The Enclosed Document Is Provided For Your Convenience.

Please Email ALL Questions:

MailTo:ContractAdministration@TampaGov.net

Please Let Us Know If You Plan To Bid

City of Tampa
Contract Administration Department
306 E. Jackson St. #280A4N
Tampa, FL 33602
(813)274-8456

CITY OF
TAMPA, FLORIDA

NOTICE TO BIDDERS, INSTRUCTIONS TO BIDDERS
PROPOSAL, BID BOND, FORM OF NOTICE OF AWARD,
AGREEMENT, PERFORMANCE BOND AND
SPECIFICATIONS

FOR

Contract 18-C-00025

Williams Park Activity Center Expansion

City of Tampa
CONTRACT ADMINISTRATION DEPARTMENT
TAMPA MUNICIPAL OFFICE BUILDING
306 E. JACKSON STREET - 4TH FLOOR NORTH
TAMPA, FLORIDA 33602

JULY 2018

Revised 2016-08-29

CITY OF TAMPA
CONTRACT ADMINISTRATION DEPARTMENT
306 E. Jackson Street 280A4N
Tampa, FL 33602

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BID NOTICE MEMO

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Bids will be received no later than 1:30 p.m. on the indicated Date(s) for the following Project(s):

****

CONTRACT NO.: 18-C-00025; Williams Park Activity Center Expansion

BID DATE: August 7, 2018 ESTIMATE: $530,000 SCOPE: The project comprises demolition of existing storage building, pavilion and covered patio to prepare for construction of a 1200 square foot addition to existing activity center with masonry exterior walls, metal roof on wood trusses, standard commercial finishes, and related mechanical, electrical and plumbing (MEP) work. Work also includes renovation of existing exterior restroom building and new concrete patio and minor sitework along with all associated work required for a complete project, as shown and indicated on the Drawings and in the Specifications with all associated work required for a complete project in accordance with the Contract Documents. PRE-BID CONFERENCE: Tuesday, July 24, 2018, 10:30 a.m. at the Williams Park Activity Center, 4362 E. Osborne Ave., Tampa, FL 33610. Attendance is not mandatory, but recommended.

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Bids will be opened in the 4th Floor Conference Room, Tampa Municipal Office Building, 306 E. Jackson Street, Tampa, Florida 33602. Pre-Bid Conference is held at the same location unless otherwise indicated. Plans and Specifications and Addenda for this work may be examined at, and downloaded from, www.demandstar.com. Backup files are available at http://www.tampagov.net/contract-administration/programs/construction-project-bidding. Email Questions to: contractadministration@tampagov.net .

TABLE OF CONTENTS

NOTICE TO BIDDERS
CITY OF TAMPA, FLORIDA
Contract 18-C-00025; Williams Park Activity Center Expansion

Sealed Proposals will be received by the City of Tampa no later than 1:30 P.M., August 07, 2018, in the 4th Floor Conference Room, Tampa Municipal Office Building, 306 E. Jackson Street, Tampa, Florida, there to be publicly opened and read aloud.

The proposed work is to include, but not be limited to, demolition of existing storage building, pavilion and covered patio to prepare for construction of a 1200 square foot addition to existing activity center with masonry exterior walls, metal roof on wood trusses, standard commercial finishes, and related mechanical, electrical and plumbing (MEP) work. Work also includes renovation of existing exterior restroom building and new concrete patio and minor sitework along with all associated work required for a complete project, as shown and indicated on the Drawings and in the Specifications with all associated work required for a complete project in accordance with the Contract Documents.

The Instructions to Bidders, Proposal, Form of Bid Bond, Agreement, Form of Public Construction Bond, Specifications, Plans and other Contract Documents are posted at DemandStar.com. Backup files may be downloaded from http://www.tampagov.net/contract-administration/programs/construction-project-bidding. One set may be available for reference at the office of the Contract Administration Department, Municipal Office Building, Fourth Floor North, City Hall Plaza, Tampa, Florida 33602.

Each Proposal must be submitted on the Proposal form included in the Specifications and must be accompanied by a certified check or cashier's check on a solvent bank or trust company in compliance with Section 255.051, Florida Statutes, made payable to the City of Tampa, in an amount of not less than five per cent of the total bid, or a Bid Bond, of like amount, on the form set forth in the Contract Documents, as a guarantee that, if the Proposal is accepted, the Bidder will execute the Proposed Contract and furnish a Public Construction Bond within twenty (20) days after receipt of Notice of Award of Contract.

To be eligible to submit a proposal, a Bidder must hold the required and/or appropriate current license, certificate, or registration (e.g. DBPR license/certificate of authorization, etc.) in good standing at the time of receipt of Bids. **Per Section 489.131, Florida Statutes, Proposals submitted for the construction, improvement, remodeling, or repair of public projects must be accompanied by evidence that the Bidder holds the required and/or appropriate current certificate or registration, unless the work to be performed is exempt under Section 489.103, Florida Statutes**.

The City of Tampa reserves the right to reject any or all Bids and to waive any informalities in the Bid and/or Bid Bond. Acceptance or rejection of Proposals will be made as soon as practicable after the Proposals are received, but the City reserves the right to hold Proposals for ninety (90) days from the date of Opening.

Bid Protest Procedures: Unless subsequently indicated otherwise, in a revised posting on the Department's web page for Construction Project Bidding, the City of Tampa intends to award the referenced project to the lowest bidder listed in the tabulation posted on or about the date of Bid Opening. A bidder aggrieved by this decision may file a protest not later than 4:30 P.M., five (5) business days from the first posting thereof, pursuant to City of Tampa Code Chapter 2, Article V, Division 3, Section 2-282, Procurement Protest Procedures. Protests not conforming therewith shall not be reviewed.

> Pursuant to Section 2-282, City of Tampa Code, during the solicitation period, including any protest and/or appeal, NO CONTACT with City officers or employees is permitted from any bidder or proposer, other than as specifically stated in this solicitation and as follows:
> Director of the Contract Administration Department (CAD)
> Contracts Management Supervisor, Jim Greiner
> Contract Officer, Jody Gray
> City legal department

Any Requests For Information must be submitted by email to ContractAdministration@tampagov.net

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list." Refer to Section 287.133, Florida Statues.

Pursuant to Section 287.087, Florida Statutes, under certain circumstances preference may be given to businesses with a drug-free workplace program that meets the requirements of said Section.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.01 GENERAL:

The proposed work is the Williams Park Activity Center Expansion in the City of Tampa, as required for a complete project, as shown on the plans and detailed in the specifications. The work is located on land owned or controlled by the City of Tampa.

To be eligible to submit a proposal, a Bidder must hold the required and/or appropriate current license, certificate, or registration (e.g. DBPR license/certificate of authorization, etc.) in good standing at the time of receipt of Bids. **Per Section 489.131, Florida Statutes, Proposals submitted for the construction, improvement, remodeling, or repair of public projects must be accompanied by evidence that the Bidder holds the required and/or appropriate current certificate or registration, unless the work to be performed is exempt under Section 489.103, Florida Statutes.**

I-1.02 FORM PREPARATION AND PRESENTATION OF PROPOSALS: Replace the second sentence with the following: Submission of the entire specification book is not required.

I-1.03 ADDENDA – Section I-2.03 is replaced with the following: No interpretation of the meaning of the Plans, Specifications, or other Contract Documents will be made to any Bidder orally.

Every request for such interpretation must be in writing, addressed to the City of Tampa, Contract Administration Department, 306 E. Jackson St., 4th Floor, Tampa, Florida 33602 and then emailed to ContractAdministration@tampagov.net. To be given consideration, such request must be received at least seven (7) days prior to the date fixed for the opening of the Proposals. Any and all such interpretations and any supplemental instructions will be in the form of written addenda which, if issued, will be posted on DemandStar.Com and on the Department's web page, with notice given to all prospective bidders at the respective fax numbers or e-mail addresses furnished, for such purposes. Failure of any Bidder to receive any such addenda shall not relieve said Bidder from any obligation under his Proposal as submitted. All addenda so issued shall become part of the Contract Documents.

I-1.04 INSTRUCTIONS TO BIDDERS

SECTION 2 – GENERAL INSTRUCTIONS. Section I-2.07 SIGNATURE AND QUALIFICATIONS OF BIDDERS is replaced with the following:

> Proposals must be signed in ink by the Bidder with signature in full. When firm is a Bidder, the Proposal shall be signed in the name of the firm by one or more partners. When a corporation is a bidder the officer signing shall set out the corporate name in full beneath which he shall sign his name and give the title of his office.
>
> If the bidder referred to in Section I-2.07 is a corporation, it must submit; upon request, a copy of its filed Articles of Incorporation. In addition, if the bidder was incorporated in another state, it must establish that it is authorized to do business in the State of Florida. If the bidder is using a fictitious name, it must submit upon request, proof of registration of such name with the Clerk of the Circuit Court of the County where its principal place of business is. Failure to submit what is required is grounds to reject the bid of that bidder.

SECTION 2 – GENERAL INSTRUCTIONS. Section I-2.14 NONDISCRIMINATION IN EMPLOYMENT is changed to add the following to the end of the existing text:

The following provisions are hereby incorporated into any contract executed by or on behalf of the City. Contractor shall comply with the following Statement of Assurance: During the performance of the Contract, the Contractor assures the City, that the Contractor is in compliance with Title VII of the 1964 Civil Rights Act, as amended, the Florida Civil Rights Act of 1992, and the City of Tampa Code of Ordinances, Chapter 12, in that Firm/Contractor does not on the grounds of race, color, national origin, religion, sex, sexual orientation, gender identity or expression, age, disability, familial status, or marital status, discriminate in any form or manner against said Firm's/Contractor's employees or applicants for employment. Contractor understands and agrees that the Contract is conditioned upon the veracity of this Statement of Assurance, and that violation of this condition shall be considered a material breach of the Award/Contract. Furthermore, Contractor herein assures the City that said Contractor will comply with Title VI of the Civil Rights Act of 1964 when federal grant(s) is/are

involved. This Statement of Assurance shall be interpreted to include Vietnam-Era Veterans and Disabled Veterans within its protective range of applicability. Firm/Contractor further acknowledges and agrees to provide the City with all information and documentation that may be requested by the City from time to time regarding the solicitation, selection, treatment and payment of subcontractors, suppliers and vendors in connection with this Award/Contract. Firm/Contractor further acknowledges that it must comply with City of Tampa Code of Ordinances, Chapter 26.5, as enacted by Ordinance No. 2008-89.

I-1.05 TIME FOR COMPLETION:

The work shall be arranged to be completed in accordance with a progress schedule approved by the Construction Engineer.

The time for completion of this project, referred in Article 4.01 of the Agreement, shall be 300 consecutive calendar days. The period for performance shall start from the date indicated in the Notice To Proceed.

I-1.06 LIQUIDATED DAMAGES:

The amount of liquidated damages, referred to in Article 4.06 of the Agreement, for completion of this project shall be $500 per calendar day.

I-1.07 BASIS OF AWARD OF CONTRACT:

The basis of award referred to in Item I-2.11 of Instructions to Bidders shall be the greatest amount of work, which can be accomplished within the funds available as budgeted. The award may be made on the basis of the total bid, base bid, alternates(s) if any, unit bids if any, or any combination thereof deemed to be in the best interest of the City.

Unless all bids are rejected, the award will be made within 90 days after opening proposals.

I-1.08 GROUND BREAKING CEREMONY:

Arrangement may be made by the City in coordination with the Contractor, for construction to commence with a Ground Breaking Ceremony. Details will be discussed at the pre-construction conference.

I-1.09 INSURANCE:

The insurance required for this project shall be as indicated on the attached and incorporated Special Instructions pages beginning with page INS-1 entitled CITY OF TAMPA INSURANCE REQUIREMENTS, which among other things requires the Contractor to provide a Certificate of Insurance to the City prior to commencing work. The City may from time to time use a third party vendor to manage its insurance certificates and related documentation which vendor may periodically initiate contact, requests for information, etc. on the City's behalf.

I-1.10 EQUAL BUSINESS OPPORTUNITY PROGRAM (EBO) REQUIREMENTS / PROJECT SUBCONTRACTING GOAL(S)

BIDDERS MUST SUBMIT COMPLETED AND SIGNED CITY OF TAMPA FORMS MBD-10 AND MBD-20 WITH THEIR BIDS. BIDS SUBMITTED WITHOUT THESE COMPLETED FORMS (INCLUDING SIGNATURES) WILL BE DEEMED NON-RESPONSIVE. INSTRUCTIONS ON COMPLETING THE FORMS ARE INCLUDED AFTER EACH FORM IN THIS BID PACKAGE.

THE CHECKED BOX INDICATES SECTION THAT APPLIES TO THIS BID.

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SUBCONTRACTING GOAL – (WMBE and SLBE)

In accordance with the City of Tampa's EBO Program, Chapter 26.5, City of Tampa Code, the subcontracting goal(s) has/have been established for subcontracting with City-certified underutilized WMBEs (Women and Minority Business Enterprises) and/or SLBEs (Small Local Business Enterprises) on this project (hereinafter "Goal"). *The Goal is based, in part, upon the availability of City-certified firms to perform the anticipated scope of work* ***(Bid is subject to the subcontracting project goal(s) section for which a corresponding numerical percent is indicated).*** **Project Industry Category: Construction**

Project Goal(s): **30.0% U-WMBE (Underutilized Woman and Minority Business Enterprise) (EBO Program)**
per MBD Form-70 the U-WMBE subcontract Classification for Construction is African American (BBE)
_____**% SLBE (Small Local Business Enterprise) (EBO Program)** *only City-certified SLBEs*
_____**% U-WMBE/SLBE Combined (EBO Program)**
per MBD Form-70 the U-WMBE subcontract Classification for Construction is African American (BBE) together with City-certified SLBEs
_____**% WMBE/SLBE ASPIRATIONAL (EBO Program)** An all-inclusive SLBE/WMBE goal; any City certified firm counts towards goal attainment.

BIDDERS MUST SOLICIT ALL COMPANIES ON THE ATTACHED AVAILABILITY CONTACT LIST at least **five (5) City business days or more prior to bid opening as a first step** to demonstrate Good Faith Efforts to achieve the Goal. Substantive documentation that demonstrates Good Faith Efforts to achieve the Goal **must be submitted with the bid**, including emails, faxes, phone calls, letters, and other communication with City-certified firms. Bidders may explore other potential opportunities for subcontracting by consulting the current directory of all certified firms posted by the City of Tampa at https://tampa.diversitysoftware.com as the Availability Contact List may not be inclusive of all firms that could count toward Goal attainment. However, ONLY SUBCONTRACTING with those specific WMBEs designated as "underutilized" by Classification in the appropriate industry category (and, if made applicable by being specifically included in the above Goal, SLBEs) will count toward meeting the Goal. Making Good Faith Efforts through these and other means (not pro-forma) is the responsibility of the Bidder. See the attached Good Faith Effort Compliance Plan (GFECP) (MBD Form-50) for specific requirements.

GOOD FAITH EFFORT COMPLIANCE PLAN (GFECP) REQUIRED (MBD FORM-50). When a Goal has been established, the Bidder **must submit** with its bid a Good Faith Effort Compliance Plan (GFECP) using the attached MBD Form-50 together with supporting documentation as specified therein. **Submittals that do not contain MBD Form-50 when a Goal has been established will be deemed non-responsive**. Additional explanation and documentation is required whenever a City-certified subcontractor's quote is not utilized. Any additional information regarding GFECP (post-bid) shall be only upon the City's request for clarification of information submitted with bid and not to "cure" omissions or deficiencies of the bid.

NOTE: When U-WMBEs are included in a Goal, only those City-certified subcontractors whose WMBE Classification is designated "underutilized" will count toward Goal attainment. Refer to **MBD Form-70** to identify underutilized WMBEs by subcontract Classification for the applicable project industry category. A prime bidder who is a City-certified WMBE and/or SLBE is not exempt from the **GFECP MBD Form-50** requirements.

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SUBCONTRACTING GOAL – (DBE) FDOT DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

The City of Tampa is required to use the Florida Department of Transportation (FDOT) Disadvantaged Business Enterprise (DBE) program on contracts with Federal Highway Administration (FHWA) funds. Effective October 1, 2017 through to September 30, 2020, the overall FDOT DBE aspirational goal is **10.65%** and is *race neutral*, meaning that FDOT believes the aspirational DBE goal may be achieved entirely through ordinary, competitive procurement methods. Despite the absence of a contract specific DBE goal on this project, the City encourages bidders to seek out and use DBEs and other minority, small businesses. For assistance in identifying certified DBEs, FDOT offers the use of its supportive services program accessed via FDOT's Equal Opportunity Office at http://www.fdot.gov/equalopportunity/serviceproviders.shtm. FDOT DBE rules and regulations apply to this solicitation, including the requirement to report bidder opportunity information in the FDOT Equal Opportunity Compliance (EOC) web-based application within three (3) business days of submission of the bid for ALL subcontractors who quoted bidder for this specific project. The five (5) char/digit LAP Agreement Contract Number for this project is G_____. The web address to the EOC system is: https://fdotwp1.dot.state.fl.us/EqualOpportunityCompliance/Account.aspx/LogIn?ReturnUrl=%2fEqualOpportunityCompliance

NOTE: Regardless of FDOT DBE program applicability, for data collection purposes bidder still **must submit** City Forms MBD-10 and MBD-20 completed and signed with its bid or the bid will be deemed non-responsive.

DIVERSITY MANAGEMENT INITIATIVE (DMI) DATA REPORTING FORMS REQUIRED FOR ALL CONTRACTS

Bidder **must submit**, with its bid, completed and signed Forms MBD-10 and MBD-20 to be considered a responsive bid. Specifically, the 'Schedule of All Solicited Sub-(Contractors/Consultants/Suppliers) (Form MBD-10)' listing all subcontractors (including non-certified) solicited and 'Schedule of All -To Be Utilized Sub-(Contractors/Consultants/Suppliers) (Form MBD-20)' listing all subcontractors (including non-certified) to be utilized. Supplemental forms, such as 'Form MBD-40 Official Letter Of Intent' (LOI), can be submitted with the bid or once declared lowest-responsive bidder. After an award, 'DMI Sub-(Contractors/Consultants/Suppliers) Payment Form (Form MBD-30)' is to be submitted with payment requests to report payments to subcontractors and using the on-line automated MBD compliance software system available at https://tampa.diversitysoftware.com

For additional information about the WMBE and SLBE programs contact the Minority and Small Business Development Office at 813-274-5522. (3-18)

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.11 BID SECURITY:

Surety companies shall have a rating of not less than B+ Class VI as evaluated in the most recently circulated Best KeyRating Guide Property/Casualty.

I-1.12 PUBLIC CONSTRUCTION BOND:

The Bidder who is awarded the Contract will be required to furnish a Public Construction Bond upon the form provided herein, equal to 100 percent of the Contract price, such Bond to be issued and executed by (a) surety company(ies) acceptable to the City and licensed to underwrite contracts in the State of Florida. After execution of the Agreement and before commencing work, the Contractor must provide the City a certified copy of the officially recorded Bond.

I-1.13 AGREEMENT

SECTION 2 – POWERS OF THE CITY'S REPRESENTATIVES, new Article 2.05:
Add the following:

Article 2.05 CITY'S TERMINATION FOR CONVENIENCE:

The City may, at any time, terminate the Contract in whole or in part for the City's convenience and without cause. Termination by the City under this Article shall be by a notice of termination delivered to the Contractor, specify the extent of termination and the effective date.

Upon receipt of a notice of termination, the Contractor shall immediately, in accordance with instructions from the City, proceed with performance of the following duties regardless of delay in determining or adjusting amounts due under this Paragraph:

(a) cease operations as specified in the notice;
(b) place no further orders and enter into no further subcontracts for materials, labor, services or facilities except as necessary to complete continued portions of the Contract;
(c) terminate all subcontracts and orders to the extent they relate to the Work terminated;
(d) proceed to complete the performance of Work not terminated; and
(e) take actions that may be necessary, or that the City may direct, for the protection and preservation of the terminated Work.

The amount to be paid to the Contractor by the City because of the termination shall consist of:

(a) for costs related to work performed on the terminated portion of the Work prior to the effective date including termination costs relative to subcontracts that are properly chargeable to the terminated portion of the Work;
(b) the reasonable costs of settlement of the Work terminated, including accounting, legal, clerical and other expenses reasonable necessary for the preparation of termination settlement proposals and supporting data; additional costs of termination and settlement of subcontracts excluding amounts of such settlements; and storage, transportation, and other costs incurred which are reasonably necessary for the preservation, protection or disposition of the terminated Work; and
(c) a fair and reasonable profit on the completed Work unless the Contractor would have sustained a loss on the entire Contract had it been completed.

Allowance shall be made for payments previously made to the Contractor for the terminated portion of the Work, and claims which the City has against the Contractor under the Contract, and for the value of materials supplies, equipment or other items that are part of the costs of the Work to be disposed of by the Contractor.

SECTION 5 – SUBCONTRACTS AND ASSIGNMENTS, Article 5.01, Page A-7, last paragraph:
Change "…twenty-five (25) percent…" to "…fifty-one (51) percent…"

SECTION 8 – CONTRACTOR'S EMPLOYEES, Article 8.03, Page A-9, delete Article 8.03 in its entirety and Replace with the following new article:

ARTICLE 8.03 EMPLOYMENT OPPORTUNITIES
The Contractor shall, in the performance of the work required to be done under this Contract, employ all workers without discrimination and must not maintain, provide or permit facilities that are segregated.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

SECTION 10 – PAYMENTS, Article 10.05, Page A-10, 1st Paragraph, 1st Sentence:
Change "…fair value of the work done, and may apply for…" to "…fair value of the work done, and shall apply for…"

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.02, Page A-12, 1st Paragraph, 2nd Sentence:
Delete the 2nd Sentence in its entirety and replace it with the following new 2nd Sentence:

Without limiting application of Article 11.07, below, whenever the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall indemnify, defend, and hold harmless the City Indemnified Parties (as defined below) from any and all Claims (as defined below) for infringement by reason of the use of any such patented design, device, tool, material, equipment, or process, to be performed under the Contract and damages which may be incurred by reason of such infringement at any time during the prosecution or after completion of the work.

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.03, Page A-12:
Delete Article 11.03 in its entirety and replace with the following new article:

ARTICLE 11.03 INTENTIONALLY OMITTED.

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.07, Page A-12:
Delete Article 11.07 in its entirety and replace with the following new article:

ARTICLE 11.07 INDEMNIFICATION PROVISIONS
Whenever there appears in this Agreement, or in the other Contact Documents made a part hereof, an indemnification provision within the purview of Chapter 725.06, Laws of Florida, the monetary limitation on the extent of the indemnification under each such provision shall be One Million Dollars or a sum equal to the total Contract price, whichever shall be the greater.

Contractor releases and agrees to defend, indemnify and hold harmless the City, its officers, elected and appointed officials, employees, and/or agents (collectively, "City Indemnified Parties") from and against any and all losses, liabilities, damages, penalties, settlements, judgments, charges, or costs (including without limitation attorneys' fees, professional fees, or other expenses) of every kind and character arising out of any and all claims, liens, is entitled to indemnification hereunder. This obligation shall in no way be limited in any nature whatsoever by any limitation on the amount or type of Contractor's insurance coverage.

The parties agree that to the extent the written terms of this indemnification are deemed by a court of competent jurisdiction to be in conflict with any provisions of Florida law, in particular Sections 725.06 and 725.08, Florida Statutes, the written terms of this indemnification shall be deemed by any court of competent jurisdiction to be modified in such a manner as to be in fully and complete compliance with all such laws and to contain such limiting conditions or limitations of liability, or to not contain any unenforceable or prohibited term or terms, such that this indemnification shall be enforceable in accordance with and to the maximum extent permitted by Florida law.

The obligation of Contractor under this Article is absolute and unconditional; it is not conditioned in any way on any attempt by a City Indemnified Party to collect from an insurer any amount under a liability insurance policy, and is not subject to any set-off, defense, deduction, or counterclaim that the Contactor might have against the City Indemnified Party. The duty to defend hereunder is independent and separate from the duty to indemnify, and the duty to defend exists regardless of any ultimate liability of Contractor, the City, and any City Indemnified Party. The duty to defend arises immediately upon presentation of a Claim by any party and written notice of such Claim being provided to Contractor. Contractor's defense and indemnity obligations hereunder will survive the expiration or earlier termination of this Contract.

Contractor agrees and recognizes that the City Indemnified Parties shall not be held liable or responsible for any Claims which may result from any actions or omissions of Contractor in which the City Indemnified Parties participated either through providing data or advice and/or review or concurrence of Contractor's actions. In

reviewing, approving or rejecting any submissions by Contractor or other acts of Contractor, the City in no way assumes or shares any responsibility or liability of Contractor or any tier of subcontractor/subconsultant/supplier, under this Contract.

In the event the law is construed to require a specific consideration for such indemnification, the parties agree that the sum of Ten Dollars and 00/100 ($10.00), receipt of which is hereby acknowledged, is the specific consideration for such indemnification and the providing of such indemnification is deemed to be part of the specifications with respect to the services provided by Contractor.

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.12, Page A-13:
Change Article 11.12 to add the following new language after existing text:

The City of Tampa is a public agency subject to Chapter 119, Florida Statutes. In accordance with Florida Statutes, 119.0701, Contractor agrees to comply with Florida's Public Records Law, including the following:

1. Contractor shall keep and maintain public records required by the City to perform the services under this Agreement;

2. Upon request by the City, provide the City with copies of the requested records, having redacted records in total on in part that are exempt from disclosure by law or allow the records to be inspected or copied within a reasonable time (with provision of a copy of such records to the City) on the same terms and conditions that the City would provide the records and at a cost that does not exceed that provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

3. Ensure that records, in part or in total, that are exempt or that are confidential and exempt from disclosure requirements are not disclosed except as authorized by law for the duration of the Agreement term and following completion (or earlier termination) of the Agreement if Contractor does not transfer the records to the City;

4. Upon completion (or earlier termination) of the Agreement, Contractor shall within 30 days after such event either transfer to the City, at no cost, all public records in possession of the Contractor or keep and maintain the public records in compliance with Chapter 119, Florida Statutes. If Contractor transfers all public records to the City upon completion (or earlier termination) of the Agreement, Contractor shall destroy any duplicate records that are exempt or confidential and exempt from public records disclosure requirements. If Contractor keeps and maintains public records upon completion (or earlier termination) of the Agreement, Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City in a format that is compatible with the information technology systems of the agency.

The failure of Contractor to comply with Chapter 119, Florida Statutes, and/or the provisions set forth in this Article shall be grounds for immediate unilateral termination of the Agreement by the City; the City shall also have the option to withhold compensation due Contractor until records are received as provided herein.

IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT 813-274-8598, JIM.GREINER@TAMPAGOV.NET, AND CONTRACT ADMINISTRATION DEPARTMENT, TAMPA MUNICIPAL OFFICE BUILDING, 4TH FLOOR, 306 E. JACKSON ST. TAMPA, FLORIDA 33602.

I-1.14 Contractors must utilize the U.S. Department of Homeland Security's E-Verify Systems to verify the employment eligibility of all persons employed during the term of the Contract to perform employment duties within the State of Florida and all persons, including subcontractors, assigned by Contractor to perform work pursuant to the contract.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.15 GENERAL PROVISIONS; G-2.02 Copies Furnished to Contractor: Replace the first paragraph with the following:

The Contractor shall acquire for its use copies of the plans and specifications as needed, which may be downloaded from the City's web site, at http://www.tampagov.net/contract-administration/programs/construction-project-bidding.

Bidder as part of the solicitation process (and as Contractor if Bidder is successful) may hold, come into possession of, and/or generate certain building plans, blueprints, schematic drawings, including draft, preliminary, and final formats, which depict the internal layout and structural elements of a building, facility, or other structure owned or operated by the City or an agency (singularly or collectively "Exempt Plans"), which pursuant to Section 119.071(3), Florida Statutes, are exempt from Section 119.07(1), Florida Statutes and Section 24(a), Art. I of the Florida State Constitution. Contractor certifies it has read and is familiar the exemptions and obligations of Section 119.071(3), Florida Statutes; further that Contractor is and shall remain in compliance with same, including without limitation maintaining the exempt status of such Exempt Plans, for so long as any Exempt Plans are held by or otherwise in its possession.

I-1.16 PAYMENT DISPUTE RESOLUTION

Any dispute pertaining to pay requests must be presented to the City pursuant to Executive Order 2003-1.

I-1.17 SCRUTINIZED COMPANIES.

Section 287.135, Florida Statutes, prohibits agencies or local governmental entities from contracting with companies for goods or services of $1 million or more that are on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, Florida Statues, or is on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, Florida Statues, (effective October 1, 2016), or is engaged in a boycott of Israel (effective October 1, 2016), or is engaged in business operations in Cuba or Syria. A company that is on either the Scrutinized Companies with Activities in Sudan List or the

Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, Florida Statues, or is on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, Florida Statues, (effective October 1, 2016) or is engaged in a boycott of Israel (effective October 1, 2016) or is engaged in business operations in Cuba or Syria is ineligible to, and may not, bid on, submit a proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services of $1 million or more. Contractor certifies that it is not in violation of Section 287.135, Florida Statutes. For contracts $1,000,000 and greater, if the City determines the Contractor submitted a false certification under Section 287.135(5) of the Florida Statutes, or has been placed on the Scrutinized Companies with Activities in the Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or is on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, Florida Statues, (effective October 1, 2016), or is engaged in a boycott of Israel (effective October 1, 2016), or been engaged in business operations in Cuba or Syria, the City shall either terminate the Agreement after it has given the Contractor notice and an opportunity to demonstrate the City's determination of false certification was in error pursuant to Section 287.135(5)(a) of the Florida Statutes, or maintain the Agreement if the conditions of Section 287.135(4) of the Florida Statutes are met.

I-1.18 FLORIDA'S PUBLIC RECORDS LAW; DATA COLLECTION

Pursuant to Section 119.071(5)(a)2a, Florida Statutes, social security numbers shall only be collected from Bidders and/or Contractor by the City should such number be needed for identification, verification, and/or tax reporting purposes. To the extent Bidder and/or Contractor collects an individual's social security number in the course of acting on behalf of the City pursuant to the terms and conditions of its Proposal or, if awarded, the Agreement, Bidder and/or Contractor shall follow the requirements of Florida's Public Records Law.

SECTION 2
GENERAL INSTRUCTIONS

I-2.01 BIDDER'S RESPONSIBILITY

Before submitting Proposals, Bidders shall carefully examine the entire site of the proposed work and adjacent premises and the various means of approach and access to the site, and make all necessary investigations to inform themselves thoroughly as to the facilities necessary for delivering, placing and operating the necessary construction equipment, and for delivering and handling materials at the site, and inform themselves thoroughly as to all difficulties involved in the completion of all the work in accordance with the Contract Documents.

Bidders must examine the Plans, Specifications, and other Contract Documents and shall exercise their own judgment as to the nature and amount of the whole of the work to be done, and for the bid prices must assume all risk of variance, by whomsoever made, in any computation or statement of amounts or quantities necessary to complete the work in strict compliance with the Contract Documents.

Elevations of the ground are shown on the Plans and are believed to be reasonably correct, but are not guaranteed to be absolutely so and are presented only as an approximation. Bidders shall satisfy themselves as to the correctness of all elevations.

The City may have acquired, for its own use, certain information relating to the character of materials, earth formations, probable profiles of the ground, conditions below ground, and water surfaces to be encountered at the site of the proposed work. This information, if it exists, is on file at the offices of the Department of Public Works and Bidders will be permitted to see and examine this information for whatever value they consider it worth. However, this information is not guaranteed, and Bidders should satisfy themselves by making borings or test pits, or by such other methods as they may prefer, as to the character, location, and amounts of water, peat, clay, sand, quicksand, gravel, boulders, conglomerate, rock, gas or other material to be encountered or work to be performed.

Various underground and overhead structures and utilities are shown on the plans. The location and dimensions of such structures and utilities, where given, are believed to be reasonably correct, but do not purport to be absolutely so. These structures and utilities are plotted on the Plans for the information of the Bidders, but information so given is not to be construed as a representation or assurance that such structures will be found or encountered as plotted, or that such information is complete or accurate.

I-2.02 FORM, PREPARATION AND PRESENTATION OF PROPOSALS

Each Proposal shall be submitted upon the Proposal Form and in accordance with the instructions included herein. The Proposal Form must not be detached herefrom. All blank spaces for bid prices must be filled in, in both words and figures, with the unit or lump sum prices, or both, for which the Proposal is made. The computed total price for each unit price Contract Item shall be determined by multiplying the estimated quantity of the item, as set forth in the Proposal Form, by the corresponding unit price bid for such item. The resulting product shall be entered in the appropriate blank space under the column headed "Computed Total Price for Item". The lump sum price bid for each lump sum price Contract Item shall also be entered in the column headed "Computed Total Price for Item". If a Proposal contains any omissions, erasures, alterations, additions, or items not called for in the itemized Proposal, or contains irregularities of any kind, such may constitute sufficient cause for rejection of the Proposal. In case of any discrepancy in the unit price or amount bid for any item in the Proposal, the price as expressed in written words will govern. In no case is the Agreement Form to be filled out or signed by the Bidder.

In the case of certain jobs bid Lump Sum a "Schedule of Unit Prices" must be filled out as an attachment to the Lump Sum proposal. These prices may be used as a guide for the negotiation of change orders, at the City's option.

The proposal must be signed and certified and be presented on the prescribed form in a sealed envelope on/or before the time and at the place stated in the Notice of Bidders, endorsed with the name of the person, firm or corporation presenting it, the date of presentation, and the title of the work for which the Proposal is made.

Unless the apparent low bidder is now engaged in or has recently completed contract work for the City of Tampa, he, if requested, shall furnish to the City, after the opening of bids and prior to award, a summary statement of record of construction experience over the past three (3) years with proper supporting evidence, and, if required by the City, shall also furnish a list of equipment and other facilities pertinent to and available for the proper execution of the proposed work, and a statement of financial resources to the extent necessary to establish ability to carry on the proposed work. The City may make further investigations as considered necessary with respect to responsibility of the Bidder to whom it appears may be awarded the Contract.

If forwarded by mail, the sealed envelope containing the Proposal, endorsed as directed above, must be enclosed in another envelope addressed as specified in the Notice to Bidders and sent by registered mail.

I-2.03 ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the Plans, Specifications, or other Contract Documents will be made to any Bidder orally.

Every request for such interpretation must be in writing, addressed to the Contract Administration Department, Tampa Municipal Office Building, 4th Floor North, City Hall Plaza, Tampa, Florida 33602. To be given consideration, such request must be received at least seven (7) days prior to the date fixed for the opening of the Proposals. Any and all such interpretations and any supplemental instructions will be in the form of written addenda which, if issued, will be sent by certified mail, with return receipt requested, to all prospective bidders at the respective addresses furnished, for such purposes, not later than three (3) working days prior to the date fixed for the opening of the Proposals, and if requested, a copy will be delivered to the prospective bidder's representative. Failure of any Bidder to receive any such addenda shall not relieve said Bidder from any obligation under his Proposal as submitted. All addenda so issued shall become part of the Contract Documents.

I-2.04 BID SECURITY

Each Proposal must be accompanied by a certified or cashier's check issued by a solvent bank or trust company and payable at sight to the City of Tampa, in compliance with Section 255.051 Florida Statutes, or a Bid Bond upon the form provided herein, in an amount of not less than five percent of the sum of the computed total amount of the Bidder's Proposal as a guarantee that if the Proposal is accepted, the Bidder will execute and fill in the proposed Contract and Public Construction Bond within twenty (20) days after notice of award of the Contract. Certified checks shall have all necessary documentary revenue stamps attached if required by law. Surety on Bid Bonds shall be a duly authorized surety company authorized to do business in the State of Florida, and all such Bonds shall be issued or countersigned by a local resident producing agent, and satisfactory evidence of the authority of the person or persons executing such Bond to Execute the same shall be submitted with the Bond. Bid Bonds shall be issued by a surety company acceptable to the City.

Within ten (10) days after the opening of Proposals, the bid security of all but the three lowest Bidders will be returned. The bid security of the remaining two Bidders whose Proposals are not accepted will be

returned within ten (10) days after the execution of the Contract, or, if no such Contract has been executed, within ninety (90) days after the date of opening Proposals. The bid security of the Bidder whose Proposal is accepted will be returned only after he has duly executed the Contract and furnished the required Public Construction Bond and insurance.

Should it be necessary for the City to retain the bid security and said bid security is in the form of checks, the checks of these Bidders will be returned if replaced by Bid Bonds in an amount equal to the amount of the checks of such Bidders in such form and issued by a surety company acceptable to the City.

A Bidder may withdraw his Proposal before the time fixed for the opening of Proposals, without prejudice to himself, by communicating his purpose, in writing, to the Mayor and City Council, and when his communication is received, the Proposal will be handed to him or his authorized agent unopened. No Bidder may withdraw his Proposal within ninety (90) days after the day of opening Proposals.

The Bidder whose Proposal is accepted shall enter into a written contract, upon the Agreement form included herein, for the performance of the work and furnish the required Public Construction Bond within twenty (20) days after written notice by the City of Award of Contract has been served on such Bidder personally or after receipt of the written notice by registered mail to such Bidder at the address given in his Proposal.

If the Bidder to whom a Contract is awarded refuses or neglects to execute it or fails to furnish the required Public Construction Bond within twenty (20) days after receipt by him of the Notice of Award of Contract, the amount of his bid security shall be forfeited and shall be retained by the City as liquidated damages, and not as a penalty, it being now agreed that said sum is a fair estimate of the amount of damages that the City will sustain in case said Bidder fails to enter into a Contract and furnish the required Public Construction Bond. If a Bid Bond was furnished, the full amount of the Bond shall become due and payable as liquidated damages caused by such failure. The full amount of the bid security shall be forfeited as liquidated damages without consideration of the fact that an award may be less than the full amount of the Bidder's Proposal, excepting that the award shall be within the conditions of said Proposal relating to the basis of consideration for an award. No plea of mistake in the bid or misunderstanding of the conditions of forfeiture shall be available to the Bidder for the recovery of his deposit or as a defense to any action based upon the neglect or refusal to execute a contract.

I-2.05 LAWS AND REGULATIONS
The Bidder who is awarded the Contract must comply with all laws of the State of Florida, and all applicable Ordinances of the City of Tampa respecting labor and compensation and with all other statutes, ordinances, rules and regulations applicable and having the force of law.

I-2.06 PUBLIC CONSTRUCTION BOND
The Bidder who is awarded the Contract will be required to furnish a Public Construction Bond upon the form provided herein, equal to 100 percent of the Contract price, such Bond to be executed by a surety company acceptable to the City of Tampa and licensed to underwrite contracts in the State of Florida. Surety companies shall have a rating of not less than: B+ Class VI as evaluated in the most recently circulated BEST'S KEY RATING GUIDE PROPERTY-LIABILITY.

I-2.07 SIGNATURE AND QUALIFICATIONS OF BIDDERS
Proposals must be signed in ink by the Bidder with signature in full. When a firm is a Bidder, the Proposal shall be signed in the name of the firm by one or more of the partners. When a corporation is a Bidder the officer signing shall set out the corporate name in full beneath which he shall sign his name and give the title of his office. The Proposal shall also bear the seal of the corporation attested by its secretary. Anyone signing the Proposal as agent must file with it legal evidence of his authority to do so.

Bidders who are nonresident corporations shall furnish to the City a duly certified copy of their permit to transact business in the State of Florida, signed by the Secretary of State, within ten days of the notice to do so. Such notice will be given to Bidders who are nonresident corporations, to whom it appears an award will be made, and the copy of the permit must be filed with the City before the award will be made. Failure to promptly submit this evidence of qualification to do business in the State of Florida may be basis for rejection of the Proposal.

I-2.08 REJECTION OF PROPOSALS
The City reserves the right to reject any Proposal if investigation of the Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligations and to complete the work contemplated therein. Any or all Proposals will be rejected if there is reason to believe that collusion exists among Bidders. Proposals will be considered irregular and may be rejected if they show serious omissions, alterations in form, additions not called for, conditions or unauthorized alternates, or irregularities of any kind. The City reserves the right to reject any or all Proposals and to waive such technical errors as may be deemed best for the interests of the City.

I-2.09 QUANTITIES ESTIMATED ONLY
The estimate of quantities of the various items of work and materials, if set forth in the Proposal Form, is approximate only and is given solely to be used as a uniform basis for the comparison of Proposals. The quantities actually required to complete the Contract work may be less or more than so estimated, and if awarded a Contract for the work specified, the Contractor agrees that he will not make any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work assumed for comparison of Proposals and quantities of work actually performed. The City further reserves the right to vary the quantities in any amount.

I-2.10 COMPARISON OF PROPOSALS
Except jobs bid on a "One Lump Sum" basis, proposals will be compared on the basis of a total computed price arrived at by taking the sum of the estimated quantity of each time and the corresponding unit price of each item, and including any lump sum prices on individual items.

The computed total prices for individual Contract Items and the total computed price for the entire Contract, as entered by the Bidder in the Proposal Form, are for convenience only and are subject to correction in the tabulation and computation of the Proposals.

I-2.11 BASIS OF AWARD
The Contract will be awarded, if at all, to the lowest responsible Bidder or Bidders, as determined by the City and by the terms and conditions of the Contract Documents. Unless all bids are rejected, the award will be made within ninety (90) days after the opening of Proposals. The successful Bidder will be required to possess, or obtain, a valid City Occupational License.

I-2.12 INSURANCE REQUIRED
The successful Bidder and his subcontractors will be required to procure and pay for insurance covering the work in accordance with the provisions of Article 6.02 of the Agreement as indicated on special instructions pages beginning with INS-1.

I-2.13 NO ASSIGNMENT OF BID
No Bidder shall assign his bid or any rights thereunder.

I-2.14 NONDISCRIMINATION IN EMPLOYMENT
Contracts for work under this Proposal will obligate the contractors and subcontractors not to discriminate in employment practices.

Bidders must, if requested, submit with their initial bid a signed statement as to whether they have previously performed work subject to the President's Executive Order Nos. 11246 and 11375.
Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the Contract.

Successful Bidders must, if requested, submit a list of all subcontractors who will perform work on the project and written,

signed statement from authorized agents of the labor pools with which they will or may deal for employees on the work together with supporting information to the effect that said labor pools practices and policies are in conformity with Executive Order No. 11246 and that said labor pools will affirmatively cooperate in or offer no hindrance to the recruitment, employment and equal treatment of employees seeking employment and performing work under the Contract, or a certification as to what efforts have been made to secure such statements when such agents or labor pools have failed or refused to furnish them prior to the award of the Contract.

