizing.

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1. All exterior rails.
  2. All exterior bollards.
- B. Finish shall be “Primergalv” by Duncan Galvanizing, or approved equal. Colors shall be selected by the Architect from the manufacturer’s full range of available colors. Coating shall maintain a pull-off strength of 500 psi when tested in accordance with ASTM D4541.
1. Factory-Applied Universal Primer: Where galvanized steel is specified to receive a factory primer for field applied topcoat, provide factory-applied polyamide epoxy primer over specially prepared galvanized steel, 2.0 mils dry film thickness minimum. Apply primer within 12 hours after galvanizing at the galvanizer’s plant in a controlled environment meeting applicable environmental regulations, and as recommended by the coating manufacturer.
  2. Factory-Applied High-Performance Architectural Finish: Where galvanized steel is specified to receive a factory applied architectural finish, provide factory-applied polyurethane color coating, 2.5 mils dry film thickness minimum, over primed galvanized steel as previously referenced. Apply coating at the galvanizer’s plant, immediately after the application of the prime coat, in a controlled environment meeting applicable environmental regulations, and as recommended by coating manufacturer.

**2.05 ROOF BLOCKING FASTENING REQUIREMENTS**

- A. Perimeter roof blocking shall be secured to decking, structural steel, spaced steel angles, or plates, as indicated on the Drawings.
- B. The Contractor shall provide additional steel angles and plates to suit specific job conditions.
- C. Where joist or beams do not extend out to roof edge, provide single or back to back steel angles or steel plates welded to perimeter steel beams in configurations indicated on the Drawings or otherwise required for support of blocking at 2’-0” o.c. intervals. Provide pre-drilled holes in steel for bolting of blocking at 24” o.c. with 1/2” bolts.

**2.06 MASONRY WALL TOP CLIPS**

- A. Provide steel clip angles at both sides of the tops of masonry walls secured to building structure, coordinate with the Work of SECTION 05100: STRUCTURAL STEEL. In general, size, spacing and attachment of wall clips shall be determined by whether the wall is non-structural (architectural) or is a structural element (fire wall, load bearing wall or shear wall, for example) and shall be as indicated on the Drawings. Wall clips specified herein or partition top anchors specified in SECTION 04200: UNIT MASONRY AND MORTAR shall be provided for all masonry walls unless specifically indicated otherwise.

**2.07 MISCELLANEOUS FRAMING AND SUPPORTS**

- A. Provide steel framing and supports for applications indicated that are not a part of structural steel scope as required to complete the Work. Fabricate units to sizes, shapes, and profiles indicated and required to receive adjacent construction. Fabricate from steel shapes, plates, and steel bars of welded construction using

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mitered joints for field connections. Cut, drill, and tap units to receive hardware, hangers, and similar items. Equip units with integrally welded anchors for casting into concrete or building into masonry.

**2.08 LADDERS**

- A. Ladders shall be standard, 6063-T6 aluminum alloy, fixed ladders as manufactured by O'Keefe's, Inc., or approved equal. Ladders shall have channel rails and 1-1/4" serrated square rungs spaced no more than twelve (12") inches on centers. Ladder shall be at least eighteen (18") inches clear between rails. Inclined ladders (ship's ladders) shall have 4-1/8" deep treads and handrails. All aluminum shall be mill finish. Provide floor and wall mounting brackets as required. All ladders shall be in strict compliance with OSHA/ANSI A14.3 standards. Ladders twenty (20') feet or more in height shall be equipped with approved safety cages and ladders thirty (30') feet and higher shall be equipped with platforms. Provide the following ladder models:

1. Interior pit and roof access: Series 500
2. Exterior roof access: Series 502
3. Exterior roof access with parapet: Series 503

**2.09 BOLLARDS**

- A. Unless otherwise indicated on the Drawings, bollards shall be six (6") inches diameter galvanized steel pipe (to be filled with concrete). Bollards shall be not less than 6'-6" in length with 3'-6" exposed above finish grade.

**2.10 PIT COVERS AND FRAMES**

- A. Unless otherwise indicated on the Drawings, steel pit covers shall be 1/4" thick galvanized steel checker plate. Frames shall be appropriately sized galvanized steel angles with suitable stops and anchoring devices.

**2.11 EXPANSION JOINT COVERS**

- A. Metal expansion joint covers shall be manufactured by Balco Inc., C/S Construction Specialties, MM Systems Corp., or approved equal.

**2.12 TRENCH DRAINS**

- A. Trench drain grates, covers, pans, and frames shall be heavy-duty, H20 wheel loading, cast iron grates and frames with an integral galvanized steel-formed pans. Units shall be 12-1/2" wide, Model No. TCMB-10/TGMB-10, as manufactured by McKinley, or approved equal.

**2.13 METAL CHANNEL FRAMING SYSTEMS (Unistrut)**

- A. Various building materials and equipment such as suspended lights and service columns shall be provided with concealed metal channel framing systems as required to permanently and safely anchor such items to suitable building primary structural components.

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- B. Metal channel framing systems shall be Unistrut Metal Framing as manufactured by UNISTRUT Corporation, or approved equal. Framing shall be electrogalvanized steel. Systems shall be complete and shall be properly engineered, fabricated, and installed by the manufacturer or its authorized representative/installer. Installer shall have not less than five (5) years experience.
- C. The Work of Channel Framing systems shall include, but shall not necessarily be limited to:
1. Field inspection to verify job conditions, dimensions, and suitability of primary structure to receive channel framing.
  2. Engineering of all channel framing, attachments between framing members, attachments between framing systems and building structure, and anchor points to receive attachments by the manufacturer of the building material or equivalent to be supported by the channel framing systems.
  3. Coordination of framing load capacity and anchor point types and locations with the requirements of the related material or equipment manufacturer.
  4. Submission of structural calculations including, but not limited to design criteria, stress and deflection analysis and selected framing, fittings and anchors prepared by a professional structural engineer licensed in the State of New Hampshire.
  5. Submission of shop drawings.