I-2.15 LABOR STANDARDS
The Bidder's attention is directed to the Contract Provisions of the Labor Standards for federally assisted projects which may be attached to and made a part of the Agreement.

I-2.16 NOTICE TO LABOR UNIONS
If applicable, the successful Bidder will be required to provide Labor Unions and other organizations of workers a completed copy of the form entitled "Notice to Labor Unions or Other Organizations of Workers", and such form may be made a part of the Agreement.

I-2.17 NOTICE TO PROSPECTIVE FEDERALLY-ASSISTED CONSTRUCTION CONTRACTORS
A Certification of Nonsegregated Facilities, as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted to said Secretary prior to the award of a federally-assisted construction and Contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause. The form of certification may be bound herein following the form of Bid Bond.

Contractors receiving federally-assisted construction Contract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractor for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause:

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT
FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES

"A Certification of Nonsegregated Facilities, as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause."

"Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide from the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause."

The United States requires a pre-award conference if a proposed construction contract exceeds one million dollars to determine if the the prospective contractor is in compliance with the Equal Employment Opportunity requirements of Executive Order 11246 of September 24, 1965. In such instances, a meeting may be scheduled at which the prospective contractor must specify what affirmative action he has taken or proposed to take to assure equal employment opportunity which must be approved by the United States before award of the contract will be authorized.

Bidders must be prepared to submit an Equal Employment Opportunity (EEO) plan at a pre-award conference. The plan must include bidding opportunities offered by the Bidder to minority subcontractors.

On October 13, 1971, President Nixon issued Executive Order 11246 emphasizing the government's commitment to the promotion of minority business enterprise. Accordingly, the United States is firmly committed to the utilization of available resources to support this important program. U.S. agencies are most interested in realizing minority participation on the subject. Achieving equal employment opportunity compliance is required through Executive Order 11246. WE cannot emphasize too strongly that minority subcontractors be extended subcontractors bidding opportunities as but one step in your affirmative action policy.

Due to the importance of this contract, U.S. Agencies may conduct an EEO Conference prior to the award of the Contract. It is suggested that the responsive Bidder confirm the minority subcontractors he contacted for bids or quotations in his EEO plan submitted at the conference.

I-2.18 EEO AFFIRMATIVE ACTION REQUIREMENTS
By the submission of a Proposal, each Bidder acknowledges that he understands and will agree to be bound by the equal opportunity requirements of Federal regulations which shall be applicable throughout the performance of work under any contract awarded pursuant to solicitation. Each Bidder agrees that if awarded a contract, he will similarly bind contractually each subcontractor. In policies, each Bidder further understands and agrees that if awarded a contract, he must engage in Affirmative Action directed to promoting and ensuring equal employment opportunity in the work force used under the contract (and he must require contractually the same effort of all subcontractors whose subcontracts exceed $100,000). The Bidder understands and agrees that "Affirmative Action" as used herein shall constitute a good faith effort to achieve and maintain minority employment in each trade in the on-site work force used on the project. * * * * * * * END of SECTION * * * * * * *

CITY OF TAMPA INSURANCE REQUIREMENTS

Prior to commencing any work or services or taking occupancy under that certain written agreement or award (for purposes of this document, Agreement) between the City of Tampa, Florida (City) and Firm/Awardee/Contractor/Consultant/Lessee/non-City party, etc. (for purposes of this document, Firm) to which this document is attached and incorporated as an Exhibit or otherwise, and continuing during the term of said Agreement (or longer if the Agreement and/or this document so requires), Firm shall provide, pay for, and maintain insurance against claims for injuries to persons (including death) or damages to property which may arise from or in connection with the performance of the Agreement (including without limitation occupancy and/or use of certain property/premises) by Firm, its agents, representatives, employees, suppliers, subtenants, or subcontractors (which term includes sub-consultants, as applicable) of any tier subject to the terms and conditions of this document. Firm's maintenance of insurance coverage as required herein is a material element of the Agreement and the failure to maintain or renew coverage or provide evidence of same (defined to include without limitation Firm's affirmative duty to provide from time to time upon City's request certificates of insurance, complete and certified copies of Firm's insurance policies, forms, and endorsements, information on the amount of claims payments or reserves chargeable to the aggregate amount of coverage(s) whether during the term of the Agreement or after as may be requested by the City in response to an issue or potential claim arising out of or related to the Agreement to which Firm's insurance obligations hereunder may apply or possibly help mitigate) may be treated as a material breach of the Agreement. Should at any time Firm not maintain the insurance coverages required, City at its sole option (but without any obligation or waiver of its rights) may (i) terminate the Agreement or (ii) purchase such coverages as City deems necessary to protect itself (charging Firm for same) and at City's option suspending Firm's performance until such coverage is in place. If Firm does not reimburse City for such costs within 10 days after demand, in addition to any other rights, City shall also have the right to offset such costs from amounts due Firm under any agreement with the City. All provisions intended to survive or to be performed subsequent to the expiration or termination of the Agreement shall survive, including without limitation Firm's obligation to maintain or renew coverage, provide evidence of coverage and certified copies of policies, etc. upon City's request and/or in response to a potential claim, litigation, etc.

The City reserves the right from time to time to modify or waive any or all of these insurance requirements (or to reject policies) based on the specific nature of goods/services to be provided, nature of the risk, prior experience, insurer, coverage, financial condition, failure to operate legally, or other special circumstances. If Firm maintains broader coverage and/or higher limits than the minimums shown herein, the City requires and shall be entitled to such broader coverage and/or higher limits maintained by Firm. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City. No representation is made that the minimum insurance requirements are sufficient to cover Firm's interests, liabilities, or obligations. Required insurance shall not limit Firm's liability.

Firm acknowledges and agrees Firm and not the City is the party in the best position to determine applicability (e.g. "IF APPLICABLE"), confirm, and/or verify its insurance coverage. Acceptance by the City, or by any of its employees, representatives, agents, etc. of certificates or other documentation of insurance or policies pursuant to the terms of this document and the Agreement evidencing insurance coverages and limits does not constitute approval or agreement that the insurance requirements have been met or that coverages or policies are in compliance. Furthermore, receipt, acceptance, and/or approval of certificates or other documentation of insurance or policies or copies of policies by the City, or by any of its employees, representatives, agents, etc., which indicate less coverage than required does not constitute a waiver of Firm's obligation to fulfill these insurance requirements.

MINIMUM SCOPE AND LIMIT OF INSURANCE [1]

A. Commercial General Liability (CGL) Insurance on the most current Insurance Services Office (ISO) Form CG 00 01 or its equivalent on an "occurrence" basis (Modified Occurrence or Claims Made forms are not acceptable without prior written consent of the City). Coverage must be provided to cover liability contemplated by the Agreement including without limitation premises and operations, independent contractors, contractual liability, products and completed operations, property damage, bodily, personal and advertising injury, contractual liability, explosion, collapse, underground coverages, personal injury liability, death, employees-as-insureds. Products and completed operations liability coverage maintained for at least 3 years after completion of work. Limits shall not be less than $1M per occurrence and $2M general aggregate for Agreements valued at $2M or less; if valued over $2M, a general aggregate limit that equals or exceeds the Agreement's value. If a general aggregate limit applies; it shall apply separately to the project/location (ISO CG 2S 03 or 2S 04 or equivalent). **(ALWAYS APPLICABLE)**

B. Automobile Liability (AL) Insurance in accordance with Florida law, as to the ownership, maintenance, and use of all owned, non-owned, leased, or hired vehicles. AL insurance shall not be less than: (a) $500,000 combined single limit each occurrence bodily injury and property damage for Agreements valued at $100,000 or less or (b) $1M combined single limit each occurrence bodily injury and property damage for Agreements valued over $100,000. If transportation of hazardous material involved, the MCS-90 endorsement (or equivalent). **(ALWAYS APPLICABLE)**

C. Worker's Compensation (WC) & Employer's Liability Insurance for all employees engaged under the Agreement, Worker's Compensation as required by Florida law. Employer's Liability with minimum limits of (a) $500,000 bodily injury by accident and each accident, bodily injury by disease policy limit, and bodily injury by disease each employee for Agreements valued at $100,000 and under or (b) $1M bodily injury by accident and each accident, bodily injury by disease policy limit, and bodily injury by disease each for all other Agreements. **(ALWAYS APPLICABLE)**

D. Excess (Umbrella) Liability Insurance for Agreements valued at $2M or more, at least $4M per occurrence in excess of underlying limits and no more restrictive than underlying coverage for all work performed by Firm. May also compensate for a deficiency in CGL, AL, or WC. **(ALWAYS APPLICABLE)**

E. Builder's Risk Insurance for property loss exposure associated with construction/renovation/additions to buildings or structures, including materials or fixtures to be incorporated. Must be "All Risk" form with limits of no less than the project's completed value, have no coinsurance penalties, eliminate the "occupancy clause", cover Finn (together with its contractors, subcontractors of every tier, and suppliers), and name City as a Loss Payee. **(IF APPLICABLE)**

F. Installation Floater coverage for property (usually highly valued equipment or materials such as compressors, generators, etc.) during its installation. Coverage must be "All Risk" including installation and transit for no less than 100% of the installed replacement cost value. **(IF APPLICABLE)**

G. Architects & Engineers Liability/ Professional Liability (E&O)/ Contractors Professional Liability (CPrL)/ Medical Malpractice Insurance where Agreement involves Florida-regulated professional services (e.g. architect, engineer, design-builder, CM, accountant, appraiser, investment banker medical professional) at any tier, whether employed or independent, vicarious design liability exposure (e.g. construction means & methods, design supervision), value engineering, constructability assessments/reviews, BIM process, and/or performance specifications. Limits of at least $1M per occurrence and $2M aggregate; deletion of design/ build liability exclusions, as applicable, and maintained for at least 3 years after completion of work/services and City's acceptance of same. **(IF APPLICABLE)**

H. Railroad Protective Liability CRPL) Insurance for construction within 50ft of operated railroad track(s) or where affects any railroad bridge, trestle, tunnel, track(s) roadbed, or over/under pass. Subject to involved rail road's approval prior to commencement of work. **(IF APPLICABLE).**

I. Pollution and/or Asbestos Legal Liability Insurance where Agreement involves asbestos and/or environmental hazards/contamination risks (defined broadly, e.g. lead, mold, bacteria, fuel storage, underground work, cleanup (owned or non-owned sites), pollutant generation/transportation, marine/natural resource damage, contamination claim, restitution, business interruption, mold, fungus, lead-based paint, 3rd party claims/removal, etc.), with limits of at least $1M per occurrence and $2M aggregate, maintained for at least 3 years after Agreement completion. **(IF APPLICABLE)**

J. Cyber Liability Insurance where Agreement involves portals allowing access to obtain, use, or store data; managed dedicated servers; cloud hosting services; software/hardware; programming; and/or other IT services

[1] "M" indicates million(s), for example $1M is $1,000,000

Document updated and approved by Legal and Risk Management as of 08/16/2016

and products are involved. Limits of not less than $2M per occurrence and $2M aggregate. Coverage sufficiently broad to respond to duties and obligations undertaken by Firm, and shall include, but not be limited to, claims involving infringement of intellectual property/copyright, trademark, trade dress, invasion of privacy violations, damage to or destruction of electronic information, information theft, release of confidential and/or private information, alteration of electronic information, extortion, virus transmission, and network security. Coverage, as applicable and with sufficient limits to respond, for breach response costs, regulatory fines and penalties, credit monitoring expenses. **(IF APPLICABLE)**

K. Drone/UAV Liability Insurance where Agreements involves unmanned aerial vehicles/drones. Coverage to include products and completed operations, property damage, bodily injury with limits no less than $1M per occurrence, and $2M aggregate; may be provided by CGL endorsement subject to City's prior written approval. **(IF APPLICABLE)**

L. Longshore & Harbor Workers' Compensation Act/Jones Act for work being conducted near, above, or on "navigable waters" for not less than the above Employer's Liability Insurance limit. **(IF APPLICABLE)**

M. Garagekeeper/Hangerkeeper/Marina Operator Legal Liability Insurance and/or Hull/P&IInsurance where parking lot, valet, dealership, garage services, towing, etc. and/or operation of a hangar, marina, or air plane/ship repairer, providing safe berth, air/watercraft storage/docking (on land/ in water), fueling, tours, charters, ferries, dredges, tugs, mooring, towing, boat/aircraft equipment/repair/alteration/maintenance, etc.; cover- age against liability for damage to vehicles air/watercraft, their machinery in Firm's care, custody, or control both private & commercial. Limits at least equal to greater of $1M, value of max number of vehicles that may be in Firm's custody, or of most costly object in Firm's custody. (IF **APPLICABLE)**

N. Property Insurance and Interruption of Business ClOB) Insurance where premises, building, structure, or improved real property is leased, licensed, or otherwise occupied by Firm. Property Insurance against all risks of loss to any occupant/tenant improvements at full replacement cost with no coinsurance penalty, including fire, water, leak damage, and flood, as applicable, vandalism and malicious mischief endorsements. lOB by which minimum monthly rent will be paid to City for up to 1 year if premises are destroyed, rendered inaccessible or untenantable, including disruption of utilities, water, or telecommunications. **(IF APPLICABLE)**

0. Liquor Liability/Host Liquor Liability where Firm directly or indirectly provides alcoholic beverages, limits of at least $1M per occurrence and $1M aggregate. **(IF APPLICABLE)**

P. Educators Legal Liability Insurance where day care, after school program, recreational activities, etc. limits per G above. **(IF APPLICABLE)**

ADDITIONAL REQUIREMENTS

ACCEPTABILTIY OF INSURERS- Insurance is to be placed with insurers admitted in the State of Florida and who have a current A.M. Best rating of no less than **A-:VII** or, if not rated by A.M. Best, as otherwise approved by the City in advance and in writing.

ADDITONAL INSURED - **City, its elected officials, departments, officers, officials, employees, and volunteers together with, as applicable, any associated lender of the City shall be covered as additional insureds on all liability coverage** (e.g. CGL, AL, and Excess (Umbrella) Liability) as to liability arising out of work or operations performed by or on behalf of Firm including materials, parts, or equipment furnished in connection with such work or operations and automobiles owned, leased, hired, or borrowed by or on behalf of Firm. Coverage can be provided in the form of an endorsement to Firm's insurance (at least as broad as ISO Form CG 20 10 11 85 or **both** CG 10 20, CG 20 26, CG 20 33, or CG 20 38 **and** CG 20 37 if later revisions used).

CANCELLATION/NON-RENEWAL – Each insurance policy shall provide that at least 30 days written notice must be given to City of any cancellation, intent to non-renew, or material reduction in coverage (except aggregate liability limits) and at least 10 days' notice for non-payment of premium. Firm shall also have an independent duty to notify City in like manner, within 5 business days of Firm's receipt from its insurer of any notices of same. **If** any policy's aggregate limit is reduced, Firm shall directly take steps to have it reinstated. Notice and proof of renewal/continued coverage/certifications, etc. shall be sent to the City's notice (or Award contact) address as stated in the Agreement with a copy to the following:

☑ Contract Administration Department, 306 E Jackson St, Tampa, FL 33602 ☐ Purchasing Department, 306 E Jackson Street, Tampa, FL 33602

☐ Other:_____

CERTIFICATE OF INSURANCE (COI) – to be provided to City by insurance carrier prior to Firm beginning any work/services or taking occupancy and, if the insurance expires prior to completion of the work or services or Agreement term (as may be extended), a renewal COI at least 30 days before expiration to the above address(es). COIs shall specifically identify the Agreement and its subject (project, lease, etc.), shall be sufficiently comprehensive to insure City (named as additional insured) and Firm and to certify that coverage extends to subcontractors' acts or omissions, and as to permit the City to determine the required coverages are in place without the responsibility of examining individual policies. **Certificate Holder must be The City of Tampa, Florida.**

CLAIMS MADE – **If** any liability insurance is issued on a claims made form, Firm agrees to maintain such coverage uninterrupted for at least 3 years following completion and acceptance of the work either through purchase of an extended reporting provision or purchase of successive renewals. The Retroactive Date must be shown and be a date not later than the earlier of the Agreement date or the date performance/occupancy began thereunder.

DEDUCTIBLES/ SELF-INSURED RETENTIONS (SIR) – must be disclosed to City and, if over $500,000, approved by the City in advance and in writing, including at City's option being guaranteed, reduced, or eliminated (additionally if a SIR provides a financial guarantee guaranteeing payment of losses and related investigations, claim administration, and defense expenses). Firm shall be fully responsible for any deductible or SIR (without limiting the foregoing a policy with a SIR shall provide or be endorsed to provide that the SIR may be satisfied by either the City or named insured). In the event of loss which would have been covered but for a deductible or SIR, City may withhold from any payment due Firm, under any agreement with the City, an amount equal to same to cover such loss should full recovery not be obtained under the policy.

PERFORMANCE- All insurance policies shall be fully performable in Hillsborough County, Florida (the County), and construed in accordance with Florida law. Further, all insurance policies must expressly state that the insurance company will accept service of process in the County and that the exclusive venue for any action concerning any matter under those policies shall be in the appropriate state court of the County.

PRIMARY POLICIES - Firm's insurance coverage shall be primary insurance coverage at least as broad as ISO CG 20 01 04 13 as to the City, its elected officials, departments, officers, employees, and volunteers. Any insurance or self-insurance maintained by the City, its elected officials, departments, officers, employees, and volunteers shall be excess of the Firm's insurance and shall not contribute with it.

SUBCONTRACTORS/INDEPENDENT ASSOCIATES/CONSULTANTS/SUBTENANTS/SUBLICENSEE - **Firm shall require and verify that all such entities maintain insurance meeting all requirements stated herein with the City as an additional insured** by endorsement (ISO FORM CG 20 38, or broader) or otherwise include such entities within Firm's insurance policies. Upon City's request, Firm shall furnish complete and certified copies of copies of such entities' insurance policies, forms, and endorsements.

SUBCONTRACTOR DEFAULT INSURANCE CONTROLLED INSURANCE PROGRAM, WRAP-UP. Use requires express prior written consent of City Risk Manager.

UNAVAILABILTIY- To the fullest extent permitted by law, if Firm is out of business or otherwise unavailable at the time a claim is presented to City, Firm hereby assigns to the City all of its right, title and interest (but not any liabilities or obligations) under any applicable policies of insurance.

WAIVER OF SUBROGATION – With regard to any policy of insurance that would pay third party losses, Firm hereby grants City a waiver of any right to subrogation which any insurer of Firm may acquire against the City by virtue of the payment of any loss under such insurance. Firm agrees to obtain any endorsement that may be necessary to affect such waiver, but this provision shall apply to such policies regardless.

WAIVER/RELEASE AGREEMENT – Where Firm has a defined group of persons who might be exposed to harm (e.g. participants in an athletic event/program, volunteers) any waiver or release agreement used by Firm whereby such persons (and their parent/guardian as applicable) discharge Firm from claims and liabilities, shall include the City, its elected officials, departments, officers, officials, employees, and volunteers to the same extent as Firm.

Document updated and approved by Legal and Risk Management as of 08/16/2016

Procurement Guidelines To Implement Minority & Small Business Participation

Underutilized WMBE Primes by Industry Category

FORMAL PROCUREMENT

Construction	Construction-Related	Professional	Non-Professional	Goods
Black	Asian	Black	Black	Black
Hispanic	Native Am.	Hispanic	Asian	Hispanic
Native Am.	Woman	Asian	Native Am.	Asian
Woman		Native Am.		Native Am.
		Woman		Woman

Underutilized WMBE Sub-Contractors / Sub-Consultants

SUB WORK

Construction	Construction-Related	Professional	Non-Professional	Goods
Black	Black	Black	Black	Black
	Asian	Hispanic	Asian	Asian
	Native Am.	Asian	Native Am.	Native Am.
	Woman	Native Am.		Woman
		Woman		

Policy

The Guidelines apply to formal procurements and solicitations. WMBE participation will be narrowly-tailored.

Index

- Black = Black/African-American Business Enterprise
- Hispanic = Hispanic Business Enterprise
- Asian = Asian Business Enterprise
- Native Am. = Native American Business Enterprise
- Woman = Woman Business Enterprise (Caucasian)

Industry Categories

Construction is defined as: new construction, renovation, restoration, maintenance of public improvements and underground utilities.
Construction-Related Services are defined as: architecture, professional engineering, landscape architecture, design build, construction management services, or registered surveying and mapping.
Professional Services are defined as: attorney, accountant, medical doctor, veterinarian, miscellaneous consultant, etc.
Non-Professional Services are defined as: lawn maintenance, painting, janitorial, printing, hauling, security guard, etc.
Goods are defined as: all supplies, materials, pipes, equipment, machinery, appliances, and other commodities.

MBD Form-70

Williams Park Activity Center Project
Project #18-C-00025
U-WMBE Availability Contact List
(The Underutilized WMBE Industry Category for Construction Subcontracts is BBE)

#'s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
1	Just Koolin Air Condi	813-444-2594	813-325-2145	Justkoolinac.adm@gmail.com	4210 E 22nd Ave	Tampa	FL	33605	HVAC	455494658	BBE	African American
1	Reggies Affordable H	813-453-5752	941-737-7781	reggie@reggiesac.com	5614 E 29th Ave	Tampa	FL	33619	HVAC	205282459	BBE	African American
2	Reeves Building and	813-238-6197	813-238-6197	ReevesBuilding@verizon.net	P O BOX 11724	TAMPA	FL	33680	Plumbing	593011515	BBE	African American
3	All In One Electric Inc	813-849-6331	813-514-0473	rjones@aioelectric.com	1201 W WATERS AVENU	TAMPA	FL	33604	Electrical	043689273	BBE	African American
3	Brown & Brown Elec	954-938-8986	954-938-9272	Hermine.Brown@brownandbrownelectric.com	1150 SW 30th Avenue	Pompano Be	FL	33069	Electrical	592283934	BBE	African American
3	Fennell Electric, Inc.	407-466-9408	866-514-3716	fennellelectric@yahoo.com	604 Glenfield Ct	Apopka	FL	32712	Electrical	810557754	BBE	African American
3	J & J Multiservices LL	813-662-0888	813-654-7184	mjones@jnjmultiservices.net	3433 Lithia Pinecrest Rd	Valrico	FL	33596	Electrical	593744152	BBE	African American
3	MDH Enterprises, Inc	386-789-2672	866-681-5026	matize@my-es.com	281 East C Street	Orange City	FL	32763	Electrical	650849332	BBE	African American
4	Denson Construction	863-709-1001	863-709-1071	pete@denson-construction.com	4270 HOLDEN ROAD	LAKELAND	FL	33811	Concrete	593571944	BBE	African American
4	Excel 4 LLc	813-433-3486	813-433-3486	excel4llc@yahoo.com	318 N. John Young Park	Kissimmee	FL	34741	Concrete	454149326	BBE	African American
4	Exclusive Contractor	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Concrete	592345574	BBE	African American
5	Denson Construction	863-709-1001	863-709-1071	pete@denson-construction.com	4270 HOLDEN ROAD	LAKELAND	FL	33811	Masonry	593571944	BBE	African American
5	Excel 4 LLc	813-433-3486	813-433-3486	excel4llc@yahoo.com	318 N. John Young Park	Kissimmee	FL	34741	Masonry	454149326	BBE	African American
5	Exclusive Contractor	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Masonry	592345574	BBE	African American
7	Pro-Fit Development	813-514-8783	813-231-8866	Info@Pro-FitDevelopment.com	4007 N Taliaferro Ave.	Tampa	FL	33603	Metal Roofing	432013650	BBE	African American
7	Reeves Building and	813-238-6197	813-238-6197	ReevesBuilding@verizon.net	P O BOX 11724	TAMPA	FL	33680	Metal Roofing	593011515	BBE	African American

African American/Black Business Enterprises (BBE) shall count toward the subcontract goal. Refer to MBD Form 70 - Procurement Guidelines

Williams Park Activity Center Project
Project #18-C-00025
U-WMBE Availability Contact List
(The Underutilized WMBE Industry Category for Construction Subcontracts is BBE)

#'s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
8	Denson Construction	863-709-1001	863-709-1071	pete@denson-construction.com	4270 HOLDEN ROAD	LAKELAND	FL	33811	Cement Plaster	593571944	BBE	African American
8	Excel 4 LLc	813-433-3486	813-433-3486	excel4llc@yahoo.com	318 N. John Young Park	Kissimmee	FL	34741	Cement Plaster	454149326	BBE	African American
8	Exclusive Contractor	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Cement Plaster	592345574	BBE	African American
9	Envision-CS, Inc	813-997-0330	813-464-7677	info@envision-cs.com	5000 Acline Drive East	Tampa	FL	33619	Flooring	264124511	BBE	African American
9	Versa-Tile & Marble,	850-259-4667		shaun.womack@versatilemi.com	732 Overbrook Drive	Fort Walton	FL	32547	Flooring	841634057	BBE	African American
10	Envision-CS, Inc	813-997-0330	813-464-7677	info@envision-cs.com	5000 Acline Drive East	Tampa	FL	33619	Wall Tile	264124511	BBE	African American
10	Versa-Tile & Marble,	850-259-4667		shaun.womack@versatilemi.com	732 Overbrook Drive	Fort Walton	FL	32547	Wall Tile	841634057	BBE	African American
11	CWJ Universal Enter	954-557-2622	954-606-5286	miracleworker25@live.com	16057 Tampa Palms Blv	Tampa	FL	33647	Accoustical Ceiling	471343212	BBE	African American
11	Fresh Start Developn	813-758-5345	813-333-5949	freshstartdevelop@yahoo.com	601 S Falkenburg Rd	Tampa	FL	33619	Accoustical Ceiling	203857845	BBE	African American
11	HZ Construction, Inc.	407-375-0716	407-217-6053	ahill@hzflorida.com	220 North Kirkman Roa	Orlando	FL	32811	Accoustical Ceiling	542130493	BBE	African American
11	JUST BUILD IT, LLC	813-447-2307	813-388-6638	justbuildit2@gmail.com	10910 Observatory Way	Tampa	FL	33647	Accoustical Ceiling	900248562	BBE	African American
11	One Day Came, Inc.	727-320-3260	866-594-6780	onedaycame@gmail.com	100 S. Ashley Drive	Tampa	FL	33607	Accoustical Ceiling	201821973	BBE	African American
11	Phinazee Constructio	813-381-3317	813-381-3317	pccsi@phinazeeconsulting.com	1812 S Valrico Rd	Valrico	FL	33596	Accoustical Ceiling	264806031	BBE	African American
11	Pro-Fit Development	813-514-8783	813-231-8866	Info@Pro-FitDevelopment.com	4007 N Taliaferro Ave.	Tampa	FL	33603	Accoustical Ceiling	432013650	BBE	African American
11	Provisions Construct	407-985-2442	407-985-2440	marrington@provisionscdi.com	3401 Lake Breeze Drive	Orlando	FL	32808	Accoustical Ceiling	462802435	BBE	African American
11	Reeves Building and	813-238-6197	813-238-6197	ReevesBuilding@verizon.net	P O BOX 11724	TAMPA	FL	33680	Accoustical Ceiling	593011515	BBE	African American
11	Sanders Construction	727-565-9631		sandersreco4@yahoo.com	2585 Gomaz Way S.	St. Petersbur	FL	33712	Accoustical Ceiling	270047770	BBE	African American
12	Fletcher Painting, Inc	407-290-1188	407-290-9309	fletcherjunior@cs.com	4355 Fairmont Street Su	Orlando	FL	32808	Painting	593587717	BBE	African American
12	Obi Global, LLC	813-400-8562		obigloballlc@gmail.com	11507 Dr. MLK Blvd	Mango	FL	33550	Painting	471881723	BBE	African American

African American/Black Business Enterprises (BBE) shall count toward the subcontract goal. Refer to MBD Form 70 - Procurement Guidelines

Instructions Regarding Use of the WMBE/SLBE Availability Contact List

Bidders must solicit a subcontracting bid from ALL of the firms listed on the WMBE/SLBEs list provided within the Specifications, and provide documentation of emails, faxes, phone calls, letters, or other communication with the firms as a first step in demonstrating Good-Faith Efforts to achieve the goal set for WMBE/SLBE participation on this contract.

The list is formatted to facilitate e-mailing of a solicitation to the listed firms by copying and pasting the email addresses.

The WMBE/SLBE participation Goal is based upon the availability of the certified firms indicated on the contact list. The Goal and Requirements of the City's Equal Business Opportunity Program are stated in the Bid/Contract Document, Specifications.

SOLICITATION FOR SUBCONTRACTOR QUOTES

From:
OUR COMPANY NAME:
TELEPHONE NUMBER:
ADDRESS:
FAX NUMBER:
E-MAIL ADDRESS:

To Subcontractor:

Our firm is in the process of preparing a bid for a **City of Tampa Contract**. Please accept this notice as our request for quotes for the scope of work identified below. Please respond to this request by filling in the information below and returning via e-mail or fax to the address or number provided. Please contact us if you need any assistance in obtaining bonding, lines of credit, insurance, assistance in obtaining necessary equipment, supplies, materials, participation in a City-sponsored mentor-protégé program, or if you have any questions.

Plans and Specs for this project are posted at:
http://www.tampagov.net/contract-administration/programs/construction-project-bidding

CONTRACT NO.:
CONTRACT NAME:
CITY'S BID OPENING DATE:
DEADLINE FOR YOUR SUBCONTRACTOR BID OR RESPONSE:
SPECIFIC SCOPE OF WORK:

Please complete and submit with your subcontract bid or response:
YOUR FIRM'S NAME:
MAILING ADDRESS:
CITY:
STATE:
ZIP:
FAX NUMBER:
E-MAIL ADDRESS:
__Yes, my company is interested in quoting this project for the following items of work:

__No, my company will not quote this project for the following reason(s):

(Sample Suggested Sub Solicitation 3-9-9 Tampa MBDO)

PROPOSAL

To the Mayor and City Council of the City of Tampa, Florida:

Legal Name of Bidder: _____

Bidder's Fictitious Name, *if applicable*: _____

Bidder is a/an: ☐ Individual ☐ Partnership* ☐ Joint Venture* ☐ LLC ☐ Corp. ☐ Other:

Bidder is organized under the laws of: ☐ State of Florida ☐ Other:

Bidder Mailing Address: _____

Bidder's Federal Employee Identification No. (FEI/EIN): _____

Bidder's License No.:_____ Bidder's FDOS (SUNBIZ) Doc. No.: _____
(See Ch. 489. FS; use entity's, individual's only if applicable)

Bidder Contact Name**: _____ Email:_____ Phone: (_____) _____

Bidder's own initial application for employment has criminal history screening practices similar in nature to the practices contained in Chapter 12, Article VI, City of Tampa Code *(Responses, whether "Yes" or "No", are for informational purposes only and will not be used as a basis of award or denial, nor as a basis for any protest)*: ☐Yes ☐No

The below named person, appearing before the undersigned authority and after being first duly sworn, for him/herself and on behalf of the entity submitting this Proposal does hereby affirm and declare as follows:

(1) He/She is of lawful age and is authorized to act on behalf of Bidder (the individual, partnership, corporation, entity, etc. submitting this Proposal) and that all statements made in this document are true and correct to the best of my knowledge.

(2) If Bidder is operating under a fictitious name, Bidder has currently complied with any and all laws and procedures governing the operation of businesses under fictitious names in the State of Florida

(3) No person or entity other than Bidder has any interest in this Proposal or in the Contract proposed to be entered into.

(4) This Proposal is made without any understanding, agreement, or connection with any person or entity making Proposal for the same purposes, and is in all respects fair and without collusion or fraud.

(5) Bidder is not in arrears to the City of Tampa, upon debt or contract, and is not a defaulter, as surety or otherwise, upon any obligation to the City of Tampa.

(6) That no officer or employee or person whose salary is payable in whole or in part from the City Treasury is, shall be or become interested, directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise, in this Proposal, or in the performance of the Contract, or in the supplies, materials, or equipment and work or labor to which it relates, or in any portion of the profits thereof.

(7) Bidder has carefully examined and fully understands the Solicitation and has full knowledge of the scope, nature, and quality of the work to be performed; furthermore, Bidder has carefully examined the site of the work and that, from his own investigations, he has satisfied himself as to the nature and location of the work, the character, quality, and quantity of materials and the kinds and extent of equipment and other facilities needed for the performance of the work, the general and local conditions and all difficulties to be encountered, and all other items which may, in any way, affect the work or its performance.

(8) Bidder (including its principals) ☐ has | ☐ has NOT been debarred or suspended from contracting with a public entity.

(9) Bidder ☐ has | ☐ has NOT implemented a drug-free workplace program that meets the requirements of Section 287.087, Florida Statutes.

(10) Bidder has carefully examined and fully understands all the component parts of the Contract Documents and agrees Bidder will execute the Contract, provide the required Public Construction Bond, and will fully perform the work in strict accordance with the terms of the Contract and Contract Documents therein referred to for the following prices, to wit:

* If a Partnership or Joint Venture, attach Partnership or Joint Venture Agreement.
** Someone the City may contact with questions/correspondence regarding this Solicitation and/or permits.

Contract Item No.	Estimated Quantity	Description and Price in Words	Computed Total Price for Item in Figures
BASE BID	LS	The work includes the furnishing of all labor, equipment, and material for the demolition of existing storage building, pavilion and covered patio to prepare for construction of a 1200 square foot addition to existing activity center with masonry exterior walls, metal roof on wood trusses, standard commercial finishes, and related mechanical, electrical and plumbing (MEP) work. Work also includes renovation of existing exterior restroom building and new concrete patio and minor sitework along with all associated work required for a complete project, as shown and indicated on the Drawings and in the Specifications, any allowances that may be listed in Section 01020, and with all associated work required for a complete project in accordance with the Contract Documents. _____ _____ dollars and _____ cents (BASE BID) LS	$_____

Computed Total Price in Words: _____

_____ dollars and _____ cents.

Computed Total Price in Figures: $_____

Bidder acknowledges that the following addenda have been received and that the changes covered by the addendum(s) have been taken into account in this proposal: #1 ____ #2 ____ #3 ____ #4 ____ #5 ____ #6 ____ #7 ____ #8 ____.

Bidder acknowledges the requirements of the City of Tampa's Equal Business Opportunity Program.

Bidder acknowledges that it is aware of Florida's Trench Safety Act (Sections 553.60-553.64, Florida Statutes), and agrees that Bidder together with any involved subcontractors will comply with all applicable trench safety standards. Bidder further acknowledges that included in the various items of this Proposal and the total bid price (as applicable) are costs for complying with the Trench Safety Act. Bidder further identifies the costs and methods summarized below:

	Trench Safety Measure (Description)	Unit of Measure (LF, SY)	Unit Quantity	Unit Cost	Extended Cost
A.					
B.					
C.					

Total Cost: $ _____

Accompanying this Proposal is a certified check, cashier's check or Tampa Bid Bond (form included herein must be used) for at least five percent (5%) of the total amount of the Proposal which check shall become the property of the City, or which bond shall become forthwith due and payable to the City, if this Proposal shall be accepted by the City and the Bidder shall fail to enter into a legally binding contract with and to furnish the required Public Construction Bond to the City within twenty (20) days after the date of its receipt of written Notice of Award by the City so to do.

FAILURE TO COMPLETE THE ABOVE MAY RESULT IN THE PROPOSAL BEING DECLARED NON-RESPONSIVE.

[SEAL]

Name of Bidder: _____

Authorized Signature: _____

Signer's Printed Name: _____

Signer's Title: _____

STATE OF _____

COUNTY OF _____

For an entity: The forgoing instrument was sworn (or affirmed) before me this ____ day of _____, 20____ by _____ as _____ of _____, a/n □ Partnership □ Joint Venture □ LLC □ Corp □ Other:_____, on behalf of such entity. Such individual is □ personally known to me or □ produced a/n _____ state driver's license as identification.

For an individual: The forgoing instrument was sworn (or affirmed) before me this ____ day of _____, 20____ by _____, who is □ personally known to me or □ produced a/n _____ state driver's license as identification.

[NOTARY SEAL]

_____

Notary Public, State of _____

Notary Printed Name: _____

Commission No.: _____

My Commission Expires: _____

Good Faith Effort Compliance Plan Guidelines

for Women/Minority Business Enterprise\Small Local Business Enterprise Participation
City of Tampa - Equal Business Opportunity Program
(MBD Form 50 – detailed instructions on page 2 of 2)

Contract Name_____ Bid Date _____

Bidder/Proposer_____

Signature _____ Date _____

Name _____ Title _____

The Compliance Plan with attachments is a true account of Good Faith Efforts (GFE) made to achieve the participation goals as specified for Women/Minority Business Enterprises/Small Local Business Enterprises (WMBE/SLBE) on the referenced contract:

□ The WMBE/SLBE participation Goal is Met or Exceeded. See DMI Forms 10 and 20 which accurately report all subcontractors solicited and all subcontractors to-be-utilized.

□ The WMBE/SLBE participation Goal is Not Achieved. The following list is an overview of the baseline GFE action steps already performed. Furthermore, it is understood that these GFE requirements are weighted in the compliance evaluation based on the veracity and demonstrable degree of documentation provided with the bid/proposal:

(Check applicable boxes below. Must enclose supporting documents accordingly with remarks)

(1) Solicited through reasonable and available means the interest of WMBE/SLBEs that have the capability to perform the work of the contract. The Bidder or Proposer must solicit this interest within sufficient time to allow the WMBE/SLBEs to respond. The Bidder or Proposer must take appropriate steps to follow up initial solicitations with interested WMBE/SLBEs. □ See DMI report forms for subcontractors solicited. □ See enclosed supplemental data on solicitation efforts. □ Qualifying Remarks:

(2) Provided interested WMBE/SLBEs with adequate, specific scope information about the plans, specifications, and requirements of the contract, including addenda, in a timely manner to assist them in responding to the requested-scope identified by bidder/proposer for the solicitation. □ See enclosed actual solicitations used. □ Qualifying Remarks:

(3) Negotiated in good faith with interested WMBE/SLBEs that have submitted bids (e.g. adjusted quantities or scale). Documentation of negotiation must include the names, addresses, and telephone numbers of WMBE/SLBEs that were solicited; the date of each such solicitation; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why agreements could not be reached with WMBE/SLBEs to perform the work. Additional costs involved in soliciting and using subcontractors is not a sufficient reason for a bidder/proposer's failure to meet goals or achieve participation, as long as such costs are reasonable. Bidders are not required to accept excessive quotes in order to meet the goal.
□ DMI Utilized Forms for sub-(contractor/consultant) reflect genuine negotiations □ This project is an RFQ/RFP in nature and negotiations are limited to clarifications of scope/specifications and qualifications. □ See enclosed documentation. □ Qualifying Remarks:

(4) Not rejecting WMBE/SLBEs as being unqualified without justification based on a thorough investigation of their capabilities. The WMBE/SLBEs standing within its industry, membership in specific groups, organizations / associations and political or social affiliations are not legitimate causes for rejecting or not soliciting bids to meet the goals.
□ Not applicable. □ See attached justification for rejection of a subcontractor's bid or proposal. □ Qualifying Remarks:

(5) Made scope(s) of work available to WMBE/SLBE subcontractors and suppliers; and, segmented portions of the work or material consistent with the available WMBE/SLBE subcontractors and suppliers, so as to facilitate meeting the goal. □ Sub-Contractors were allowed to bid on their own choice of work or trade without restriction to a pre-determined portion. □ See enclosed comments. □ Qualifying Remarks:

(6) Made good faith efforts, despite the ability or desire of Bidder/Proposer to perform the work of a contract with its own forces/organization. A Bidder/Proposer who desires to self-perform the work of a contract must demonstrate good faith efforts if the goal has not been met. □ Sub-Contractors were not prohibited from submitting bids/proposals and were solicited on work typically self-performed by the prime. □ Qualifying Remarks:

(7) Segmented portions of the work to be performed by WMBE/SLBEs in order to increase the likelihood that the goals will be met. This includes, where appropriate, breaking out contract work items into economically feasible units (quantities/scale) to facilitate WMBE/SLBE participation, even when the Bidder/Proposer might otherwise prefer to perform these work items with its own forces. □ Sub-Contractors were allowed to bid on their own choice of work or trade without restriction to a pre-determined portion. □ Sub-Contractors were not prohibited from submitting bids/proposals and were solicited on work typically self-performed by the prime. □ See enclosed comments. □ Qualifying Remarks:

(8) Made efforts to assist interested WMBE/SLBEs in obtaining bonding, lines of credit, or insurance as required by the city or contractor.
□ See enclosed documentation on initiatives undertaken and methods to accomplish. □ Qualifying Remarks:

(9) Made efforts to assist interested WMBE/SLBEs in obtaining necessary equipment, supplies, materials, or related assistance or services, including participation in an acceptable mentor-protégé program. □ See enclosed documentation of initiatives and/or agreements. □ Qualifying Remarks:

(10) Effectively used the services of the City and other organizations that provide assistance in the recruitment and placement of WMBE/SLBEs.
□ See enclosed documentation. □ The following services were used:

Note: Provide any unsolicited information that will support the Bid/RFP Compliance Evaluation. □ Named Documents Are:

Participation Plan: Guidance for Complying with Good Faith Efforts Outreach

1. All firms on the WMBE/SLBE Goal Setting List must be solicited and documentation provided for email, fax, letters, phone calls, and other methods of outreach/communication with the listed firms. The DMI Solicited and DMI-Utilized forms must be completed for all firms solicited or utilized. Other opportunities for subcontracting may be explored by consulting the City of Tampa MBD Office and/or researching the on-line Diversity Management Business System Directory for Tampa certified WMBE/SLBE firms.

2. Solicitation of WMBE/SLBEs, via written or electronic notification, should provide specific information on the services needed, where plans can be reviewed and assistance offered in obtaining these, if required. Solicitations should be sent a minimum of a week (i.e. 5 business days or more) before the bid/proposal date. Actual copies of the bidder's solicitation containing their scope specific instructions should be provided.

3. With any quotes received, a follow-up should be made when needed to confirm detail scope of work. For any WMBE/SLBE low quotes rejected, an explanation Shall be provided detailing negotiation efforts.

4. If a low bid WMBE/SLBE is rejected or deemed unqualified the contractor must provide an explanation and supporting documentation for this decision.

5. Prime Shall break down portions of work into economical feasible opportunities for subcontracting. The WMBE/SLBE directory may be useful in identifying additional subcontracting opportunities and firms not listed in the "WMBE/SLBE Goal Setting Firms List."