2.14 LOOSE STEEL LINTELS

- A. Loose lintels shall be fabricated from A-36 steel from angles, shapes and masonry anchors of size and type scheduled for openings in masonry walls, unless otherwise indicated on the Drawings.
- B. Provide not less than eight (8") inches bearing at each side of openings, unless otherwise indicated. Under no circumstances shall bearing (each end) be less than one (1") inch per foot of span.
- C. Loose lintels, unless specifically otherwise noted, shall be installed with long legs vertical.
- D. All exterior wall lintels shall be hot-dipped galvanized after fabrication. Back-to-back lintels shall have exposed seams continuously welded and ground smooth prior to galvanizing.
- E. Lintels shall be required over all openings in masonry walls, including openings required for all other trades (i.e. mechanical and electrical equipment and ductwork, etc.), except where CMU lintels are otherwise scheduled or detailed.
- F. Loose Steel Lintel Schedule: See Plan for Lintel Schedule

2.15 STEEL HANDRAILS AND GUARDRAILS

- A. Steel handrails shall be fabricated of 1-1/4" nominal size (1.66" outside diameter) steel pipe. Other railing components shall be fabricated of 3/4" nominal size (1.050" outside diameter) and 1-1/2" for nominal size (1.9" outside diameter) diameter steel pipe, 1-1/2" square steel tubes, and miscellaneous steel shapes as indicated on the Drawings. Pipe weight shall be as required to support applicable loads.

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- B. All dimensions for locations of rails shall be field measured. Drawing dimensions shall be considered approximate and actual field conditions shall be ascertained before fabrication of rails.
- C. In general, heights of handrails shall be 2'-10" above nosings. Heights of guardrails shall be 3'-6" above finish floor, unless otherwise noted on the Drawings. Handrails shall be mounted to provide 2-1/4" minimum clear space to walls or other surfaces at stairs and 1-1/2" minimum clear space at all other locations.
- D. Space intermediate balusters as indicated on the Drawings or as otherwise required to provide maximum clear space between all members of less than four (4") inches. Guardrails shall not have an ornamental pattern that would provide a ladder effect. Space railing posts as indicated on the Drawings, and in accordance with railing engineering requirements.
- E. In general, handrails at stairs shall extend a minimum of 12" beyond the top riser and at least 12" plus the width of one tread beyond the bottom riser. At the top, the handrail extension shall be parallel to the walking surface. At the bottom, the handrail shall continue to slope for a distance of the width of one tread from the bottom riser, with the remainder parallel to the walking surface.
- F. In general, handrails at ramps shall be parallel to the walking surface at all locations and shall extend a minimum of 12" beyond the top of the ramp and at least 12" beyond the bottom of the ramp.
- G. Steel Railing Fittings shall be as per Julius Blum and Co., or approved equal. All fittings for exterior use shall be galvanized. Fittings shall be:
- |                        |                      |
|------------------------|----------------------|
| 1. Weld on caps:       | No. 938              |
| 2. Round slip flanges: | No. 611 and No. 1611 |
| 3. Wall returns:       | No. 665 and No. 1665 |
| 4. Brackets:           | No. 386 and No. 1386 |

**PART 3 - EXECUTION**

**3.01 VERIFYING CONDITIONS**

- A. Coordinate all work with the work of other trades. Verify all field dimensions and that the work fits with the work of other trades. Perform all cutting, fitting, and drilling required. Furnish all necessary templates and patterns required to build items into the work of other trades. Provide holes and connections for the attachment of work of other trades.

**3.02 GENERAL FABRICATION AND INSTALLATION**

- A. Metal surfaces shall be clean and free from mill scale, flake rust, and rust pitting, well formed and finished to shape and size, with sharp lines and angles and smooth surfaces. Shearing and punching shall leave clean true lines and surfaces. Weld or rivet permanent connections. Welds and flush rivets shall be finished flush and smooth on surfaces that will be exposed after installation. Welds shall be continuous unless otherwise noted. Welds shall not have voids or pockets and shall be ground to provide smooth transitions between metal surfaces. Do not use screws or bolts where they can be avoided; where used, heads shall be countersunk, screwed up tight and threads nicked to prevent loosening.

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- B. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Joints exposed to weather shall be formed to exclude water. Provide holes and connections for the work of other trades.
- C. Castings shall be size determined by work type for which they form parts. Each member if possible, shall be in one piece, make joints at moldings or fillets. Casting thickness shall be uniform, sufficient to ensure perfect workmanship, required strength for design use. Make castings clean, smooth, true to pattern, free from defects. Moldings, ornaments shall be rather more deeply cut than indicated to counteract flattening effects of casting, finishing; exactly reproduce form, feeling of models. Edges shall be sharp, come from molds clean, smooth, perfect.
- E. Non-slip surfaces shall be made safe for foot traffic with non-slip abrasive embedded uniformly in wearing surface at casting time.
- E. Connections and accessories shall be adequate to safely sustain, withstand stresses, strains, to which they will be normally subjected.
1. Connections to steel unless otherwise specified shall be steel.
  2. Connections to genuine wrought iron work shall be wrought iron or steel.
  3. Connections to cast iron, unless otherwise specified shall be steel.
  4. Bolts, nuts, screws for exterior work shall be electrogalvanized, unless otherwise noted.
- F. Furnish all standard screws, bolts, washers, and other such fastening devices as are necessary for attaching this work to other materials. Anchors and other connecting devices required in concrete or masonry shall be built-in as the work progresses. NOTE: Special attention shall be given to the firm and secure anchoring of overhead mounted materials and equipment.
- G. Do cutting, punching, drilling, tapping required for attachment of other work coming in contact with miscellaneous metal where so indicated or where directions for same are given prior to or with review of shop drawings.
- H. Unless otherwise indicated, bolt, and screw heads shall be flat countersunk in exposed faces of ornamental or finished character; elsewhere as required. Cut off bolts, screws, etc., where exposed, flush with nuts, or other adjacent metal. Except as otherwise required, weld shop-assembled connections; welds, bolts, or machine screws may be used for field connections. Exposed fastenings shall be the same materials, color, and finish as metal to which they apply, unless otherwise required.
- I. Make up threaded connections tightly so that threads will be entirely concealed by fittings.
- J. Work to be built in with masonry shall be of form required for anchorage, or be provided with suitable anchors, expansion shields, toggle bolts, etc. as required for proper anchorage. Fastening to wood plugs in masonry shall not be permitted.
- K. Install all supporting members, fastening, framing, hangers, bracing, brackets, straps, bolts, angles, and the like required to set, connect work rigidly and properly to structural steel, masonry, other construction.

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L. All items shall be installed plumb, straight, square, level and in proper elevation, plane, location and alignment with other work. All work shall be designed for adjustment to field variation, fitted with proper joints and intersections, adequately anchored in place.

**3.03 STEEL RAILING FABRICATION AND INSTALLATION**

- A. Fabricate handrails and railing systems to comply with the requirements indicated for design, dimensions, details, finish, member sizes and anchorage but not less than that required to support structural loads.
- B. Interconnect railing and handrail members by butt-welding or welding with internal connectors, unless otherwise indicated. At tee and cross intersections, cope ends of intersecting members to fit contour of pipe to joined end and weld all around. Form changes in direction of railings by welding prefabricated flush elbow fittings, by radius bends as indicated, or by flush radius bends. Remove burrs and splatter.
- C. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each configuration required. Maintain cylindrical cross section of pipe throughout the entire bend without buckling, twisting, cracking or otherwise deforming.
- D. For components exposed to exterior or moist environments, provide weepholes or other means of evacuating entrapped water. All exterior rails, fittings and brackets shall be hot-dipped galvanized after fabrication.
- E. Provide wall returns at all rail ends to adjacent surfaces and secure as required. Close exposed ends by welding 3/16" thick steel plate in place, except where clearance of end of pipe and adjoining wall surface is less than 1/4", or unless otherwise detailed.
- F. Welds shall be continuous and thoroughly fused without undercutting or overlap. Grind exposed welds smooth to form a uniformly smooth surface.
- G. Provide miscellaneous steel for connection of rail supports as detailed on the Drawings. Do not support railing temporarily by any means that does not satisfy structural performance requirements.
- H. Set rails plumb and aligned. Set rails horizontal or parallel to rake of stairs. Support wall handrails on brackets, in accordance with railing engineering requirements. Space closer together if so indicated on the Drawings. Connect railing posts to stair framing by direct welding, unless otherwise indicated.
- I. Install handrail brackets away from handrail ends and finish ends with return fittings. Use drill-in expansion anchors at concrete or masonry walls. Mount handrails only on gypsum board assemblies that have been reinforced to receive railing anchors.
- J. Provide expansion joints in railings at intervals not to exceed forty (40') feet. Provide slip joints with internal sleeves extending two (2") inches beyond the joint on either side. Fasten the internal sleeve securely on one side only. Locate expansion joints within six (6") inches of posts.
- K. Where railings are to be set in concrete, railing posts shall be set in 6" matching sleeves as follows: Clean dust and foreign matter from sleeves. Moisten interior of hole and surrounding surface with clean water. Mix fast setting cement with water and stir until a smooth, creamy consistency is produced. Pour mixture into annular space until it overflows the hole. Taper cement away from rails to promote proper drainage. Wipe off excess, leaving a build-up of approximately 1/8".



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**3.04 LADDERS**

- A. All ladders shall be installed in strict accordance with the manufacturer's instructions, the American Standard Safety Code for Fixed Ladders and all applicable OSHA regulations.
- B. Completed ladder installations shall be rigid and free from vibration.
- C. Ladders in elevator pits shall extend not less than 3'-6" above outside finish floor level as required by OSHA and shall be located as recommended by the elevator manufacturer.
- D. Exterior roof ladders shall extend not less than 3'-6" above parapet walls or upper roof surfaces as applicable, and shall have looped returns as required by OSHA. Rungs shall be held off a minimum of 9" off adjacent wall.
- E. Interior roof hatch ladders shall extend from the floor to the roof surface. Rails shall extend to just below the underside of the roof hatch.
- F. Ladders twenty (20') feet or more in height shall be provided with cage enclosures as required by OSHA.

**3.07 EXPANSION JOINT COVERS**

- A. Covers shall extend full width of openings.
- B. Covers shall be installed level, plumb, and flush with finish surfaces, and shall be fastened with anchor shields and bolts in strict accordance with the manufacturer's instructions and recommendations.
- C. Provide all corners, tees, transitions, etc., as required for a complete and proper job.
- D. Provide fire rated expansion joint covers with all required safing insulation and fire stopping at fire rated locations. Entire assembly shall be installed in strict accordance with the manufacturer's instructions and tested assemblies.

END OF MISCELLANEOUS METAL WORK

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**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Steel pipe and tube handrails and railing systems.
- B. Related Sections: Requirements relating to this Section are contained in the following Sections:
  - 1. Division 5 Section "Metal Stairs" for steel pipe handrails and railing systems included with metal stairs.

**1.3 DEFINITIONS**

- A. Definitions in ASTM E 985 for railing-related terms apply to this Section.

**1.4 PERFORMANCE REQUIREMENTS**

- A. General: In engineering handrail and railing systems to withstand structural loads indicated, determine allowable design working stresses of materials based on the following:
  - 1. Cold-Formed Structural Steel: AISI "Specification for the Design of Cold-Formed Steel Structural Members."
- B. Structural Performance of Handrails and Railing Systems: Engineer, fabricate, and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.
  - 1. Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:
    - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
    - b. Uniform load of 50 lbf per linear foot (730 N/m) applied horizontally and concurrently with uniform load of 100 lbf per linear foot (1460 N/m) applied vertically downward.
    - c. Concentrated and uniform loads above need not be assumed to act concurrently.
  - 2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:
    - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
    - b. Uniform load of 50 lbf per linear foot (730 N/m) applied in any direction.
  - c. Concentrated and uniform loads above need not be assumed to act concurrently.
  - 3. Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 200 lbf (890 N) applied to 1 sq. ft. (0.09 sq. m) at any point in the system including panels, intermediate rails, balusters, or other elements composing the infill area.
    - a. Above load need not be assumed to act concurrently with loads on top rails of railing systems in determining stress on guard.
- C. Thermal Movements: Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in engineering, fabricating, and installing handrails and railing systems to prevent buckling, opening of joints, overstressing of components and connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