6. Contractor Shall not preclude WMBE/SLBEs from bidding on any part of work, even if the Contractor may desire to self-perform the work.

7. Contractor Shall avoid relying solely on subcontracting out work-scope where WMBE/SLBE availability is not sufficient to attain the pre-determined subcontract goal set for the Bid or when targeted sub-consultant participation is stated within the RFP/RFQ.

8. In its solicitations, the Bidder should offer assistance to WMBE/SLBEs in obtaining bonding, insurance, et cetera, if required of subcontractors by the City or Prime Contractor.

9. In its solicitation, the Bidder should offer assistance in obtaining equipment for a specific job to WMBE/SLBEs, if needed.

10. Contractor should use the services offered by such agencies as the City of Tampa Minority and Small Business Development Office, Hillsborough County Entrepreneur Collaborative Center, Hillsborough County Economic Development Department's MBE/SBE Program and the NAACP Empowerment Center to name a few for the recruitment and placement of WMBEs/SLBEs.

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive

Page 1 of 4 – DMI Solicited/Utilized Schedules
City of Tampa – Schedule of All Solicited Sub-(Contractors/Consultants/Suppliers)
(FORM MBD-10)

Contract No.:_____ Contract Name:_____
Company Name:_____ Address:_____
Federal ID:_____ Phone:_____ Fax:_____ Email:_____

Check applicable box(es). Detailed Instructions for completing this form are on page 2 of 4.
[ ] No Firms were contacted or solicited for this contract.
[ ] No Firms were contacted because:_____
[ ] See attached list of additional Firms solicited and all supplemental information (List must comply to this form)
Note: Form MBD-10 must list ALL subcontractors solicited including Non-minority/small businesses

NIGP Code Categories: Buildings = 909, General = 912, Heavy = 913, Trades = 914, Architects = 906, Engineers & Surveyors = 925, Supplier = 912-77

S = SLBE W=WMBE O = Neither Federal ID	Company Name Address Phone, Fax, Email	Type of Ownership (F=Female M=Male) BF BM = African Am. HF HM = Hispanic AF AM = Asian Am. NF NM = Native Am. CF CM = Caucasian	Trade or Services NIGP Code (listed above)	Contact Method L=Letter F=Fax E=Email P=Phone	Quote or Response Received Y/N

It is hereby certified that the information provided is an accurate and true account of contacts and solicitations for sub–contracting opportunities on this contract.

Signed:_____ Name/Title:_____ Date:_____

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive
Forms must be included with Bid / Proposal

Instructions for completing The Sub-(Contractors/Consultants/ Suppliers) Solicited Form (Form MBD-10)

This form must be submitted with all bids or proposals. **All** subcontractors (regardless of ownership or size) solicited and subcontractors from whom unsolicited quotations were received must be included on this form. The instructions that follow correspond to the headings on the form required to be completed. Note: Ability or desire to self-perform all work shall not exempt the prime from Good Faith Efforts to achieve participation.

- **Contract No.** This is the number assigned by the City of Tampa for the bid or proposal.
- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business and/or doing business as (dba) if applicable.
- **Address.** The physical address of your business.
- **Federal ID.** FIN. A number assigned to your business for tax reporting purposes.
- **Phone.** Telephone number to contact business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **No Firms were contacted or solicited for this contract.** Checking the box indicates that a pre-determined Subcontract Goal or Participation Plan Requirement was not set by the City resulting in your business not using subcontractors and will self-perform all work. If during the performance of the contract you employ subcontractors, the City must pre-approve subcontractors. Use of the "Sub-(Contractors/Consultants/Suppliers) Payments" form (MBD Form-30) must be submitted with every pay application and invoice. Note: Certified SLBE or WMBE firms bidding as Primes are not exempt from outreach and solicitation of subcontractors.
- **No Firms were contacted because.** Provide brief explanation why no firms were contacted or solicited.
- **See attached documents.** Check box, if after you have completed the DMI Form in its entirety, you need more space to list additional firms and/or if you have supplemental information/documentation relating to the form. All DMI data not submitted on the MBD Form-10 must be in the same format and have all requested data from MBD Form-10 included.

The following instructions are for information of any and all subcontractors solicited.

- **"S" = SLBE, "W" = WMBE.** Enter "**S**" for firms Certified by the City as Small Local Business Enterprises and/or "**W**" for firms Certified by the City as either Women/Minority Business Enterprise; **"O" = Non-certified others**.
- **Federal ID.** FIN. A number assigned to a business for tax reporting purposes. This information is critical in proper identification and payment of the contractor/subcontractor.
- **Company Name, Address, Phone & Fax**. Provide company information for verification of payments.
- **Type of Ownership.** Indicate the Ethnicity and Gender of the owner of the subcontracting business.
- **Trade, Services, or Materials** indicate the trade, service, or materials provided by the subcontractor. NIGP codes aka "National Institute of Governmental Purchasing" are listed at top section of document.
- **Contact Method L=letter, F=fax, E=Email, P=Phone.** Indicate with letter the method(s) of soliciting for bid.
- **Quote or Resp. (response) Rec'd (received) Y/N**. Indicate "Y" Yes if you received a quotation or if you received a response to your solicitation. Indicate "N" No if you received no response to your solicitation from the subcontractor. Must keep records: log, ledger, documentation, etc. that can validate/verify.

If additional information is required or you have questions, please contact the Equal Business Opportunity Program - Minority and Small Business Development Office at (813) 274-5522.

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive

Page 3 of 4 – DMI Solicited/Utilized Schedules
City of Tampa – Schedule of All To-Be-Utilized Sub-(Contractors/Consultants/Suppliers)
(FORM MBD-20)

Contract No.:_____ Contract Name:_____
Company Name:_____ Address:_____
Federal ID:_____ Phone:_____ Fax:_____ Email:_____

Check applicable box(es). Detailed Instructions for completing this form are on page 4 of 4.
[ ] See attached list of additional Firms Utilized and all supplemental information (List must comply to this form)
Note: Form MBD-20 must list ALL subcontractors To-Be-Utilized including Non-minority/small businesses
[ ] No Subcontracting/consulting (of any kind) will be performed on this contract.
[ ] No Firms are listed to be utilized because:_____

NIGP Code General Categories: Buildings = 909, General = 912, Heavy = 913, Trades = 914, Architects = 906, Engineers & Surveyors = 925, Supplier = 912-77

Enter "S" for firms Certified as Small Local Business Enterprises, "W" for firms Certified as Women/Minority Business Enterprise, "O" for Other Non-Certified

S = SLBE W=WMBE O =Neither Federal ID	Company Name Address Phone, Fax, Email	Type of Ownership (F=Female M=Male) BF BM = African Am. HF HM = Hispanic Am. AF AM = Asian Am. NF NM = Native Am. CF CM = Caucasian	Trade, Services, or Materials NIGP Code Listed above	$ Amount of Quote. Letter of Intent (LOI) if available	Percent of Scope or Contract %

Total ALL Subcontract / Supplier Utilization $_____
Total SLBE Utilization $ _____
Total WMBE Utilization $ _____
Percent SLBE Utilization of Total Bid/Proposal Amt. _____% Percent WMBE Utilization of Total Bid/Proposal Amt. _____%

It is hereby certified that the following information is a true and accurate account of utilization for sub-contracting opportunities on this Contract.

Signed:_____ Name/Title:_____ Date:_____

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive
Forms must be included with Bid / Proposal

Instructions for completing The Sub-(Contractors/Consultants/ Suppliers) to be Utilized Form

(Form MBD-20)

This form must be submitted with all bids or proposals. All subcontractors (regardless of ownership or size) projected to be utilized must be included on this form. Note: Ability or desire to self-perform all work shall not exempt the prime from Good Faith Efforts to achieve participation.

Contract No. This is the number assigned by the City of Tampa for the bid or proposal.

- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business and/or doing business as (dba) if applicable.
- **Address.** The physical address of your business.
- **Federal ID.** FIN. A number assigned to your business for tax reporting purposes.
- **Phone.** Telephone number to contact business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **No Subcontracting/consulting (of any kind) will be performed on this contract.** Checking box indicates your business will not use subcontractors when no Subcontract Goal or Participation Plan Requirement was set by the City, but will self-perform all work. When subcontractors are utilized during the performance of the contract, the "Sub-(Contractors/Consultants/Suppliers) Payments" form (MBD Form-30) must be submitted with every pay application and invoice. Note: certified SLBE or WMBE firms bidding as Primes are not exempt from outreach and solicitation of subcontractors, including completion and submitting Form-10 and Form-20.
- **No Firms listed To-Be-Utilized.** Check box; provide brief explanation why no firms were retained when a goal or participation plan requirement was set on the contract. Note: mandatory compliance with Good Faith Effort outreach (GFECP) requirements applies (MBD Form-50) and supporting documentation must accompany the bid.
- **See attached documents.** Check box, if after completing the DMI Form in its entirety, you need more space to list additional firms and/or if you have supplemental information/documentation relating to the scope/value/percent utilization of subcontractors. Reproduce copies of MBD-20 and attach. All data not submitted on duplicate forms must be in the same format and content as specified in these instructions.

The following instructions are for information of Any and All subcontractors To Be Utilized.

- **Federal ID.** FIN. A number assigned to a business for tax reporting purposes. This information is critical in proper identification of the subcontractor.
- **"S" = SLBE, "W" = WMBE.** Enter "**S**" for firms Certified by the City as Small Local Business Enterprises and/or "**W**" for firms Certified by the City as Women/Minority Business Enterprise; **"O" = Non-certified others**.
- **Company Name, Address, Phone & Fax**. Provide company information for verification of payments.
- **Type of Ownership.** Indicate the Ethnicity and Gender of the owner of the subcontracting business.
- **Trade, Services, or Materials (NIGP code if Known)** Indicate the trade, service, or material provided by the subcontractor. Abbreviated list of NIGP is available at http:/www.tampagov.net/mbd "Information Resources".
- **Amount of Quote, Letters of Intent** (required for both SLBEs and WMBEs).
- **Percent of Work/Contract.** Indicate the percent of the total contract price the subcontract(s) represent. For CCNA only (i.e. Consultant A/E Services) you must indicate subcontracts as percent of total scope/contract.
- **Total Subcontract/Supplier Utilization.** – Provide total dollar amount of all subcontractors/suppliers projected to be used for the contract. (Dollar amounts may be optional in CCNA depending on solicitation format).
- **Total SLBE Utilization.** Provide total dollar amount for all projected SLBE subcontractors/Suppliers used for this contract. (Dollar amounts may be optional in CCNA proposals depending on the solicitation format).
- **Total WMBE Utilization.** Provide total dollar amount for all projected WMBE subcontractors/Suppliers used for this contract. (Dollar amounts may be optional in CCNA proposals depending on the solicitation format).
- **Percent SLBE Utilization.** Total amount allocated to SLBEs divided by the total bid/proposal amount.
- **Percent WMBE Utilization.** Total amount allocated to WMBEs divided by the total bid/proposal amount.

If additional information is required or you have questions, please contact the Equal Business Opportunity Program - Minority and Small Business Development Office at (813) 274-5522.

TAMPA BID BOND
Contract 18-C-00025; Williams Park Activity Center Expansion

KNOW ALL MEN BY THESE PRESENTS, that we, _____

_____

(hereinafter called the Principal) and _____

(hereinafter called the Surety) a Corporation chartered and existing under the laws of the State of _____, with its principal offices in the City of _____, and authorized to do business in the State of Florida, are held and firmly bound unto the City of Tampa, a Municipal Corporation of Hillsborough County, Florida, in the full and just sum of 5% of the amount of the (Bid) (Proposal) good and lawful money of the United States of America, to be paid upon demand of the City of Tampa, Florida, to which payment will and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally and firmly these presents.

WHEREAS, the Principal is about to submit, or has submitted to the City of Tampa, Florida, a Proposal for the construction of certain facilities for the City designated Contract 18-C-00025, Williams Park Activity Center Expansion.

WHEREAS, the Principal desires to file this Bond in accordance with law, in lieu of a certified Bidder's check otherwise required to accompany this Proposal.

NOW, THEREFORE: The conditions of this obligation are such that if the Proposal be accepted, the Principal shall, within twenty (20) days after the date of receipt of written Notice of Award, execute a contract in accordance with the Proposal and upon the terms, conditions and price set forth therein, in the form and manner required by the City of Tampa, Florida and execute a sufficient and satisfactory Public Construction Bond payable to the City of Tampa, Florida in an amount of one hundred percent (100%) of the total contract price, in form and with security satisfactory to said City, then this Bid Bond obligation is to be void; otherwise to be and remain in full force and virtue in law, and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the aforesaid City, upon demand, the amount thereof, in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

IN TESTIMONY THEREOF, the Principal and Surety have caused these presents to be duly signed and sealed this _____ day of _____, 20___.

Principal _____

BY _____

TITLE _____

BY _____

TITLE _____

(SEAL)

_____
Producing Agent

_____
Producing Agent's Address

_____
Name of Agency

_____
The addition of such phrases as "not to exceed" or like import shall render the (Bid) (Proposal)non-responsive.

AGREEMENT

For furnishing all labor, materials and equipment, together with all work incidental thereto, necessary and required for the performance of the work for the construction of Contract 18-C-00025 in accordance with your Proposal dated _____, amounting to a total of $_____ as completed in accordance with subsections I-2.09 and I-2.10 of the Instruction to Bidders.

This AGREEMENT, made and entered into in triplicate, between the City of Tampa, Florida, hereinafter called the City, and _____ hereinafter called the Contractor, as of the _____ day of _____, 20___ when the City Council of the City of Tampa, Florida adopted a Resolution authorizing, among other things, the Mayor's execution of this Agreement.

WITNESSETH that, in consideration of the mutual stipulations, agreements, and covenants herein contained, the parties hereto have agreed and hereby agree with each other, the Party of the First Part for itself, its successors and assigns, and the Party of the Second Part for itself, or himself, or themselves, and its successors and assigns, or his or their executors, administrators and assigns, as follows:

Contract 18-C-00025; Williams Park Activity Center Expansion, shall include, but not be limited to, demolition of existing storage building, pavilion and covered patio to prepare for construction of a 1200 square foot addition to existing activity center with masonry exterior walls, metal roof on wood trusses, standard commercial finishes, and related mechanical, electrical and plumbing (MEP) work. Work also includes renovation of existing exterior restroom building and new concrete patio and minor sitework along with all associated work required for a complete project, as shown and indicated on the Drawings and in the Specifications with all associated work required for a complete project in accordance with the Contract Documents.

Contract Documents referred to in Article 1.01 of this Agreement also includes this volume, applicable standard drawings, the plans and any provisions referred to whether actually attached or not.

TAMPA AGREEMENT

SECTION 1
GENERAL

ARTICLE 1.01 THE CONTRACT

Except for titles, subtitles, headings, running headlines, and tables of contents (all of which are printed herein merely for convenience), the following, except for such portions thereof as may be specifically excluded, constitute the Contract:

The Notice to Bidders;
The Instructions to Bidders, including Special Instructions and General Instructions;
The Proposal;
The Bid Bond;
The Certification of Nonsegregated Facilities;
The Notice of Award;
The Agreement;
The Performance Bond;
The Notice To Proceed;
The Specifications, including the General Provisions, the Workmanship and Materials, the Specific Provisions or the Contract Items
The Plans;
All Supplementary Drawings Issued after award of the Contract;
All Addenda issued by the City prior to the receipt of proposals;
All provisions required by law to be inserted in this Contract, whether actually inserted or not.

ARTICLE 1.02 DEFINITIONS

The following words and terms, or pronouns used in their stead, shall, wherever they appear in this Contract, be construed as follows, unless different meaning is clear from the context:

(a)"City" shall mean the City of Tampa, Florida, represented by its Mayor and City Council, Party of the First Part, or such other City official as shall be duly empowered to act for the City on matters relating to this Contract.

(b)"Contractor" shall mean the Party of the Second Part hereto, whether corporation, firm or individual, or any combination thereof, and its, their, or his successors, personal representatives, executors, administrators, and assigns, and any person, firm or corporation who or which shall at any time be substituted in the place of the Party of the Second Part under this Contract.

(c)"Engineer" shall mean the Director of the Department or his duly authorized representative.

(d)"Consultant" shall mean the engineering or architectural firm or individual employed by the City to consult with and advise the City in the construction of the project.

(e)"Surety" shall mean any person, firm or corporation that has executed as Surety the Contractor's Performance Bond securing the performance of this Contact.

(f)"The Work" shall mean everything expressly or implied required to be furnished and done by the Contractor under the Contract, and shall include both Contract Work and Extra Work.

(g)"Contract Work" shall mean everything expressly or implied required to be furnished and done by the Contractor by any one or more of the Contract parts referred to in Article 1.01 hereof, except Extra Work, as hereinafter defined; it being understood that, in case of any inconsistency in or between any part or parts of this Contract, the Engineer shall determine which shall prevail.

(h)"Contract" or "Contract Documents" shall mean each of the various part of the Contract referred to in Article 1.01 hereof, both as a whole and severally.

(i)"Extra Work" shall mean work other than that required either expressly or implied by the contract in its present form.

(j)"Plans" shall mean only those drawings specifically referred to as such in these documents, or in any Addendum. Drawings issued after the execution of the Contract to explain further, or to illustrate, or to show changes in the work, will be known as "Supplementary Drawings" and shall be binding upon the Contractor with the same force as the Plans.

(k)"Specifications" shall mean all of the directions, requirements, and standards of performance applying to the work, as hereinafter detailed and designated as such, or which may be issued in an addendum.

(l)"Addendum or Addenda" shall mean the additional contract provisions issued in writing prior to the receipt of bids.

(m)"Notice" shall mean written notice. Notice shall be served upon the Contractor, either personally or by leaving the said notice at his residence or with any employee found on the work, or addressed to the Contractor at the residence or place of business given in his proposal and deposited in a postpaid wrapper in any post office box regularly maintained by the United States Post Office.

(n)"Project" shall mean the entire improvement package or related work. The "project" may consist of several different, but related, contracts.

(o)"Site" shall mean, and be limited to, the area upon or in which the Contractor's operations are carried on and such other appropriate areas as may be designed as such by the Engineer.

(p)"Subcontractor" shall mean any person, firm, or corporation, other than employees of the Contractor, who or which contracts with the Contractor to furnish, or actually furnishes labor, or labor and materials, or labor and equipment or labor, materials, and equipment at the site.

(q)Whenever in the Contract the words "directed", "required", "permitted", "ordered", "designated", "prescribed", and words of like import are used, they shall imply the direction, requirement, permission, order, designation, or prescription of the Engineer; and "approved", "acceptable", "satisfactory", "in the judgement of", and words of like import shall mean approved by, or acceptable to, or satisfactory to, or in the judgment of the Engineer.

(r)Whenever in the Contract the word "day" is used, it shall mean calendar day.

(s)"Final Acceptance" shall mean acceptance of the

work as evidenced by an official resolution of the City. Such acceptance shall be deemed to have taken place only if and when an approving resolution has been adopted by the City Council. The final acceptance shall be signed only after the City has assured itself by tests, inspection, or otherwise, that all of the provisions of the Contract have been carried out to its satisfaction.

(t)"Eastern Standard Time" shall be construed as the time being observed in the City on the day proposals are received or other documents issued or signed.

SECTION 2
POWERS OF THE CITY'S REPRESENTATIVES

ARTICLE 2.01 THE ENGINEER

It is covenanted and agreed that the Engineer, in addition to those matters elsewhere herein expressly made subject to his determination, direction, or approval, shall have the power, subject to such express provisions and limitations herein contained as are not in conflict herewith, and subject to review by the Mayor and City Council:

(a)To monitor the performance of the work.

(b)To determine the amount, kind, quality, sequence, and location of the work to be paid for hereunder and, when completed, to measure such work for payment.

(c)To determine all questions of an engineering character in relation to the work, to interpret the Plans, Specifications and Addenda.

(d)To determine how the work of this Contract shall be coordinated with the work of other contractors engaged simultaneously on this project.

(e)To make minor changes in the work as he deems necessary, provided such changes do not result in a net increase in the cost to the City or to the Contractor of the work to be done under the Contract.

(f)To amplify the Plans, add explanatory information and furnish additional Specifications and Drawings consistent with the intent of the Contract Documents.

The power of the Engineer shall not be limited to the foregoing enumeration, for it is the intent of this Contract that all of the work shall be subject to his determinations and approval, except where the determination or approval of someone other than the Engineer is expressly called for herein and except as subject to review by the Mayor and City Council. All orders of the Engineer requiring the Contractor to perform work as Contract work shall be promptly obeyed by the Contractor.

The Engineer shall not, however, have the power to issue an extra work order, and the performance of such work on the order of the Engineer without previously obtaining written confirmation thereof from the Mayor in accordance with Article 7.02 hereof may constitute a waiver of any right to extra compensation therefor. The Contractor is warned that the Engineer has no power to change the terms and provisions of this Contract, except minor changes where such change results in no net increase in the Contract Price.

ARTICLE 2.02 DIRECTOR

The Director of the Department in addition to those matters expressly made subject to his determination, direction or approval in his capacity as "Engineer", shall also have the power:

(a)To review any and all questions in relation to this Contract and its performance, except as herein otherwise specifically provided, and his determination upon such review shall be final and conclusive upon the Contractor.

(b)With the approval of the Mayor and City Council to authorize modifications or changes in the Contract so as to require: (1) the performance of extra work, or (2) the omission of Contract work whenever he deems it in the interest of the City to do so, or both.

(c)To suspend the whole or any part of the work whenever, in his judgment, such suspension is required: (1) in the interest of the City generally, or (2) to coordinate the work of the various Contractors engaged on this project, or (3) to expedite the completion of the entire project, even though the completion of this particular Contract may be thereby delayed, without compensation to the Contractor for such suspension other than extending the time for the completion of the work, as much as it may have been, in the opinion of the City, delayed by such a suspension.

(d)If, before the final acceptance of all the work contemplated herein, it shall be deemed necessary to take over, use, occupy, or operate any part of the completed or partly completed work, the Engineer shall have the right to do so and the Contractor will not, in any way, interfere with or object to the use, occupation, or operation of such work by the City after receipt of notice in writing from the Engineer that such work or part thereof will be used by the City on and after the date specified in such notice. Such taking over, use, occupancy or operation of any part of the completed or partially completed work shall not constitute final acceptance or approval of any such part of the work.

ARTICLE 2.03 NO ESTOPPEL

The City shall not, nor shall any department, officer, agent, or employee thereof, be bound, precluded, or estopped by any determination, decision, acceptance, return, certificate, or payment made or given under or in connection with this Contract by any officer, agent or employee of the City at any time either before or after final completion and acceptance of the work and payment therefor: (a) from showing the true and correct classification, amount, quality, or character of the work done, or that any determination, decision, acceptance, return certificate or payment is untrue, incorrect or improperly made in any particular, or that the work or any part thereof does not in fact conform to the requirements of the Contract Documents, and (b) from demanding and recovering from the Contractor any overpayments made to him or such damages as it may sustain by reason his failure to comply with the requirements of the Contract of Documents, or both.

ARTICLE 2.04 NO WAIVER OF RIGHTS

Neither the inspection, nor any order, measurements or certificate of the City or its employees, officers, or agents, nor by any order of the City for payment of money, nor any money, nor payments for or acceptance of the whole or any part of the work by the City, nor any extension of time, nor any changes in the Contract, Specifications or Plans, nor any possession by the City or its employees shall operate as a

waiver of any provisions of this Contract, nor any power herein provided nor shall any waiver of any breach of this Contract be held as a waiver of any other subsequent breach.

Any remedy provided in this Contract shall be taken and construed as cumulative, namely, in addition to each and every other suit, action, or legal proceeding. The City shall be entitled as of right to an injunction against any breach of the provisions of this Contract.

SECTION 3
PERFORMANCE OF WORK

ARTICLE 3.01 CONTRACTOR'S RESPONSIBILITY
The Contractor shall do all the work and furnish, at his own cost and expense, all labor, materials, equipment, and other facilities, except as herein otherwise provided, as may be necessary and proper for performing and completing the work under this Contract. The Contractor shall be responsible for the entire work until completed and finally accepted by the City.

The work shall be performed in accordance with the true intent and meaning of the Contract Documents. Unless otherwise expressly provided, the work must be performed in accordance with the best modern practice, with materials as specified and workmanship of the highest quality, all as determined by and entirely to the satisfaction of the Engineer.

Unless otherwise expressly provided, the means and methods of construction shall be such as the Contractor may choose, subject, however, to the approval of the Engineer. Only adequate and safe procedure, methods, structures and equipment shall be used. The Engineer's approval or the Engineer's failure to exercise his right thereon shall not relieve the Contractor of obligations to accomplish the result intended by the Contract, nor shall such create a cause of action for damages.

ARTICLE 3.02 COMPLIANCE WITH LAWS
The Contractor must comply with all local, State and Federal laws, rules, ordinances and regulations applicable to this Contract and to the work done hereunder, and must obtain, at his own expense, all permits, licenses or other authorization necessary for the prosecution of the work.

No work shall be performed under this Contract on Sundays, legal holidays or after regular working hours without the express permission of the Engineer. Where such permission is granted, the Engineer may require that such work be performed without additional expense to the City.

ARTICLE 3.03 INSPECTION
During the progress of the work and up to the date of final acceptance, the Contractor shall, at all times, afford the representatives of the City, the Florida Department of Environmental Regulation, and if applicable, the Federal Environmental Protection Agency and the Federal Department of Labor every reasonable, safe and proper facility for inspecting the work done or being done at the site. The inspection of any work shall not relieve the Contractor of any of his obligations to perform proper and satisfactory work as herein specified. Finished or unfinished work found not to be in strict accordance with the Contract shall be replaced as directed by the Engineer, even though such work may have been previously approved and payment made therefor.

The City shall have the right to reject materials and workmanship which are defective or require their correction. Rejected work and materials must be promptly removed from the site, which must at all times be kept in a reasonably clean and neat condition.

Failure or neglect on the part of the City to condemn or reject bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials, if it becomes evident at any time prior to the final acceptance of the work by the City. Neither shall it be construed as barring the City at any subsequent time from the recovery of damages of such a sum of money as may be needed to build anew all portions of the work in which inferior work or improper materials were used, wherever found.

Should it be considered necessary or advisable by the City at any time before final acceptance of the entire work to make examinations of work already completed, by removing or tearing out all or portions of such work, the Contractor shall, on request, promptly furnish all necessary facilities, labor, and material for that purpose. If such work is found to be defective in any material respect, due to the fault of the Contractor or his subcontractors, he shall defray all expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the cost of examination and restoration of the work shall be considered an item of extra work to be paid for in accordance with the provisions of Article 7.02 hereof.

ARTICLE 3.04 PROTECTION
During performance and until final acceptance, the Contractor shall be under an absolute obligation to protect the finished and unfinished work against any damage, loss, or injury. The Contractor shall take proper precaution to protect the finished work from loss or damage, pending completion and the final acceptance of all the work included in the entire Contract, provided that such precaution shall not relieve the Contractor from any and all liability and responsibility for loss or damage to the work occurring before final acceptance by the City. Such loss or damage shall be at the risk of and borne by the Contractor, whether arising from acts or omissions of the Contractor or others. In the event of any such loss or damage, the Contractor shall forthwith repair, replace, and make good the work without extension of time therefor, except as may be otherwise provided herein.

The provisions of this Article shall not be deemed to create any new right of action in favor of third parties against the Contractor or the City.

ARTICLE 3.05 PRESERVATION OF PROPERTY

The Contractor shall preserve from damage all property along the line of the work, or which is in the vicinity of or is in anywise affected by the work, the removal or destruction of which is not called for by the Plans. This applies, but is not limited, to the public utilities, trees, lawn areas, building monuments, fences, pipe and underground structures, public streets (except natural wear and tear of streets resulting from legitimate use thereof by the Contractor), and wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor and at his own expense.

In case of failure on the part of the Contractor to restore such property, or make good such damage or injury, the City may, upon forty-eight (48) hour written notice, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due or which may become due the Contractor under this Contract. Nothing in this clause shall prevent the Contractor from receiving proper compensation for the removal, damage, or replacement of any public or private property not shown on the Plans, when this is made necessary by alteration of grade or alignment authorized by the Engineer, provided that such property has not been damaged through fault of the Contractor, his employees or agents.

ARTICLE 3.06 BOUNDARIES
The Contractor shall confine his equipment, apparatus, the storage of materials, supplies and apparatus of his workmen to the limits indicated on the plans, by law, ordinances, permits or direction of the Engineer.

ARTICLE 3.07 SAFETY AND HEALTH REGULATIONS
The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91- 596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL91-54).

ARTICLE 3.08 TAXES
All taxes of any kind and character payable on account of the work done and materials furnished under this Contract shall be paid by the Contractor and shall be deemed to have been included in his bid. The laws of the State of Florida provide that sales and use taxes are payable by the Contractor upon the tangible personal property incorporated in the work and such taxes shall be paid by the Contractor and shall be deemed to have been included in his bid.

ARTICLE 3.09 ENVIRONMENTAL CONSIDERATIONS
The Contractor, in the performance of the work under this Contract, shall comply with all Local, State and Federal laws, statutes, ordinances, rules and regulations applicable to protection of the environment; and, in the event he violates any of the provisions of same, he shall be answerable to the Local, State and Federal agencies designated by law to protect the environment. In the event the City receives, from any of the environmental agencies, a citation which is occasioned by an act or omission of the Contractor or his subcontractor or any officers, employees or agents of either, it is understood and agreed that the Contractor shall automatically become a party-respondent under said citation; and the City immediately shall notify the Contractor and provide him with a copy of said citation.

The Contractor shall comply with the requirements of the citation and correct the offending conditions(s) within the time stated in said citation and further shall be held fully responsible for all fines and/or penalties.

SECTION 4
TIME PROVISIONS

ARTICLE 4.01 TIME OF START AND COMPLETION
The Contractor must commence work within thirty (30) days subsequent to the date of the receipt of the "Notice to Proceed" by the City unless otherwise provided in the Specific Provisions and Special Instructions. Time being of the essence of this Contract, the Contractor shall thereafter prosecute the work diligently, using such means and methods of construction as well as secure its full completion in accordance with the requirements of the Contract Documents no later than the date specified therefor, or on the date to which the time for completion may be extended.

The Contractor must complete the work covered by this Contract in the number of consecutive calendar days set forth in the Instructions to Bidders, unless the date of completion is extended pursuant to the provisions of Article 4.05 hereof. The period for performance shall start from the date of signing of this Agreement by the City.

The actual date of completion will be established after a final inspection as provided in Article 4.07 hereof.

ARTICLE 4.02 PROGRESS SCHEDULE
To enable the work to be laid out and prosecuted in an orderly and expeditious manner, the Contractor shall submit to the Engineer a proposed progress schedule within fifteen (15) days after the award of this Contract.

The schedule shall state the Contract starting date, time for completion and date of completion and shall show the anticipated time of starting and completion of each of the various operations to be performed under this Contract, together with all necessary and appropriate information regarding sequence and correlation of work and an estimated time required for the delivery of all materials and equipment required for the work. The proposed schedule shall be revised as directed by the Engineer until finally approved by him, and, after such approval, shall be strictly adhered to by the Contractor. The approved progress schedule may be changed only with the written permission of the Engineer.

If the Contractor shall fail to adhere to the approved progress schedule or the schedule as revised, he shall promptly adopt such other or additional means and methods of construction as will make up for the time lost, and will assure completion in accordance with the contract time.

ARTICLE 4.03 APPROVAL REQUESTS
From time to time, as the work progresses and in the sequence indicated by the approved schedule, the Contractor must submit to the Engineer a specific request, in writing, for each item of information or approval required of him by the Contract. These requests must be submitted sufficiently in advance of the date upon which the information or approval is actually required by the Contractor to allow for the time the Engineer may take to act upon such submissions or resubmissions. The Contractor shall not have any right to an extension of time on account of delays due to his failure to submit his requests for the required information or the required approval in accordance with these requirements.

ARTICLE 4.04 COORDINATION WITH OTHER CONTRACTORS
During progress of the work, other Contractors may be engaged in performing other work on this project or on other projects on the site. In that event, the Contractor shall coordinate the work to be done hereunder with the work of such other Contractors in such manner as the Engineer may direct.

ARTICLE 4.05 EXTENSION OF TIME
If such an application is made, the Contractor shall be entitled to an extension of time for delay in completion of the work should the Contractor be obstructed or delayed in the commencement, prosecution or completion of any part of said work by any act or delay of the City, or by acts or omissions of other Contractors on this project, or by a riot, insurrection, war, pestilence, acts of public authorities, fire, lightning, hurricanes, earthquakes, tornadoes, floods, extremely abnormal and excessive inclement weather as indicated by the records of the local weather bureau for a five-year period preceding the date of the Contract, or by strikes, or other causes, which causes of delay mentioned in this Article, in the opinion of the City, are entirely beyond the expectation and control of the Contractor.

The Contractor shall, however, be entitled to an extension of time for such causes only for the number of days of delay which the City may determine to be due solely to such causes and only to the extent that such occurrences actually delay the completion of the project and then only if the Contractor shall have strictly complied with all of the requirements of Articles 4.01, 4.02, 4.03 and 4.04 hereof. It is hereby understood that the determination by the Engineer as to the order and sequence of the work shall not in itself constitute a basis for extension of time.

The determination made by the City on an application for an extension of time shall be binding and conclusive on the Contractor.

Delays caused by failure of the Contractor's materialmen, manufacturers, and dealers to furnish approved working drawings, materials, fixtures, equipment, appliances, or other fittings on time or failure of subcontractors to perform their work shall not constitute a basis of extension of time.

The Contractor agrees to make no claim for damages for delay in the performance of this Contract occasioned by any act or omission to act of the City or any of its representatives or because of any injunction which may be brought against the City or its representatives and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the work as provided herein.

ARTICLE 4.06 LIQUIDATED DAMAGES
It is mutually agreed between the parties that time is the essence of this Contract and that there will be on the part of the City considerable monetary damage in the event the Contractor should fail to complete the work within the time fixed for completion in the Contract or within the time to which such completion may have been extended.

The amount per day set forth in the Instructions to Bidders is hereby agreed upon as the liquidated damages for each and every calendar day that the time consumed in completing the work under this Contract exceeds the time allowed.

This amount shall, in no event, be considered as a penalty or otherwise than as the liquidated and adjusted damages to the City because of the delay and the Contractor and his Surety agree that the stated sum per day for each such day of delay shall be deducted and retained out of the monies which may become due hereunder and if not so deductible, the Contractor and his Surety shall be liable therefor.

ARTICLE 4.07 FINAL INSPECTION
When the work has been completed in accordance with the requirements of the Contract and final cleaning up performed, a date for final inspection of the work by the Engineer shall be set by the Contractor in a written request therefor, which date shall be not less than ten (10) days after the date of such request. The work will be deemed complete as of the date so set by the Contractor if, upon such inspection, the Engineer determines that no further work remains to be done at the site.

If such inspection reveals interms of work still to be performed, however, the Contractor shall promptly perform them and then request a reinspection. If, upon such inspection, the Engineer determines that the work is complete, the date of final completion shall be deemed to be the last day of such reinspection.

SECTION 5
SUBCONTRACTS AND ASSIGNMENTS

ARTICLE 5.01 LIMITATIONS AND CONSENT
The Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or of his right, title, or interest therein, or his power to execute such Contract, or to assign any monies due or to become due thereunder to any other person, firm or corporation unless the previous written consent of the City shall first be obtained thereto and the giving of any such consent to a particular subcontract or assignment shall not dispense with the necessity of such consent to any further or other assignment.

Before making any subcontract, the Contractor must submit a

written statement to the Engineer, giving the name and address of the proposed contractor, the portion of the work and materials which he is to perform and furnish and any other information tending to prove that the proposed subcontractor has the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and conditions of this Contract.

If the City finds that the proposed subcontractor is qualified, the Contractor will be notified in writing. The City may revoke approval of any subcontractor when such subcontractor evidences an unwillingness or inability to perform his work in strict accordance with these Contract Documents. Notice of such revocation of approval will be given in writing to the Contractor.

The Contractor will promptly, upon request, file with the City a conformed copy of the subcontract. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of these Contract Documents, insofar as applicable to the work of subcontractors, and to give the Contractor the same power as regards terminating any subcontracts that the City may exercise over the Contractor under provisions of these Contract Documents.

The Contractor shall be required to perform with his own forces at least twenty-five (25) percent of the work, unless written consent to subcontract a greater percentage of the work is first obtained from the City.

ARTICLE 5.02 RESPONSIBILITY
The approval by the City of a subcontractor shall not relieve the Contractor of any of his responsibilities, duties, and liabilities hereunder. The Contractor shall be solely responsible to the City for the acts or defaults or omissions of his subcontractor and of such subcontractor's officers, agents, and employees, each of whom shall for all purposes be deemed to be the agent or employee of the Contractor. Nothing contained in the Contract Documents shall create any contractual relationship between any subcontractor and the City.

SECTION 6
SECURITY AND GUARANTY

ARTICLE 6.01 CONTRACT SECURITY
The Contractor shall execute and deliver to the City a Performance Bond on the form as provided herein, in an amount at least equal to one hundred (100) percent of the full Contract price, such Bond to be executed by a surety company acceptable to the City. The surety on such Performance Bond shall be a surety company duly authorized to do business in the State of Florida, and the Bond shall be issued or countersigned by a local resident producing agent of such surety company who is a resident of the State of Florida, regularly commissioned and licensed in said State, and satisfactory evidence of the authority of the person or persons executing such Bond shall be submitted with the Bond. The Performance Bond shall serve as security for the faithful performance of this Contract, including maintenance and guaranty provisions, and for the payment of all persons performing labor and furnishing materials in connection with the Contract. The premiums on the Performance Bond shall be paid by the Contractor.

If, at any time, the City shall become dissatisfied with any surety or sureties then upon the Performance Bond, or if for any other reason such bond shall cease to be adequate security for the City, the Contractor shall, within five days after notice so to do, substitute an acceptable Bond in such form and sum and signed by such other sureties as may be satisfactory to the City. The premiums on such Bond shall be paid by the Contractor. No further partial payments shall be deemed due or shall be made until the new sureties have qualified.

ARTICLE 6.02 CONTRACTORS INSURANCE
Insurance required shall be as indicated on Special Instructions pages beginning with "INS-1"

ARTICLE 6.03 AGAINST CLAIMS AND LIENS
The City may withhold from the Contractor as much as any approved payments to him as may, in the opinion of the City, be necessary to secure (a) just claims of any persons supplying labor or materials to the Contractor or any of his subcontractors for the work then due and unpaid; (b) loss due to defective work not remedied, or (c) liability, damage, or loss due to injury to persons or damages to the work or property of other contractors, subcontractors, or others, caused by the act or neglect of the Contractor or of any of his subcontractors. The City shall have the right, as agent for the Contractor, to apply any such amounts so withheld in such manner as the City may deem proper to satisfy such claims or to secure such protection. Such application of such money shall be deemed payments for the account of the Contractor.

ARTICLE 6.04 MAINTENANCE AND GUARANTY
The Contractor hereby guarantees all the work furnished under this Contract against any defects in workmanship and materials for a period of one year following the date of final acceptance of the work by the City. Under this guarantee, the Contractor hereby agrees to make good, without delay, at his own expense, any failure of any part of the work due to faulty materials or manufacture, construction, or installation, or the failure of any equipment to perform satisfactorily all the work put upon it within the limits of the Contract Documents, and further, shall make good any damage to any part of the work caused by such failure. It is hereby agreed that the Performance Bond shall fully cover all guarantees contained in this Article.
It is also agreed that all warranties, expressed or implied, inure to the benefit of the City and are enforceable by the City.

SECTION 7
CHANGES

ARTICLE 7.01 MINOR CHANGES
The City reserves the right to make such additions, deductions, or changes to this Contract from time to time as

it deems necessary and in a manner not materially affecting the substance thereof or materially changing the price to be paid in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed. This Contract shall in no way be invalidated by any such additions, deductions, or changes, and no claim by the Contractor shall be made for any loss of anticipated profits thereby.

Construction conditions may require that minor changes be made in the location and installation of the work and equipment to be furnished and other work to be performed hereunder, and the Contractor when ordered by the Engineer, shall make such adjustments and changes in said locations and work as may be necessary, without additional cost to the City, provided such adjustments and changes do not alter the character, quantity of cost of the work as a whole, and provided further that Plans and Specifications showing such adjustments and changes are furnished to the Contractor by the City within a reasonable time before any work involving such adjustment and changes is begun. The Engineer shall be the sole judge of what constitutes a minor change for which no additional compensation shall be allowed.

ARTICLE 7.02 EXTRA WORK

The City may at any time by a written order and without notice to the sureties require the performance of such extra work as it may find necessary or desirable. An order for extra work shall be valid only if issued in writing and signed by the Mayor and the work so ordered must be performed by the Contractor.

The amount of compensation to be paid to the Contractor for any extra work as so ordered shall be determined as follows:

(a)By such applicable unit prices, if any, as are set forth in the Proposal; or

(b)If no such unit prices are set forth then by a lump sum or other unit prices mutually agreed upon by the City and the Contractor; or

(c)If no such unit prices are set forth in the Proposal and if the parties cannot agree upon a lump sum or other unit prices then by the actual net cost in money to the Contractor of the extra work performed, which cost shall be determined as follows:

(1) For all labor and foreman in direct charge of the authorized operations, the Contractor shall receive the current local rate of wages to be agreed upon, in writing, before starting such work for each hour that said labor and foremen are actually engaged thereon, to which shall be added an amount equal to 25 percent of the sum thereof which shall be considered and accepted as full compensation for general supervision, FICA taxes, contributions under the Florida Unemployment Compensation Act, insurance, bond, subcontractor's profit and overhead, the furnishing of small tools and miscellaneous equipment used, such as picks, shovels, hand pumps, and similar items.

(2) For all materials used, the Contractor shall receive the actual cost of such materials delivered at the site or previously approved delivery point as established by original receipted bills. No percentage shall be added to this cost.

(3) For special equipment and machinery such as power-driven pumps, concrete mixers, trucks, and tractors, or other equipment, required for the economical performance of the authorized work, the Contractor shall receive payment based on the average local area rental price for each item of equipment and the actual time of its use on the work. No percentage shall be added to this sum.

(4) Records of extra work done under this procedure shall be reviewed at the end of each day by the Contractor or his representative and the Engineer. Duplicate copies of accepted records shall be made and signed by both Contractor or his representative and the Engineer, and one copy retained by each.

Request for payment for approved and duly authorized extra work shall be submitted in the same form as Contract work or in the case of work performed under paragraph (c) (1) above upon a certified statement supported by receipted bills. Such statement shall be submitted for the current Contract payment for the month in which the work was done.

ARTICLE 7.03 DISPUTED WORK

If the Contractor is of the opinion that any work required, necessitated, or ordered violates the terms and provisions of this Contract, he must promptly notify the Engineer, in writing, of his contentions with respect thereto and request a final determination thereof. If the Engineer determines that the work in question is Contract work and not extra work or that the order complained of is proper, he will direct the Contractor to proceed and the Contractor shall promptly comply. In order, however, to reserve his right to claim compensation for such work or damages resulting from such compliance, the Contractor must, within five (5) days after receiving notice of the Engineer's determination and direction, notify the City in writing that the work is being performed or that the determination and direction is being complied with under protest. Failure of the Contractor to notify shall be deemed as a waiver of claim for extra compensation or damages therefor.

Before final acceptance by the City, all matters of dispute must be adjusted to the mutual satisfaction of the parties thereto. Final determinations and decisions, in case any questions shall arise, shall constitute a condition precedent to the right of the Contractor to receive the money therefor until the matter in question has been adjusted.

ARTICLE 7.04 OMITTED WORK

The City may at any time by a written order and without notice to the sureties require the omission of such Contract work as it may find necessary or desirable.

An order for omission of work shall be valid only if signed by the Mayor and the work so ordered must be omitted by the Contractor. The amount by which the Contract price shall be reduced shall be determined as follows:

(a) By such applicable unit prices, if any, as are set forth in the Contract; or

(b) By the appropriate lump sum price set forth in the Contract; or

(c) By the fair and reasonable estimated cost to the City

of such omitted work as determined by the Engineer and approved by the City.

SECTION 8
CONTRACTOR'S EMPLOYEES

ARTICLE 8.01 CHARACTER AND COMPETENCY
The Contractor and his subcontractors shall employ upon all parts of the work herein contracted for only competent, skillful, and trustworthy workers. Should the Engineer at any time give notice, in writing, to the Contractor or his duly authorized representative on the work that any employee in his opinion is incompetent, unfaithful, disorderly, careless, unobservant of instructions, or in any way a detriment to the satisfactory progress of the work, such employee shall immediately be dismissed and not again allowed upon the site.

ARTICLE 8.02 SUPERINTENDENCE
The Contractor shall give his personal supervision to the faithful prosecution of the work and in case of his absence shall have a competent, experienced, and reliable supervisor or superintendent, acceptable to the Engineer on the site who shall follow without delay all instructions of the Engineer in the prosecution and completion of the work and every part thereof, in full authority to supply workers, material, and equipment immediately. He shall keep on hand at all times copies of the Contract Documents.

ARTICLE 8.03 EMPLOYMENT OPPORTUNITIES
The Contractor shall, in the performance of the work required to be done under this Contract, employ all workers without discrimination regarding race, creed, color, sex or national origin and must not maintain or provide facilities that are segregated on the basis of race, color, creed or national origin.

ARTICLE 8.04 RATES OF WAGES
On federally assisted projects, the rates of wages to be paid under this Contract shall not be less than the rates of wages set forth in Section 12 of this Agreement.

On other projects, no wage rate determination is included. Florida's Prevailing Wage Law (Section 215.19, Florida Statutes) was repealed effective April 25, 1979.

ARTICLE 8.05 PAYROLL REPORTS
The Contractor and each subcontractor shall, if requested to do so, furnish to the Engineer a duly certified copy of his payroll and also any other information required by the Engineer to satisfy him that the provisions of the law as to the hours of employment and rate of wages are being observed.

Payrolls shall be prepared in accordance with instructions furnished by the City and on approved forms. The Contractor shall not carry on his payroll any persons not employed by him. Subcontractor's employees shall be carried only on the payrolls of the employing subcontractor.

SECTION 9
CONTRACTOR'S DEFAULT

ARTICLE 9.01 CITY'S RIGHT AND NOTICE
It is mutually agreed that: (a) if the Contractor fails to begin work when required to do so, or (b) if at any time during the progress of the work it shall appear to the Engineer that the Contractor is not prosecuting the work with reasonable speed, or is delaying the work unreasonably and unnecessarily, or (c) if the force of workmen or quality or quantity of material furnished are not sufficient to insure completion of the work within the specified time and in accordance with the Specifications hereto attached, or (d) if the Contractor shall fail to make prompt payments for materials or labor or to subcontractors for work performed under the Contract, or (e) if legal proceedings have been instituted by others than the City in such manner as to interfere with the progress of the work and may subject the City to peril of litigation or outside claims of (f) if the Contractor shall be adjudged a bankrupt or make an assignment for the benefit of creditors, or (g) if in any proceeding instituted by or against the Contractor an order shall be made or entered granting an extension of time of payment, composition, adjustment, modification, settlement or satisfaction of his debts or liabilities, or (h) if a receiver or trustee shall be appointed for the Contractor or the Contractor's property, or (i) if the Contract or any part thereof shall be sublet without the consent of the City being first obtained in writing, or (j) if this Contract or any right, monies, or claim thereunder shall be assigned by the Contractor, otherwise than as herein specified, or (k) if the Contractor shall fail in any manner of substance to observe the provisions of this Contract, or (l) if any of the work, machinery, or equipment shall be defective, and shall not be replaced as herein provided, or (m) if the work to be done under this Contract shall be abandoned, then such fact or conditions shall be certified by the Engineer and thereupon the City without prejudice to any other rights or remedies of the City, shall have the right to declare the Contractor in default and so notify the Contractor by a written notice, setting forth the ground or grounds upon which such default is declared and the Contractor must discontinue the work, either as a portion of the work or the whole thereof, as directed.

ARTICLE 9.02 CONTRACTOR'S DUTY UPON DEFAULT
Upon receipt of notice that his Contract is in default, the Contractor shall immediately discontinue all further operations on the work or such part thereof, and shall immediately quit the site or such part thereof, leaving untouched all plant, materials, equipment, tools, and supplies.

ARTICLE 9.03 COMPLETION OF DEFAULTED WORK
The City, after declaring the Contractor in default, may then have the work completed or the defective equipment or machinery replaced or anything else done to complete the work in strict accordance with the Contract Documents by such means and in such manner, by Contract with or without public letting, or otherwise, as it may deem advisable,

utilizing for such purpose without additional cost to the City such of the Contractor's plant, materials, equipment, tools, and supplies remaining on the site, and also such subcontractors as it may deem advisable.

The City shall reimburse all parties, including itself, for the expense of such completion, including liquidated damages, if any, and the cost of reletting. The City shall deduct this expense from monies due or to become due to the Contractor under this Contract, or any part thereof, and in case such expense is more than the sum remaining unpaid of the original contract price, the Contractor and his sureties shall pay the amount of such deficiency to the City.

ARTICLE 9.04 PARTIAL DEFAULT
In case the City shall declare the Contractor in default as to a part of the work only, the Contractor shall discontinue such part, shall continue performing the remainder of the work in strict conformity with the terms of the Contract, and shall in no way hinder or interfere with any other contractor or person whom the City may engage to complete the work as to which the Contractor was declared in default.

SECTION 10
PAYMENTS

ARTICLE 10.01 PRICES
For the Contractor's complete performance of the work, the City will pay and the Contractor agrees to accept, subject to the terms and conditions hereof, the lump sum prices or unit prices in the Contractor's Proposal and the award made therein, plus the amount required to be paid for any extra work ordered under Article 7.02 hereof, less credit for any work omitted pursuant to Article 7.04 hereof. Under unit price items, the number of units actually required to complete the work under the Contract may be more than stated in the Proposal. The Contractor agrees that no claim will be made for any damages or for loss of profits because of a difference between the quantities of the various classes of work assumed and stated in the Proposal Form as a basis for comparing Proposals and the quantities of work actually performed.

The sum as awarded for any lump sum Contract or lump sum Contract Item shall represent payment in full for all of the various classes of work, including materials, equipment, and labor necessary or required to complete, in conformity with the Contract Document, the entire work shown, indicated or specified under the lump sum Contract or lump sum Contract Item.

The amount as awarded as a unit price for any unit price Contact Item shall represent payment in full for all the materials, equipment, and labor necessary to complete, in conformity with the Contract Documents, each unit of work shown, specified, or required under the said unit price Contract Item.

No payment other than the amount as awarded will be made for any class of work included in a lump sum Contract Item or a unit price Contract Item, unless specific provision is made therefor in the Contract Documents.

ARTICLE 10.02 SUBMISSION OF BID BREAKDOWN
Within fifteen (15) days after the execution of this Contract, the Contractor must submit to the Engineer in duplicate an acceptable breakdown of the lump sums and unit prices bid for items of the Contract, showing the various operations to be performed under the Contract, as described in the progress schedule required under Article 4.02 hereof, and the value of each of such operations, the total of such items to equal the total price bid. The Contractor shall also submit such other information relating to the bid prices as may be required and shall revise the bid breakdown as directed. Thereafter, the breakdown may be used for checking the Contractor's applications for partial payments hereunder but shall not be binding upon the City or the Engineer for any purpose whatsoever.

ARTICLE 10.03 REPORTS, RECORDS AND DATA
The Contractor shall furnish to the Engineer such schedules of quantities and costs, progress schedules, reports, invoices, delivery tickets, estimates, records, and other data as the Engineer may request concerning work performed or to be performed and the materials furnished under the Contract.

ARTICLE 10.04 PAYMENTS BY CONTRACTOR
The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered, (b) for all materials, tools, and equipment delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporated or used, and (c) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors, to the extent of each subcontractor's interest therein; and proof of such payments or releases therefor shall be submitted to the Engineer upon request.

ARTICLE 10.05 PARTIAL PAYMENTS
On or about the first of each month, the Contractor shall make and certify an estimate, on forms prescribed by the City, of the amount and fair value of the work done, and may apply for partial payment therefor. The Contractor shall revise the estimate as the Engineer may direct. When satisfactory progress has been made, and shows that the value of the work completed since the last payment exceeds one percent (1%) of the total Contract price in amount, the Engineer will issue a certificate that such work has been completed and the value thereof. The City will then issue a voucher to the Contractor in accordance with the following schedule:

FOR CONTRACT AMOUNTS UNDER $250,000
(A)In the amount of ninety percent (90%) of the value of the work completed as certified until construction is one hundred percent (100%) complete (operational or beneficial occupancy), the withheld amount may be reduced below ten percent (10%), at the Engineer's option, to only that amount necessary to assure completion.

FOR CONTRACT AMOUNTS OVER $250,000

(A)In the amount of ninety percent (90%) of the value of the work completed as certified until construction is fifty percent (50%) complete.

(B)When the dollar value, as determined by the Engineer, of satisfactorily completed work in place is greater than fifty percent (50%) of the original contract price, vouchers for partial payment will be issued by the City to the Contractor in the amount of one hundred percent (100%) of the value of the work, above 50%, completed as certified for that payment period.

(C)If the Contractor has performed satisfactorily and the work is substantially complete (operational or beneficial occupancy) the withheld amount may be reduced, at the Engineer's option, to only that amount necessary to assure completion.

In addition to the Conditions set forth in (A), (B), and (C) above, payments will always be less any sums that may be retained or deducted by the City under the terms of any of the contract documents and less any sums that may be retained to cover monetary guarantees for equipment, materials or progress performance.

Payment on estimates made on or about the first of the month may be expected on or about the 20th of the month.

Unless specified otherwise in the Contract Items, the delivered cost of equipment and nonperishable materials suitably stored at the site of the work and tested for adequacy may be included in the Contractor's application for partial payment provided, however, that the Contractor shall furnish evidence satisfactory to the City that the Contractor is the unconditional owner and in possession of such materials or equipment. The amount to be paid will be 90 percent of the invoice cost to the Contractor which cost shall be supported by receipted bills within 30 days of the date of payment by the City to the Contractor. Such payment shall not relieve the Contractor from full responsibility for completion of the work and for protection of such materials and equipment until incorporated in the work in a permanent manner as required by the Contract Documents.

Before any payment will be made under this Contract, the Contractor and every subcontractor, if required, shall deliver to the Engineer a written, verified statement, in satisfactory form, showing in detail all amounts then due and unpaid by such Contractor or subcontractor to all laborers, workmen, and mechanics, employed by him under the Contract for the performance of the work at the site thereof, for daily or weekly wages, or to other persons for materials, equipment, or supplies delivered at the site of the work during the period covered by the payment under consideration.

ARTICLE 10.06 FINAL PAYMENT

Under determination of satisfactory completion of the work under this Contract as provided in Article 4.07 hereof, the Engineer will prepare the final estimate showing the value of the completed work. This estimate will be prepared within 30 days after the date of completion or as soon thereafter as the necessary measurements and computations can be made. All prior certificates and estimates, being approximate only, are subject to correction in the final estimate and payment.

When the final estimate has been prepared and certified by Engineer, he will submit to the Mayor and City Council the final certificate stating that the work has been completed and the amount based on the final estimate remaining due to the Contractor. The City will then accept the work as fully completed and will, not later than 30 days after the final acceptance, as defined in Article 1.02, of the work done under this Contract, pay the Contractor the entire amount so found due thereunder after deduction of all previous payments and all percentages and amounts to be kept and retained under provisions of this Contract; provided, however, and it is understood and agreed that, as a precedent to receiving final payment, the Contractor shall submit to the City a sworn affidavit that all bills for labor, service, materials, and subcontractors have been paid and that there are no suits pending in connection with this work. The City, at its option, may permit the Contractor to execute a separate surety bond in a form satisfactory to the City. The surety bond shall be in the full amount of the suit or suits.

Neither the final payment nor any part of the retained percentage shall be paid until the Contractor, if required, shall furnish the City with a complete release from any should remain unsatisfied after all payments are made, the Contractor shall refund to the City all monies which the City may be compelled to pay in discharging such claim, including incidental costs and attorney's fees.

ARTICLE 10.07 ACCEPTANCE OF FINAL PAYMENT

The acceptance by the Contractor, or by anyone claiming by or through him, of the final payment shall operate as and shall be a release to the City and every officer and agent thereof from any and all claims and liability to the Contractor for anything done or furnished in connection with the work or project and for any act or neglect of the Contractor or of any others relating to or affecting the work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this Contract or the Performance Bond.

SECTION 11
MISCELLANEOUS PROVISIONS

ARTICLE 11.01 CONTRACTOR'S WARRANTIES

In consideration of, and to induce the award of this contract to him, the Contractor represents and warrants:

(a)That he is not in arrears to the City upon debt or contract, and he is not a defaulter, as surety, contractor, or otherwise.

(b)That he is financially solvent and sufficiently experienced and competent to perform the work.

(c)That the work can be performed as called for by the Contract Documents.

(d)That the facts stated in his proposal and the information given by him are true and correct in all respects.

(e)That he is fully informed regarding all the conditions affecting the work to be done and labor and materials to be

furnished for the completion of this Contract, and that his information was secured by personal investigation and research.

ARTICLE 11.02 PATENTED DEVICES, MATERIAL AND PROCESSES

It is mutually understood and agreed that Contract prices include all royalties and costs arising from patents, trademarks, and copyrights in any way involved in the work. Whenever the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall indemnify and save harmless the City, its officers, agents and employees from any and all claims for infringement by reason of the use of any such patented design, device, tool, material, equipment, or process, to be performed under the Contract, and shall indemnify the said City, its officers, agents, and employees for any costs, expenses, and damages which may be incurred by reason of such infringement at any time during the prosecution or after completion of the work.

ARTICLE 11.03 SUITS AT LAW

In case any action at law or suit in equity may or shall be brought against the City or any of its officers, agents, or employees for or on account of the failure, omission, or neglect of the Contractor or his subcontractors, employees, or agents, to do or perform any of the covenants, acts, matters, or things by this Contract undertaken to be done or performed by the Contractor of his subcontractors, employees, or agents, or from any injuries done to property or persons and caused by the negligence or alleged negligence of the Contractor of his subcontractors, employees, or agents, or in any other manner arising out of the performance of this Contract, then the Contractor shall immediately assume and take charge of the defense of such actions or suits in like manner and to all intents and purposes as if said actions or suits have been brought directly against the Contractor, and the Contractor shall also indemnity and save harmless the City, its officers, agents, and employees from any and all loss, cost or damage whatever arising out of such actions or suits, in like manner and to all intents and purposes as if said actions or suits have been brought directly against the Contractor.

The Contractor shall and does hereby assume all liability for and agrees to indemnify the City or its Engineer against any or all loss, costs, damages, and liability for any or by reason of any lien, claims or demands, either for materials purchased or for work performed by laborers, mechanics, and others and from any damages, costs, actions, or causes of action and judgement arising from injuries sustained by mechanics, laborers, or other persons by reason of accidents or otherwise, whether caused by the carelessness or inefficiency or neglect of said Contractor, his subcontractors, agents, employees, workmen or otherwise.

ARTICLE 11.04 CLAIMS FOR DAMAGES

If the Contractor shall claim compensation for any damage sustained, other than for extra or disputed work covered by Article 7.02 and 7.03 hereof, by reason of any act or omission of the City, its agents, or any persons, he shall, within five days after sustaining such damage, make and deliver to the Engineer a written statement of the nature of the damage sustained and of the basis of the claim against the City. On or before the 15th of the month succeeding that in which any damage shall have been sustained, the Contractor shall make and deliver to the Engineer an itemized statement of the details and amounts of such damage, duly verified by the Contractor. Unless such statements shall be made delivered within the times aforesaid, it is stipulated that and all claims for such compensation shall be forfeited and invalidated, and the Contractor shall not be entitled to payment on account of such claims.

ARTICLE 11.05 NO CLAIMS AGAINST INDIVIDUALS

No claim whatsoever shall be made by the Contractor against any officer, agent, employee of the City for, or on account of, anything done or omitted to be done in connection with this Contract.

ARTICLE 11.06 LIABILITY UNAFFECTED

Nothing herein contained shall in any manner create any liability against the City on behalf of any claim for labor, services, or materials, or of subcontractors, and nothing herein contained shall affect the liability of the Contractor or his sureties to the City or to any workmen or materialsmen upon bond given in connection with this Contract.

ARTICLE 11.07 INDEMNIFICATION PROVISIONS

Whenever there appears in this Agreement, or in the other Contact Documents made a part hereof, an indemnification provision within the purview of Chapter 725.06, Laws of Florida, the monetary limitation on the extent of the indemnification under each such provision shall be One Million Dollars or a sum equal to the total Contract price, whichever shall be the greater.

ARTICLE 11.08 UNLAWFUL PROVISIONS DEEMED STRICKEN

If this contract contains any unlawful provisions not an essential part of the Contract and which shall not appear to have a controlling or material inducement to the making thereof, such provisions shall be deemed of no effect and shall, upon notice by either party, be deemed stricken from the Contract without affecting the binding force of the remainder.

ARTICLE 11.09 LEGAL PROVISIONS DEEMED INCLUDED

Each and every provision of any law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein and if, through mistake or otherwise, any such provision is not inserted or is not correctly inserted, then upon application of either party the Contract shall forthwith be physically amended to make such insertion.

ARTICLE 11.10 DEATH OR INCOMPETENCY OF CONTRACTOR

In the event of death or legal incompetency of a Contractor who shall be an individual or surviving member of a contracting firm, such death or adjudication of incompetency

shall not terminate the Contract, but shall act as default hereunder to the effect provided in Article 9.01 hereof and the estate of the Contractor and his surety shall remain liable hereunder to the same extent as though the Contractor had lived. Notice of default, as provided in Article 9.01 hereof, shall not be required to be given in the event of such death or adjudication of incompetency.

ARTICLE 11.11 NUMBER AND GENDER OF WORDS

Whenever the context so admits or requires, all references herein in one number shall be deemed extended to and including the other number, whether singular or plural, and the use of any gender shall be applicable to all genders.

ARTICLE 11.12 ACCESS TO RECORDS

Representatives of Federal Agencies, if applicable, and the State of Florida shall have access to the work whenever it is in preparation of progress. On federally assisted projects the Federal Agency, the Comptroller General of the United States, or any authorized representative shall have access to any books, documents, papers, and records of the Contractor which are pertinent to the project for the purpose of making audit, examination, excerpts, and transcription thereof.

SECTION 12
LABOR STANDARDS

ARTICLE 12.01 LABOR STANDARDS

The Contractor shall comply with all of the regulations set forth in "Labor Standards Provisions for Federally Assisted Construction Contracts", which may be attached, and any applicable Florida Statutes.

ARTICLE 12.02 NOTICE TO LABOR UNIONS

If required, the Contractor shall provide Labor Unions and other organizations of workers, and shall post, in a conspicuous place available to employees or applicants for employment, a completed copy of the form entitled "Notice to Labor Unions or Other Organizations of Workers" attached to and made a part of this Agreement.

ARTICLE 12.03 SAFETY AND HEALTH REGULATIONS

The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91- 596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54). Nothing in these Acts shall be construed to supersede or in any manner affect any worker's compensation law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of, or in the course of, employment.

ARTICLE 12.04 EEO AFFIRMATIVE ACTION REQUIREMENTS

The Contractor understands and agrees to be bound by the equal opportunity requirements of Federal regulations which shall be applicable throughout the performance of work under this Contract. The Contractor also agrees to similarly bind contractually each subcontractor. In policies, the Contractor agrees to engage in Affirmative Action directed at promoting and ensuring equal employment opportunity in the work force used under the Contract (and the Contractor agrees to require contractually the same effort of all subcontractors whose subcontractors exceed $100,000). The Contractor understands and agrees that "Affirmative Action" as used herein shall constitute a good faith effort to achieve and maintain minority employment in each trade in the on-site work force used on the Contract.

ARTICLE 12.05 PREVAILING RATES OF WAGES

Florida's prevailing wage law was repealed effective April 25, 1979.

For Federally assisted projects, appropriate prevailing wage rate determinations are indicated on pages beginning with WR-1.

* * * * * * *

IN WITNESS THEREOF, the parties have hereunto set their hands and seals, and such of them as are corporation have caused these present to be signed by their duly authorized officers.

CITY OF TAMPA, FLORIDA

_____
Bob Buckhorn, Mayor
(SEAL)

ATTEST:

_____
City Clerk

Approved as to Form:
The execution of this document was authorized
by Resolution No. _____

_____
Rachel S. Peterkin, Assistant City Attorney

Contractor

By:_____
(SEAL)

Title:

ATTEST:

_____
Witness

STATE OF)
) SS:
COUNTY OF)

For a Corporation:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 20___ by _____ of _____, a _____ corporation, on behalf of the corporation. He/she is ___ personally known or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

For an Individual:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 20___ by _____ who is ___ personally known to me or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

For a Firm:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 20___ by _____ who signed on behalf of the said firm. He/she is ___ personally known or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

_____

PUBLIC CONSTRUCTION BOND

Bond No. (enter bond number)_____

Name of Contractor:_____

Principal Business Address of Contractor:_____

_____

Telephone Number of Contractor:_____

Name of Surety (if more than one list each):_____

_____

Principal Business Address of Surety:_____

_____

Telephone Number of Surety:_____

Owner is The City of Tampa, Florida

Principal Business Address of Owner: 306 E Jackson St, Tampa, FL 33602

Contract Administration Department (280A4N)

Telephone Number of Owner: 813/274-8456

Contract Number Assigned by City to contract which is the subject of this bond:_____

Legal Description or Address of Property Improved or Contract Number is:_____

_____

_____

_____

General Description of Work and Services:_____

_____

_____

_____

KNOW ALL MEN BY THESE PRESENTS That we, _____

_____
(Name of Contractor)

as Principal, hereinafter called CONTRACTOR, of the State of _____, and

_____(Name of Surety)
a corporation organized and existing under and by virtue of the laws of the State of _____, and regularly authorized to do business in the State of Florida, as SURETY, are held and firmly bound unto the City of Tampa, a municipal corporation organized and existing under the laws of the State of Florida, hereinafter called Owner, in the penal sum of _____Dollars and _____Cents ($_____), lawful money of the United States of America, for the payment whereof well and truly to be made, we bind ourselves, our heirs, executors, and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, _____, 20___, between Principal and Owner for construction of _____, the contract being made a part of this bond by reference, in the time and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1) (Section 713.01), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and

3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

5. Contractor and Surety acknowledge that the Work for which this bond has been issued may be one of several such contract documents for a group of projects. This bond does not secure covenants to pay for or to perform design services survey or program management services. The Owner/Obligee is expected to reasonably account for damages that are caused to Owner with respect to Principal's (Contractor's) default in performance of the scope of the Work incorporated by reference into the bond, and notwithstanding any contractual or common law remedy permitted to Owner as against Contractor, the obligation of Surety for any damages under this bond shall be determined by the cost of completion of the Work less the contract balance unpaid upon default of Contractor for the Work plus liquidated damages at the rate of $500.00 per day for delays by the Contractor and/or Surety in reaching substantial completion.

6. The notice requirements for claimants and conditions for entitlement to payment set forth in Section 255.05, Fla. Stat. and the limitations period to actions upon Section 255.05, Fla. Stat. bonds apply to claimants seeking payment from surety under this bond. Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05, Florida Statutes.

7. The Surety, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the contract documents or other Work to be performed hereunder, or the specifications referred to therein shall in any way affect its obligations under this bond, and it does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to Work or to the specifications.

8. The above SURETY states that it has read all of the Contract Documents made by the CONTRACTOR with the CITY, hereto attached, and the terms and conditions of the contract and work, and is familiar therewith and in particular those portions of the Agreement concerning the guaranty of such CONTRACTOR for a period of one year following the date of the final acceptance of the completed work under the Contract by the CITY, all of which this BOND includes.

DATED ON _____, 20___

_____
(Name of Principal)

_____
(Principal Business Address)

By _____

Title _____

_____
Telephone Number of Principal

_____
(Name of Surety)

_____
(Surety Address)

By _____
(As Attorney in Fact)*

_____
Telephone Number of Surety

Approved as to legal sufficiency:

By _____
Assistant City Attorney

Countersignature:

_____
(Name of Local Agency)

_____
(Address of Resident Agent)

By _____

Title _____

_____
Telephone Number of Local Agency

*(As Attorney in Fact) attach Power of Attorney and Current Certificate with Original Signature

SPECIFICATIONS
GENERAL PROVISIONS

SECTION 1
SCOPE AND INTENT

G-1.01 DESCRIPTION
The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all work included in this Contract.

G-1.02 WORK INCLUDED
The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, and other means of construction necessary or proper for performing and completing the work. He shall obtain and pay for all required permits. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Engineer, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all costs incidental thereto. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.

The cost of incidental work described in these General Provisions, for which there are no specific Contract Items, shall be considered as part of the overhead cost of doing the work and shall be included in the prices for the various Contract Items. No additional payment will be made therefor.

The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of his plant and equipment, prior approval of the Engineer notwithstanding.

G-1.03 PUBLIC UTILITY INSTALLATIONS AND STRUCTURES
Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes, and all other appurtenances and facilities pertaining thereto whether owned or controlled by the City, other governmental bodies or privately owned by individuals, firms, or corporations, and used to serve the public with transportation, traffic control, gas, electricity, telephone, sewerage, drainage, water or other public or private property which may be affected by the work.

The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface. These data are not guaranteed as to their completeness or accuracy and it is the responsibility of the Contractor to make his own investigations to inform himself fully of the character, condition and extent of all such installations and structures as may be encountered and as may affect the construction operations.

The Contractor shall protect all public utility installations and structures from damage during the work. Access across any buried public utility installation or structure shall be made only in such locations and by means approved by the Engineer. The Contractor shall so arrange his operations as to avoid any damage to these facilities. All required protective devices and construction shall be provided by the Contractor at his expense. All existing public utilities damaged by the Contractor which are shown on the Plans or have been located in the field by the utility shall be repaired by the Contractor, at his expense, as directed by the Engineer. No separate payment shall be made for such protection or repairs to public utility installations or structures.

Public utility installations or structures owned or controlled by the City or other governmental body which are shown on the Plans to be removed, relocated, replaced or rebuilt by the Contractor shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various Contract Items. No separate payment shall be made therefor.

Where public utility installations or structures owned or controlled by the City or other governmental body are encountered during the course of the work, and are not indicated on the Plans or in the Specifications, and when, in the opinion of the Engineer, removal, relocation, replacement or rebuilding is necessary to complete the work under this Contract, such work shall be accomplished by the utility having jurisdiction or such work may be ordered, in writing by the Engineer, for the Contractor to accomplish. If such work is accomplished by the utility having jurisdiction it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be paid for as extra work as provided for in Article 7.02 of the Agreement.

The Contractor shall, at all times in performance of the work, employ approved methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage or destruction of public utility installations and structures; and shall, at all times in the performance of the work, avoid unnecessary interference with, or interruption of, public utility services, and shall cooperate fully with the owners thereof to that end.

All City and other governmental utility departments and other owners of public utilities, which may be affected by the work, will be informed in writing by the Engineer within two weeks after the execution of the Contract or Contracts covering the work. Such notice will set out, in general, and direct attention to, the responsibilities of the City and other governmental

utility departments and other owners of public utilities for such installations and structures as may be affected by the work and will be accompanied by one set of Plans and Specifications covering the work under such Contract or Contracts.

In addition to the general notice given by the Engineer, the Contractor shall give written notice to all City and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least forty-eight (48) hours in advance of breaking ground in any area or on any unit of the work. This can be accomplished by making the appropriate contact with the "Underground Utility Notification Center for Excavators (Call Candy)".

The maintenance, repair, removal, relocation, or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the Engineer.

SECTION 2
PLANS AND SPECIFICATIONS

G-2.01 PLANS
The Plans referred to in the Contract Documents bear the general project name and number as shown in the Notice To Bidders.

When obtaining data and information from the Plans, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.

G-2.02 COPIES FURNISHED TO CONTRACTOR
After the Contract has been executed, the Contractor will be furnished with five sets of paper prints, the same size as the original drawings, of each sheet of the Plans and five copies of the Specifications. Additional copies of the Plans and Specifications, when requested, may be furnished to the Contractor at cost of reproduction.

The Contractor shall furnish each of the subcontractors, manufacturers, and material suppliers such copies of the Contract Documents as may be required for his work.

G-2.03 SUPPLEMENTARY DRAWINGS
When, in the opinion of the Engineer, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the Engineer and five paper prints thereof will be given to the Contractor.

The Supplementary Drawings shall be binding upon the Contractor with the same force as the Plans. Where such Supplementary Drawings require either less or more than the estimated quantities of work, credit to the City or compensation therefor to the Contractor shall be subject to the terms of the Agreement.

G-2.04 CONTRACTOR TO CHECK PLANS AND DATA
The Contractor shall verify all dimensions, quantities, and details shown on the Plans, Supplementary Drawings, Schedules, Specifications, or other data received from the Engineer, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions as full instructions will be furnished by the Engineer, should such errors or omissions be discovered. All schedules are given for the convenience of the Engineer and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

G-2.05 SPECIFICATIONS
The specifications consist of four parts, the General Provisions, the Technical Specifications, the Special Provisions and the Contract Items. The General Provisions and Technical Specifications contain general requirements which govern the work. The Special Provisions and the Contract Items modify and supplement these by detailed requirements for the work and shall always govern, whenever there appears to be conflict.

G-2.06 INTENT
All work called for in the Specifications applicable to this Contract, but not shown on the Plans in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Plans or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.

The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specifications shall be made upon that basis.

SECTION 3
WORKING DRAWINGS

G-3.01 SCOPE
The Contractor shall promptly prepare and submit layout, detail and shop drawings to insure proper construction, assembly, and installation of the work using those materials and methods as hereafter specified under the Technical Specifications, Special Provisions and Contract Items.

These drawings shall accurately and distinctly present the following:

a. All working and erection dimensions.
b. Arrangements and sectional views.
c. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
d. Kinds of materials and finishes.
e. Parts listed and description thereof.

Drawings for mechanical equipment shall present, where applicable, such data as dimensions, weight and performance characteristics. These data shall show conformance with the performance characteristics and other criteria incorporated in the Plans and Specifications.

Each drawing shall be dated and shall contain the name of the project, Division number and description, the technical specifications section number, names of equipment or materials and the location at which the equipment or materials are to be installed. Location shall mean both physical location and location relative to other connected or attached material. The Engineer will return unchecked any submittal which does not contain complete data on the work and full information on related matters.

Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.

The Contractor shall review all working drawing submittals before transmitting them to the Engineer to determine that they comply with requirements of the Specifications. Drawings which are incomplete or are not in compliance with the Contract Documents shall not be submitted for processing by the Engineer. The Contractor shall place his stamp of approval on all working drawings submitted to the Engineer to indicate compliance with the above.

G-3.02 APPROVAL
If the working drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of submittal; otherwise approval of such submittals shall not constitute approval of the departure. Approval of the drawings shall constitute approval of the subject matter thereof only and not of any structure, material, equipment, or apparatus shown or indicated.

The approval of drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such drawings, nor for the proper fitting and construction of the work, nor for the furnishing of materials or work required by the Contract and not indicated on the drawings. No work called for by working drawings shall be done until such drawings have been approved by the Engineer.

The procedure in seeking approval of the working drawings shall be as follows:

1.The Contractor shall submit four complete sets of drawings and other descriptive data together with one copy of a letter of transmittal to the Engineer for approval. The letter of transmittal shall contain the name of the project, contract number, technical specifications section number, the name of the Contractor, a list of drawings with numbers and titles, and any other pertinent information.

2.Drawings or descriptive data will be stamped "Approved", "Approved Subject to Corrections Marked", or "Examined and Returned for Correction" and one copy with a letter of transmittal will be returned to the Contractor.

3.If a drawing or other data is stamped "Approved", the Contractor shall insert the date of approval on five additional copies of the document and transmit the five copies to the Engineer together with one copy of a letter of transmittal containing substantially the same information as described in Instruction 1. above.

4.If a drawing or other data is stamped "Approved Subject to Corrections Marked", the Contractor shall make the corrections indicated and proceed as in Instruction 3., above.

5.If a drawing or data is stamped "Examined and Returned for Correction", the Contractor shall make the necessary corrections and resubmit the documents as set forth in Instruction 1., above. The letter of transmittal shall indicate that this is a resubmittal.

The Contractor shall revise and resubmit the working drawings as required by the Engineer, until approval thereof is obtained.

SECTION 4
MATERIALS AND EQUIPMENT

G-4.01 GENERAL REQUIREMENTS
All materials, appliances, and types or methods of construction shall be in accordance with the Specifications and shall, in no event, be less than that necessary to conform to the requirements of any applicable laws, ordinances, and codes.

All materials and equipment shall be new, unused, and correctly designed. They shall be of standard first grade quality, produced by expert personnel, and intended for the use for which they are offered. Materials or equipment which, in the opinion of the Engineer, are inferior or of a lower grade than indicated, specified, or required will not be accepted.

The quality of Workmanship and Materials entering into the work under this Contract shall conform to the requirements of the pertinent sections, clauses, paragraphs, and sentences, both directly and indirectly applicable thereto, of that part of the Technical Specifications, whether or not direct reference to such occurs in the Contract Items.

Equipment and appurtenances shall be designed in conformity with ANSI, ASME, IEEE, NEMA and other

generally accepted standards and shall be of rugged construction and of sufficient strength to withstand all stresses which may occur during fabrication, testing, transportation, installation, and all conditions of operation. All bearings and moving parts shall be adequately protected against wear by bushings or other approved means and shall be fully lubricated by readily accessible devices. Details shall be designed for appearance as well as utility. Protruding members, joints, corners, gear covers, and the like, shall be finished in appearance. All exposed welds shall be ground smooth and the corners of structural shapes shall be mitered.

Equipment shall be of the approximate dimensions as indicated on the Plans or as specified, shall fit the spaces shown on the Plans with adequate clearances, and shall be capable of being handled through openings provided in the structure for this purpose. The equipment shall be of such design that piping and electrical connections, ductwork, and auxiliary equipment can be assembled and installed without causing major revisions to the location or arrangement of any of the facilities.

Machinery parts shall conform exactly to the dimensions shown on the working drawings. There shall be no more fitting or adjusting in setting up a machine than is necessary in assembling high grade apparatus of standard design. The equivalent parts of identical machines shall be made interchangeable. All grease lubricating fittings on equipment shall be of a uniform type. All machinery and equipment shall be safeguarded in accordance with the safety codes of the ANSI and applicable state and local codes.

G-4.02 MANUFACTURER

The names of proposed manufacturers, suppliers, material, and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Engineer for approval, as early as possible, to afford proper investigation and checking. Such approval must be obtained before shop drawings will be checked. No manufacturer will be approved for any materials to be furnished under this Contract unless he shall be of good reputation and have a plant of ample capacity. He shall, upon the request of the Engineer, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.

All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the Engineer, that the manufacturer or subcontractor deal directly with the Engineer. Any such transactions shall not in any way release the Contractor from his full responsibility under this Contract.

Any two or more pieces of material or equipment of the same kind, type or classification, and being used for identical types of service, shall be made by the same manufacturer.

G-4.03 REFERENCE TO STANDARDS

Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for proposals, even though reference has been made to an earlier standard, and such standards are made a part hereof to the extent which is indicated or intended.

Reference to a technical society, organization or body may be made in the Specifications by abbreviations, in accordance with the following list:

AASHTO for American Association of State Highway and Transportation Officials (formerly AASHO)
ACI for American Concrete Institute
AGMA for American Gear Manufacturer's Association
AFBMA for Anti-Friction Bearing Manufacturer's Association
AISC for American Institute of Steel Construction
AISI for American Iron and Steel Institute
ANSI for American National Standards Institute
ASCE for American Society of Civil Engineers
ASTM for American Society for Testing and Materials
ASME for American Society of Mechanical Engineers
AWS for American Welding Society
AWWA for American Water Works Association
AWPA for American Wood Preservers Association
CEMA for Conveyor Equipment Manufacturers Association
CIPRA for Cast Iron Pipe Research Association
IEEE for Institute of Electrical and Electronic Engineers
IPCEA for Insulated Power Cable Engineers Association
NEC for National Electrical Code
NEMA for National Electrical Manufacturers Association
SAE for Society of Automotive Engineers
SHBI for Steel Heating Boiler Institute
Fed.Spec. for Federal Specifications
Navy Spec. for Navy Department Specifications
U.L.,Inc. for Underwriters' Laboratories, Inc.

When no reference is made to a code, standard or specification, the Standard Specifications of the ANSI, the ASME, the ASTM, the IEEE, or the NEMA shall govern.

G-4.04 SAMPLES

The Contractor shall, when required, submit to the Engineer for approval typical samples of materials and equipment. The samples shall be properly identified by tags and shall be submitted sufficiently in advance of the time when they are to be incorporated into the work, so that rejections thereof will not cause delay. A letter of transmittal, in duplicate, from the Contractor requesting approval must accompany all such samples.

G-4.05 EQUIVALENT QUALITY

Whenever, in the Contract Documents, an article, material, apparatus, equipment, or process is called for by trade name or by the name of a patentee, manufacturer, or dealer or by reference to catalogs of a manufacturer or dealer, it shall be understood as intending to mean and specify the article, material, apparatus, equipment or process designated, or any

equal thereto in quality, finish, design, efficiency, and durability and equally serviceable for the purposes for which it is intended.

Whenever material or equipment is submitted for approval as being equal to that specified, the decision as to whether or not such material or equipment is equal to that specified shall be made by the Engineer.

Upon rejection of any material or equipment submitted as the equivalent of that specifically named in the Contract, the Contractor shall immediately proceed to furnish the designated material or equipment.

Neither the approval by the Engineer of alternate material or equipment as being equivalent to that specified nor the furnishing of the material or equipment specified, shall in any way relieve the Contractor of responsibility for failure of the material or equipment, due to faulty design, material, or workmanship, to perform the functions required of them by the Specifications.

G-4.06 DELIVERY
The Contractor shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work so as to complete thw work within the allotted time. The Contractor shall also coordinate deliveries in order to avoid a delay in, or impediment of, the progress of the work of any related Contractor.

G-4.07 CARE AND PROTECTION
The Contractor shall be solely responsible for properly storing and protecting all materials, equipment, and work furnished under the Contract from the time such materials and equipment are delivered at the site of the work until final acceptance thereof. He shall, at all times, take necessary precautions to prevent injury or damage by water, freezing, or by inclemencies of the weather to such materials, equipment and work. All injury or damage to materials, equipment, or work resulting from any cause whatsoever shall be made good by the Contractor.

The Engineer shall, in all cases, determine the portion of the site to be used by the Contractor for storage, plant or for other purposes. If, however, it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the work or interference with the work to be done by any other Contractor, the Contractor shall remove and restack such materials at his own expense.

G-4.08 TOOLS AND ACCESSORIES
The Contractor shall, unless otherwise stated in the Contract Documents, furnish with each type, kind or size of equipment, one complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

Spare parts shall be furnished as specified.

Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight and principal rating data.

G-4.09 INSTALLATION OF EQUIPMENT
The Contractor shall have on hand sufficient proper equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character.

Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Plans, unless directed otherwise by the Engineer during installation. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between the various units.

The Contractor shall furnish, install and protect all necessary anchor and attachment bolts and all other appurtenances needed for the installation of the devices included in the equipment specified. Anchor bolts shall be as approved by the Engineer and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.

The Contractor shall, at his own expense, furnish all materials and labor for, and shall properly bed in non-shrink grout, each piece of equipment on its supporting base that rests on masonry foundations. Grout shall completely fill the space between the equipment base and the foundation.

G-4.10 OPERATING INSTRUCTIONS
The Contractor, through qualified individuals, shall adequately instruct designated employees of the City in the operation and care of all equipment installed hereunder, except for equipment that may be furnished by the City.

The Contractor shall also furnish and deliver to the Engineer three complete sets for permanent files, identified in accordance with Subsection G-3.01 hereof, of instructions, technical bulletins and any other printed matter, such as diagrams, prints or drawings, containing full information required for the proper operation, maintenance, and repair, of the equipment installed and the ordering of spare parts, except for equipment that may be furnished by the City.

In addition to the above three copies, the Contractor shall furnish any additional copies that may be required for use during construction and start-up operations.

G-4.11 SERVICE OF MANUFACTURER'S ENGINEER
The Contract prices for equipment shall include the cost of furnishing a competent and experienced engineer or superintendent who shall represent the manufacturer and shall assist the Contractor, when required, to install, adjust, test and place in operation the equipment in conformity with the Contract Documents. After the equipment is placed in

permanent operation by the City, such engineer or superintendent shall make all adjustments and tests required by the Engineer to provide that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the City in the proper operation and maintenance of such equipment.