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1. Temperature Change (Range): 120 deg F (67 deg C) ambient 180 deg F (100 deg C) material surfaces.
- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

### **1.5 SUBMITTALS**

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for mechanically connected handrails and railing systems, each kind of fitting, grout, anchoring cement, and paint products.
- C. Shop drawings showing fabrication and installation of handrails and railing systems including plans, elevations, sections, details of components, and attachments to other units of Work.
- D. Samples for initial selection in the form of manufacturer's color charts showing the full range of colors available for those units with factory-applied color finishes.
- E. Samples for verification of each type of exposed finish required, prepared on components indicated below that are of the same thickness and metal indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
  1. 6-inch- (150-mm-) long sections of each distinctly different linear railing member including handrails, top rails, posts, and balusters.
  2. Fittings and brackets.

### **1.6 QUALITY ASSURANCE**

- A. Single-Source Responsibility: Obtain handrails and railing systems of each type and material from a single manufacturer.

### **1.7 STORAGE**

- A. Store handrails and railing systems inside a well-ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

### **1.8 PROJECT CONDITIONS**

- A. Field Measurements: Where handrails and railing systems are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

### **1.9 SEQUENCING AND SCHEDULING**

- A. Sequence and coordinate installation of wall handrails as follows:
  1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.
  2. Mount handrails on plaster or gypsum board assemblies only where reinforced to receive anchors and where the location of concealed reinforcements has been clearly marked for benefit of Installer.

## **PART 2 – PRODUCTS**

### **2.1 MANUFACTURERS**

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- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering handrails and railing systems that may be incorporated in the Work include, but are not limited to, the following:
1. Steel Pipe and Tube Railings:
    - a. Humane Equipment Co.
    - b. Wagner: R & B Wagner, Inc.
    - c. Carlos Ironworks
    - d. Turnbull Welding

## **2.2 METALS**

- A. General: Provide metals free from surface blemishes where exposed to view in the finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.
- B. Steel and Iron: Provide steel and iron in the form indicated, complying with the following requirements:
1. Steel Pipe: ASTM A 53; finish, type, and weight class as follows:
    - a. Black finish, unless otherwise indicated.
    - b. Galvanized finish for exterior installations and where indicated.
    - c. Type F, or Type S, Grade A, standard weight (schedule 40), unless otherwise indicated, or another weight, type, and grade required by structural loads.
  2. Steel Tubing: Product type (manufacturing method) and other requirements as follows:
    - a. Cold-Formed Steel Tubing: ASTM A 500, grade as indicated below:
      1. Grade A, unless otherwise indicated or required by structural loads.
    - b. Hot-Formed Steel Tubing: ASTM A 501.
    - c. For exterior installations and where indicated, provide tubing with hot-dip galvanized coating per ASTM A 53.
  3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
  4. Gray Iron Castings: ASTM A 48, Class 30.
  5. Malleable Iron Castings: ASTM A 47, Grade 32510 (ASTM A 47M, Grade 22010).
- C. Brackets, Flanges, and Anchors: Cast or formed metal of the same material and finish as supported rails, unless otherwise indicated.

## **2.3 WELDING MATERIALS, FASTENERS, AND ANCHORS**

- A. Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railings to other types of construction indicated and capable of withstanding design loadings.
1. For steel railings and fittings, use plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.
- C. Fasteners for Interconnecting Railing Components: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
1. Provide concealed fasteners for interconnecting railing components and their attachment to other work, except where exposed fasteners are unavoidable or are the standard fastening method for handrail and railing system indicated.
  2. Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

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- D. Cast-in-Place and Postinstalled Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials, capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified, independent testing agency.
1. Cast-in-place anchors.
  2. Chemical anchors.
  3. Expansion anchors.
  4. Undercut anchors.

## **2.4 PAINT**

- A. Shop Primers: Provide primers to comply with applicable requirements of Division 9 Section "Painting."
- B. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure, complying with performance requirements of FS TT-P-664.
- C. Shop Primer for Galvanized Steel: Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and compatibility with finish paint systems indicated, complying with SSPC-Paint 5.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint for reglazing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, complying with DOD-P-21035 or SSPC-Paint 20.
- E. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.

## **2.5 GROUT AND ANCHORING CEMENT**

- A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.
- C. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
1. Nonshrink, Nonmetallic Grouts:
    - a. B-6 Construction Grout; W.R. Bonsal Co.
    - b. Diamond-Crete Grout; Concrete Service Materials Co.
    - c. Supreme; Cormix Construction Chemicals.
    - d. Sure-grip High Performance Grout; Dayton Superior Corp.
    - e. Euco N-S Grout; Euclid Chemical Co.
    - f. Five Star Grout; Five Star Products.
    - g. Vibropruf #11; Lambert Corp.
    - h. Crystex; L & M Construction Chemicals, Inc.
    - i. Masterflow 928 and 713; Master Builders Technologies, Inc.
    - j. Sealtight 588 Grout; W.R. Meadows, Inc.
    - k. SonogROUT 14; Sonneborn Building Products--ChemRex, Inc.
    - l. Kemset; The Spray-Cure Company.
  2. Erosion-Resistant Anchoring Cement:
    - a. Bonsal Anchor Cement; W.R. Bonsal Co.

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- b. Super Por-Rok; Minwax Construction Products Division.
- c. Thorogrip; Thoro Systems Products.

## **2.6 FABRICATION**

- A. General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than those required to support structural loads.
- B. Assemble handrails and railing systems in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- C. Form changes in direction of members as follows:
  - 1. By flush radius bends unless otherwise indicated.
  - 2. By insertion of prefabricated flush elbow fittings.
  - 3. By any method indicated above, applicable to change of direction involved.
- D. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of pipe throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of pipe.
- E. Welded Connections: Fabricate handrails and railing systems for connection of members by welding. For connections made during fabrication, weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At tee and cross intersections, cope ends of intersecting members to fit contour of pipe or tube to which end is joined, and weld all around.
  - 5. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- F. Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail and railing system members to other construction.
- G. Provide inserts and other anchorage devices to connect handrails and railing systems to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railing systems. Coordinate anchorage devices with supporting structure.
- H. For railing posts set in concrete, provide preset sleeves of steel, not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (12 mm) greater than outside dimensions of post, and steel plate forming bottom closure.
- I. For removable railing posts, fabricate slip-fit sockets from steel pipe whose inside diameter is sized for a close fit with posts and to limit deflection of post without lateral load, measured at top, to not more than 1/12 of post height. Provide socket covers designed and fabricated to resist accidental dislodgement.
- J. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- K. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing work.

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- L. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.
  - M. Provide weepholes, or another means to evacuate entrapped water, in hollow sections of railing members that are exposed to exterior or to moisture from condensation or other sources.
  - N. Fabricate joints that will be exposed to weather in a manner to exclude water.
  - O. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated.
  - P. Toe Boards: Where indicated, provide toe boards at railings around openings and at the edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.
  - Q. Fillers: Provide steel sheet or plate fillers, of thickness and size indicated or required to support structural loads of handrails, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses to produce adequate bearing to prevent bracket rotation and overstressing substrate.

**2.7 FINISHES, GENERAL**

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering prior to shipment.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one half of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and they are assembled or installed to minimize contrast.
- D. Provide exposed fasteners with finish matching appearance, including color and texture, of handrails and railing systems.

**2.8 STEEL FINISHES**

- A. Galvanized Finish: Hot-dip galvanize items indicated to be galvanized to comply with applicable standard listed below:
  - 1. ASTM A 153 for galvanizing iron and steel hardware.
  - 2. ASTM A 123 for galvanizing iron and steel products made from rolled, pressed, and forged steel shapes, castings, plates, bars, and strips.
- B. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- C. For galvanized handrails and railing systems, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- D. For nongalvanized steel handrails and railing systems, provide nongalvanized ferrous metal fittings, brackets, fasteners, and sleeves, except provide galvanized anchors where embedded in exterior masonry and concrete construction.
- E. Preparation for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.

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- F. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed railings:
    - 1. Exteriors (SSPC Zone 1B): SSPC-SP 6 "Commercial Blast Cleaning."
    - 2. Interiors (SSPC Zone 1A): SSPC-SP 7 "Brush-Off Blast Cleaning."
  - G. Apply shop primer to prepared surfaces of handrails and railing components, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 1" for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
    - 1. Stripe paint all edges, corners, crevices, bolts, welds, and sharp edges.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installing anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors, that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to Project site.

#### **3.2 INSTALLATION, GENERAL**

- A. Fit exposed connections accurately together to form tight, hairline joints.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing handrails and railing systems. Set handrails and railing systems accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.
  - 1. Do not weld, cut, or abrade surfaces of handrails and railing components that have been coated or finished after fabrication and are intended for field connection by mechanical or other means without further cutting or fitting.
  - 2. Set posts plumb within a tolerance of 1/4 inch in 12 feet (2 mm in 1 m).
  - 3. Align rails so that variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (2 mm in 1 m).
- C. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and welded surface matches contours of adjoining surfaces.
- D. Adjust handrails and railing systems prior to anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated but not less than that required by design loadings.
- E. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing handrails and railing systems and for properly transferring loads to in-place construction.

#### **3.3 RAILING CONNECTIONS**

- A. Welded Connections: Use fully welded joints for permanently connecting railing components by welding. Cope or butt components to provide 100 percent contact, or use fittings designed for this purpose.
- B. Expansion Joints: Install expansion joints at locations indicated but not further apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side; fasten internal sleeve securely to one side; locate joint within 6 inches (150 mm) of post.



**SECTION 05521 – PIPE AND TUBE RAILINGS**  
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### **3.4 ANCHORING POSTS**

- A. Anchor posts in concrete by forming or core-drilling holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) greater than outside diameter of post. Clean holes of all loose material, insert posts, and fill annular space between post and concrete with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's directions.
  - 1. Nonshrink, nonmetallic grout or anchoring cement.
- B. Cover anchorage joint with a round steel flange attached to post as follows:
  - 1. Welded to post after placement of anchoring material.
- C. Leave anchorage joint exposed, wipe off surplus anchoring material, and leave 1/8-inch (3-mm) buildup, sloped away from post.
- D. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
  - 1. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.
- E. Install removable railing sections where indicated in slip-fit metal sockets cast into concrete. Accurately locate sockets to match post spacing.

### **3.5 ANCHORING RAIL ENDS**

- A. Anchor rail ends into concrete and masonry with round flanges connected to rail ends and anchored into wall construction with postinstalled anchors and bolts.
- B. Anchor rail ends to metal surfaces with oval or round flanges.
  - 1. Connect flanges to rail ends using welded connections.
  - 2. Bolt flanges to metal surfaces.

### **3.6 ATTACHING HANDRAILS TO WALLS**

- A. Attach handrails to wall with wall brackets and end fittings. Provide bracket with 1-1/2-inch (38-mm) clearance from inside face of handrail to finished wall surface.
- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets and wall return fittings to building construction as follows:
  - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
  - 2. For concrete and solid masonry anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.
  - 3. For hollow masonry anchorage, use toggle bolts with square heads.
  - 4. For wood stud partitions, use lag bolts set into wood backing between studs. Coordinate with stud installation to accurately locate backing members.
  - 5. For steel-framed gypsum board assemblies, fasten brackets directly to steel framing or concealed anchors using self-tapping screws of size and type required to support structural loads.

### **3.7 ADJUSTING AND CLEANING**

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material.

### **3.8 PROTECTION**

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- A. Protect finishes of handrails and railing systems from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

**END OF SECTION 05521**

**SECTION 05721 – ORNAMENTAL RAILINGS**  
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**PART 1 – GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY**

- A. Related Sections: The following Sections contain requirements that relate to this Section.
1. None

**1.3 DEFINITIONS**

- A. Definitions in ASTM E 985 for railing-related terms apply to this Section.