SECTION 5
INSPECTION AND TESTING

G-5.01 GENERAL
The Contractor's attention is hereby directed to Article 3.03 of the Agreement.

Inspection and testing of materials will be performed by the City unless otherwise specified.

For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Five copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Engineer as a prerequisite for the acceptance of any material or equipment.

If, in the making of any test of any material or equipment, it is ascertained by the Engineer that the material or equipment does not comply with the Contract, the Contractor will be notified thereof and he will be directed to refrain from delivering said material and equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the City.

Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.

The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the City formally takes over the operation thereof.

G-5.02 COSTS
All inspection and testing of materials furnished under this Contract will be performed by the City or duly authorized inspection engineers or inspection bureaus without cost to the Contractor, unless otherwise expressly specified.

The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the Contractor and such costs shall be deemed to be included in the contract price.

Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the City for compliance. The Contractor shall reimburse the City for the expenditures incurred in making such tests on materials and equipment which are rejected for noncompliance.

G-5.03 INSPECTIONS OF MATERIALS
The Contractor shall give notice, in writing to the Engineer, sufficiently in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice the Engineer will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that inspection will be made at a point other than the point of manufacture, or he will notify the Contractor that inspection will be waived. The Contractor must comply with these provisions before shipping any material. Such inspection shall not release the Contractor from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

G-5.04 CERTIFICATE OF MANUFACTURE
When inspection is waived or when the Engineer so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

G-5.05 SHOP TESTS OF OPERATING EQUIPMENT
Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function, or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents. No such equipment shall be shipped to the work until the Engineer notifies the Contractor, in writing, that the results of such tests are acceptable.

Five copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company, shall be forwarded to the Engineer for approval.

The cost of the shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the Contractor.

G-5.06 PRELIMINARY FIELD TESTS
As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make preliminary field tests of equipment. If the preliminary field tests disclose any equipment furnished under this Contract which does not comply with the requirements of the Contract Documents, the Contractor shall, prior to the acceptance tests, make all changes, adjustments, and replacements required.

G-5.07 FINAL FIELD TESTS
Upon completion of the work and prior to final payment, all equipment and appliances installed under this Contract shall be subjected to acceptance tests as specified or required to prove compliance with the Contract Documents.

The Contractor shall furnish labor, fuel, energy, water and all other materials, equipment, and instruments necessary for all acceptance tests, at no additional cost to the City.

G-5.08 FAILURE OF TESTS
Any defects in the materials and equipment or their failure to meet the tests, guarantees or requirements of the Contract Documents shall be promptly corrected by the Contractor by replacements or otherwise. The decision of the Engineer as to whether or not the Contractor has fulfilled his obligations under the Contract shall be final and conclusive. If the Contractor fails to make those corrections or if the improved materials and equipment, when tested, shall again fail to meet the guarantees or specified requirements, the City, notwithstanding its partial payment for work, and materials and equipment, may reject the materials and equipment and may order the Contractor to remove them from the site at his own expense.

In case the City rejects any materials and equipment, then the Contractor shall replace the rejected materials and equipment within a reasonable time. If he fails to do so, the City may, after the expiration of a period of thirty calendar days after giving him notice in writing, proceed to replace such rejected materials and equipment, and the cost thereof shall be deducted from any compensation due or which may become due the Contractor under this Contract.

The City agrees to obtain other equipment within a reasonable time and the Contractor agrees that the City may use the equipment furnished by him without rental or other charges until the new equipment is obtained.

Materials or work in place that fails to pass acceptability tests shall be retested at the direction of the construction engineer all such retests shall be at the Contractor's expense. The rates charged shall be in accordance with the Department of Public Works current annual inspection contract which is available for inspection at the offices of the Department of Public Works.

G-5.09 FINAL INSPECTION
The procedures for final inspection shall be in accordance with the provisions of Article 4.07 of the Agreement. During such final inspections, the work shall be clean and free from water. In no case will the final estimate be prepared until the Contractor has complied with all the requirements set forth and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily cosntructed in accordance with the requirements of the Contract Documents.

SECTION 6

TEMPORARY STRUCTURES

G-6.01 GENERAL
All false work, scaffolding, ladders, hoistways, braces, pumping plants, shields, trestles, roadways, sheeting, centering forms, barricades, drains, flumes, and the like, any of which may be needed in the construction of any part of the work and which are not herein described or specified in detail, must be furnished, maintained and removed by the Contractor, and he shall be responsible for the safety and efficiency of such works and for any damages that may result from their failure or from their improper construction, maintenance, or operation.

G-6.02 PUBLIC ACCESS
At all points in the work where public access to any building, house, place of business, public road, or sidewalk would be obstructed by any action of the Contractor in executing the work required by this Contract, the Contractor shall provide such temporary structure, bridges or roadway as may be necessary to maintain public access at all times. At least one lane for vehicular traffic shall be maintained in streets in which the Contractor is working. Street closure permits are required from the Department of Public Works.

The Contractor shall provide suitable temporary bridges, as directed by the Engineer, at street intersections when necessary for the maintenance of vehicular and pedestrian traffic.

Prior to temporarily cutting of access to driveways and garages, the Contractor shall give twelve (12) hours notice to affected property owners. Interruptions to use of private driveways shall be kept to a minimum.

G-6.03 CONTRACTOR'S FIELD OFFICE
The Contractor shall erect, furnish and maintain a field office with a telephone at the site during the entire period of construction. He or an authorized agent shall be present at this office at all times while his work is in progress. Readily accessible copies of both the Contract Documents and the latest approved working drawings shall be kept at this field office.

G-6.04 TEMPORARY FENCE
If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the Contractor shall, at his own expense, if so ordered by the Engineer, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The Engineer shall be solely responsible for the determination of the necessity for providing a temporary fence and the type of temporary fence to be used.

G-6.05 RESPONSIBILITY FOR TEMPORARY STRUCTURES
In accepting the Contract, the Contractor assumes full responsibility for the sufficiency and safety of all temporary structures or work and for any damage which may result from their failure or their improper construction, maintenance, or operation and will indemnify and save harmless the City from

all claims, suits or actions and damages or costs of every description arising by reason of failure to comply with the above provisions.

SECTION 7
TEMPORARY SERVICES

G-7.01 WATER
The Contractor shall provide the necessary water supply at his own expense. He shall, if necessary, provide and lay necessary waterlines from existing mains to the place of using, shall secure all necessary permits and pay for all taps to water mains or hydrants and for all water used at the established rates.

G-7.02 LIGHT AND POWER
The Contractor shall provide, at his own expense, temporary lighting and power facilities required for the proper prosecution and inspection of the work. If, in the opinion of the Engineer, these facilities are inadequate, the Contractor will not be permitted to proceed with any portion of the work affected thereby.

G-7.03 SANITARY REGULATIONS
The Contractor shall prohibit and prevent the committing of nuisances on the site of the work or on adjoining property and shall discharge any employee who violates this rule.

Ample washrooms and toilet facilities and a drinking water supply shall be furnished and maintained in strict conformity with the law by the Contractor for use by his employees.

G-7.04 ACCIDENT PREVENTION
Precautions shall be exercised at all times for the protection of persons and property. The safety provisions of applicable laws, building and construction codes shall be observed. The Contractor shall comply with the U. S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596), and under Section 107 of the Contract Work. Hours and Safety Standards Act (PL 91-54), except where state and local safety standards exceed the federal requirements and except where state safety standards have been approved by the Secretary of Labor in accordance with provisions of the Occupational Safety and Health Act.

G-7.05 FIRST AID
The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when men are employed on the work.

G-7.06 HEATING
The Contractor shall provide temporary heat, at his own expense, whenever required on account of work being carried on during cold weather and to prevent freezing of water pipes and other damage to the work.

SECTION 8
LINES AND GRADES

G-8.01 GENERAL
All work done under this Contract shall be constructed in accordance with the lines and grades shown on the Plans, or as given by the Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

The Engineer will establish bench marks and base line controlling points. Reference remarks for lines and grades as the work progresses will be located to cause as little inconvenience to the prosecution of the work as possible. The Contractor shall so place excavation and other materials as to cause no inconvenience in the use of the use of the reference marks provided. He shall remove any obstructions placed by him contrary to this provision.

G-8.02 SURVEYS
The Contractor shall furnish and maintain, at his own expense, stakes and other such materials, and give such assistance, including qualified helpers, as may be required by the Engineer for setting reference marks. The Contractor shall check such reference marks by such means as he may deem necessary and, before using them, shall call the Engineer's attention to any inaccuracies. The Contractor shall, at his own expense, establish all working or construction lines and grades as required from the reference marks set by the Engineer, and shall be solely responsible for the accuracy thereof. He shall, however, be subject to the check and review of the Engineer.

The Contractor shall keep the Engineer informed a reasonable time in advance as to his need for line and grade reference marks, in order that they may be furnished and all necessary measurements made for record and payment with the minimum of inconvenience to the Engineer or of delay to the Contractor.

It is the intention not to delay the work for the establishment of reference marks but, when necessary, working operations shall be suspended for such reasonable time as the Engineer may require for this purpose.

G-8.03 SAFEGUARDING MARKS
The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of reestablishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to removing without authorization such established points, stakes and marks.

The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, if required, shall bear the cost of reestablishing them if disturbed or destroyed.

G-8.04 DATUM PLANE
All elevations indicated or specified refer to the Mean Sea Level Datum of the U.S.C. & G.S. (N.O.S.) which is 0.80 feet above the Mean Low Water Datum of the U. S. Army

Corps of Engineers.

SECTION 9
ADJACENT STRUCTURES AND LANDSCAPING

G-9.01 RESPONSIBILITY
The responsibility for removal, replacement, relocation, repair, rebuilding or protection of all public utility installations, including poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes, sewers, traffic control and fire alarm signal circuit installations and other appurtenances and facilities shall be in accordance with G-1.02 and G-1.03.

The Contractor shall also be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent public and private property and structures affected by the work, whether or not shown on the Plans, and the removal, relocation, and reconstruction of such items called for on the Plans or specified shall be included in the various Contract Items and no separate payment will be made therefor. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Plans and when, in the opinion of the Engineer, removal or relocation and reconstruction is necessary to avoid interference with the work, payment therefor will be made as provided for extra work in Article 7.02 of the Agreement.

G-9.02 PROTECTION OF TREES
All trees and shrubs shall be adequately protected by the Contractor with boxes or otherwise and, within the City of Tampa, in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at the proper season, and at the sole expense of the Contractor.

Beneath trees or other surface structures, where possible, pipelines may be built in short tunnels, backfilled with excavated materials, except as otherwise specified, or the trees or structures carefully supported and protected from damage.

The City may order the Contractor, for the convenience of the City, to remove trees along the line of trench excavation. If so ordered, the City will obtain any permits required for removal of trees. Such tree removal ordered shall be paid for under the appropriate Contract Items.

G-9.03 LAWN AREAS
Lawn areas shall be left in as good condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed and later replaced, or the area where sod has been removed shall be restored with new sod in the manner described in the Technical Specifications section.

G-9.04 RESTORATION OF FENCES
Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the starting of the work. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the Engineer. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract Item or Items, or if no specific Item is provided therefor, as part of the overhead cost of the work, and no additional payment will be made therefor.

SECTION 10
PROTECTION OF WORK AND PUBLIC

G-10.01 TRAFFIC REGULATIONS
The Contractor shall arrange his work to comply with Article G-6.02. The work shall be done with the least possible inconvenience to the public and to that end the work may be confined by the Engineer to one block at a time.

G-10.02 BARRIERS AND LIGHTS
During the prosecution of the work, the Contractor shall put up and maintain at all times such barriers, and lights, as will effectually prevent accidents. The Contractor shall provide suitable barricades, red lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public. Such barriers and signs shall be constructed to State of Florida Department of Transportation standards and placed as recommended by the Traffic Division of the City's Department of Public Works.

No open fires will be permitted.

G-10.03 SMOKE PREVENTIONS
The Contractor shall use hard coal, coke, oil or gas as fuel for equipment generating steam. A strict compliance with ordinances regulating the production and emission of smoke will be required.

G-10.04 NOISE
The Contractor shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.

Except in the event of an emergency, no work shall be done between the hours of 7:00 p.m. and 7:00 a.m., or on Sundays. If the proper and efficient prosecution of the work requires operations during the night, the written permission of the Engineer shall be obtained before starting such items of the work.

G-10.05 ACCESS TO PUBLIC SERVICES
Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.

G-10.06 DUST PREVENTION
The Contractor shall prevent dust nuisance from his operations or from traffic by keeping the streets sprinkled with water at all times.

G-10.07 PRIVATE PROPERTY
The Contractor shall so conduct the work that no equipment, material, or debris will be placed or allowed to fall upon private property in the vicinity of the work unless he shall have obtained the owner's written consent thereto and shall have shown this consent to the Engineer.

SECTION 11
SLEEVES AND INSERTS

G-11.01 COORDINATION
When the Contract requires the placing of conduits, saddles, boxes, cabinets, sleeves, inserts, foundation bolts, anchors, and other like work in floors, roofs, or walls of buildings and structures, they shall be promptly installed in conformity with the construction program. The Contractor who erects the floors, roofs, and walls shall facilitate such work by fully cooperating with the Contractors responsible for installing such appurtenances. The Contractor responsible for installing such appurtenances shall arrange the work in strict conformity with the construction schedule and avoid interference with the work of other contractors.

G-11.02 OPENINGS TO BE PROVIDED
In the event timely delivery of sleeves and other materials cannot be made and to avoid delay, the affected Contractor may arrange to have boxes or other forms set at the locations where the appurtenances are to pass through or into the floors, roofs, walls, or other work. Upon the subsequent installation of these appurtenances, the Contractor erecting the structure shall fill around them with materials as required by the Contract. The necessary expenditures incurred for the boxing out and filling in shall be borne by the Contractor or Contractors required to furnish the sleeves and inserts. Formed openings and later installation of sleeves will not be permitted at locations subject to hydrostatic pressure.

SECTION 12
CUTTING AND PATCHING

G-12.01 GENERAL
The Contractor shall do all cutting, fitting, or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the Engineer and in accordance with the Plans and Specifications. The work must be done by competent workmen skilled in the trade required by the restoration.

SECTION 13
CLEANING

G-13.01 DURING CONSTRUCTION
During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris, and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable.

The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefor develops.

G-13.02 FINAL CLEANING
At the conclusion of the work, all erection plant, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished, and new appearing condition.

SECTION 14
MISCELLANEOUS

G-14.01 PROTECTION AGAINST SILTATION AND BANK EROSION
The Contractor shall arrange his operations to minimize siltation and bank erosion on construction sites and on existing or proposed watercourses and drainage ditches.

G-14.02 EXISTING FACILITIES
The work shall be so conducted to maintain existing facilities in operation insofar as is possible. Work shall be scheduled to minimize bypassing during construction. Requirements and schedules of operations for maintaining existing facilities in service during construction shall be as described in the Special Provisions.

G-14.03 USE OF CHEMICALS
All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

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SUPPLEMENTARY GENERAL PROVISIONS

1.0 GENERAL:

1.1 This Section sets forth modifications to the "General Provisions" of the Contract Documents which are referred to as Specifications, General Provisions.

1.2 Paragraph numbers and titles used herein refer to similarly numbered and titled articles in the General Provisions.

1.3 Only those paragraphs contained herein shall be assumed to be modified. Paragraphs not appearing herein shall apply as written in the General Provisions.

1.4 Any portion of the General Provisions, whether or not modified herein, may be further modified in Special Conditions and in the Instructions to Bidders of these Specifications.

1.5 Where the Supplementary General Provisions, Special Conditions and Instructions to Bidders conflict with the General Provisions, the Supplementary General Provisions, Special Conditions and the Instructions to Bidders shall take precedence.

2.0 MODIFICATIONS TO THE GENERAL PROVISIONS AS FOLLOWS:

2.1 SECTION 1 SCOPE AND INTENT

G-1.02 WORK INCLUDED

The first paragraph shall be deleted in its entirety and replaced by the following paragraph:

"The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, and other means of construction necessary or proper for performing and completing the work. He shall obtain all required permits. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Engineer, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until incidental thereto. He shall repair or restore all during performance of the work."

2.2 SECTION 3 WORKING DRAWINGS

a. Change to read as follows:

SECTION 3 SHOP DRAWINGS

b. Replace the existing paragraphs in their entirety with the following paragraphs:

G-3.01 SCOPE

Shop drawings, schedules, etc., shall be submitted to the Engineer and/or Architect in quadruplet, accompanied by a letter of transmittal. Subcontractors and suppliers shall submit shop drawings and make requests for approvals through their respective prime Contractors.

The drawings shall be numbered consecutively and shall accurately and distinctly present the following:

(1) Names of equipment or materials, and the locations at which the equipment or materials are to be installed in the work.

(2) All working and erection dimensions.

(3) Arrangement and sectional views.

(4) Necessary details, including complete information for making connections between work under this contract and work under other contracts.

(5) Kinds of materials and finishes.

(6) Parts list and description thereof.

The Engineer and/or Architect may decline to consider any shop drawing that does not contain complete data on the work and full information of related matters.

Fax submittals will not be reviewed.

G-3.02 APPROVAL:

Shop drawings shall be examined by the Contractor prior to his transmitting them to the Engineer and/or Architect. Shop drawings submitted to the Engineer and/or Architect shall bear the Contractor's stamp of approval evidencing that he has examined and checked each drawing and that he has found said drawings to be in accordance with the Contract requirements. Any drawings submitted without this stamp will not be considered by the Engineer and/or Architect and will be returned to the Contractor for re- submission.

If the shop drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of submittal and the following shall be submitted:

(1) Each request shall include a complete description of the proposed substitute and the name of the material or equipment for which it is to be substituted.

(2) Furnish drawings, cut, manufacturer's printed specifications, performance and test data and any other data or information necessary for a complete evaluation of both the item specified and the proposed substitute item.

Approval of the drawings shall constitute approval of the subject matter thereof only and not of any structure, material, equipment or apparatus shown or indicated.

Approval of the drawings shall be general and shall not relieve the Contractor of responsibility for the accuracy of such drawings, nor for the quantities of materials and equipment, nor for the proper fitting and construction of the work, nor for the furnishing of materials, tools, equipment, etc., required by this contract and not indicated on the drawings.

No work called for by Shop Drawings shall be done until the said drawings have been approved by the Engineer and/or Architect.

The Contractor shall revise and resubmit the shop drawings as required by the Engineer and/or Architect until approval thereof is obtained.

The City shall retain four (4) copies of all submittals unless the Engineers and/or Architect makes a specific request for additional copies.

Items	Submittals	*Approval
All trade	Fourteen (14) Days	Fourteen (14) Days

*From date of receipt of submittal.

Delays on account of tardy or untimely submittals will not be considered as causes of extension of time of the Contract or increases to the Contract Sum.

G-3.03 JOB SITE:

One (1) copy of all approved submittals SHALL BE available at the Contractor's Office at the job site.

2.3 SECTION 4 MATERIALS AND EQUIPMENT

G-4.01 GENERAL REQUIREMENTS

In the first paragraph, second line, delete the word "specifications" and substitute the words "Contract Documents".

G4.03 REFERENCE TO STANDARDS

The following paragraph shall be added in its entirety:

"Compliance with the Standard Building Code, latest edition, and all local electrical and plumbing codes shall be required. In the event of a conflict in code requirements, the most stringent code or standard shall apply."

G-4.05 EQUIVALENT QUALITY

Add the following sentence to paragraph two: "Any professional fees associated with shop drawing review of materials or equipment submitted for approval as equivalent to that specified shall be borne by the Contractor.

2.4 SECTION 5 INSPECTION AND TESTING

G-5.06 PRELIMINARY FIELD TESTS

G-5.07 FINAL FIELD TEST

A. Add the following sentence to BOTH of the above paragraphs:

The Contractor shall provide, at NO EXTRA COST to the City, ALL labor, tools, equipment, materials, etc., for the Engineer and/or Architect to make any field test that may be required in the judgment of the Engineer and/or Architect.

2.5 SECTION 6 TEMPORARY STRUCTURES

G-6.03 CONTRACTOR'S FIELD OFFICE

a. In the last sentence of this paragraph, add the following words: "...and Shop Drawings".

2.6 SECTION 7 TEMPORARY SERVICES

G-7.01 WATER, G-7.02 LIGHT AND POWER, AND G-7.02 LIGHT AND POWER

The City of Tampa shall provide, at no cost to the Contractor, water, and electricity for installation of this project. All water and electricity shall be applied and/or connected by the Contractor.

G-7.07 TELEPHONE

The Contractor shall furnish the Engineer with a telephone number(s) by which the Engineer may contact the site.

2.7 SECTION 14 MISCELLANEOUS

G-14.04 USE OF EXPLOSIVES:

Explosives will not be used on the work except when authorized by the Engineer and/or Architect. The use of same, if authorized, shall conform to laws or ordinances which may pertain to the use of same and the utmost care will be exercised by the Contractor so as not to endanger life or property. The Contractor will assume full responsibility in connection with use of any explosives even though authorized. Explosives will not be stored within the City limits.

G-14.05 OWNERSHIP OF MATERIALS:

The removal of any underground and surface structures as required shall be performed in a careful manner to permit salvaging of as much material, such as pipe and brick, also broken section of sidewalk, as practical for use in repair and maintenance of City-owned facilities.

Such acceptable salvaged material remains the property of the City and shall be placed in stock piles so as not to interfere with new construction work but accessible for loading and hauling by the City or by the Contractor within the free haul limit of six (6) miles. The Engineer and/or Architect shall direct the Contractor as to the location of stockpile.

The paving material, such as vitrified brick, asphalt block and other paving materials removed from the excavated areas and suitable for reuse but not reused in the work, shall also be considered the property of the City. The handling of such materials shall be as set forth elsewhere in the Specifications or Special Provisions.

G-14.06 NOTICE OR SERVICE THEREOF:

All notices, which shall include demands, instructions, requests, approvals and claims, shall be in writing.

Any notice to or demand upon the Contractor shall be sufficiently given if delivered to the office of the Contractor specified in the bid (or to such other office as the Contractor may, from time to time, designate to the City in writing), or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered, with charges case addressed to such office.

All notices required to be delivered to the City shall, unless otherwise specified in writing to the Contractor, be delivered to Contract Administration Department – Construction Management Division, 3808 East 26th Avenue, Tampa, Florida 33605, and any notice to or demand upon the City shall be sufficiently given if delivered to the office of the said Engineer and/or Architect, or if deposited in the United States mail in a sealed, postage- prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to said Engineer and/or Architect or to such other representative of the City or to such other address as the City may subsequently specify in writing to the Contractor or to its representative at the construction site for such purposes.

Any such notice or demand shall be deemed to have been given or made as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post or (in the case of telegram) at the time of actual receipt, as the case may be.

G-14.07 REQUIREMENTS FOR CONTROL OF THE WORK:

Prior to the start of the work included in this contract, a Preconstruction Conference will be held by the Engineer and/or Architect to be attended by the Contractor and representatives of the various utilities and others for the purpose of establishing a schedule of operations which will coordinate the work to be done under this contract with all related work to be done by others within the limits of the project. The Contractor shall be prepared for this meeting and shall present a comprehensive construction schedule for all items of work to be accomplished by him, which will be used as the basis for the development of an overall operational schedule and a list of subcontractors to be used on this work.

All items of work on this contract shall be coordinated so that progress on each related work item will be continuous from week to week. The progress of the work will be reviewed by the Engineer and/or Architect at the end of each week, and if the progress on any item of work during that week is found to be unsatisfactory, the Contractor shall be required to adjust the rate of progress on that item or other items as directed by the Engineer and/or Architect.

The Contractor shall conduct his operations in such a manner as will result in a minimum of inconvenience to occupants of adjacent homes and business establishments and shall provide temporary access as directed or as conditions in any particular location may require.

G-14.08 WORK DIRECTIVE CHANGE:

"A Work Directive Change is a written directive to the Contractor, issued on or after the date of the execution of the Agreement, and signed by the Engineer on behalf of the City, ordering an addition, deletion or revision in the work, or responding to an emergency. A Work Directive Change will not change the contract price or the time for completion, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the contract price or the time for completion. "Without invalidating the Agreement, additions, deletions or revisions in the Work may, at any time or from time to time, be authorized by a Change Order or a Work Directive Change. Upon receipt of any such document, the Contractor shall promptly proceed with the work involved."

G-14.09 RESERVED PARKING SIGNS IN PARKING METER AREAS

The Contractor shall reimburse the Department of Public Works, Parking Division, located at 107 N. Franklin Street, Tampa, Florida 33602, for any and all metered parking spaces occupied or made unusable or unavailable as a result of, or because of, construction activity by the Contractor. Private automobiles may not be parked in any reserved space, unless clearly marked as associated with the project.

In order to receive temporary or permanent reserved signs in parking areas which are required by parking meters, there shall first be paid to the Parking Revenue Fund for the elimination of each such meter a charge based on the following schedules:

1. Meter Removal: The charge for removing a meter is ten (10) times the hourly meter fee, with a minimum charge of $12.50. Such charge will be assessed for each day a meter is removed, excluding Saturdays, Sundays, and City holidays.

2. Reservation of Parking Metered Spaces During Hours of City Parking Division Operation: The charge for reservation of a metered space is ten (10) times the hourly meter fee. Such charge will be assessed for each day a meter is reserved. The minimum total charge per rental agreement is $12.50.

3. Reservation of Parking Metered Spaces During Hours of City Parking Division Non- Operation: The charge for reservation of a metered space during hours of non-operation shall be $2.00. Such charge will be assessed for each day a meter is reserved. The minimum charge per rental agreement is $12.50.

4. Reservation of Parking Metered Spaces During Hours of City of Tampa Parking Division Operation and Non-Operation: Meter reservation periods, which include both operation and non-operational hours, shall be charged the operational rate.

In the event that an entire block or area of parking meters are reserved for a period of 90 days or longer, the Contractor may arrange a payment schedule with the Department of Logistics and Asset Management, Parking Division. Said payment schedule will be paid on a monthly basis after a deposit equivalent to the first and last month rental charges has been received by the Parking Division prior to commencement of construction.

Any meter or meters which may sustain damage due to construction activities in the immediate area must be removed. The meter removal/installation charge is $7.50 per meter. Failure to have a meter(s) removed will result in the Contractor being held liable for damage occurring to said meter(s) and further, the Contractor will be required to reimburse the Department of Logistics and Asset Management for meter(s) repaired or replaced.

G-14.10 EROSION AND SEDIMENT CONTROL:

During construction, the Contractor shall provide adequate erosion and sediment controls to prevent adverse effects to the environment and public and private property. He shall construct and maintain control structures necessary to prevent erosion and sediment. He shall conduct and schedule construction operations to avoid, prevent, and minimize erosion and sediment. He shall comply with City, County, State, and Federal codes, laws, and regulations and the plans and specifications for this project pertaining to erosion and sediment prevention and control.

At the Preconstruction Conference, the Contractor shall present a plan for erosion and sediment prevention and control. This plan shall include the operations methods, also temporary and permanent control measures and structures to be used on this project.

G-14.11 ENGINEER'S FIELD OFFICE:

The Contractor shall provide and maintain an adequate field office, which shall be a structure completely separated from the Contractor's field office, for the exclusive use of the Construction Engineer and/or Architect and engineering technicians within the project limits. No additional payment shall be made for this item. Location of said field office shall be as directed by the Engineer and/or Architect.

Contractor shall provide one (1) desk with chair, one (1) four-drawer metal file cabinet with lock, plan rack to hold a minimum of eight (8) separate sets of plans and one (1) plan table, top shall be minimum of 3'-0" wide x 6'-8" long; also adequate heating, air conditioning, lighting and one (1) window, 36"x36" minimum size, in each of four (4) walls.

G-14.12 PROJECT SIGNS:

The Contractor shall furnish and install, as directed by the Engineer and/or Architect, a project sign of design, size, color, etc., as per drawing page SIGN-1.

G-15.0 NOTIFICATION TO CONTRACTORS:

All Contractors working in City of Tampa buildings and facilities that contain ACM will be provided with a written notice, including contract custodial firms. The notice when applicable will advise Contractors about the possibility of encountering ACM while working for the City and will require Contractors to become familiar with locations of ACM within their work areas. The Contractor Notice shall include the name and phone number of the designated Building Asbestos Contact Person assigned to that building/facility. This notice is provided in Appendix C.

Appendix C

Contractor Notification Requirements

Asbestos-Containing Material (ACM) may be present in the facility. The presence of ACM does not necessarily mean that a hazard exists; however, a hazard may be created when ACM is disturbed and asbestos fibers become airborne. The best way to maintain a safe environment is to avoid the disturbance of ACM.

It is possible that you may encounter ACM while working in the facility. On the bulletin board, there is a summary of known locations of ACM in that building. The summary may or may not be all inclusive. Therefore, workers must exercise caution and be watchful for materials that might contain asbestos. Avoid disturbing ACM or suspected ACM as you carry out your work.

If your work necessitates the disturbance of ACM you shall take whatever precautions that are necessary to protect human health and the environment from asbestos fibers. At minimum, you will comply with all Federal, Sate, and Local responsible for assuring that you are medically certified, trained, and equipped with the proper personal protective devices for safe handling of ACM. You must notify the designated Building Asbestos Contact Person before disturbing any asbestos-containing materials in City-Owned buildings. The designated Building Asbestos Contract Person is listed on the bulletin board with the asbestos location summary.

If you need additional information regarding ACM in a particular building or would like to see a copy of the Operations and Maintenance Plan, contact the Building Asbestos Contact Person responsible for the building for which you will be working.

Comply with all regulatory requirements for removal and disposal.

SPECIAL CONDITIONS

1.0 PRECONSTRUCTION BRIEFING:

The Contractor, upon receiving notice that he has been awarded the contract for the construction of the project, shall make an appointment with the Engineer and/or Architect for said briefing. The Contractor shall bring to this meeting the following:

1. Contract Documents not yet submitted.
2. A detailed Job Progress Schedule.
3. Samples, questions, etc., he feels necessary.
4. List of subcontractors.

Failure to bring the above items to the meeting will result in cancellation of meeting. Once items have been submitted, meeting will be rescheduled by the City. Site access and commencement of work will not be allowed during period between meetings.

Contractor shall have representatives present at meeting that are familiar with, and conversant on, the scope of the work and Contract Document requirements. Failure to have such persons present will also result in cancellation and rescheduling of meeting until such a time when condition is corrected.

Elapsed time as a result of the Contractor's failure to comply with above will not result in an extension of contract time.

2.0 SITE REVIEW:

Before submitting Proposals, Bidders shall carefully examine the entire site of the proposed work and adjacent premises and the various means of approach and access to the site, and make all necessary investigations to inform themselves thoroughly as to the facilities for delivering, placing and operating the necessary construction equipment, and for delivering and handling materials at the site, and inform themselves thoroughly as to all difficulties involved in the completion of all the work in accordance with the Contract Documents.

The Contractor shall immediately, upon entering project site for the purpose of beginning work, review project site with the Engineer and/or Architect for the purpose of selecting area(s) to place materials for storage.

The Contractor must exercise proper precaution to verify all figures shown or indicated on the drawings, all existing trees, paved areas; utilities, etc., shall be located before beginning any work, and he shall be held responsible for any error resulting from his failure to exercise such precaution.

2.1 LAYING OUT WORK:

The Contractor shall locate all general reference points and take necessary action to prevent their destruction; lay out his own work and be responsible for all lines, elevations, measurements, grading, trenching, backfilling, utilities and other work to be executed by him for a complete project under this contract.

The Contractor shall lay out all work and have final approval by the Engineer and/or Architect before installation begins. Contractor shall be held responsible for any error resulting from his failure to exercise such approval. Said errors shall be corrected by the Contractor at NO EXTRA COST to the City.

The Contractor shall coordinate with the Parks Department and shall identify each and every tree to remain prior to the start of work. The specific trees to remain shall be approved by the Parks Department.

The final location of all work to be performed shall be made jointly by the Engineer and/or Architect and the Contractor at the project site.

3.0 SAFETY AND HEALTH STANDARDS:

The performance of all construction under this contract shall conform to ALL Local, State, Federal Occupation Safety and Health Act Standards.

At the end of each work day, all work areas shall be left in a safe condition. Barricades and/or warning devices shall be provided for at any open excavations or barriers on the project site.

The Contractor's attention is directed to paragraphs Article 3.07 and Article 12.03 of the Agreement, and paragraph G-7.04 of the General Provisions.

4.0 INFORMATION FOR COLOR SCHEDULES:

Not later than thirty (30) calendar days after authorization to proceed with contract work, the Contractor shall submit to the Engineer and/or Architect the names of all manufacturers and trade names for all materials involving selection based upon color or texture or other design appearance features which are to be used in this project. Where samples are necessary for such selection, furnish same.

If such information is not furnished by Contractor within thirty (30) day period, the Engineer and/or Architect will select colors and textures from products named in the Contract Documents.

5.0 RESPONSIBILITY OF CONTRACTOR:

The Contractor shall take all necessary precautions to protect all project surfaces and adjoining areas from mechanical damage from tools, equipment, materials, supports, etc., and shall provide adequate protection from leaking lubricants or fluids from his equipment.

Damage to said project surfaces and adjoining areas caused by a lack of protection or negligence by the Contractor shall be repaired and/or replaced at NO EXTRA COST to the City and to the full satisfaction of the Engineer and/or Architect.

The Contractor and all subcontractors are charged with the protection of the work and property, but the final responsibility for these provisions rests with the Contractor who shall take complete charge of the project site from start to finish of work.

The Contractor shall take particular precautions to protect existing trees and plant material. All trees and other plant material to remain shall be marked by the City prior to start of work.

Excavation, earthwork or sitework within the drip line of existing trees shall be done either manually or by methods approved by the City of Tampa Parks Department.

If the Contractor damages any tree or plant material in any way he shall be required to replace the damaged tree or plant material as follows:

1. Trees

    a. Replace a 6" caliper or less with a 6" caliper of the same species.

    b. Replace a 7"-10" caliper with two (2) 6" caliper of the same species.

    c. Replace a 10"-15" caliper with three 6" caliper of the same species.

d. Replace a 16"-20" caliper with five (5) 6" caliper of the same species.

e. Replace a 21"-36" caliper with ten (10) 6" caliper of the same species.

2. Plant Material

Replace any damaged plant material with an equal size and quantity of the same material.

The replaced trees and plant material shall be guaranteed by the Contractor for a period of six (6) months.

6.0 COORDINATION WITH N.I.C. ITEMS:

The Contractor shall give to the Engineer and/or Architect, in writing, a time schedule for the installation or removal of all N.I.C. items at the beginning of the project. Failure of the Contractor to supply the Engineer and/or Architect with said schedule shall not be used for reason of time extension by the Contractor.

7.0 ELECTRICAL SERVICE LOCATION:

The Contractor shall verify and coordinate the service location with the local power company and the Engineer and/or Architect.

The Contractor shall coordinate with the local power company and shall include in his bid all costs for electrical service to work area(s) under this Contract, including but not limited to new service, connections from existing and/or new service and all required labor, equipment, materials etc. and all other associated electrical work.

8.0 SCHEDULING:

The Contractor shall provide the City with a detailed schedule prior to start of work.

The schedule shall be a fully developed, horizontal bar-chart type Contractor's construction schedule. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".

Unless otherwise directed or approved, prepare schedule on a single 8-1/2" X 14" sheet of plain bond white paper.

Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.

Contractor shall also prepare schedule in accordance with applicable portions of Section 4.02 of the Agreement.

9.0 ASSIGNMENT OF CONTRACT: Not applicable.

10.0 WORKMANSHIP AND MATERIALS:

Workmanship and materials shall be installed in accordance with accepted standards of the specific trade, as defined by the applicable recognized trade association(s). In the event of a conflict between these trade standards and the Contract Documents, the conflict shall be brought to the Engineer's and/or Architect's attention writing and the final decision shall be made by the Engineer and/or Architect.

11.0 RECORD DRAWINGS:

During the course of the work, Contractor shall maintain, at the site, a clean undamaged set of the Contract Documents. Contractor shall mark set, on a daily basis, with location and progress of all contract work, including but not limited to:

1. Sewer, water, stormwater and irrigation fabrication drawings showing to scale all manholes, all distances and angles between manholes, line dimension, grid co-ordinates, trunk lines, inverts and cleanouts,

2. Fencing, roadway, parking and sleeving,

3. Electrical service, and

4. General building location, and/or foundations, structures, etc.

Drawings shall be on site at all times and available for review by the City. Failure of Contractor to have drawings on site and/or up to date may result in suspension of work until situation is corrected. Extension of contract will not be granted for such condition.

At conclusion of work, the Contractor shall provide the City with one complete set of Electronic Record Drawings incorporating changes described above, and four marked hard copy sets of as-built record drawings clean and damaged free shall also be submitted to the City at the same time. Electronic files will be issued to the Contractor by the City of Tampa. These files will be AutoCAD DWG, AutoCAD DWF or Adobe PDF latest versions.

A Work Directive Change is a written directive to the Contractor, issued on or after the date of the execution of the Agreement, and signed by the Engineer on behalf of the City, ordering an addition, deletion or revision in the work, or responding to an emergency. A Work Directive Change will not change the contract price or the time for completion, but is evidence that the parties expect that the change directed or documented by an Authorization to Proceed with Extra Work letter will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the contract price or the time for completion.

12.0 ON SITE RECYCLABLE CRITERIA:

Contractor shall make reasonable attempts to recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Contractor shall develop and implement a Construction Waste Management Plan that identifies the materials that are to be diverted from disposal by weight or volume and be directed to a recycling facility. Specific area(s) on the construction site shall be designated for collection and tracking of the designated materials as needed. Location of the recycling area on site shall be coordinated with the project owner's representative on site prior to construction start. The intent of this section is to encourage recycling where practical in the context of the scope of work.

Contractor shall submit the following but not limited to items related to this section:

1. Provide a submittal of the contractor's plan of action to recycle

2. Contractor is required to document all activities with above requirements and provide to the city upon request items that are recyclable, documentation of the quantity of material disposed at a recycling facility.

City of Tampa – DMI Sub-(Contractors/Consultants/Suppliers) Payments

(FORM MBD-30)

[ ] Partial [ ] Final

Contract No.: _____ WO#,(if any):_____ Contract Name:_____

Contractor Name:_____ Address:_____

Federal ID:_____ Phone:_____ Fax:_____ Email:_____

GC Pay Period:_____ Payment Request/Invoice Number:_____ City Department:_____

Total Amount Requested for pay period: $_____ Total Contract Amount(including change orders):$_____

-Type of Ownership - (F=Female M=Male), BF BM = African Am., HF HM = Hispanic Am., AF AM = Asian Am., NF NM = Native Am., CF CM = Caucasian S = SLBE

Type Trade/Work Activity []Sub []Supplier Federal ID	Company Name Address Phone & Fax	Total Sub Contract Or PO Amount	Amount Paid To Date Amount Pending Previously Reported	Amount To Be Paid For This Period Sub Pay Period Ending Date
			$	$
			$	$
			$	$
			$	$
			$	$
			$	$

(Modifying This Form or Failure to Complete and Sign May Result in Non-Compliance)

Certification: I hereby certify that the above information is a true and accurate account of payments to sub – contractors/consultants on this contract.

Signed:_____ Name/Title:_____ Date:_____

Note: Detailed Instructions for completing this form are on the next page

Page 2 of 2 – DMI Payment

Instructions for completing The DMI Sub-(Contractors/Consultants/ Suppliers) Payment Form (Form MBD-30)

This form must be submitted with all invoicing or payment requests where there has been subcontracting rendered for the pay period. If applicable, after payment has been made to the subcontractor, "Waiver and Release of Lien upon Progress Payment", "Affidavit of Contractor in Connection with Final Payment", or an affidavit of payment must be submitted with the amount paid for the pay period. The following will detail what data is required for this form. The instructions that follow correspond to the headings on the form required to be completed. **(Modifying or omitted information from this form my result in non-compliance).**

- **Contract No.** This is the number assigned by the City of Tampa for the bid or proposal.
- **W.O.#** If the report covers a work order number (W.O.#) for the contract, please indicate it in that space.
- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business.
- **Address.** The physical address of your business.
- **Federal ID.** A number assigned to a business for tax reporting purposes.
- **Phone.** Telephone number to contact business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **Pay Period.** Provide start and finish dates for pay period. (e.g. 05/01/13 – 05/31/13)
- **Payment Request/Invoice Number.** Provide sequence number for payment requests. (ex. Payment one, write 1 in space, payment three, write 3 in space provided.)
- **City Department**. The City of Tampa department to which the contract pertains.
- **Total Amount Requested for pay period.** Provide all dollars you are expecting to receive for the pay period.
- **Total Contract Amount (including change orders).** Provide expected total contract amount. This includes any change orders that may increase or decrease the original contract amount.
- **Signed/Name/Title/Date**. This is your certification that the information provided on the form is accurate.
- **See attached documents.** Check if you have provided any additional documentation relating to the payment data. Located at the bottom middle of the form.
- **Partial Payment.** Check if the payment period is a partial payment, not a final payment. Located at the top right of the form.
- **Final Payment.** Check of this period is the final payment period. Located at the top right of the form.

The following instructions are for information of any and all subcontractors used for the pay period.

- **(Type) of Ownership.** Indicate the Ethnicity and Gender of the owner of the subcontracting business or SLBE.
- **Trade/Work Activity.** Indicate the trade, service, or material provided by the subcontractor.
- **SubContractor/SubConsultant/Supplier.** Please indicate status of firm on this contract.
- **Federal ID.** A number assigned to a business for tax reporting purposes. This information is critical in proper identification of the subcontractor.
- **Company Name, Address, Phone & Fax**. Provide company information for verification of payments.
- **Total Subcontract Amount.** Provide total amount of subcontract for subcontractor including change orders.
- **Amount Paid To Date.** Indicate all dollars paid to date for the subcontractor.
- **Amount Pending, Previously Reported.** Indicate any amount previously reported that payments are pending.
- **Amount To Be Paid for this Period.** Provide dollar amount of dollars requested for the pay period.
- **Sub Pay Period Ending Date.** Provide date for which subcontractor invoiced performed work.

Forms must be signed and dated or will be considered incomplete. The company authorized representative must sign and certify the information is true and accurate. Failure to sign this document or return the document unsigned can be cause for determining a company is in non-compliance of Ordinance 2008-89.

If any additional information is required or you have any questions, you may call the Minority Business Development Office at (813) 274-5522.