**1.4 PERFORMANCE REQUIREMENTS**

- A. General: In engineering handrail and railing systems to withstand structural loads indicated, determine allowable design working stresses of railing materials.
- B. Structural Performance of Handrails and Railing Systems: Engineer, fabricate, and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.
1. Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:
    - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
    - b. Uniform load of 50 lbf per linear foot (730 N/m) applied horizontally and concurrently with uniform load of 100 lbf per linear foot (1460 N/m) applied vertically downward.
    - c. Concentrated and uniform loads above need not be assumed to act concurrently.
  2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:
    - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
    - b. Uniform load of 50 lbf per linear foot (730 N/m) applied in any direction.
    - c. Concentrated and uniform loads above need not be assumed to act concurrently.
  3. Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 200 lbf (890 N) applied to 1 sq. ft. (0.09 sq. m) at any point in the system, including panels, intermediate rails, balusters, or other elements composing the infill area.
    - a. Above load need not be assumed to act concurrently with loads on top rails of railing systems in determining stress on guard.
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

**1.5 SUBMITTALS**

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for manufacturer's product lines of handrails and railing systems assembled from standard components. Submit product data for grout, anchoring cement, and paint products.

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- C. Shop drawings showing fabrication and installation of handrails and railings, including plans, elevations, sections, details of components, and attachments to other units of Work.
  - 1. For installed handrails and railing systems indicated to comply with certain design loadings, include structural analysis data sealed and signed by the qualified professional engineer who was responsible for their preparation.
- D. Samples for initial selection in the form of short sections of railing or flat sheet metal samples showing available mechanical finishes.
- E. Samples for verification of each type of exposed finish required, prepared on components indicated below of same thickness and metal indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
  - 1. Assembled sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Show method of finishing members at intersections. Sample need not be full height.
- F. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

**1.8 QUALITY ASSURANCE**

- A. Single-Source Responsibility: Obtain handrails and railing systems of each type and material from a single manufacturer.
- B. Mockups: Prior to installing railings, construct mockups for each form of railing system and finish required to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.
  - 1. Place mockups on site in the location and of the size indicated or, if not indicated, as directed by Architect.
  - 2. Notify Architect one week in advance of the dates and times when mockups will be constructed.
  - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 4. Obtain Architect's acceptance of mockups before start of final unit of Work.
  - 5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
    - a. Accepted mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

**1.7 STORAGE**

- A. Store handrails and railing systems inside a well-ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

**1.8 PROJECT CONDITIONS**

- A. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating handrails and railing systems without field measurements. Coordinate other construction to ensure that actual dimensions correspond to guaranteed dimensions.

**1.9 SEQUENCING AND SCHEDULING**

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- A. Sequence and coordinate installation of wall handrails as follows:
  - 1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.
  - 2. Mount handrails on plaster or gypsum board assemblies only where reinforced to receive anchors and where the locations of concealed reinforcements have been clearly marked for the benefit of the installer.

## **PART 2 – PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering handrails and railing systems that may be incorporated in the Work include, but are not limited to, the following:
  - 1. Steel/Iron Railing Systems:
    - a. Carlos Iron Works
    - b. Walsh Metals
    - c. Turnbull Welding
    - d. Justin Brothers Welding

### **2.2 METALS**

- A. General: Provide metal free from surface blemishes where exposed to view in the finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.
- B. Steel and Iron Shapes: Provide steel and iron in the form indicated complying with the following requirements:
  - 1. Steel/Iron Shapes: Product type (manufacturing method) and other requirements as follows:
    - a. Solid flat and round bars as indicated in the drawings.
    - b. For exterior installations and where indicated, provide tubing with hot-dip galvanized coating per ASTM A 53.
  - 2. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
  - 3. Gray Iron Castings: ASTM A 48, Class 30.
  - 4. Malleable Iron Castings: ASTM A 47, Grade 32510 (ASTM A 47M, Grade 22010).
- C. Brackets, Flanges, and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

### **2.3 MISCELLANEOUS MATERIALS**

- A. Filler Metal and Electrodes: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded or brazed and as required for color match, strength, corrosion resistance, and compatibility in fabricated items.

### **2.4 FASTENERS**

- A. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railing to other types of construction indicated and capable of withstanding design loadings.
  - 1. For steel railings and fittings, use plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.

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- B. Fasteners for Interconnecting Railing Components: Use fasteners of same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
1. Provide concealed fasteners for interconnecting handrail and railing components and for attaching them to other work, except where exposed fasteners are unavoidable or are the standard fastening method for handrail and railing system indicated.
  2. Provide Phillips flathead machine screws for exposed fasteners, unless otherwise indicated.
- C. Cast-in-Place and Postinstalled Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
1. Cast-in-place anchors.
  2. Chemical anchors.

**2.5 PAINT**

- A. Shop Primers: Provide primers complying with applicable requirements of Division 9 Section "Painting."
- B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.
- C. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.

**2.6 GROUT AND ANCHORING CEMENT**

- A. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and that is recommended for exterior use by manufacturer.
- B. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
1. Erosion-Resistant Anchoring Cement:
    - a. Bonsal Anchor Cement; W. R. Bonsal Co.
    - b. Super Por-Rok; Minwax Construction Products Division.
    - c. Thorogrip; Thoro System Products.