SIGN EXAMPLE ONLY GRAPHIC TO BE DEVELOPED BY CONTRACTOR

scale: 3" 3"

Sign Information

Building a Better Tampa

David L. Tippin Water Treatment Facility
Caustic Soda Piping Improvements

Project provides for improvements at the David L. Tippin Water Treatment Facility to improve the reliability and safety of the Sodium Hydroxide System of the water distribution system within the facility.

$TBD investment
Scheduled for completion in TBD 2014

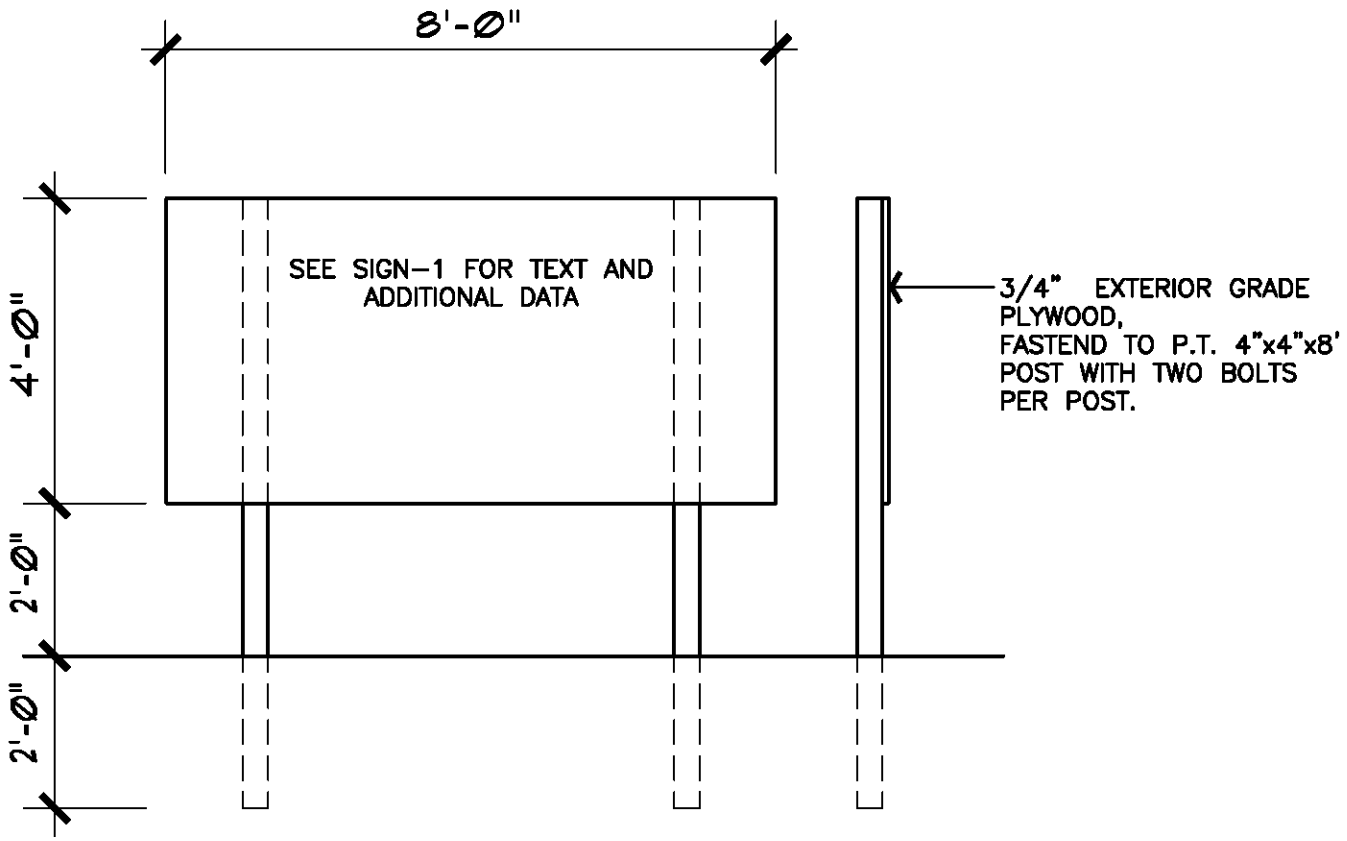
TBD

Colors

Blue: Sherwin Williams Naval SW6244
Green: Sherwin Williams Center Stage SW6920
White: Sherwin Williams Pure White SW7005

Font

Franklin Gothic



CITY OF TAMPA–PROJECT SIGN
REVISED 4/28/04

SECTION 01010 - SUMMARY OF WORK

1.0 GENERAL:

The work shall consist of furnishing all materials, labor, equipment, tools, and all items and services required for the complete construction in conformity with Contract Documents of:

Williams Park Activity Center Expansion
at
4362 E. Osborne Avenue
for the
City of Tampa

All construction work and materials, in addition to complying with requirements of Contract Documents, shall fully comply with all requirements of local building codes, all ordinances, and regulations of other Federal, State and public authorities having jurisdiction over this type of work in the given area.

2.0 SCOPE:

The work shall include but not be limited to, addition of a new community center with masonry exterior walls, metal roof on wood trusses, standard commercial finishes, minor sitework with all associated work required for a complete project, as shown and indicated on the Drawings and in the Specifications.

3.0 LEGAL DESCRIPTION OF PROJECT SITE:

Legal description as shown on the drawings, Sheet G-1.

4.0 VERIFICATION OF OWNER'S SURVEY DATA:

Prior to commencing any work, the Contractor shall satisfy himself as to accuracy of all survey data which shall affect his work as indicated in these plans and specifications and/or provided by the City.

Should the Contractor discover any inaccuracies or errors which will affect his work, he shall notify the Engineer and/or Architect in order that proper adjustments can be ordered.

The exact location of the building and related items shall be determined on site jointly by the Contractor and the Engineer and/or Architect. NO work shall commence until said final approval of the locations is made by the Engineer and/or Architect.

5.0 CONTRACT DOCUMENTS:

a. BIDDING REQUIREMENTS

b. GENERAL PROVISIONS, SUPPLEMENTARY GENERAL PROVISIONS, AND SPECIAL, CONDITIONS

6.0 SPECIFICATIONS: (DATED: June 2018)

Divisions: 1, 2, 3, 4, 6, 7, 8, 9, 10, 12, 16, 22, 23

7.0 DRAWINGS: (DATED: June 2018)

Sheets:

Cover Sheet, G-1, A-1.1, A-1.2, A-2.0, A-2.1, A-2.2, A-2.3, A-3.1, A-4.1, A-5.1, A-6.1, A-6.2, A-13.1, A-13.2, M-0.0, M-0.1, M-1.0, M-2.0, P-0.0, P-0.1, P-0.2, P-1.0, E-0.0, E-0.1, E-0.2A, E-0.2B, E-1.0, E-2.0, E-4.0

8.0 ADDENDA AND LETTERS OF CLARIFICATION:

All addenda and letters of clarification issued prior to bid opening time date.

SECTION 01020 - ALLOWANCES
PART 1 – GENERAL
RELATED DOCUMENTS

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

SUMMARY

This Section includes administrative and procedural requirements governing allowances.

Types of allowances include the following:

Contingency allowances.

SELECTION AND PURCHASE

SUBMITTALS

Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

Submit invoices or delivery slips to show the actual quantities of materials delivered to the site for use in fulfillment of each allowance.

CONTINGENCY ALLOWANCES

Use the contingency allowance only as directed by the Owner.

The Contractor's related costs for services, products and equipment ordered by the Owner under the contingency allowance include delivery, installation, taxes, insurance, equipment rental, and similar costs.

Work Directive Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

At Project closeout, credit unused amounts remaining in the contingency allowance to the Owner by Change Order.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

EXAMINATION

Examine products covered by an allowance promptly upon delivery for damage or defects.

PREPARATION

Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

SCHEDULE OF ALLOWANCES

Allowance No. 1: Include a contingency allowance of $40,000 for use according to the Owner's instructions. The allowance shall be included in the Base Bid.

END OF SECTION 01020

SECTION 01040 - PROJECT COORDINATION

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

Coordination.
Administrative and supervisory personnel.
General installation provisions.
Cleaning and protection.

COORDINATION

Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.

Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.

Make adequate provisions to accommodate items scheduled for later installation.

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

Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

Preparation of schedules.
Installation and removal of temporary facilities.
Delivery and processing of submittals.
Progress meetings.
Project Close-out activities.

Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

SUBMITTALS

Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.

Show the interrelationship of components shown on separate Shop Drawings.

Indicate required installation sequences.

Refer to Division-15 Section "Basic Mechanical Requirements," and Division-16 Section "Basic Electrical Requirements" for specific coordination Drawing requirements for mechanical and electrical installations.

Staff Names: At the Preconstruction Conference, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

GENERAL INSTALLATION PROVISIONS

Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

Recheck measurements and dimensions, before starting each installation.

Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

CLEANING AND PROTECTION

During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

Excessive static or dynamic loading.
Excessive internal or external pressures.
Excessively high or low temperatures.
Thermal shock.
Excessively high or low humidity.
Air contamination or pollution.
Water or ice.
Solvents.
Chemicals.
Light.
Radiation.
Puncture.
Abrasion.
Heavy traffic.
Soiling, staining and corrosion.
Bacteria.
Rodent and insect infestation.
Combustion.
Electrical current.
High speed operation,
Improper lubrication,
Unusual wear or other misuse.
Contact between incompatible materials.
Destructive testing.
Misalignment.
Excessive weathering.
Unprotected storage.
Improper shipping or handling.
Theft.
Vandalism.

END OF SECTION 01040

SECTION 02200 - EARTHWORK

1.0 GENERAL

1.1 RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Provisions, Special Conditions and Section-1 Specification sections, apply to work of this section.

Furnish all labor, materials, tools, equipment, etc., and services necessary and incidental to the complete fabrication, furnishing and erection of this section as shown, noted, detailed and reasonably implied on the drawings and in the specifications.

1.2 DESCRIPTION OF WORK:

The extent of earthwork is shown on drawings.

Preparation of subgrade for building slabs, walks, courts, and pavements is included as part of this work.

Backfilling of trenches within building lines is included as part of this work.

1.3 QUALITY ASSURANCE:

Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

Testing and Inspection Service:

Testing shall be performed by the City of Tampa.

The results of such tests shall be immediately reported to the Engineer and/or Architect. Should any of the densities fail to meet the design criteria, the area shall be recompacted and retested at the expense of the Contractor.

Field density tests shall be taken throughout the site preparation and fill operation to insure that adequate compaction has been achieved.

1.4 JOB CONDITIONS:

Prior to commencement of work, the Contractor shall identify, by field verification, sufficient existing grade elevations for the project site. The Contractor shall verify and use existing grade elevations shown on drawings. The Contractor shall slope sidewalks and grades sufficiently to tie into the finish floor elevation. Sidewalks shall be maintained at a 1:20 slope. Prior to installation of work, the Contractor shall coordinate with the City Architect, all proposed grades and sidewalk slopes.

Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult City immediately for directions. The Contractor shall cooperate with City and utility companies in keeping respective services and facilities in operation. Repair utilities damaged as a result of the work to satisfaction of the Engineer and/or Architect and utility owner.

All existing utilities encountered in the construction of the project shall be relocated, removed or capped as required by the Engineer and/or Architect.

Do not interrupt existing utilities serving facilities occupied and used by the City or others, except when permitted in writing by Engineer and/or Architect and then only after acceptable temporary utility services have been provided.

Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are inactive.

Use of Explosives:

The use of explosives is not permitted.

Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

Operate warning lights as recommended by authorities having jurisdiction.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

2.0 PRODUCTS

2.1 SOIL MATERIALS:

Definitions:

Satisfactory soil materials are defined as those complying with American Association of State Highway and Transportation Officials (AASHTO) M145, soil classification Groups A-1, A-2-4, A-2-5, and A-3.

Unsatisfactory soil materials are those defined in AASHTO M145 soil classification Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7; also peat and other highly organic soils.

Base Material: Naturally or artificially graded mixture of natural, or crushed gravel, crushed stone, crushed slag, natural, or crushed sand.

Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100% passing a 1 1/2" sieve and not more than 5% passing a No. 4 sieve.

Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen materials, vegetable, and other deleterious matter.

3.0 EXECUTION

3.1 EXCAVATION:

Excavation consists of removal and disposal of material encountered when establishing required finish grade elevations.

Earth excavation includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not classified as rock excavation or unauthorized excavation.

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer and/or Architect. Unauthorized excavation, as well as remedial work directed by Engineer and/or Architect, shall be at Contractor's expense.

Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Engineer and/or Architect.

Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer and/or Architect.

Additional Excavation: When excavation has reached required subgrade elevations, notify Engineer and/or Architect who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Engineer and/or Architect.

Removable of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in safe condition until completion of backfilling.

Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.

Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water from the excavations.

Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

Locate and retain soil materials away from edge of excavations.

Dispose of excess soil material and waste materials as herein specified.

Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

In excavating for footings and foundation, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown.

Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room.

Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.

Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

Do not backfill trenches until tests and inspections have been made and backfilling authorized by Engineer and/or Architect. Use care in backfilling to avoid damage or displacement of pipe systems.

Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F. (1 degree C).

3.2 COMPACTION:

General: Control soil compaction during construction providing minimum percentage of density specified for each area classification.

Testing shall be performed by the City of Tampa.

Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship determined in accordance with ASTM D 1557; and not less than the following percentages of relative density, determined in accordance with ASTM D 2049, for soils which will not exhibit a well-defined moisture-density relationship.

Structures: Compact top 12" of subgrade and each layer of backfill or fill material at 95% maximum dry density or 90% relative dry density.

Building Slabs and Steps: Compact top 12" of subgrade and each layer of backfill or fill material at 95% maximum dry density or 90% relatively dry density.

Lawn or Unpaved Areas: Compact top 6" of subgrade and each layer of backfill or fill material at 90% maximum dry density.

Walkways: Compact top 6" of subgrade and each layer of backfill or fill material at 95% maximum dry density.

Pavements: Compact top 12" of subgrade and each layer of backfill or fill material at 95% maximum dry density.

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

3.3 BACKFILL AND FILL:

General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.

In excavations, use satisfactory excavated or borrow material.

Under grassed areas, use satisfactory excavated or borrow material.

Under walks and pavements, use base material or satisfactory excavated or borrow material, or combination of both.

Under building slabs, use drainage fill materials.

Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.

Inspection, testing, approval, and recording locations of underground utilities.

Removal of concrete formwork.

Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

Removal of trash and debris.

Permanent or temporary horizontal bracing is in place on horizontally supported walls.
Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than 1 vertical 4 horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

Placement and Compaction: Place backfill and fill materials in layers not more than 8" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.

3.4 GRADING:

General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding.

Finish surfaces free from irregular surface changes, and as follows:

Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations.

Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10' above or below required subgrade elevation.

Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2" above or below required subgrade elevation.

Grading Surface of Fill Under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2" when tested with a 10' straightedge.

Compaction: After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

3.5 PAVEMENT BASE COURSE:

Not Applicable.

3.6 BUILDING SLAB DRAINAGE COURSE:

Not Applicable.

3.7 FIELD QUALITY CONTROL:

Quality Control Testing During Construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

Perform field density tests in accordance with ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTMD -2972-71 (nuclear method) as applicable.

Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Engineer and/or Architect.

Paved Areas and Building Slab Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of paved area or building slab, but in no case less than 3 tests. In each compacted fill layer, make one field density test for every 2000 sq. ft. of overlaying building slab or paved area, but in no case less than 3 tests.

Foundation Wall Backfill: Take at least 2 field density tests, at locations and elevations as directed.

If in opinion of the Engineer and/or Architect, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide

3.8 MAINTENANCE:

Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

3.9 DISPOSAL OF EXCESS AND WATER MATERIALS:

Removal to Designated Areas on City's Property:

Transport acceptable excess excavated material to designated soil storage areas on City's property. Stockpile soil or spread as directed by the Engineer and/or Architect.

Removal from City's Property:

Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off City's property.

END OF SECTION 02200.

SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

- Protecting existing trees and vegetation to remain.
- Removing trees and other vegetation.
- Clearing and grubbing.
- Topsoil stripping.
- Removing above-grade site improvements.
- Disconnecting, capping or sealing, and abandoning site utilities in place.
- Disconnecting, capping or sealing, and removing site utilities.

Related Sections include the following:

- General Provision "Tree Protection and Trimming" for protecting trees remaining on-site that are affected by site operations.
- Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.
- Division 2 Section "Landscaping" for finish grading, including placing and preparing topsoil for lawns and planting.

DEFINITIONS

Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of weeds, roots, and other deleterious materials.

MATERIALS OWNERSHIP

Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

SUBMITTALS

Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

QUALITY ASSURANCE

PROJECT CONDITIONS

Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

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 authorities having jurisdiction.

Improvements on Adjoining Property: Authority for performing indicated removal and alteration work on property adjoining Owner's property will be obtained by Owner before award of Contract.

Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

Notify utility locator service for area where Project is located before site clearing.

PART 2 - PRODUCTS (Not Applicable)

SOIL MATERIALS

Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section "Earthwork."

Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

PREPARATION

Protect and maintain benchmarks and survey control points from disturbance during construction.

Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

Locate and clearly flag trees and vegetation to remain or to be relocated.

Protect existing site improvements to remain from damage during construction.

Restore damaged improvements to their original condition, as acceptable to Owner.

TREE PROTECTION

Erect and maintain a temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain per City of Tampa regulations. Remove fence when construction is complete.

Do not store construction materials, debris, or excavated material within drip line of remaining trees.

Do not permit vehicles, equipment, or foot traffic within drip line of remaining trees.

Do not excavate within drip line of trees, unless otherwise indicated.

Where excavation for new construction is required within drip line of trees, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

Cover exposed roots with burlap and water regularly.

Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

Coat cut faces of roots more than 1-1/2 inches (38 mm) in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.

Cover exposed roots with wet burlap to prevent roots from drying out. Backfill with soil as soon as possible.

Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.

Employ a qualified arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.

Replace trees that cannot be repaired and restored to full-growth status, as determined by the qualified arborist.

CLEARING AND GRUBBING

Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.

Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.

Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches (450 mm) below exposed subgrade.

Use only hand methods for grubbing within drip line of remaining trees.

Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

Place fill material in horizontal layers not exceeding 8-inch (200-mm) loose depth, and compact each layer to a density equal to adjacent original ground.

TOPSOIL STRIPPING

Remove sod and grass before stripping topsoil.

Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.

Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

Limit height of topsoil stockpiles to 72 inches (1800 mm).

Do not stockpile topsoil within drip line of remaining trees.

Dispose of excess topsoil as specified for waste material disposal.

Stockpile surplus topsoil and allow for respreading deeper topsoil.

SITE IMPROVEMENTS

Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

DISPOSAL

Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02230

SECTION 02282 - TERMITE CONTROL

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

SUMMARY

Provide soil treatment for termite control, as herein specified.

SUBMITTALS

Product Data: Submit manufacturer's technical data and application instructions.

QUALITY ASSURANCE

In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work, including preparation of substrate and application.

Engage a professional pest control operator, licensed in accordance with regulations of governing authorities for application of soil treatment solution.

Use only termiticides which bear a Federal registration number of the U.S. Environmental Protection Agency.

JOB CONDITIONS

Restrictions: Do not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations.

To insure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant manufacturer.

SPECIFIC PRODUCT WARRANTY

Furnish written warranty certifying that applied soil termiticide treatment will prevent infestation of subterranean termites and, that if subterranean termite activity is discovered during warranty period, Contractor will re-treat soil and repair or replace damage caused by termite infestation.

Provide warranty for a period of 5 years from date of treatment, signed by Applicator and Contractor.

PART 2 - PRODUCTS

SOIL TREATMENT SOLUTION

Use an emulsible concentrate termiticide for dilution with water, specially formulated to prevent infestation by termites. Fuel oil will not be permitted as a diluent. Provide a solution consisting of one of following chemical elements and concentrations:

Chloropyrifos ("Dursban TC"); 1.0 percent in water emulsion.

Permathrin ("Dragnet", "Torpedo"); 0.5 percent in water emulsion.

Other solutions may be used as recommended by Applicator if also acceptable to Architect and approved for intended application by jurisdictional authorities. Use only soil treatment solutions which are not injurious to planting.

PART 3 - EXECUTION

APPLICATION

Surface Preparation: Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placement of compacted fill under slabs, if recommended by toxicant manufacturer.

Application Rates: Apply soil treatment solution as follows:

Under slab-on-grade structures, treat soil before concrete slabs are placed, using the following rates of application:

Apply 4 gallons of chemical solution per 10 lin. ft. to soil in critical areas under slab, including entire inside perimeter inside of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footers.

Apply one gallon of chemical solution per 10 sq. ft. as an overall treatment under slab and attached slab areas where fill is soil or unwashed gravel. Apply 1-1/2 gallons of chemical solution to areas where fill is washed gravel or other coarse absorbent material.

Apply 4 gallons of chemical solution per 10 lin. ft. of trench, for each foot of depth from grade to footing, along outside edge of building. Dig a trench 6" to 8" wide along outside of foundation to a depth of not less than 12". Punch holes to top of footing at not more than 12" o.c. and apply chemical solution. Mix chemical solution with the soil as it is being replaced in trench.

At expansion joints, control joints, and areas where slabs will be penetrated, apply at rate of 4 gals. per 10 lin. ft. of penetration.

Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs when areas are covered by other construction.

Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or other construction activities following application.

END OF SECTION 02282

SECTION 02811
UNDERGROUND SPRINKLERS

PART 1: GENERAL

1.1 DESCRIPTION OF WORK

1.1.1 Furnish all materials, equipment and labor as necessary for the installation of an irrigation system per the drawings and specifications. All work should meet City of Tampa standards for materials and workmanship.

1.1.2 Related Work:
See Section 02900 Plants and Groundcovers

1.2 RELATED DOCUMENTS:

1.2.1 Drawings and general provisions of Contract, including General Provisions, Supplementary General Provisions, Special Conditions, and Division – 1 Specification sections apply to work specified in this section.

1.3 DESCRIPTION OF WORK:

1.3.1 Location of underground sprinkler system is shown on drawings if provided.

1.3.2 Design and installation of system included in this section

1.4 QUALITY ASSURANCE:

1.4.1 Workmanship: All work shall be installed by licensed irrigation contractor using skilled personnel, proficient in the trades required, in a neat, orderly and responsible manner with recognized standards of workmanship. Material installations are to conform to manufacture specs. The Contractor shall have had considerable experience and demonstrated ability in the installation of sprinkler irrigation systems of this type.

1.5 SUBMITTALS:

1.5.1 Product Data: Submit manufacturer's technical data for all materials and installation instructions for underground sprinkler system prior to starting work on the project site.

1.5.2 Drawings: Provide Design drawings that will include plan layout and details illustrating location and type of heads, valves, piping circuits, controls and accessories. If requested by the City, provide design calculations demonstrating how system component sizes were derived.

1.5.2.1 Format: The irrigation system design plans shall be done in AutoCAD to scale. These plans shall be provided to the City of Tampa prior to final acceptance of the project. Provide CD containing AutoCAD (DWG files) 2013 version minimum along with the requirements of the general provisions of the contract.

PART 2 PRODUCTS

2.1 MATERIALS:

2.1.1 Backflow Preventer: PVB (pressure vacuum breaker) with ball valves sized to match the system and installed on galvanized risers.

2.1.2 Irrigation Pipe: All main and lateral lines shall be PVC pipe ASTMD1785 1120 Schedule 40. Exception would be galvanized steel pipe, when specified, and if exposed paint with 2 coats of forest green enamel.

1. Pipe Size: Increased to allow expansion or nozzle size change.

   a. No flow shall exceed 4' per second.

   b. All laterals to heads will be 1" or larger on rotors and ¾" or larger on pop-ups, bubblers and Quick Couplers

   c. Nozzle and zone size will be calculated to provide maximum precipitation rate to reduce watering time based on meter size.

   d. No pipe smaller than ¾".

2.1.3 Sleeving: Sleeving shall be installed for all hardscape surfaces including, but not limited to, sidewalks, courts, etc. Contractor to verify Schedule 40 or HDPE. Sleeve size shall be 2 times irrigation pipe size minimum. For all sleeves containing lateral pipe and wiring, all wire to be in its own conduit.

2.1.4 Adhesives:

2.1.4.1 All connections, 4" and less, shall be Weld-On PC-68 or PC-70 purple primer and Weld-On PVC 717 or 727 clear cement.

2.1.5 Pipe Fittings:

2.1.5.1 ASTM D 2466 socket fittings Schedule 40 shall be used for PVC pipe. Put purple primer first, cement after.

2.1.5.2 ANSI B 16.3 galvanized malleable iron screwed fittings shall be used for all galvanized pipe.

2.1.6 Manual Valves: Manufactured as follows: PVC Schedule 40 ball valves unless otherwise indicated.

2.1.7 Quick Coupling Valve: Standard is Rain Bird #3RC with minimum lateral size ¾". Athletic fields with wells are Rain Bird 44RC with minimum lateral size ½". Ensure 2" of clearance of all valve handles. (See "Quick Coupling Valve Detail" for installation.)

2.1.8 Electric Valves: Irritrol 200B series electric valve with flow control. AC or DC depending upon power source. If DC is specified, a separate common wire for each 6 zones must be installed. Master valve to be used with more than 2 zones or if main line crosses a roadway. No pressure regulator on valves. For reclaimed applications use Irritrol 100P with scrubber kit valve.

2.1.9 Automatic Valve Wiring: 14 gauge direct burial wire, color coded as follows: red for zones; blue for master valve and black for extras. Two black extra wires to be run to the furthest valve from controller in each direction. Wire splices shall be made at a common location, contained in a valve box and spliced using greased filling King wire nuts. All wire to be brought within 6' of timer location, into a junction box, and paired 18 gauge wire run into the timer box with a 3' pigtail. Provide 12 gauge white common wire for any runs over 100'.

2.1.10 Sprinkler Heads: Manufacturer's standard unit designed to provide uniform coverage over entire area of spray shown on drawings at available water pressure and installed using K-flex pipe and Schedule 40 PVC connectors as follows:

2.1.10.1 Rain Bird Bubbler: #1402 – 0.5 GPM on K-Flex pipe (2 per tree).

2.1.10.2 Rain Bird Pop-up: 1800 series SAM with nozzle to match application (No PRS).

2.1.10.3 Hunter rotor: Hunter I-20 or I-25 (athletic fields) with nozzle to match application.

2.1.10.4 Micro (Maxi-Jet): to be matched to job and used only with Parks and Recreation Department approval.

2.1.11 Valve Box: Provide plastic valve box with cover, size as needed, or as specified on drawings. Place level on brick or stone blacks. Open side of the valve box to be wrapped in ground cloth. Top of valve box installed flushed with finished grade. Any valve placed in concrete must be concrete or double wall concrete rated plastic box.

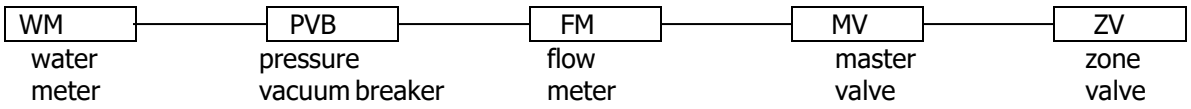
2.1.12 Computerized Irrigation Controller: Computerized irrigation controller and cabinet shall be supplied and installed by Contractor. Coordination of installation of the controller with the City of Tampa is required by the Contractor.

2.1.13 Computerized Irrigation Equipment: The following is part of the computerized system and is the responsibility of the awarded contractor.

2.1.13.1 Computerized systems shall utilize a flow meter by Master Meter Inc. matched to the water meter size, with a 1 or 10 gallon pulse depending on zone GPM.

2.1.13.2 Wiring from flow meter to controller must be 14-2 Maxi-com cable. No splices should be made in the Maxi-com cable. Maxi-com to be run under main line or in conduit.

2.1.13.3 Power source at timer should be A/C. D/C (requires special wiring) used only if all sources of A/C have been exhausted.



2.1.14 Water Source: To be coordinated with City of Tampa prior to design of irrigation system. New water meters shall be requested and paid for by the contractor. If available, reclaimed water must be used for irrigation. Any system that is to be connected to reclaimed water or is indicated to have reclaimed in the near future shall have all materials of the appropriate color to indicate the use of reclaimed water. If a well is required see City of Tampa well specs.

PART 3 – EXECUTION

3.1 SYSTEM DESIGN:

3.1.1 System design shall take into account existing physical and cultural features and all proposed site improvements to avoid conflicts and ensure an efficient optimal system.

3.1.2 Design Pressures: Verify available water source and pressure prior to system design. Design system throughout to be compatible with available water source. Use reclaimed water whenever available. Athletic fields to be on a well system whenever possible.

3.1.3 Location of Heads: Design locations in accordance with accepted sprinkler practice to provide 100% head to head coverage. Make minor adjustments as necessary to avoid structures and other obstructions.

3.1.4 Minimum Water Coverage:

3.1.4.1 100% of all landscape beds and turf areas.

3.1.4.2 Layout may be modified, if necessary to obtain coverage, and to suit manufacturer's standard heads. Do not decrease number of heads indicated unless otherwise acceptable to City Representative. Any proposed decrease must be approved by the City Representative.

3.1.5 Group valves close to water source in 1 or 2 locations. Planting beds, trees and turf areas shall be on separate zones.

3.1.6 Minimize wiring runs. Maximize use of lateral lines. Keep valves 5' from closest hardscape.

3.1.7 No flow shall exceed 4 feet per second.

3.1.8 Top of pipe to grade shall be:
1. Manifolds: 6"
2. Laterals: 12"
3. Mainlines: 18"

3.1.9 Design zones to have matched precipitation rates.

3.1.10 Do not use pressure-regulating sprinklers.

3.1.11 Insert sprinklers 3 inches from curbs, hardscapes and structures to allow for edging.

3.1.12 Computerized irrigation system controller will be installed by the City of Tampa. Verify controller location prior to installation of irrigation system and related electrical wiring.

3.1.13 No pipe smaller than ¾"

3.1.14 Quick Coupler Valve (Rain Bird #3RC or 44RC for athletic field applications) shall be located in a valve box with the quick coupler cap within 2" of the bottom of the valve box lid. Provide 3" of galvanized main line up to and after a galvanized T. Provide 2' of vertical galvanized pipe, capped at bottom. Mount QC valve on galvanized nipple, length as required. Quick Coupler to be on a separate main line (See Quick Coupler valve detail).

3.1.15 Coordinate and confirm exact water source and electric source.

3.2 ELECTRIC and WATER SERVICE:

3.2.1 Water Service: The contractor shall include in the bid price all costs associated with providing water service to system as required. This includes all applications and fees required by City of Tampa Water Department to provide service, connection fees and all materials and labor for a complete functioning system. Contractor shall be responsible for applying and paying for any new water meters as required. Coordinate this requirement with the contract documents.

3.2.2 Electric Service: Contractor shall include in bid price all costs associated with providing power service to system as indicated in the general provisions of the contract. This includes all applications, drawings and fees required by Tampa Electric Company (TECO) and the City of Tampa. All work to comply with City of Tampa codes and TECO standards for power connection. All costs associated with power installation and connection shall be the responsibility of the contractor.

3.2.3 Upon final acceptance of irrigation system, ownership of water and electric meters will be transferred to the City of Tampa.

3.3 TRENCHING AND BACKFILLING:

3.3.1 General: Protect existing utilities, paving, plants, trees and other facilities caused by irrigation operations. Contractor shall be responsible for the repair of any damage to existing utilities and paving. Excavate straight and true with bottom uniformly sloped to low point.

3.3.2 Sunshine: Contactor shall be responsible for notifying underground utilities 48 hours prior to beginning work (800) 432-4770. No site work shall commence until all underground utilities have been properly located and identified.

3.3.3 Backfill: Backfill with clean material from excavation. Remove organic material as well as rocks and debris larger than 1" diameter. Place acceptable backfill material in 6" lifts, compacting each lift.

3.3.4 Existing Lawns: Where trenching is required across existing lawns, trench no wider than necessary to accommodate pipes.

3.3.4.1 Backfill trench to within 6" of finished grade. Continue fill with acceptable topsoil and compact to bring area to the elevation of existing lawn.

3.3.4.2 If trench is more than 6" in width, relay or plant new sod within 7 days after removal, roll and water generously.

3.3.4.3 Restore to original condition any sod areas not in healthy condition equal to adjoining lawns 30 days after planting.

3.3.5 Existing Trees: All efforts shall be made to avoid trenching under the driplines of existing trees and canopy spread of proposed trees. All proposed trenching or other work under the limb spread of any and all trees shall be done by hand so that no limbs or branches or roots are damaged in any way.

3.3.5.1 Trenching shall comply with Chapter 13-146, Technical Manual and shall be done to minimize root disturbance. City of Tampa representative shall be present prior to beginning work, to determine limits of root pruning and shall approve any work taking place within protective radius of trees. All tree roots shall be severed cleanly per the Chapter 13 of the City Code.

3.3.5.2 Protective radius schedule per Chapter 13 of the City Code reads as follows:
1" caliper – no trenching within 4' of tree trunk
6" – 14"caliper – no trenching within 6' of tree trunk
15" – 34" caliper – no trenching within 15' of tree trunk
34" and greater – no trenching within 20' unless approved by City Representative

3.3.6 Pavements:

3.3.6.1 Boring is the preferred method. Open cuts must be approved by City Representative. Where existing pavements must be crossed to install landscape irrigation system, saw cut straight clean lines 6" wider than trench.

3.3.6.2 Excavate trench to required depth and width.

3.3.6.3 Remove cut out pavement and excavated material from the site.

3.3.6.4 Backfill with dry sand fill material, placing in 6" lifts to meet City of Tampa compaction requirements.

3.3.6.5 Repair or replace pavement cuts with equivalent materials and finishes.

3.3.6.6 If a concrete sidewalk is cut or damaged, the full section must be replaced.

3.3.6.7 Piping under hardscape that is 5' wider or greater shall be sleeved.

3.3.6.8 Contractor is responsible for daily clean up of operations to include debris, directional bore slurry and any hydraulic fluids.

3.4 INSTALLATION: (See details on construction drawings)

3.4.1 A pre-construction meeting will occur on site prior to commencement of work.

3.4.2 General: Contractor shall be responsible for filing and obtaining any and all agency permits as described. All work must conform to City of Tampa and the latest adopted plumbing code. Any work taking place along a city, county or state road or median must comply with appropriate regulating authority guidelines for Traffic Control for Construction and Maintenance Operations.

3.4.3 Required Inspections:

3.4.3.1 Piping: prior to covering.

3.4.3.2 All materials prior to planting and/or mulching.

3.4.3.3 24 hour notice of inspection required.

3.4.3.4 Main lines require pressure tests of 50 PSI to be maintained for minimum of 1 hour.

3.4.4 Backflow Preventer: PVB (pressure vacuum breaker) with ball valves sized to match the system and installed on galvanized risers.

3.4.5 Control Valves: Install in valve box. Arrange in box for easy adjustment and removal.

3.4.5.1 Adjust size of automatic control valves to provide flow rate of rated operating pressure required for each sprinkler zone.

3.4.5.2 All zone wiring and Maxi-com cable to be installed under the main line or in conduit. Wiring that shares a sleeve with irrigation water lines shall be contained in its own conduit.

3.4.6 Provide 18" of straight uninterrupted PVC pipe in front of the Master Meter and 12" of straight behind.

3.4.7 Piping: Lay pipe on solid sub-base uniformly sloped.

3.4.7.1 Install PVC pipe in dry weather when temperature is above 40 degrees F in strict accordance with manufacturer's instructions. Allow joints to cure at least 24 hours at temperatures above 40 degrees F (4 degrees C) before testing, unless otherwise recommended by manufacturer. All PVC connections will be cleaned with purple primer prior to cementing.

3.4.7.2 Mainline depth shall be 18".

3.4.7.3 Lateral line depth shall be 12".

3.4.8 Sprinkler Heads: Flush circuit lines with full pressure and install nozzles after hydrostatic test is completed.

3.4.8.1 Install all heads at manufacturer's recommended heights.

3.4.8.2 Locate part-circle heads to maintain a minimum distance of 3" from curbs, hardscape and structures.

3.4.8.3 After completion of grading, seeding or sodding, and rolling of the grass areas, carefully adjust lawn sprinkler heads so they will be flush with grade.

3.4.8.4 Pop-ups installed on ½" flex hose using Schedule 40 PVC connectors.

3.4.8.5 Rotors to be installed on appropriate size flex hose using Schedule 40 PVC connectors. Ensure sprayer rotor water does not directly contact existing structures or hardscape areas.

3.4.9 Dielectric Protection: Use dielectric fittings at connection where pipes of dissimilar metal are joined.

3.4.10 Wiring: All wiring shall be performed by the contractor as shown on drawings. All wiring shall be run from point of connection back to the controller.

3.4.11 Quick Coupler Valves: Build and install per details on construction drawings. Valve box shall be adequately sized and installed so as not to interfere with the operation of the quick coupler key.

3.5 ACCEPTANCE:

3.5.1 Maintenance: Contractor is responsible for all maintenance of the system until final acceptance by City Representative and for the maintenance period specified in section Trees, Plants and Ground Covers.

3.5.2 Final Inspection: The inspection of irrigated areas will be made by the City Representative upon contractor's request. Provide notification at least 2 working days prior. The City Representative will provide a punch list of those items which must be corrected before re-inspection for final acceptance. The City Representative will set an appropriate time period in which the punch list items must be corrected.

3.5.2.1 Contractor to provide notification of at least 2 working days prior to inspection.

3.5.2.2 System to be run through electronically of all zones to ensure all components are working properly.

3.5.2.3 System to be run through City programming for one week prior to final acceptance.

3.5.2.4 As Built drawings: At project closeout, the Contractor shall submit complete electronic drawings showing any changes from approved shop drawing. These shall be included as part of required As-Built/Record Drawing requirement of the general provision.

As-built drawings shall include the following:
- Irrigation system as installed.
- Water source location and size.
- Power source location.
- Changes to controller type or location.

- Changes in type or location of flow meter or master valve.
- Any wiring changes in location, number, type, color.
- Valve locations should be dimensioned and areas controlled identified.
- Location, depth and size of mainline and feeder lines. Off-set to main line requested.
- Location of maxi-com cable.
- Location and depth of all directional bores.

3.6 GUARANTEE:

3.6.1 Guarantee: All work shall be guaranteed by contractor for one year from date of final acceptance against all defects and malfunctions in materials, equipment and workmanship and shall be included as a part of the project closeout document requirements.

3.6.1.1 The guarantee shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship, to the satisfaction of the City of Tampa. Repairs, if required, shall be done promptly at no cost to the City of Tampa. The contractor shall not be responsible for damage to the irrigation system by others. The guarantee shall state the name of the owner, provide full guarantee terms, effective and termination date, name and license number. It shall be signed by the chief executive of the contracting firm and notarized. Manufacturer's warranties shall not relieve the contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

3.6.1.2 The contractor shall make necessary repairs within 72 hours notice. If the Contractor neglects to make or undertake the repairs with the due diligence, the City of Tampa may make such repairs at the contractor's expense. In the case of an emergency where in the judgment of the City of Tampa, delay would cause loss or damage, repairs or replacement may be made without notice being sent to the contractor and the contractor shall pay the cost thereof.

END OF SECTION 02 81 18

TECHNICAL SPECIFICATIONS
FOR WILLIAMS PARK ACTIVITY CENTER EXPANSION IMPROVEMENTS
SECTION 02900
PLANTS AND GROUNDCOVERS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

1.1.1 Furnish all materials, equipment and labor as necessary for preparation of planting areas, soil treatment, planting of shrubs and groundcover, protection of existing plants, maintenance, warranty and replacement of plants, and related items as required to complete the work as indicated on the drawings and specified herein.

1.2 DEFINITIONS:

The following words and terms or pronouns used instead shall wherever they appear in these specifications, be construed as follows, unless a different meaning is clear from the context:

"**Final Acceptance**" shall mean that point in time when all requirements of project drawings and specifications are completed, including any punchlist items, to the satisfaction of the City Representative. The contractor shall be notified in writing of final acceptance by a City Representative.

"**Warranty Period**" shall be a six month period beginning at Final Acceptance.

"**Maintenance Period**" shall begin when plant material is installed and continue for ninety (90) days after notification of Final Acceptance.

"**Final Maintenance Inspection**" shall occur at the end of the ninety (90) day maintenance period.

1.3 QUALITY ASSURANCE

1.3.1 The landscape installation shall be by a single firm specializing in landscape work.

1.3.2 Plant names indicated shall comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed shall conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.

1.3.3 Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock" (ANSI Z60 1) and, sizing and grading standards of the latest edition of "Grades and Standards for Nursery Plants: Part I and II" by the Florida Department of Agriculture and Consumer Services. All plant material shall be "Florida No. 1" or better.

1.3.4 Caliper measurement shall be taken 6" above ground level if 4" or less. If greater than 4", caliper measurement will be taken at 12" above ground level.

1.3.5 Do not make substitutions. If specified landscape material is not obtainable, submit to City Representative in writing, proof of non-availability and proposal for use of equivalent material. When authorized, adjustment of contract amount will be made.

1.3.6 All plants shall be nursery grown and 100% acclimatized to local planting conditions.

1.3.7 Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost, providing that the larger plants will not be cut back to size indicated or rootbound in pots. Provide plants indicated by two measurements so that only a maximum of 25% are of the minimum size indicated and 75% are of the maximum size indicated. Height and spread specified will prevail over container size specified, for groundcover and shrub material only.

1.3.8 All trees will be inspected and approved by the City Representative at the place of growth, for compliance with specification requirements for quality, size, and variety. When trees cannot be obtained locally, provide sufficient photographs of the proposed plants for approval.

1.3.8.1 Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.

1.3.8.2 Tag trees at the source of supply prior to inspection by City Representative.

1.4 AWARDEE SUBMITTALS

The awarded bidder shall submit the following prior to commencing with work:

1.4.1 Submit planting schedule showing scheduled dates for each type of planting in each area of site two weeks prior to beginning work.

1.4.2 Submit certificates of inspection, as required by governmental authorities, and manufacturers or vendors certified analysis for soil amendments, herbicides, insecticides and fertilizer materials, submit other data substantiating that materials comply with specified requirements.

1.4.3 Submit the following material samples:

- Mulch
- Topsoil with verification of sterilization and source.
- One typical sample or photographs of each shrub and groundcover material as specified, prior to planting for approval. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.

1.4.4 Upon final acceptance of plant material, submit two written maintenance instructions recommending procedures for maintenance of plant materials for a one year period.