**2.7 FABRICATION**

- A. General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than that required to support structural loads.
- B. Assemble railing systems in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Form changes in direction of railing members as follows:
1. As detailed.
- D. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain profile of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

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- E.     Welded Connections: Fabricate railing systems and handrails for connecting members by welding. For connections made during fabrication, weld corners and seams continuously to comply with the following:
1.     Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2.     Obtain fusion without undercut or overlap.
  3.     Remove welding flux immediately.
  4.     At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- F.     Nonwelded Connections: Fabricate railing systems and handrails by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
1.     Fabricate splice joints for field connection using epoxy structural adhesive where this represents manufacturer's standard splicing method.
- G.     Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect handrail and railing members to other construction.
- H.     Provide inserts and other anchorage devices to connect handrails and railing systems to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railing systems. Coordinate anchorage devices with supporting structure.
- I.     For railing posts set in concrete, provide preset sleeves of steel not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (12 mm) greater than outside dimensions of post, and steel plate forming bottom closure.
- J.     Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- K.     Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing work.
- L.     Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.
- M.     Provide weep holes or another means to drain entrapped water in hollow sections of railing members that are exposed to exterior or to moisture from condensation or other sources.
- N.     Fabricate joints that will be exposed to weather in a watertight manner.
- O.     Close exposed ends of handrail and railing members with prefabricated end fittings.
- P.     Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of the railing and wall is 1/4 inch (6 mm) or less.
- Q.     Toe Boards: Where indicated, provide toe boards at railings around openings and at the edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.
- R.     Fillers: Provide steel sheet or plate fillers of thickness and size indicated or required to support structural loads of handrails where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses. Size fillers to produce adequate bearing to prevent bracket rotation and overstressing of substrate.

**2.8     IRON AND STEEL FINISHES**

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- A. Galvanizing: Hot-dip galvanize items indicated to be galvanized to comply with applicable standard listed below:
1. ASTM A 153 for galvanizing iron and steel hardware.
  2. ASTM A 123 for galvanizing iron and steel products made from rolled, pressed, and forged steel shapes, castings, plates, bars, and strips.
- B. Fill vent and drain holes that will be exposed in the finished work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- C. For galvanized handrails and railing systems, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- D. For nongalvanized steel handrails and railing systems, provide nongalvanized ferrous metal fittings, brackets, fasteners, and sleeves, except galvanize anchors embedded in exterior masonry and concrete construction.
- E. Preparation for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- F. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed railings:
1. Exteriors (SSPC Zone 1B): SSPC-SP 6 "Commercial Blast Cleaning."
- G. Apply shop primer to prepared surfaces of handrails and railing components, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 1" for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
1. Do not apply primer to galvanized surfaces.
  2. Stripe paint all edges, corners, crevices, bolts, welds, and sharp edges.

### **PART 3 – EXECUTION**

#### **3.1 PREPARATION**

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installing anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to Project site.

#### **3.2 INSTALLATION, GENERAL**

- A. Fit exposed connections accurately together to form tight, hairline joints.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing handrails and railings. Set handrails and railings accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.
1. Do not weld, cut, or abrade surfaces of handrails and railing components that have been coated or finished after fabrication and are intended for field connection by mechanical or other means without further cutting or fitting.
  2. Set posts plumb within a tolerance of 1/4 inch in 12 feet (2 mm in 1 m).
  3. Align rails so that variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (2 mm in 1 m).
- C. Field Welding: Comply with the following requirements:
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove welding flux immediately.



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- 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
  - D. Adjust handrails and railing systems prior to anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated but not less than that required by structural loads.
  - E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings systems and for properly transferring loads to in-place construction.

### **3.3 RAILING CONNECTIONS**

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic filler, cement colored to match finish of handrails and railing systems.
- B. Welded Connections: Use fully welded joints for permanently connecting railing components by welding. Cope or butt components to provide 100 percent contact, or use fittings designed for this purpose.
- C. Expansion Joints: Install expansion joints at locations indicated but not further apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side; fasten internal sleeve securely to one side; locate joint within 6 inches (150 mm) of post.

### **3.4 ANCHORING POSTS**

- A. Anchor posts in concrete by forming or core-drilling holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) greater than outside diameter of post. Clean holes of all loose material, insert posts, and fill annular space between post and concrete with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's directions.
  - 1. No shrink, nonmetallic grout or anchoring cement.
- B. Cover anchorage joint with a round flange of same metal as post, attached to post as follows:
  - 1. Welded to post after placement of anchoring material.
  - 2. By set screws.
- C. Leave anchorage joint exposed, wipe off surplus anchoring material, and leave 1/8-inch (3-mm) buildup, sloped away from post.
- D. Anchor steel posts to steel with oval flanges, angle type, or floor type as required by conditions, welded to posts and bolted to metal supporting members.
- E. Anchor posts to metal surfaces with oval flanges, angle type or floor type as required by conditions, connected to posts and to metal supporting members as follows:
  - 1. For steel railings, weld flanges to post and bolt to metal supporting surfaces.

### **3.5 ANCHORING RAIL ENDS**

- A. Anchor rail ends into concrete and masonry with round flanges connected to rail ends and anchored into wall construction with post installed anchors and bolts.
- B. Anchor rail ends to metal surfaces with oval or round flanges.
  - 1. Weld flanges to rail ends.

### **3.6 ATTACHING HANDRAILS TO WALLS**

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- A. Attach handrails to wall with wall brackets and end fittings. Provide bracket with 1-1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.
- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets and wall return fittings to building construction as follows:
  - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
  - 2. Use type of bracket with predrilled hole for exposed bolt anchorage.
  - 3. For concrete and solid masonry anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.
  - 4. For hollow masonry anchorage, use toggle bolts with square heads.
  - 5. For wood stud partitions, use lag bolts set into wood backing between studs. Coordinate with stud installations to accurately locate backing members.
  - 6. For steel-framed gypsum board assemblies, fasten brackets directly to steel framing or concealed reinforcements using self-tapping screws of size and type required to support structural loads.

**3.7 ADJUSTING AND CLEANING**

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material.
- B. For Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

**3.8 PROTECTION**

- A. Protect finishes of railing systems and handrails from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

**END OF SECTION**

# **DIVISION 6**

## **WOOD & PLASTICS**

**06100 | ROUGH CARPENTRY**

VIRGIN ISLANDS GOVERNMENT EMPLOYEE RETIREMENT SYSTEM  
**HAVENSIGHT MALL BUILDING NO. 3 - CONSTRUCTION OF EXTERIOR ACCESSIBLE RAMP**  
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**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. This Section includes the following:
  - 1. Framing with dimension lumber.
  - 2. Wood furring, grounds, nailers, and blocking.
  - 3. Underlayment.

**1.2 DEFINITIONS**

- A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

**1.3 SUBMITTALS**

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for the following products:
  - 1. Underlayment.
  - 2. Construction adhesives.
- C. Material certificates for dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the American Lumber Standards Committee's (ALSC) Board of Review.
- D. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:
  - 1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
  - 2. For fire-retardant-treated wood products, include certification by treating plant that treated materials comply with specified standard and other requirements as well as data relative to bending strength, stiffness, and fastener-holding capacities of treated materials.
- E. Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.

**1.4 QUALITY ASSURANCE**

- A. Single-Source Responsibility for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product from one source and by a single producer.

**1.5 DELIVERY, STORAGE, AND HANDLING**

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

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Wood-Preservative-Treated Materials:
    - a. Baxter: J. H. Baxter Co.
    - b. Chemical Specialties, Inc.

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- c. Continental Wood Preservers, Inc.
  - d. Hickson Corp.
  - e. Hoover Treated Wood Products, Inc.
  - f. Osmose Wood Preserving, Inc.
2. Fire-Retardant-Treated Materials, Interior Type A:
- a. Baxter: J. H. Baxter Co.
  - b. Chemical Specialties, Inc.
  - c. Continental Wood Preservers, Inc.
  - d. Hickson Corp.
  - e. Hoover Treated Wood Products, Inc.

## **2.2 LUMBER, GENERAL**

- A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.
- B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:
  - 1. NELMA - Northeastern Lumber Manufacturers Association.
  - 2. NLGA - National Lumber Grades Authority (Canadian).
  - 3. RIS - Redwood Inspection Service.
  - 4. SPIB - Southern Pine Inspection Bureau.
  - 5. WCLIB - West Coast Lumber Inspection Bureau.
  - 6. WWPAA - Western Wood Products Association.
- C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
  - 1. Provide dressed lumber, S4S, unless otherwise indicated.

## **2.3 WOOD-PRESERVATIVE-TREATED MATERIALS**

- A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPAC2 (lumber) and AWPAC9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
  - 1. Do not use chemicals containing chromium or arsenic.
- B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. (4.0 kg/cu. m). After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items and the following:
  - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
  - 3. Wood framing members less than 18 inches (460 mm) above grade.
  - 4. Wood floor plates installed over concrete slabs directly in contact with earth.
- C. Complete fabrication of treated items before treatment, where possible. If cut after treatment, apply field treatment complying with AWPAC4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

## **2.4 FIRE-RETARDANT-TREATED MATERIALS**

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- A. General: Where fire-retardant-treated wood is indicated, comply with applicable requirements of AWPAC20 (lumber) and AWPAC27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL; U.S. Testing; Timber Products Inspection, Inc.; or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Research or Evaluation Reports: Provide fire-retardant-treated wood acceptable to authorities having jurisdiction and for which a current model code research or evaluation report exists that evidences compliance of fire-retardant-treated wood for application indicated.

**2.5 DIMENSION LUMBER**

- A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
- B. Framing Other than Non-Load-Bearing Partitions: Provide framing of the following grade and species:
  - 1. Grade: No. 2.
  - 2. Species: Southern pine; SPIB.
  - 3. Species: Mixed southern pine; SPIB.
  - 4. Species: Any species above.

**2.6 MISCELLANEOUS LUMBER**

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

**2.7 CONCEALED, PERFORMANCE-RATED STRUCTURAL-USE PANELS**

- A. General: Where structural-use panels are indicated for the following concealed types of applications, provide APA-performance-rated panels complying with requirements designated under each application for grade, span rating, exposure durability classification, and edge detail (where applicable).
  - 1. Thickness: Provide panels meeting requirements specified but not less than thickness indicated.
  - 2. Span Ratings: Provide panels with span ratings required to meet "Code Plus" provisions of APA Form No. E30, "APA Design/Construction Guide: Residential & Commercial."

**2.8 STRUCTURAL-USE PANELS FOR UNDERLAYMENT**

- A. General: Over smooth subfloors, provide underlayment not less than 1/4 inch (6.4 mm) thick. Over board or uneven subfloors, provide underlayment not less than 11/32 inch (8.7 mm) thick.
- B. Plywood Underlayment for Carpet: For underlayment under 19/32 inch (15.1 mm) thick, provide plywood panels with fully sanded face and as follows:
  - 1. Grade: APA Underlayment Interior.

**2.9 FASTENERS**

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
  - 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.

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- B. Nails, Wire, Brads, and Staples: FS FF-N-105.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M)
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

**2.10 MISCELLANEOUS MATERIALS**

- A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturers.

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

- A. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Apply field treatment complying with AWP A M4 to cut surfaces of preservative-treated lumber and plywood.
- E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
  - 2. Published requirements of metal framing anchor manufacturer.
  - 3. "Recommended Nailing Schedule" of referenced framing standard and with AFPA's "National Design Specifications for Wood Construction."
  - 4. "Table 23-I-Q--Nailing Schedule" of the Uniform Building Code.
  - 5. "Table 2305.2--Fastening Schedule" of the BOCA National Building Code.
  - 6. "Table 1705.1--Fastening Schedule," of the Standard Building Code.
- F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
- G. Use hot-dip galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.
- H. Countersink nail heads on exposed carpentry work and fill holes with wood filler.

**3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS**

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screening or attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

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- C. Install permanent grounds of dressed, preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

### **3.3 WOOD FRAMING, GENERAL**

- A. Framing Standard: Comply with AFPA's "Manual for Wood Frame Construction," unless otherwise indicated.
- B. Install framing members of size and at spacing indicated.
- C. Do not splice structural members between supports.

### **3.4 INSTALLATION OF STRUCTURAL-USE PANELS**

- A. General: Comply with applicable recommendations contained in APA Form No. E30, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.
  - 1. Comply with "Code Plus" provisions of above-referenced guide.
- B. Fastening Methods: Fasten panels as indicated below:
  - 1. Underlayment: Nail to subflooring.
    - a. Space panels 1/32 inch (0.8 mm) at edges and ends.

**END OF SECTION**



**END OF PROJECT MANUAL**