1.4.5 Provide landscape planting as-built drawings:

- Legibly mark drawings to record actual installation.
- Identify field changes of dimension and detail and changes made by approving authority.

1.5 DELIVERY, STORAGE AND HANDLING

1.5.1 Deliver fertilizer materials in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.

1.5.2 B&B Trees must be held and fully acclimatized over a period not less than eight (8) weeks prior to delivery to site.

1.5.3 Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately prior to digging to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order. Upon arrival the certificate shall be filed with the appropriate City of Tampa Department. Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet peat moss, or in a manner acceptable to the City Representative. Water heeled-in plantings daily. No plant shall be bound with rope or wire in a manner that could damage or break the branches.

1.5.4 Plant material that is stored improperly shall receive a special review of acceptance/rejection, established on a case by case basis.

1.5.5 Cover plants transported on open vehicles with a protective covering to prevent wind burn.

1.5.6 Topsoil shall be kept dry and loose for planting bed mixes.

1.5.7 Label at least one (1) tree and one (1) shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.

1.6 JOB CONDITIONS

1.6.1 Work notification: Notify the City Representative at least seven (7) working days prior to installation of plant material. All plant samples to be reviewed for approval prior to notification.

1.6.2 Protect existing utilities, paving, irrigation, landscaping and other facilities from damage caused by landscaping operations. Notify Sunshine One Call a minimum of 72 hours prior to beginning work. Contractor shall verify all underground and above ground utility locations prior to start of work. Notify the City Representative of any unsatisfactory conditions prior to start of work. Start of work will indicate acceptance of conditions and full responsibility for completed work. Awardee is responsible for repairing any damage done by landscape installation process.

1.6.3 A complete list of plants, including a schedule of sizes, quantities, and other requirements are shown on the drawings. In the event that quantity discrepancies or material omission occur in the plant materials list, the planting plans shall govern.

1.6.4 Examine the sub-grade, verify the elevations, observe the conditions under which work is to be performed, and examine unsatisfactory conditions before proceeding with the work. Contractor shall be responsible for the removal of existing vegetation deemed necessary by the City's Representative to carry out scope of project.

1.6.4.1 When conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions or obstructions, notify the City Representative before planting to determine alternative action.

1.6.5 Locate, protect, and maintain the existing irrigation system during planting operations. Repair irrigation system components, new and existing, damaged during planting operations with like materials. Test system prior to installation of plant material.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Plants: Provide plants typical of their species or variety; with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasion of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces.

- All plant material shall be "Florida No.1", or better.

- Dig balled and burlapped plants with firm, natural balls of earth of diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock". Cracked or mushroomed balls are not acceptable.

2.1.2 Container-grown stock: Grown in container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.

- No plants shall be loose in the container.

- Container stock shall not be pot bound.

2.1.3 Plants planted in rows shall be matched in form.

2.1.4 Plants larger than those specified in the plant list may be used when acceptable to the City of Tampa representative. If the use of larger plants is acceptable, increase the spread of roots or root ball in proportion to the size of the plant.

2.1.5 The height of the trees, measured from the crown of the roots to the average height of the top of the tree, shall not be less than the minimum size designated in the plant list. Container size designated, if any, shall be minimum size required.

2.1.6 No pruning wounds shall be present with a diameter of more than one-inch (1") and such wounds must show vigorous bark on all edges.

2.1.7 Height and spread requirements of shrub and groundcover material, indicated in the plant list, shall prevail over container size indicated, unless otherwise specified.

2.1.8 Shrubs and small plants shall conform to the following standards:

- The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
- Single stemmed or thin plants will not be accepted.
- Side branches shall be generous, well-twigged, and the plant as a whole well-bushed to the ground, unless otherwise specified.
- Plants shall be in a vigorous condition, free from dead wood, bruises, or other root or branch injuries.

2.1.9 Any plant material showing signs of shock will be judged on a case by case basis for acceptance or rejection.

2.2 ACCESSORIES

2.2.1 Refer to drawings and other portions of specifications for accessories specifically used on this project.

2.2.2 Topsoil for Planting Beds: Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials, with acidity range between pH 5.5 and 6.5. Mixture 50% course native sand and 50% peat as specified.

- Expressly identify source location of topsoil and/or peat proposed for use on the project.
- Provide topsoil free of substances harmful to the plant material. Topsoil shall be sterilized.

2.2.3 Peat: Brown to black in color, sterile, weed and seed free granulated raw peat, containing not more than 9% mineral on a dry basis.

2.2.4 Fertilizer shall be complete with the following analysis and source compounds:

10% nitrogen derived from ammonium nitrate.
2% phosphorous derived from super phosphate.
10% potassium derived from potassium sulfate.
4% magnesium derived from magnesium sulfate.

The fertilizer shall be neutral and contain the essential micro-nutrients (Chelated Fe, Mn, Zn, Mo, Bo, Cu) in sulfates unless otherwise indicated in ppm. Fertilizer shall be slow release.

2.2.5 Anti-Desiccant: Protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with manufacturer's instructions.

2.2.6 Mulch shall be mini pine bark nuggets, clean, bright and free from weeds, moss, sticks and other debris. Mulch shall be spread at minimum of two (2) inches deep and maximum of four (4) inches deep or as otherwise noted. Mulch all existing beds as indicated on the plans.

2.2.7 Water shall be free of substances harmful to plant growth. Water shall contain less than 300 ppm soluble salts and less than 10 ppm chlorine, fluoride and sodium. Hoses or other methods of transportation furnished by Awardee. Awardee shall furnish water supply from an acceptable source. Acceptable sources: deep wells, municipal potable supply and treated wastewater.

2.2.8 Pre-emergent weed killer: Apply 2: granular "Chipco" Ronstar or approved equal, at a rate recommended by manufacturer.

PART 3 - EXECUTION

3.1 INSPECTION

Awardee shall examine proposed planting areas and conditions for installation. Do not start planting work until unsatisfactory conditions are corrected.

3.2 PREPARATION

3.2.1 Time of planting.

- Deciduous material: If deciduous trees are planted in-leaf, they shall be sprayed with an anti-desiccant prior to planting operation.

3.2.2 Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

3.2.3 Layout of planting beds shall be performed by the Awardee prior to starting work, and approved by the City of Tampa representative at each site. Give 48 hours notice of need for inspection. If obstructions are encountered that are not shown on the drawings, do not proceed with planting operations until alternate plant locations have been selected. Verify locations of existing utilities.

3.2.4 Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide shrub pits at least 12" greater than the diameter of the root system and 3X times greater than diameter of rootball for trees. Depth of pit shall accommodate the root system. Remove excavated materials from the site, as indicated under Project Notes on plans.

3.3 INSTALLATION

3.3.1 Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. Set plant material 2"-3" above the finish grade. No filling will be permitted around trunks of stems. Backfill the pit with planting mixture until approximately 2/3 full, then water thoroughly before placing remainder of backfill. Place Agri-form fertilizer tablets per manufacturer's recommendations. Repeat watering until no more is absorbed. Do not use muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water.

After balled and burlapped plants are set, place soil mixture around bases of balls and fill all voids.

3.3.1.1. Remove all burlap, ropes, and wires from the tops of balls.

3.3.2 Space ground cover plants in accordance with indicated dimensions. Adjust quantities as necessary to fill planting bed with indicated spacing of plants. Plant to within 4' of the trunks of trees and shrubs within planting bed, and to within 1' of edge of bed.

3.3.3 Apply anti-desiccant using power spray to provide adequate film over trunks, branches, stems, twigs and foliage.

3.3.4 Mulch:

- Apply pre-emergent weed killer over grade prior to mulching, as specified by City of Tampa representative. Use rates recommended for specified product.

- Mulch tree, shrub planting pits and shrub beds with required mulching material 2″-4" deep or as otherwise noted immediately after planting. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.

3.3.5 Pruning:

- Prune branches of B&B stock, prior to transplanting, to balance the loss of roots and preserve the natural character appropriate to the particular plant requirements. In general, remove 1/4 to 1/3 of the leaf bearing buds, proportion shall in all cases be acceptable to the City of Tampa representative. Remove or cut back broken, damaged, and unsymmetrical growth of new wood. Prune trees to retain required height and spread. Do not cut structural branches. Required sizes are the size after pruning.

- Multiple leader plants: Preserve the leader which will best promote the symmetry of the plant. Cut branches at branch collars.

3.3.6 Care of Existing Trees:

- All existing trees, if any, shall be protected through the duration of this project as outlined in the Tree Protection Standards of the City of Tampa Site Clearing Ordinance. These requirements and those attached at the end of this section are available in the City Hall Annex Building, Duplication office for a fee.

3.3.7 Plant Locations:

3.3.7.1 Coordinate the installation of plants so as to not obscure the site visibility triangle at intersections and the visibility of directional signs or lights. Field adjust plant locations as required to avoid conflict with light poles, sign supports, utility poles, walls and fences, etc.

3.4 MAINTENANCE

3.4.1 Begin maintenance immediately after planting. Maintain all plant material until final acceptance and for an establishment period of ninety days after final acceptance

3.4.2 Maintenance shall include but is not limited to pruning, cultivating, mowing, weeding, fertilizing, watering, and application of appropriate insecticides and fungicides necessary to maintain plants free of insects and disease.

- Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.

- Tighten and repair guys and stakes as required.

- Correct defective work immediately after deficiencies become apparent and weather permits.

- **In addition to irrigation system** or if no system exists, water trees every other day saturating the soil to depth of 3′ for the first two weeks. If no irrigation system exists, water plant material per the following schedule:

- 1-30 days - water every other day, saturating the soil to a depth of 3'.
- 30-90 days - water twice a week, saturating the soil to a depth of 3'.
- Quantity of water applied should be adjusted in accordance to rainfall.
- Submit weekly report of watering activities to City of Tampa representative.
- Report shall indicate date of watering activity, location and quantities applied.

3.5 ACCEPTANCE

3.5.1 Inspection to determine acceptance of planted areas will be made by the City of Tampa representative upon Awardee's request. Provide notification at least five working days before requested inspection date.

- Planted areas will be accepted provided all requirements, including maintenance, have been complied with and plant materials are alive and in a healthy, vigorous condition.

3.5.2 The City of Tampa representative will prepare a "punch list" of those items which must be corrected before re-inspection for final acceptance. The City of Tampa representative will determine an appropriate time period in which punchlist items must be corrected. Provide 48 hour notification of need for re-inspection.

3.5.3 The City will assume plant maintenance 90 days after final acceptance, at which time, the Awardee shall request a final maintenance inspection for acceptance, where requirements as stated in **Section 3.5.1** apply.

3.6 WARRANTY

3.6.1 Warrant plant material to remain alive and be in healthy, vigorous condition for a period of 6 months after completion and final acceptance of entire project.

3.6.2 Replace, in accordance with the drawings and specifications, all plants that are dead or as determined by the City of Tampa representative to be in an unhealthy or unsightly condition, and have lost their natural shape due to contractor's negligence. The cost of such replacement(s) is at Awardee's expense. Warrant all replacement plants for six months after final acceptance.

3.6.3 Warranty shall not include damage or loss of trees, plants, or ground covers caused by fires, floods, rains, lightning storms or winds over 75 miles per hour, winter kill caused by extreme cold and severe winter conditions not typical of planting area; acts of vandalism or negligence on the part of the owner.

3.6.4 Remove and replace immediately all plants found to be dead or in unhealthy condition as determined by City of Tampa representative at any time during warranty period. Make replacements within four weeks of notification. An inspection will be conducted at the end of the warranty period. Awardee will replace any plants found to be dead or in poor condition at this time within four weeks of inspection.

3.6.5 Awardee will also remove any tree bracing or guying determined by the City representative to be unnecessary at this point in the trees development.

3.7 CLEANING

Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Do not leave on site over night, unless arrangements have been made to do so with the City of Tampa representative. Repair damage resulting from planting operations.

END OF SECTION 02900

TECHNICAL SPECIFICATIONS
SECTION 02930
SODDING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

1.1.1 Provide sodded lawns as shown and specified. The work includes: soil preparation, sodding lawns, athletic fields, and other indicated areas, and maintenance.

1.1.2 Related work:
1.1.2.1 Section 02900 Trees, Plants and Groundcovers

1.2 QUALITY ASSURANCE

1.2.1 Sod: Comply with American Sod Producers Association (ASPA) classes of sod materials.

1.2.2 Provide and pay for materials testing. Testing agency shall be acceptable to City Representative. Provide the following data:

1.2.2.1 Test representative materials sample proposed for use.

1.2.2.2 Soil analysis of existing conditions.

1.2.2.2.1 Soil pH and recommendations for correction. Ideal pH for Bahia is 5.0 – 6.5, and St. Augustine is 5.0 – 8.5.
1.2.2.2.2 Nematode infestation check and recommendation for eradication
1.2.2.2.3 Organic matter check and recommendations.
1.2.2.2.4 Starter fertilizer check and recommendations.

1.3 SUBMITTALS

1.3.1 Submit sod growers certification of grass species. Identify source location.

1.3.2 Submit the following materials samples:

1.3.2.1 Topsoil

1.3.3 Submit the following material certification:

1.3.3.1 Submit certificates of inspection as required by governmental authorities and manufacturers or vendors certified analysis for soil amendments, herbicides, insecticides, and fertilizer materials; submit other date substantiating that materials comply with specified requirements.

1.3.4 Submit soil analysis report.

1.3.5 Bidders shall furnish, with their bid, evidence in writing that they maintain a permanent place or places of business and have adequate equipment, finances, and personnel to provide the specified services. This evidence shall include, but not be limited to: a list of current contracts, their value, and a contact person with each firm; at least three references who can verify work of a similar nature done by your firm in the last three year; a list of owned and/or leased equipment available for use on this contract; a list of key personnel and a brief summary of their qualifications. Failure to provide the listed material may cause the Bidder to be deemed non-responsive. The City reserves the right to inspect the apparent low Bidder's place of business and equipment prior to contract of any bid to determine the responsibility and capability

of the Bidder to perform the services. The City also reserves the right to solicit references in making judgment on the Bidder's ability to perform said services.

1.4 DELIVERY, STORAGE AND HANDLING

1.4.1 Cut, deliver and install sod within a 48-hour period.

1.4.1.1 Do not harvest or transport sod when moisture content may adversely affect sod survival.

1.4.1.2 Protect sod from sun, wind, and dehydration prior to installation.

1.4.1.3 Do not tear, stretch, or drop sod during handling and installation.

1.5 PROJECT CONDITIONS

1.5.1 Work notification: Notify City of Tampa representative at least 7 working days prior to start of sodding operations.

1.5.2 Protect existing utilities, paving and other facilities from damage caused by sodding operations.

1.5.3 Perform sodding work only after planting and other work affecting ground surface has been completed.

1.5.4 Existing soil to be amended as determined necessary from soil analysis, including: soil pH, nematode infestation, organic matter check and starter fertilizer check.

1.5.5 Restrict traffic from lawn areas until grass is established.

1.5.6 Provide hose and lawn watering equipment as required.

1.5.7 The project site has an existing irrigation system. Locate, protect and maintain the irrigation system during sodding operations. Repair irrigation system components damaged during sodding operations at the contractor’s expense using like materials and coordinating with City Representative.

1.6 WARRANTY

1.6.1 Provide a uniform stand of grass by watering, mowing and maintaining lawn areas until final acceptance and for a period of 90 days after acceptance. Resod areas, with specified materials, which fail to provide a uniform stand of grass until all affected areas are accepted by the City of Tampa Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Sod

2.1.1.1 Sod: An “approved” nursery grown sod composed of either Argentine Bahia, or St. Augustine, or as specified on drawings.

2.1.1.2 Provide well-rooted, healthy sod, free of diseases, nematodes and soil borne insects. Provide sod uniform in color, leaf texture, density, and free of weeds, undesirable grasses, stones, roots, thatch, and extraneous material; viable and capable of growth and development when planted.

2.1.1.3 Furnish sod machine stripped and of supplier's standard width, length, and thickness: uniformly 1" to 1-1/2" thick with clean cut edges. Mow sod before stripping.

2.1.2 Fertilizer:

2.1.2.1 Granular, non-burning product composed of not less than 50% organic slow-acting, guaranteed analysis professional fertilizer. The City of Tampa prohibits the application of nitrogen fertilizers between June 1st and September 30th.

2.1.2.1.1 Type A: Starter fertilizer containing 16% nitrogen, 4% phosphoric acid, and 8% potash by weight or similar approved composition.

2.1.2.1.2 Type B: Top dressing fertilizer containing 31% nitrogen, 3% phosphoric acid, and 10% potash by weight or similar approved composition.

2.1.2.1.3 Ground Limestone: Containing not less that 85% of total cabonates and ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20 mesh sieve.

2.1.3 Stakes: Steel, tee shaped pins, 4" head x 8" leg.

2.1.4 Topsoil: Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, reasonably free from clay lumps, coarse sand stones, plants, roots and other foreign materials with an acidity level as specified by type of sod.

2.1.4.1 Identify source location of topsoil.

2.1.4.2 Topsoil shall be fertilized.

2.1.5 Water: Free of substance harmful to sod growth. Hoses or other methods of transportation to be furnished by contractor. (See Technical Maintenance Table on plans.)

PART 3 - EXECUTION

3.1 INSPECTION

3.1.1 Examine finish surfaces, grades, topsoil quality, and depth. Do not start sodding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

3.2.1 If area to be sodded has existing grass or vegetative cover, apply a non-selective herbicide (Round-up) to area. Wait ten (10) days before continuing with prep work.

3.2.2 Excavate areas to be sodded to 2" below adjacent concrete sidewalks or plaza areas. Loosen topsoil of lawn areas to minimum depth of 8". Remove stones over 1" in any dimension and sticks, roots, rubbish, and extraneous matter.

3.2.3 Add 2" topsoil or organic material as required from organic matter check. Till into top 8" of existing soil.

3.2.4 Grade lawn areas to smooth, free drainage and even surface with a loose, uniformly fine texture. Roll and rake, remove ridges and fill depressions as required to drain.

3.2.5 Apply ground limestone fertilizer at rate determined by the soil test, to adjust pH of topsoil as specified in sod type. Distribute evenly by machine and incorporate thoroughly into topsoil.

3.2.6 Apply "Type A" fertilizer as specified by manufacturer October 1 through June 1, only. Apply fertilizer by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with the soil to a depth of 3" by discing or other approved methods. Fertilize areas inaccessible to power equipment with hand tools and incorporate it into soil.

3.2.7 Dampen dry soil prior to sodding.

3.2.8 Restore prepared areas to specified condition if eroded, settled or otherwise distributed after fine grading and prior to sodding.

3.3 INSTALLATION

3.3.1 Lay sod to form a solid mass with tightly-fitted joints. Butt ends and sides of sod strips. Do not overlay edges. Stagger strips to offset joints in adjacent courses. Remove excess sod to avoid smothering of adjacent grass. Provide sod pad top flush with adjacent curbs, sidewalks, drains and seed areas.

3.3.2 Do not lay dormant sod or install sod on saturated soil.

3.3.3 Install initial row of sod in a straight line, beginning at bottom of slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and lightly against previously installed row.

3.3.4 Peg sod on slopes greater than 3 to 1 to prevent slippage at a rate of 2 stakes per yard of sod.

3.3.5 Water sod thoroughly with a fine spray immediately after laying.

3.3.6 Roll with light lawn roller to ensure contact with subgrade.

3.3.7 Sod indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.

3.3.8 Top dress all seams of sodded area with specified topsoil.

3.4 MAINTENANCE

3.4.1 Maintain sodded lawns for a period of at least 90 days after completion and acceptance of sodding operations.

3.4.2 Maintain sodded lawn areas, including watering, spot weeding, mowing, application of herbicides, fungicides, insecticides and resodding until a full, uniform stand of grass free of weed, undesirable grass species, disease, and insects is achieved and accepted by the City of Tampa representative.

3.4.2.1 Water sod thoroughly every 2 to 3 days, as required to establish proper rooting.

3.4.2.2 Repair, rework, and resod all areas that have washed out or are eroded. Replace undesirable or dead areas with new sod.

3.4.2.3 Mow lawn areas as soon as top growth reaches a 3" height. Cut back to 2" height. Repeat mowing as required to maintain specified height. Not more than 40% of grass leaf shall be removed at any single mowing.

3.4.2.4 Apply "Type B" fertilizer to lawns approximately 30 days after sodding at a rate specified by the manufacturer, between October 1 and June 1 only. Apply with a mechanical rotary or drop type distributor. Thoroughly water into soil.

3.4.2.5 Apply herbicides as required to control weed growth or undesirable grass species.

3.4.2.6 Apply fungicides and insecticides as required to control disease and insects.

3.5 ACCEPTANCE

3.5.1 Inspection to determine acceptance of sodded lawns will be made by the City Representative, upon contractor's request. Provide notification at least 5 working days before requested inspection date.

3.5.1.1 Sodded areas will be acceptable provided all requirements, including maintenance, have been complied with, and a healthy, even colored viable lawn is established, free of weeds, undesirable grass species, disease, and insects.

3.5.2 Upon acceptance, contractor shall maintain area for 90 days. At the end of this period, contractor shall request a final maintenance inspection for acceptance.

3.5.3 Upon acceptance at end of maintenance period, the City of Tampa will assume lawn maintenance.

3.6 CLEANING

3.6.1 Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from sodding operations.

END OF SECTION 02930

SECTION 03300 CONCRETE WORK

1.0 GENERAL

1.1 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections apply to work specified in this section.

1.2 DESCRIPTION OF WORK:

The extent of concrete work shown on drawings.

1.3 QUALITY ASSURANCE:

Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

ACI 301 "Specifications for Structural Concrete for Buildings".

ACI 318 "Building Code Requirements for Reinforced Concrete".

Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

Concrete Testing Service: The City shall employ an independent testing laboratory to perform material evaluation tests.

Materials and installed work may require testing and retesting, as directed by Engineer and/or Architect, at anytime during progress of work. Allow free access to material stockpiles and facilities. Tests, not specifically indicated to be done at City's expense, including retesting of rejected materials and installed work, shall be done at Contractor's expense.

Pre-Pour Conference:

Prior to placement of any concrete at the site, a pre-pour conference shall be held on-site. Conference shall take place a minimum of 24 hours before concrete placement and shall be attended by the City Architect's representative, the Contractor's site superintendent and the individual(s) performing concrete finishing. A minimum notice of 6 hours shall be given to the City Architect's office for the pre- pour conference.

At the time of the pre-pour conference, all forms and reinforcing shall be in place. Contractor shall have a dumpy level available for use.

If, in the opinion of the City Architect's representative, corrections and adjustments to the forms and reinforcing are substantial, a subsequent pre-pour conference, conforming to the above requirements shall be held.

It is the Contractor's responsibility to schedule and notify participants of pre-pour conference. Nothing in the above shall relieve the Contractor of obtaining HDC Inspectional Services inspections and approvals. Obtaining HDC approvals do not relieve the Contractor of the responsibility of the pre-pour conference.

Concrete placed without pre-pour conference will be rejected and shall be removed from site promptly by the Contractor. Elapsed time as a result of Contractor's failure to properly notify and coordinate pre-pour conference shall not be cause for extension of contract time.

1.4 SUBMITTALS:

Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials

and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by Engineer and/or Architect.

Shop Drawings: Contractor shall submit 5 copies of shop drawings for all reinforcing steel. Drawing shall show bending diagrams, assembly diagrams, splicing and laps of rods, shapes, dimensions and details of bar reinforcing and accessories.

Design Mix: Submit design mix to Engineer and/or Architect for approval prior to placing concrete.

2.0 PRODUCTS

2.1 FORM MATERIALS:

Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surface with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly- placed concrete without bow or deflection.

Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better, mill-oiled and edge- sealed, with each piece bearing legible inspection trademark.

Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS:

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

Welded Wire Fabric: ASTM A 185, welded steel wire fabric.

Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise acceptable.

For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 CONCRETE MATERIALS:

Portland Cement: ANSI/ASTM C 150, Type I, unless otherwise acceptable to Engineer and/or Architect.

Use one brand of cement throughout project, unless otherwise acceptable to Engineer and/or Architect.

Fly Ash shall not be permitted.

Normal Weight Aggregates: ANSI/ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

Local aggregates not complying with ANSI/ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to the Engineer and/or Architect.

Water: Potable.

Air-Entraining Admixture: ANSI/ASTM C 260.

Calcium chloride not permitted.

2.4 RELATED MATERIALS:

Non-Shrink Grout: CRD-C 588, factory pre-mixed grout.

Products: Subject to compliance with requirements, provide one of the following:

Type D. Non-metallic

"Masterflor 713"; Master Builders.
"Sonogrout"; Sonneborn-Contech.
"Euco-NS"; Euclid Chemical Co.
"Five Star Grout"; U. S. Grout Co.
"Duragrout"; L & M Const. Chemical Co.

Liquid Membrane-Forming Curing Compound: Liquid type membrane-forming curing compound complying with ANSI/ASTM C 309, Type I, Class A unless other type acceptable to Engineer and/or Architect.

Products: Subject to compliance with requirements, provide one of the following:

"Masterseal"; Master Builders.
"A-H 3 Way" Sealer; Anti-Hydro Waterproofing Co.
"Ecocure"; Euclid Chemical Co.
"Clear Seal"; W. R. Grace
"Sealkure"; Toch Div.-Carboline.
"Kure-N-Seal"; Sonneborn-Contech.
"Polyclear"; Upco Chemcial/USM Corp.
"L&M Cure"; L & M Construction Chemicals.
"Klearseal"; Setcon Industries.
"LR-151"; Protex Industries.
"Hardtop"; Gifford-Hill.

2.5 PROPORTIONING AND DESIGN OF MIXES:

Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Engineer and/or Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Engineer and/or Architect.

Submit written reports to Engineer and/or Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Engineer and/or Architect.

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

3000 psi 28-day compressive strength; 480 lbs. cement per cu. yd. minimum; W/C ratio, 0.58 maximum.

Admixtures:

Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within following limits:

Concrete structures and slabs exposed to freezing and thawing or subjected to hydraulic pressure:

3% to 5% for maximum 2" aggregate.
3% to 7% for maximum 3/4" aggregate.
6% to 8% for maximum 1/2" aggregate.

Other Concrete: 2% to 4% air.

Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

Concrete: Not less than 2" and not more than 5".

2.6 CONCRETE MIXING:

Ready-Mix Concrete: Comply with requirements of ANSI/ASTM C 94, and as herein specified.

Delete references for allowing additional water to be added to batch for material with insufficient slump. Addition of water to the batch will not be permitted.

Concrete at the job site shall be removed when: 1.) The period of time beginning with the introduction of water into the batch exceeds 1 1/2 hours; and/or 2.) The temperature of the concrete exceeds 91 degrees. Engineer shall have final say as to when concrete shall be removed from job site.

3.0 EXECUTION

3.1 FORMS:

Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. correct size, shape, alignment, elevation and position.

Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

Construct forms complying with ACI 347, to sizes shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wook inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.

Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood,

sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement if required to eliminate mortar leaks and maintain proper alignment.

3.2 PLACING REINFORCEMENT:

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

Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.

Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.3 JOINTS:

Isolate Joints in Slabs-on-Ground: Construct isolation joints in slabs on ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams and elsewhere as indicated.

Contraction (Control) Joints in Slabs-on-Ground: Place construction control joints in slabs-on-ground to form panels of patterns as shown. Saw cut joints as soon as possible after slab finishing without dislodging aggregate.

3.4 INSTALLATION OF EMBEDDED ITEMS:

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

Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

3.5 PREPARATION OF FORM SURFACES:

Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.6 CONCRETE PLACEMENT:

Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

General: Comply with ACI 304, and as herein specified.

Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of constructional joints, until the placing of a panel or section is completed.
Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

Maintain reinforcing in proper position during concrete placement operations.

Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

When air temperature has fallen to or is expected to fall below 40 degrees F (4 degrees C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C), and not more than 80 degrees F (27 degrees C) at point of placement.

Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.

Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F (32 degrees C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing.

Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

Wet forms thoroughly before placing concrete.

Use water-reducing retarding admixtures (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

3.7 FINISH OF FORMED SURFACES:

Rough Form Finish: For formed concrete surfaces not exposed- to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projects exceeding 1/4" in height rubbed down or chipped off.

Related Unformed Surfaces: At tops of walls, horizontal offsets surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 MONOLITHIC SLAB FINISHES:

Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps and ramps, and elsewhere as indicated.

Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom. Prior to brooming, verify direction with Architect. Coordinate required final finish with Engineer and/or Architect.

3.9 CONCRETE CURING AND PROTECTION:

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

Curing Methods: Perform curing of concrete by moist curing, by moisture-retaining cover curing, by membrane curing, and by combinations thereof, as herein specified.

Provide moisture curing by following methods:

Keep concrete surface continuously wet by covering with water.

Continuous water-fog spray.

Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

Provide moisture-cover curing as follows:

Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

Provide curing compound to slab as follows:

Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's

directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings and finish materials, unless otherwise acceptable to Engineer and/or Architect.

Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing compound.

Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

3.10 SHORES AND SUPPORTS:

Not Applicable.

3.11 REMOVAL OF FORMS:

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

Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28-days. Determine potential compressive strength of inplace concrete by testing field-cured specimens representative of concrete location or members.

Form facing material may be removed 4 days after placement, only if shores and other vertical support have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.12 RE-USE OF FORMS:

Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Engineer and/or Architect.

3.13 MISCELLANEOUS CONCRETE ITEMS:

Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work or other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel- troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

3.14 CONCRETE SURFACE REPAIRS:

Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer and/or Architect.

Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer and/or Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having required slope.

Repair Finished Unformed Surfaces that contain defects which affect durability of concrete. Surface defects, as such, including crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.

Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish patching compounds may be used when acceptable to Engineer and/or Architect.

Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and brush with a neat cement grout, apply or concrete bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.

Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and brush with neat cement grout, or apply concrete bonding agent. Mix dry- pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

Use epoxy-based mortar for structural repairs, where directed by Engineer and/or Architect.

Repair methods not specified above may be used, subject to acceptance of Engineer and/or Architect.

3.15 QUALITY CONTROL TESTING DURING CONSTRUCTION:

The City will employ a testing laboratory to perform other tests and to submit test reports.

Sampling and testing for quality control during placement of concrete may include the following, as directed by Engineer and/or Architect.

Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

Slump: ASTM C 143; one test for each concrete load at point of discharge; and one test for each set of compressive strength test specimens.

Air Content: ASTM C 173, volumetric method for lightweight concrete; ASTM C 231 pressure for normal weight concrete; one for each set of compressive strength test specimens.

Concrete Temperature: Test hourly when air temperature is 40 degrees F (4 degrees C) and below, and when 80 degrees F (27 degrees C) and above; and each time a set of compression test specimens made.

Compression Test Specimen: ASTM C 31; one set of 6 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

Compressive Strength Tests: ASTM C 39; one set for each 100 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 5,000 sq. ft. of surface area placed; 2 specimens tested at 7 days, 3 specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.

When total quantity of a given class of concrete is less than 50 cu. yds., strength test may be waived by Engineer and/or Architect if, in his judgement, adequate evidence of satisfactory strength is provided.

When strength of filed-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

Test results will be reported in writing to Engineer and/or Architect and Contractor on same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Engineer and/or Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete if verified.

END OF SECTION 03300

SECTION 04200 - UNIT MASONRY

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Concrete unit masonry.

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

Division 7 Section "Joint Sealants" for sealing joint in mockup.

Division 8 Section "Aluminum Architectural Windows" for window in mockup.

Division 10 Section "Louvers and Vents" for wall vents.

Products installed but not furnished under this Section include the following:

Wood nailers and blocking built into unit masonry specified in Division 6 Section "Rough Carpentry."

Manufactured reglets in masonry joints for metal flashing specified in Division 7 Section "Flashing and Sheet Metal."

Hollow metal frames in unit masonry openings specified in Division 8 Section "Standard Steel Doors and Frames."

Hollow metal frames in unit masonry openings specified in Division 8 Section "Custom Steel Doors and Frames."

PERFORMANCE REQUIREMENTS

Provide unit masonry that develops the following installed compressive strengths (f'm) at 28 days.

For Concrete Unit Masonry: As follows, based on net area:

f'm = 1900 psi (10.3 MPa).

As indicated.

SUBMITTALS

General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for each different masonry unit, accessory, and other manufactured product specified.

Samples for initial selection of the following:

Unit masonry samples in small-scale form showing the full range of colors and textures available for each different exposed masonry unit required.

Colored-masonry mortar samples showing the full range of colors available.

Samples for verification of the following:

Full-size units for each different exposed masonry unit required showing the full range of exposed colors, textures, and dimensions to be expected in the completed construction.

Colored-masonry mortar samples for each color required showing the full range of colors expected in the finished construction. Make samples using the same sand and mortar ingredients to be used on the Project. Label samples to indicate type and amount of colorant used.

Material certificates for the following, signed by manufacturer and Contractor, certifying that each material complies with requirements.

Each different cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.

Each material and grade indicated for reinforcing bars.

Each type and size of joint reinforcement.

Each type and size of anchors, ties, and metal accessories.

Material test reports from a qualified independent testing agency, employed and paid by Contractor or manufacturer, indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:

Concrete masonry unit complying with ASTM C140.

Mortar complying with property requirements of ASTM C 270.

Mortar complying with BIA M1.

Grout mixes. Include description of type and proportions of grout ingredients per ASTMC 1019.

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.

QUALITY ASSURANCE

Owner will assign a qualified staff inspector to provide a survey and inspection of foundations for compliance with dimensional tolerances.

Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM C 1093, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

Preconstruction Testing: Employ and pay a qualified independent testing agency to perform the following preconstruction testing to establish compliance of proposed materials and construction with specified requirements:

Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.

Single-Source Responsibility for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one source and by a single manufacturer for each different product required.

Single-Source Responsibility for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

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

DELIVERY, STORAGE, AND HANDLING

Store masonry units on elevated platforms, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not install until they are in an air-dried condition.

Store cementitious materials on elevated platforms, under cover, and in a dry location.

Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

PROJECT CONDITIONS

Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

Extend cover a minimum of 24 inches (600 mm) down both sides and hold cover securely in place.

Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches (600 mm) down face next to unconstructed wythe and hold cover in place.

Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after

building masonry walls or columns.

Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on ground and over wall surface.

Protect sills, ledges, and projections from mortar droppings.

Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt on completed masonry.

Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with the following requirements:

Cold-Weather Construction: When the ambient temperature is within the limits indicated, use the following procedures:

40 to 32 deg F (4 to 0 deg C): Heat mixing water or sand to produce mortar temperatures between 40 and 120 deg F (4 and 49 deg C).

32 to 25 deg F (0 to -4 deg C): Heat mixing water and sand to produce mortar temperatures between 40 and 120 deg F (4 and 49 deg C). Heat grout materials to produce grout temperatures between 40 and 120 deg F (4 and 49 deg C). Maintain mortar and grout above freezing until used in masonry.

Cold-Weather Protection: When the mean daily temperature is within the limits indicated, provide the following protection:

40 to 25 deg F (4 to -4 deg C): Cover masonry with a weather-resistant membrane for 48 hours after construction.

Below 25 deg F do not erect masonry and/or apply mortar.

Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried out, but not less than 7 days after completion of cleaning.

Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F (38 deg C) and above.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that

may be incorporated in the Work include, but are not limited to, the following:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Concrete Masonry Units:

CONCRETE MASONRY UNITS

General: Provide shapes indicated and as follows for each form of concrete masonry unit required.

Provide special shapes for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.

Provide square-edged units for outside corners, except where indicated as bullnose.

Concrete Masonry Units: ASTM C 90 and as follows:

Unit Compressive Strength: Provide units with minimum average net-area compressive strength indicated below:

1900 psi (13.1 MPa).

Not less than the unit compressive strengths required to produce concrete unit masonry construction of compressive strength indicated.

Weight Classification: Normal weight.

Provide Type II, nonmoisture-controlled units.

Size: Manufactured to the actual dimensions listed below (within tolerances specified in the applicable referenced ASTM specification) for the corresponding nominal sizes indicated on Drawings:

8 inch (200 mm) nominal: 7-5/8 inch (194 mm) actual.

Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.

Where units are to be left exposed, provide color and texture matching the range represented by Architect's sample.

Single Score - Split Faced Architectural Masonry Units and Smooth Facet Regular Architectural Masonry Unites (as indicated on drawings): ASTM C 90 and as follows:

Manufactures: DEMACO or equal.

Unit Compressive Strength: Provide units with minimum average net-area compressive strength indicated below:

1900 psi (13.1 MPa).
Not less than the unit compressive strengths required to produce concrete unit masonry construction of compressive strength indicated.

Weight Classification: Normal weight.

Provide Type II, nonmoisture-controlled units.

Size: Manufactured to the actual dimensions listed below (within tolerances specified in the applicable referenced ASTM specification) for the corresponding nominal sizes indicated on Drawings:

8 inch (200 mm) nominal: 3-5/8 inch (194 mm) actual.

Exposed Faces: Selected from manufacturer's standard colors and texture.

Where units are to be left exposed, provide color and texture matching the range represented by Architect's sample.

Aggregate: Conforming to ASTM C-33

INTEGRAL WATER REPELLENT

Integral Water Repellent: For split faced and smooth faced units provide units produced with liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water-repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of the test specimen.

MORTAR AND GROUT MATERIALS

Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

Mortar Cement: U.B.C. Standard No. 21-14.

For pigmented mortars, use premixed, colored mortar cements of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 5 percent of mortar cement by weight for mineral oxides nor 1 percent for carbon black.

For colored-aggregate mortars, use mortar cement of natural color or white as required to produce mortar color indicated.

Hydrated Lime: ASTM C 207, Type S.

Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.

For pigmented mortars, use colored portland cement-lime mix of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 10 percent of portland cement by weight for mineral oxides nor 2 percent for carbon black.

Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch (6.5 mm), use aggregate graded with 100 percent passing the No. 16 (1.18 mm) sieve.
White-Mortar Aggregates: Natural white sand or ground white stone.

Aggregate for Grout: ASTM C 404.

Mortar Pigments for Split Faced Units: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in

masonry mortars. Color selected from full range of manufacturer standard colors.

Ready-Mixed Mortar: Cementitious materials, water, and aggregate complying with requirements specified in this Article; combined with set-controlling admixtures to produce a ready-mixed mortar complying with ASTM C 1142.

Water Repellant Admixture: Liquid water-repellent motar admixture intended for use with split faced CMU, containing integral water-repellent by same manufacturer.

Water: Potable.

JOINT REINFORCEMENT

ASTM A 153, Class B-2, for both interior and exterior walls.

Galvanize wire, ASTM A 580, Type 304 or 316.

Description: Welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet (3 m), with prefabricated corner and tee units, and complying with requirements indicated below:

Wire Diameter for Side Rods: 0.1483 inch (3.8 mm).

Wire Diameter for Cross Rods: 0.1483 inch (3.8 mm).

For single-wythe masonry, provide type as follows with single pair of side rods:

Ladder design with perpendicular cross rods spaced not more than 16 inches (407 mm) o.c.

For double-wythe masonry, provide type as follows with double pair of side rods:

Ladder design with hook and eye (16" o.c. horizontally and vertically) for veneer perpindicular cross roads spaced not more than 16 inches o.c.

Use where horizontal joints of facing wythe do not align with those of back-up and where indicated.

Use where facing wythe is of different material than back-up wythe.

MISCELLANEOUS MASONRY ACCESSORIES

Compressible Filler: Premolded filler strips complying with ASTM D 1056, Type 2, Class A, Grade 1; compressible up to 35 percent; of width and thickness indicated; formulated from the following material:

Neoprene.

Preformed Control-Joint Gaskets: Material as indicated below, designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

Styrene-Butadiene Rubber Compound: ASTM D 2000, Designation M2AA-805.

or

Polyvinyl Chloride: ASTM D 2287, General Purpose Grade, Type PVC-65406.

Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

LOOSE STEEL LINTELS

Fabricate loose structural-steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

Weld adjoining members together to form a single unit where indicated.

Size loose lintels to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 8 inches (200 mm), unless otherwise indicated or by manufacturer's recommendation.

MASONRY CLEANERS

Proprietary Acidic Cleaner: Manufacturer's standard-strength, general-purpose cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry surfaces of type indicated below without discoloring or damaging masonry surfaces; expressly approved for intended use by manufacturer of masonry units being cleaned.

For masonry not subject to metallic oxidation stains, use formulation consisting of a concentrated blend of surface-acting acids, chelating, and wetting agents.

For masonry subject to metallic oxidation stains, use formulation consisting of a liquid blend of organic and inorganic acids and special inhibitors.

Available Products: Subject to compliance with requirements, products that may be used to clean unit masonry surfaces include, but are not limited to, the following:

Sure Klean Vana Trol; ProSoCo, Inc.

MORTAR AND GROUT MIXES

General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

Do not use calcium chloride in mortar or grout.

Add cold-weather admixture (if used) at the same rate for all mortar, regardless of weather conditions, in order to ensure that mortar color is consistent.

Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification, for job-mixed mortar; and ASTM C 1142 for ready-mixed mortar, of types indicated below:

Limit cementitious materials in mortar to portland cement and lime.

For masonry below grade, in contact with earth, and where indicated, use type indicated below:

Type: S.

For reinforced masonry and where indicated, use type indicated below:

Type: S.

For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions, and for other applications where another type is not indicated, use type indicated below:

Type: N.

Grout for Unit Masonry: Comply with ASTM C 476. Use grout of consistency indicated or, if not otherwise indicated, of consistency (fine or coarse) at time of placement that will completely fill spaces intended to receive grout.

Use fine grout in grout spaces less than 2 inches (50 mm) in horizontal dimension, unless otherwise indicated.

Use coarse grout in grout spaces 2 inches (50 mm) or more in least horizontal dimension, unless otherwise indicated.

Epoxy Pointing Mortar: Mix epoxy pointing mortar to comply with mortar manufacturer's directions.

PART 3 - EXECUTION

EXAMINATION

Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of unit masonry. Do not proceed with installation until unsatisfactory conditions have been corrected.

For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of unit masonry.

Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.

INSTALLATION, GENERAL

Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of thickness indicated.

Build chases and recesses to accommodate items specified in this and other Sections of the Specifications.

Leave openings for equipment to be installed before completion of masonry. After installing equipment, complete masonry to match construction immediately adjacent to the opening.

Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting, where possible. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.

Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

CONSTRUCTION TOLERANCES

Variation from Plumb: For vertical lines and surfaces of columns, walls, and arrises, do not exceed 1/4 inch in 10 feet (6 mm in 3 m), nor 3/8 inch in 20 feet (10 mm in 6 m), nor 1/2 inch in 40 feet (12 mm in 12 m) or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m), nor 1/2 inch in 40 feet (12 mm in 12 m) or more. For vertical alignment of head joints, do not exceed plus or minus 1/4 inch in 10 feet (6 mm in 3 m), nor 1/2 inch (12 mm) maximum.

Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m), nor 1/2 inch in 40 feet (12 mm in 12 m) or more. For top surface of bearing walls, do not exceed 1/8 inch (3 mm) in 10 feet (3 m), nor 1/16 inch (1.5 mm) within width of a single unit.

Variation of Linear Building Line: For position shown in plan and related portion of columns, walls, and partitions, do not exceed 1/2 inch in 20 feet (12 mm in 6 m), nor 3/4 inch in 40 feet (19 mm in 12 m) or more.

Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4 inch (6 mm) nor plus 1/2 inch (12 mm).

Variation in Mortar-Joint Thickness: Do not vary from bed-joint thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm). Do not vary bed-joint thickness from bed-joint thickness of adjacent course by more than 1/8 inch (3 mm). Do not vary from head-joint thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary head-joint thickness from adjacent head-joint thickness by more than 1/8 inch (3 mm). Do not vary from collar-joint thickness indicated by more than minus 1/4 inch (6 mm) or plus 3/8 inch (10 mm).

LAYING MASONRY WALLS

Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets. Avoid the use of less-than-half-size units at corners, jambs, and where possible at other locations.

Lay walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.

Bond Pattern for Exposed Masonry: Lay exposed masonry in the following bond pattern; do not use units with less than nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

One-half running bond with vertical joint in each course centered on units in courses above and below.

Stopping and Resuming Work: In each course, rack back 1/2-unit length for one-half running bond or 1/3-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar prior to laying fresh masonry.

Built-in Work: As construction progresses, build-in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.

Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.

At exterior frames, insert extruded polystyrene board insulation around perimeter of frame in thickness indicated, but not less than 3/4 inch (19 mm) to act as a thermal break between frame and masonry.

Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.

Fill cores in hollow concrete masonry units with grout 24 inches (600 mm) under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

Wedge nonload-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.

MORTAR BEDDING AND JOINTING

Lay hollow concrete masonry units as follows:

With full mortar coverage on horizontal and vertical face shells.

Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.

For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.

Maintain joint widths indicated, except for minor variations required to maintain bond alignment. If not indicated, lay walls with 3/8-inch (10-mm) joints.

Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated. **See drawings for special joint requirements to meet design aesthetics for masonry walls.**

For glazed masonry units, use a nonmetallic jointer 3/4 inch (19 mm) or more in width.

Cut joints flush for masonry walls that are to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

HORIZONTAL-JOINT REINFORCEMENT

General: Provide continuous horizontal-joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch (16 mm) on exterior side of walls, 1/2 inch (13 mm) elsewhere. Lap reinforcing a minimum of 6 inches (150 mm). Start at finish floor.

Space reinforcement not more than 16 inches (406 mm) o.c.

Space reinforcement not more than 8 inches (203 mm) o.c. in foundation walls and parapet walls.

Provide reinforcement in mortar joint 1 block course above and below wall openings and extending 12 inches (305 mm) beyond opening.

Reinforcement above is in addition to continuous reinforcement.

Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

CONTROL AND EXPANSION JOINTS

General: Install control and expansion joints in unit masonry where indicated. Build-in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.

Form control joints in concrete masonry as follows:

Fit bond-breaker strips into hollow contour in ends of block units on one side of control joint. Fill the resultant core with grout and rake joints in exposed faces.

Install preformed control-joint gaskets designed to fit standard sash block.

Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake joint.

Install temporary foam plastic filler in head joints and remove when unit masonry is complete.

LINTELS

Provide masonry lintels where shown and where openings of more than 12 inches (305 mm) for brick size units and 24 inches (610 mm) for block size units are shown without structural steel or other supporting lintels.

Provide either of above at Contractor's option or provide precast or formed-in-place concrete lintels complying with requirements of Division 3 Section "Cast-in-Place Concrete."

Provide minimum bearing of 8 inches (200 mm) at each jamb, unless otherwise indicated.

Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.

Do not exceed the following pour heights for fine grout:

For minimum widths of grout spaces of 3/4 inch (19 mm) or for minimum grout space of hollow unit cells of 1-1/2 by 2 inches (38 by 51 mm), pour height of 12 inches (305 mm).

For minimum widths of grout spaces of 2 inches (51 mm) or for minimum grout space of hollow unit cells of 2 by 3 inches (51 by 76 mm), pour height of 60 inches (1524 mm).

For minimum widths of grout spaces of 2-1/2 inches (63 mm) or for minimum grout space of hollow unit cells of 2-1/2 by 3 inches (63 by 76 mm), pour height of 12 feet (3.6 m).

For minimum widths of grout spaces of 3 inches (76 mm) or for minimum grout space of hollow unit cells of 3 by 3 inches (76 by 76 mm), pour height of 24 feet (7.3 m).

Do not exceed the following pour heights for coarse grout:

For minimum widths of grout spaces of 1-1/2 inches (38 mm) or for minimum grout space of hollow unit cells of 1-1/2 by 3 inches (38 by 76 mm), pour height of 12 inches (305 mm).

For minimum widths of grout spaces of 2 inches (51 mm) or for minimum grout space of hollow unit cells of 2-1/2 by 3 inches (63 by 76 mm), pour height of 60 inches (1524 mm).

For minimum widths of grout spaces of 2-1/2 inches (63 mm) or for minimum grout space of hollow unit cells of 3 by 3 inches (76 by 76 mm), pour height of 12 feet (3.6 m).

For minimum widths of grout spaces of 3 inches (76 mm) or for minimum grout space of hollow unit cells of 3 by 4 inches (76 by 101 mm), pour height of 24 feet (7.3 m).

Provide cleanout holes at least 3 inches (76 mm) in least dimension for grout pours over 60 inches (1524 mm) in height.

Provide cleanout holes at each vertical reinforcing bar.

At solid grouted masonry, provide cleanout holes at not more than 32 inches (813 mm) o.c.

REPAIRING, POINTING, AND CLEANING

Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units; install in fresh mortar or grout, pointed to eliminate evidence of replacement.

Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point-up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for application of sealants.

In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears prior to tooling joints.

Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.

Wet wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.

Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain present on exposed surfaces.

Protection: Provide final protection and maintain conditions that ensure unit masonry is without damage and deterioration at time of Substantial Completion.

END OF SECTION 04200

SECTION 05521 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Steel pipe and tube handrails and railings.

Related Sections include the following:

Division 5 Section "Metal Stairs" for steel pipe handrails and railings included with metal stairs.

PERFORMANCE REQUIREMENTS

General: In engineering handrails and railings to withstand structural loads indicated, determine allowable design working stresses of handrail and railing materials based on the following:

Structural Steel: AISC S335, "Specification for Structural Steel Buildings Allowable Stress Design and Plastic Design with Commentary."

Cold-Formed Structural Steel: AISI SG-673, Part I, "Specification for the Design of Cold-Formed Steel Structural Members."

Structural Performance of Handrails and Railings: Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stresses of materials for handrails, railings, anchors, and connections:

Top Rail of Guards: Capable of withstanding the following loads applied as indicated:

Concentrated load of 200 lbf (890 N) applied at any point and in any direction.

Uniform load of 50 lbf/ft. (730 N/m) applied horizontally and concurrently with uniform load of 100 lbf/ft. (1460 N/m) applied vertically downward.

Concentrated and uniform loads above need not be assumed to act concurrently.

Handrails Not Serving As Top Rails: Capable of withstanding the following loads applied as indicated:

Concentrated load of 200 lbf (890 N) applied at any point and in any direction.

Uniform load of 50 lbf/ft. (730 N/m) applied in any direction.

Concentrated and uniform loads above need not be assumed to act concurrently.

Infill Area of Guards: 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 system, including panels, intermediate rails, balusters, or other elements composing infill area.

Load above need not be assumed to act concurrently with loads on top rails in determining stress on guard.

Thermal Movements: Provide handrails and railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

SUBMITTALS

Product Data: For the following:

Manufacturer's product lines of mechanically connected handrails and railings.

Grout, anchoring cement, and paint products.

Shop Drawings: Show fabrication and installation of handrails and railings. Include plans, elevations, sections, component details, and attachments to other Work.

For installed handrails and railings indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

Samples for Initial Selection: Short sections of railing or flat, sheet metal samples showing available mechanical finishes.

Samples for Verification: For each type of exposed finish required, prepared on components indicated below and of same thickness and metal indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

6-inch- (150-mm-) long sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.

Fittings and brackets.

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.

Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

Product Test Reports: From a qualified testing agency indicating handrails and railings comply with ASTM E 985, based on comprehensive testing of current products.

QUALITY ASSURANCE

Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of handrails and railings that are similar to those indicated for this Project in material, design, and extent.

Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

Source Limitations: Obtain each type of handrail and railing through one source from a single manufacturer.

STORAGE

Store handrails and railings in a dry, well-ventilated, weathertight place.

PROJECT CONDITIONS

Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating handrails and railings without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

COORDINATION

Coordinate installation of anchorages for handrails and railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

SCHEDULING

Schedule installation so handrails and railings are mounted only on completed walls. Do not support temporarily by any means that does not satisfy structural performance requirements.

PART 2 - PRODUCTS

MANUFACTURERS

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:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Steel Pipe and Tube Railings:

Humane Equipment Co.
Wagner: R & B Wagner, Inc.

METALS

General: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.

Steel and Iron: Provide steel and iron in the form indicated, complying with the following requirements:

Steel Pipe: ASTM A 53; finish, type, and weight class as follows:

Galvanized finish for exterior installations and where indicated.

Type F, or Type S, Grade A, standard weight (Schedule 40), unless another grade and weight are required by structural loads.

Steel Tubing: Cold-formed steel tubing, ASTM A 500, Grade A, unless another grade is required by structural loads.

Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

Iron Castings: Malleable iron complying with ASTM A 47, Grade 32510 (ASTM A 47M, Grade 22010).

Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.

WELDING MATERIALS, FASTENERS, AND ANCHORS

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.

Fasteners for Anchoring Handrails and Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.

For steel handrails, railings, and fittings, use plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.

Fasteners for Interconnecting Handrail and Railing Components: Use fasteners fabricated from same basic metal as fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

Provide concealed fasteners for interconnecting handrail and railing components and for attaching them to other work, unless otherwise indicated.

Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

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 six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

Cast-in-place anchors.

Chemical anchors.

Expansion anchors.

PAINT

Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664; 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.

GROUT AND ANCHORING CEMENT

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.

FABRICATION

General: Fabricate handrails and railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

Assemble handrails and railings in the shop to 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.

Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

Welded Connections: Fabricate handrails and railings for connecting members by welding. Cope components at perpendicular and skew connections to provide close fit, or use fittings designed for this purpose. Weld connections continuously to comply with the following:

Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

Obtain fusion without undercut or overlap.

Remove flux immediately.

At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail and railing members to other work, unless otherwise indicated.

Provide inserts and other anchorage devices for connecting handrails and railings to concrete or masonry

work. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.

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.

Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.

Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members that are exposed to exterior or to moisture from condensation or other sources.

Fabricate joints that will be exposed to weather in a watertight manner.

Close exposed ends of handrail and railing members with prefabricated end fittings.

Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns, unless clearance between end of railing and wall is 1/4 inch (6 mm) or less.

Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses and to produce adequate bearing area to prevent bracket rotation and overstressing of substrate.

FINISHES, GENERAL

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

Provide exposed fasteners with finish matching appearance, including color and texture, of handrails and railings.

STEEL FINISHES

Galvanized Handrails and Railings: Hot-dip galvanize exterior steel and iron handrails and railings to comply with ASTM A 123. Hot-dip galvanize hardware for exterior steel and iron handrails and railings to comply with ASTM A 153/A 153M.

Fill vent and drain holes that will be exposed in finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

For galvanized handrails and railings, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

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 handrails and railings:

Exteriors (SSPC Zone 1B): SSPC-SP 6, "Commercial Blast Cleaning."

Interiors (SSPC Zone 1A): SSPC-SP 7, "Brush-off Blast Cleaning."

Apply shop primer to prepared surfaces of handrail and railing components, unless otherwise indicated. Comply with requirements in 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.

Do not apply primer to galvanized surfaces.

Stripe paint edges, corners, crevices, bolts, and welds.

PART 3 - EXECUTION

EXAMINATION

Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.

INSTALLATION, GENERAL

Fit exposed connections together to form tight, hairline joints.

Perform cutting, drilling, and fitting required to install handrails and railings. Set handrails and railings accurately in location, alignment, and elevation; measured from established lines and levels and free from rack.

Do not weld, cut, or abrade surfaces of handrail and railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.

Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).

Align rails so 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 (5 mm in 3 m).

Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

Adjust handrails and railings before anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated, but not less than that required by structural loads.

Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings and for properly transferring loads to in-place construction.

RAILING CONNECTIONS

Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

Expansion Joints: Install expansion joints at locations indicated but not farther 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, and locate joint within 6 inches (150 mm) of post.

ANCHORING POSTS

Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's written instructions:

Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of 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 written instructions:

Nonshrink, nonmetallic grout.

Nonshrink, nonmetallic grout or anchoring cement.

Cover anchorage joint with flange of same metal as post, attached to post as follows:

Welded to post after placing anchoring material.

By set screws.

Leave anchorage joint exposed; wipe off surplus anchoring material; and leave 1/8-inch (3-mm) build-up, sloped away from post.

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:

For aluminum pipe railings, attach posts as indicated using fittings designed and engineered for this purpose.

For stainless-steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.

For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.

Install removable railing sections, where indicated, in slip-fit metal sockets cast in concrete.

ATTACHING HANDRAILS TO WALLS AS APPLICABLE

Attach handrails to wall with wall brackets. Provide bracket with 1-1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.

Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

Secure wall brackets to building construction as follows:

For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.

For hollow masonry anchorage, use toggle bolts.

For wood stud partitions, use hanger or lag bolts set into wood backing between studs. Coordinate with carpentry work to locate backing members.

For steel-framed gypsum board assemblies, use hanger or lag bolts set into wood backing between studs. Coordinate with stud installation to locate backing members.

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.

CLEANING

Clean aluminum and stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.

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

Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 Section "Painting."

Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

PROTECTION

Protect finishes of handrails and railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.

Restore finishes damaged during installation and construction period so 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 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

SUMMARY:

Types of work in this section include rough carpentry for:

Wood framing.

Wood grounds, nailers, and blocking.

DEFINITIONS:

Rough carpentry includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated.

PRODUCT HANDLING:

Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.

PROJECT CONDITIONS:

Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds and similar supports to allow attachment of other work.

PART 2 - PRODUCTS

LUMBER, GENERAL:

Lumber Standards: Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

Inspection Agencies: Inspection agencies and the abbreviations used to reference with lumber grades and species include the following:

RIS - Redwood Inspection Service.
NLGA - National Lumber Grades Authority (Canadian).
SPIB - Southern Pine Inspection Bureau.
WCLIB - West Coast Lumber Inspection Bureau.
WWPA - Western Wood Products Association.

Grade Stamps: Factory-mark each piece of lumber 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.

For exposed lumber apply grade stamps to ends or back of each piece, or omit grade stamps entirely and issue certificate of grade compliance from inspection agency in lieu of grade stamp.

Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.

Provide dressed lumber, S4S, unless otherwise indicated.

Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2" or less in nominal thickness, unless otherwise indicated.

MISCELLANEOUS LUMBER:

Provide wood for support or attachment of other work including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping and similar members. Provide lumber of sizes indicated, worked into shapes shown, and as follows:

Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

Grade: Standard Grade light framing size lumber of any species or board size lumber as required. No. 3 Common or Standard grade boards per WCLIB or WWPA rules or No. 3 boards per SPIB rules.

MISCELLANEOUS MATERIALS:

Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails.

Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A 153).

Building Paper: ASTM D 226, Type I; asphalt saturated felt, non- perforated, 15-lb. type.

WOOD TREATMENT BY PRESSURE PROCESS:

Preservative Treatment: Where lumber or plywood is indicated as "Trt-Wd" or "Treated", or is specified herein to be treated, comply with applicable requirements of AWPA Standards C2 (Lumber) and C9 (Plywood) and of AWPB Standards listed below. Mark each treated item with the AWPB Quality Mark Requirements.

Pressure-treat above-ground items with water-borne preservatives to comply with AWPB LP-2. After treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:

Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers and waterproofing.

Wood sills, sleepers, blocking, furring, stripping and similar concealed members in contact with masonry or concrete.

Wood framing members less than 18" above grade.

Wood floor plates installed over concrete slabs directly in contact with earth.

Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment and to comply with AWPA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

PART 3 - EXECUTION

INSTALLATION, GENERAL:

Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.

Set carpentry work to required levels and lines, with members plumb and true and cut and fitted.

Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards.

Countersink nail heads on exposed carpentry work and fill holes.

Use common wire nails, except as otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

WOOD GROUNDS, NAILERS, BLOCKING AND SLEEPERS:

Provide wherever shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

Attach to substrates as required to support applied loading. Countersink 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.

Provide permanent grounds of dressed, preservative treated, key- bevelled lumber not less than 1-1/2" wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

WOOD FURRING:

Install plumb and level with closure strips at edges and openings. Shim with wood as required tolerance of finished work.

END OF SECTION 06100

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Cavity wall foam in place insulation.

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

Division 7 Section "Exterior Insulation and Finish Systems--Class PB" for insulation specified as part of these systems.

Division 7 Section "Built-Up Asphalt Roofing" for insulation specified as part of roofing construction.

Division 9 Section indicated below for insulation installed as part of metal-framed wall and partition assemblies:

"Gypsum Board Assemblies."

SUBMITTALS

General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

Product Data for each type of insulation product specified.

Samples of exposed insulation for initial selection in the form of actual units or sections of units showing the full range of colors available for each type of exposed insulation indicated.

Samples for verification in full-size units of each type of exposed insulation indicated for each color specified.

Product test reports from and based on tests performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, water absorption, and other properties, based on comprehensive testing of current products.

Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence compliance of foam-plastic insulations with building code in effect for Project.

QUALITY ASSURANCE

Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.

Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated on Drawings or specified elsewhere in this Section as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

Surface-Burning Characteristics: ASTM E 84.

Fire-Resistance Ratings: ASTM E 119.

Combustion Characteristics: ASTM E 136.

DELIVERY, STORAGE, AND HANDLING

Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

Protect plastic insulation as follows:

Do not expose to sunlight, except to extent necessary for period of installation and concealment.

Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.

Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering insulation products that may be incorporated in the work include, but are not limited to, the following:

Tailored Chemical Products, Inc. Product Corefill 500 or Equivalent.

INSULATION MATERIALS

A. Insulation – Foam-in-Place system consisting of the A component (resin) and B Component (catalyst). Thickness shall be in accordance with architectural drawings. The insulation shall have the following physical properties:
   1. Density of .8-1.3 lb/ft^3
   2. Compressive Strength 35 PSI
   3. Fire Characteristics ASTM E-84
      a. Flame Spread 5
      b. Smoke 0
      c. Fuel 0
   4. Thermal Conductivity C-177, @ 75 degrees F
      K factor of 0.219 B Tu in/hr. –ft^2 -degrees F

5. Water Vapor Transmission ASTM C-355
   Permeability – perms-in 15.5 to 16.9

PART 3 - EXECUTION

EXAMINATION

Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until unsatisfactory conditions have been corrected.

PREPARATION

Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or that interfere with insulation attachment.

Close off openings in cavities receiving poured-in-place insulation to prevent escape of insulation. Provide bronze or stainless-steel screens (inside) where openings must be maintained for drainage or ventilation.

INSTALLATION, GENERAL

Comply with insulation manufacturer's written instructions applicable to products and application indicated.

APPLICATION

A. Apply insulation in accordance with manufacturer’s instructions.

B. Apply insulation by injection method, to a uniform monolithic density without voids.

C. Install foam insulation after all masonry and structural concrete work is in place.

D. Drill 1 inch holes in each vertical column of block cells at 48 inches above the floor level and thereafter at every 8 feet of wall height until the void is completely full.

E. Pressure inject foam into cells a minimum pressure of 120-160 PSI.

PROTECTION

General: Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07210

SECTION 07211 – SPRAY POLYURETHANE FORM

PART 1 - GENERAL

This guide discusses the application of seamless sprayed in place closed-cell polyurethane foam for use as a building envelope insulation system. Consult local code agencies for compliance with the governing building code. Consult with approved product manufacturers for suitability of specified materials and job specific installation requirements.

1.01 SCOPE OF WORK

Contractor shall furnish all labor, materials, tools, and equipment necessary for application of the spray polyurethane foam building envelope insulation system, including accessory items, subject to the general provisions of the contract.

A. Apply a minimum of six (6) inches of LaPolla Foam-Lok 2000 Closed-Cell Insulation Foam, or an approved alternate, to the underside of the roof deck and gable walls within the attic space.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Rough Carpentry - Section 06100
B. Building Insulation, Other - Section 07210
C. Thermal Barrier - Section 07220
D. Mechanical - Division 15
E. Electrical - Division 16

1.03 QUALITY ASSURANCE

Contractor Qualifications: The contractor shall provide information concerning projects similar in nature to the one proposed, including location and person to contact. Contractor shall provide written confirmation from LaPolla Industries, Inc., or an approved alternate spray polyurethane foam manufacturer, that they are skilled in the application of the specified insulation system.

1.04 SUBMITTALS

A. Manufacturer’s Technical Data Sheets for all materials specified, or subsequently approved for use, on this project.

B. Shop drawings on sheet metal, accessories, or other fabricated items, if required.

C. Manufacturer's application or installation instructions.

D. Approval and information guides for applicable local or national building codes.

E. Safety Instructions for Storage, Handling, and Use for all materials specified, or subsequently approved for use, on this project, including Materials Safety Data Sheets (MSDS).

F. Field Quality Control Procedures utilized by the Contractor to insure proper installation of the spray polyurethane foam insulation system.

1.05 MATERIALS, DELIVERY, AND STORAGE

A. Deliver materials to the jobsite in the manufacturer's original unopened containers, all clearly labeled with the manufacturer's name, product identification, safety information, and batch numbers where appropriate. Labels of materials covered by a referenced specification shall bear the specification number, type, and class, as applicable.

B. Store chemical containers and ancillary materials in a dry, shaded area and maintain within temperature limits specified by the manufacturer.

C. Store all materials in compliance with local fire and safety requirements.

1.06 ENVIRONMENTAL CONDITIONS

A. Do not apply the spray polyurethane foam below the temperature and/or above the humidity specified by the manufacturer.

B. Apply thermal barriers, ignition barriers, and vapor retarders, (if required), in accordance with the manufacturer's application instructions.

1.07 SEQUENCE AND SCHEDULING

Insulation Contractor shall consult with the General Contractor to coordinate the specified work with other building trades.

1.08 SAFETY REQUIREMENTS

A. API Bulletin AX-119, "MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal."

B. Refer to appropriate Material Safety Data Sheets (MSDS) for additional safety information.

C. Dispose waste materials and containers in compliance with federal, state, and local regulatory agencies.

D. For protection against exposure to higher levels of MDI, (greater than 1ppm), or for entry into confined spaces, workers must wear either a self-contained breathing apparatus, with full face piece, operated in a pressure-demand or other positive-pressure mode, or a combination respirator, including a Type C air-supplied respirator, with full face piece, operated in a pressure-demand or other positive-pressure mode, or an auxiliary self-contained breathing apparatus, operated in a pressure-demand or other positive-pressure mode. See API Bulletin "MDI based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal", Stock Number AX-119.

E. Wear appropriate personal protective clothing, including but not limited to eye protection, (face shield or chemical worker's goggles), gloves, and coveralls. This is essential to prevent skin exposure for all individuals who work with PMDI.

PART 2 - PRODUCTS

2.01 POLYURETHANE FOAM

A. The polyurethane foam shall be LaPolla Foam-Lok 2000 Closed-Cell Interior Insulation Foam, or an approved alternate, that is fabricated by combining an isocyanate (A) component with a polyol (B) component and shall possess the following physical characteristics:

NTERIOR POLYURETHANE FOAM: CLOSED-CELL TYPE

PROPERTIES	ASTM TEST	US UNITS
Density (sprayed-in-place)	D-1622	>2.0 lbs/ft³
R-Value per inch	C-518	> 6.0
Closed Cell Content	D-6226	> 90%
Flame Spread	E-84	10
Smoke Development*	E-84	450

* This standard is used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions. This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

B. Polyurethane Foam Primers: Use primers recommended by the spray polyurethane foam insulation manufacturer.

C. Fire Safety Requirements: See API Bulletin AX-119. “MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal”

2.02 BARRIER TO IGNITION COATING

A. Apply LaPolla Foam-Lok 9000 Barrier to Ignition Coating, or an approved alternate, to all polyurethane foam installations.

1. Barrier to Ignition coating must comply with applicable requirements of SWRI 99-02.
2. Barrier to Ignition coating and ccSPF shall be from the same manufacturer.

2.03 RELATED PRODUCTS

A. LaPolla Industries, Inc., or an approved alternate spray polyurethane foam manufacturer, shall approve any single-component polyurethane foam sealants used around windows, doors, etc., shall be approved by

B. Substrate Primers (if required)
1. Wood: LaPolla Therm-O-Prime, or an approved alternate
2. Galvanized: LaPolla RCS-30, or an approved alternate
3. Concrete / Masonry: LaPolla Therm-O-Prime, or an approved alternate
4. Other: Consult with the spray polyurethane foam insulation manufacturer

PART 3 - EXECUTION

3.01 APPLICATION OF PRODUCTS

Apply all products used in the building envelope insulation system within the manufacturer's guidelines for temperature, humidity, and other atmospheric conditions. Furthermore, sequence application of all products with consideration of substrate preparation, proper cure times, and inter-coat adhesion.

At all times during material application, Contractor shall mask or otherwise protect adjacent and surrounding substrates from overspray and other potential damage.

3.02 SUBSTRATE CONSIDERATION AND PREPARATION

Surface preparation for substrates receiving insulation and statements regarding the selection of materials related to the successful performance of the spray polyurethane foam insulation are outlined below.

A. WOOD

1. Plywood shall contain no more than 18% water, as measured in accordance with ASTM D-4449 and ASTM 4444-84.
2. Most untreated and unpainted wood surfaces need not be primed. The spray polyurethane foam can be applied directly to the dry wood. Priming may be required in certain instances. Consult with the spray polyurethane foam manufacturer for their recommendation and/or requirements.

B. STEEL

1. Primed: If the primed metal surface is free of loose scale, rust, weathered or chalking paint, it can be cleaned using vacuum equipment and hand or power tools to remove loose dirt. Remove grease, oil, or other contaminants with proper cleaning solutions.
2. Previously Painted: Clean painted metal surface using hand or power tools to remove loose scale and dirt. Grease, oil, and other surface contaminants can be cleaned using a power wash technique.
3. Galvanized: When required, clean galvanized steel as recommended by the primer manufacturer.
4. Unpainted Steel: Clean as recommended by primer manufacturer in order to prepare the steel surface for the primer.

C. CONCRETE AND MASONRY.

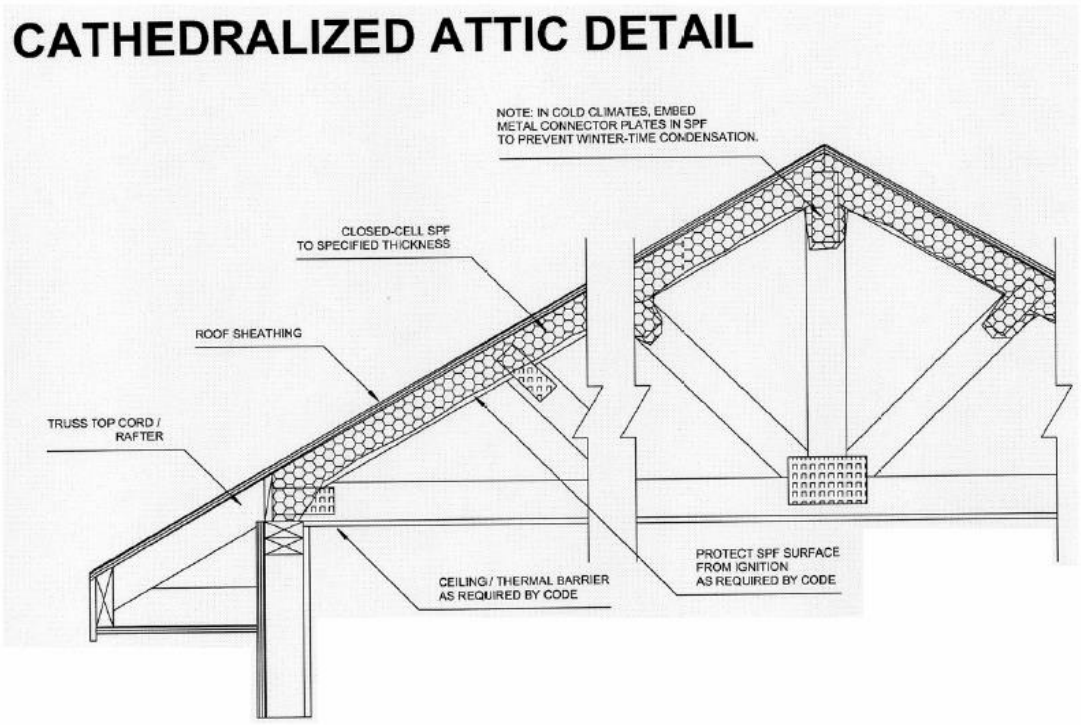
Must be cured, and loose dirt and any other contaminants removed.

D. SHEATHING BOARD.

Most sheathing boards need not be primed prior to the application of sprayed-in-place polyurethane foam.

3.03 PRIMER APPLICATION

When required, the primer shall be applied to the properly prepared substrate in accordance with the manufacturer's guidelines to achieve a minimum thickness of dry mils. Many primers require a curing time of 24 hours prior to application of spray polyurethane foam or other products.


CATHEDRALIZED ATTIC DETAIL
NOTE: IN COLD CLIMATES, EMBED METAL CONNECTOR PLATES IN SPF TO PREVENT WINTER-TIME CONDENSATION.
CLOSED-CELL SPF TO SPECIFIED THICKNESS
ROOF SHEATHING
TRUSS TOP CORD / RAFTER
CEILING / THERMAL BARRIER AS REQUIRED BY CODE
PROTECT SPF SURFACE FROM IGNITION AS REQUIRED BY CODE

SECTION 07411 - MANUFACTURED ROOF PANELS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Standing-seam roof panels.

Related Sections include the following:

Division 5 Section "Structural Steel" for structural-steel framing.

Division 5 Section "Cold-Formed Metal Framing" for metal framing.

Division 7 Section "Sheet Metal Flashing and Trim" for flashing not part of roofing and other sheet metal work.

Division 7 Section "Joint Sealants" for field-applied sealants.

PERFORMANCE REQUIREMENTS

General: Provide manufactured roof panel assemblies complying with performance requirements indicated and capable of withstanding structural movement, thermally induced movement, and exposure to weather without failure or infiltration of water into the building interior.

Air Infiltration: Provide manufactured roof panel assemblies with permanent resistance to air leakage through assembly of not more than 0.09 cfm/sq. ft. (0.45 L/s/sq. m) of fixed roof area when tested according to ASTM E 1680 at a static-air-pressure difference of 4.0 lbf/sq. ft. (192 Pa).

Water Penetration: Provide manufactured roof panel assemblies with no water penetration as defined in the test method when tested according to ASTM E 1646 at a minimum differential pressure of 20 percent of inward acting, wind-load design pressure of not less than 6.24 lb/sq. ft. (300 Pa) and not more than 12.0 lb/sq. ft. (575 Pa).

Wind-Uplift Resistance: Provide roof panel assemblies that meet requirements of UL 580 for Class 90 wind-uplift resistance.

Structural Performance: Provide manufactured roof panel assemblies capable of safely supporting design loads indicated under in-service conditions with vertical deflection no greater than the following, based on testing manufacturer's standard units according to ASTM E 1592 by a qualified independent testing and inspecting agency.

Maximum Deflection: 1/140 of the span.

SUBMITTALS

Product Data: Include manufacturer's product specifications, standard details, certified product test results, and general recommendations, as applicable to materials and finishes for each component and for total panel assemblies.

Shop Drawings: Show layouts of panels on roofs, details of edge conditions, joints, panel profiles, supports, anchorages, trim, flashings, underlayment, closures, snow guards, and special details. Distinguish between factory- and field-assembled work.

For installed products indicated to comply with certain design loadings, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

Samples for Initial Selection: Manufacturer's color charts or chips showing the full range of colors, textures, and patterns available for roof panels with factory-applied finishes.

Samples for Verification: Provide sample panels 12 inches (300 mm) long by actual panel width, in the profile, style, color, and texture indicated. Include clips, caps, battens, fasteners, closures, and other exposed panel accessories.

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.

Product Test Reports: Indicate compliance of manufactured roof panel assemblies and materials with performance and other requirements based on comprehensive testing of current products.

QUALITY ASSURANCE

Installer Qualifications: Engage an experienced installer who has completed metal roof panel projects similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the jurisdiction where the Project is located and who is experienced in providing engineering services of the kind indicated.

Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated without delaying the Work, as documented according to ASTM E 699.

Fire-Test-Response Characteristics: Where fire-resistance-rated roof panel assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

Fire-Resistance Ratings: As indicated by design designations in UL's "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.

DELIVERY, STORAGE, AND HANDLING

Deliver panels and other components so they will not be damaged or deformed. Package panels for protection against damage during transportation or handling.

Handling: Exercise care in unloading, storing, and erecting roof panels to prevent bending, warping, twisting, and surface damage.

Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight and ventilated covering. Store panels to ensure dryness. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.

PROJECT CONDITIONS

Field Measurements: Verify location of structural members and openings in substrates by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

Established Dimensions: Where field measurements cannot be made without delaying the Work, either establish opening dimensions and proceed with fabricating roof panels without field measurements or allow for trimming panel units. Coordinate roof construction to ensure actual locations of structural members and to ensure opening dimensions correspond to established dimensions.

WARRANTY

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

Special Finish Warranty: Submit a written warranty, signed by manufacturer, covering failure of the factory-applied exterior finish on metal roof panels within the specified warranty period and agreeing to repair finish or replace roof panels that show evidence of finish deterioration. Deterioration of finish includes, but is not limited to, color fade, chalking, cracking, peeling, and loss of film integrity.

Finish Warranty Period: 20 years from date of Substantial Completion.

Special Weathertight Warranty: Submit a written warranty executed by manufacturer agreeing to repair or replace metal roof panel assembly that fails to remain weathertight within the specified warranty period.

Weathertight Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering metal panels that may be incorporated into the Work include, but are not limited to, the following:

Manufacturers: Subject to compliance with requirements, provide panels by one of the following:

AEP-Span.
AEICOR

METALS AND FINISHES

Panel: 24 gauge galvalume, sheet made up of 55% aluminum, 1.6% silicon and the balance zinc, as described in ASTM A 792.

Finish: Apply the following organic coating in thickness indicated. Furnish appropriate air-drying spray finish in matching color for touchup.

Fluoropolymer 2-Coat Coating System: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight with a total minimum dry film thickness of 0.9 mil (0.023 mm) and 30 percent reflective gloss when tested according to ASTM D 523.

Durability: Provide coating field tested under normal range of weather conditions for a minimum of 20 years without significant peel, blister, flake, chip, crack, or check in finish; without chalking in excess of a chalk rating of 8 according to ASTM D 4214; and without fading in excess of 5 Hunter units.

Color: As selected by Architect from manufacturer's full range of colors.

ROOF PANEL ASSEMBLIES

Standing-Seam Roof Panels: Manufacturer's standard factory-formed, standing-seam roof panel assembly designed for concealed mechanical attachment of panels to roof purlins or deck.

Height: 11/2”
Width: 19 7/8”
Clips: Provide minimum 0.0625-inch- (1.6-mm-) thick, stainless-steel panel clips designed to meet negative-load requirements.

THERMAL INSULATION

Mineral-Fiber-Blanket Insulation: Thermal insulation combining glass or slag/rock-wool fibers with thermosetting resins to comply with ASTM C 665 and as follows:

Type II: Faced one side with nonreflective vapor-retarder membrane.

Class A: Membrane-faced surface with a flame-spread rating of 25 or less.

UNDERLAYMENT MATERIALS

Building Paper: Minimum 30 lb rosin sized.

Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felts.

Self Adhesive Bituthene Sheets: Grace ice and water sheld, 40 mil as indicated on Documents.

MISCELLANEOUS MATERIALS

General: Provide materials and accessories required for a complete roof panel assembly and as recommended by panel manufacturer, unless otherwise indicated.

Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads.

Use aluminum or stainless-steel fasteners for exterior applications and aluminum or galvanized steel fasteners for interior applications.

Provide exposed fasteners with heads matching color of panel by means of plastic caps or factory-applied coating.

Provide metal-backed neoprene washers under heads of exposed fasteners bearing on weather side of panels.

Locate and space exposed fasteners in true vertical and horizontal alignment. Use proper tools to btain controlled uniform compression for positive seal without rupture of neoprene washer.

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

Closure Strips: Closed-cell, self-extinguishing, expanded, cellular, rubber or cross-linked, polyolefin-foam flexible closure strips. Cut or premold to match configuration of panels. Provide closure strips where indicated or necessary to ensure weathertight construction.

Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.

Elastomeric Joint Sealant: ASTM C 920, of base polymer, type, grade, class, and use classifications required to seal joints in panel roofing and remain weathertight. Provide sealant recommended by panel manufacturer.

Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat, unless otherwise indicated. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities as recommended by manufacturer.

Expansion-Joint Sealant: For hooked-type expansion joints that must be free to move, provide nonsetting, nonhardening, nonmigrating, heavy-bodied polyisobutylene sealant as recommended by manufacturer.

FABRICATION

General: Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

EXAMINATION

Examine substrates and conditions, with Installer present, for compliance with requirements indicated for conditions affecting performance of metal panel roofing.

Panel Supports and Anchorage: Examine roof framing to verify that purlins, angles, channels, and other secondary structural panel support members and anchorage have been installed according to written instructions of panel manufacturer.

Do not proceed with roof panel installation until unsatisfactory conditions have been corrected.

PREPARATION

Coordinate metal panel roofing with rain drainage work; flashing; trim; and construction of decks, parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

Promptly remove protective film, if any, from exposed surfaces of metal panels. Strip with care to avoid damage to finish.

PANEL INSTALLATION

General: Comply with panel manufacturer's written instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the Work securely in place, with provisions for thermal and structural movement.

Field cutting exterior panels by torch is not permitted.

Install panels with concealed fasteners, unless otherwise indicated.

Install panels with exposed exterior and interior fasteners, prefinished to match panel finishes.

Install panels over solid substrate with minimum 3:12 (1:4) slope. Install 1 ply of felt from lower edge up, with at least 3-inch (75-mm) side laps and 4-inch (100-mm) end laps.

Accessories: Install components required for a complete roof panel assembly including trim, copings, fasciae, ridge closures, clips, seam covers, battens, flashings, gutters, sealants, gaskets, fillers, closure strips, and similar items.

Separate dissimilar metals by painting each metal surface in area of contact with a bituminous coating, by applying rubberized-asphalt underlayment to each metal surface, or by other permanent separation as recommended by manufacturers of dissimilar metals.

Install felt underlayment and building-paper slip sheet on roof deck under metal panels, unless otherwise recommended by panel manufacturer. Use adhesive for temporary anchorage, where possible, to minimize use of mechanical fasteners under metal panels. Apply from eave to ridge in shingle fashion and lap joints a minimum of 2 inches (50 mm).

Coat back side of metal panels with bituminous coating where it will contact wood, ferrous metal, or cementitious construction.

Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not otherwise indicated, types recommended by panel manufacturer.

Standing-Seam Roof Panel Assembly: Fasten panels to supports with concealed clip according to panel manufacturer's written instructions.

Install clips at each support with self-drilling/self-tapping fasteners.

At end laps of panels, install tape calk between panels.

Install factory-calked cleats at standing-seam joints. Apply snap-on batten to panels to provide a weathertight joint.

Seaming: Complete seaming of panel joints by operating portable power-driven equipment of type recommended by panel manufacturer to provide a weathertight joint.

Installation Tolerances: Shim and align panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

CLEANING AND PROTECTING

Damaged Units: Replace panels and other components of the Work that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

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

END OF SECTION 07411

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes sealants for the following applications, including those specified by reference to this Section:

Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces:

Joints between different materials listed above.

Perimeter joints between materials listed above and frames of doors and windows.

Other joints as indicated.

Exterior joints in the following horizontal traffic surfaces:

Joints between different materials listed above.

Other joints as indicated.

Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:

Control and expansion joints on exposed interior surfaces of exterior walls.

Perimeter joints of exterior openings where indicated.

Tile control and expansion joints.

Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.

Joints between plumbing fixtures and adjoining walls, floors, and counters.

Other joints as indicated.

Related Sections include the following:

Division 8 Section "Glazing" for glazing sealants.

Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

Division 9 Section "Acoustical Panel Ceilings" for sealing edge moldings at perimeters of acoustical

ceilings.

PERFORMANCE REQUIREMENTS

Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

SUBMITTALS

Product Data: For each joint-sealant product indicated.

Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

Samples for Verification: For each type and color of joint sealant required. Install joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.

SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.

Field Test Report Log: For each elastomeric sealant application. Include information specified in "Field Quality Control" Article.

Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:

Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.

Warranties: Special warranties specified in this Section.

QUALITY ASSURANCE

Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

Testing will not be required if joint sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in peel, and indentation hardness.

Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.

DELIVERY, STORAGE, AND HANDLING

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

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

PROJECT CONDITIONS

Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:

When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.

When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 deg F (4.4 deg C).

When joint substrates are wet.

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

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

WARRANTY

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

Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric

joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

Warranty Period: Two years from date of Substantial Completion.

Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:

Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.

Disintegration of joint substrates from natural causes exceeding design specifications.

Mechanical damage caused by individuals, tools, or other outside agents.

Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

PRODUCTS AND MANUFACTURERS

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

MATERIALS, GENERAL

Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

ELASTOMERIC JOINT SEALANTS

Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

Additional Movement Capability: Where additional movement capability is specified in the Elastomeric Joint-Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.

Stain-Test-Response Characteristics: Where elastomeric sealants are specified in the Elastomeric Joint-Sealant Schedule to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

SOLVENT-RELEASE JOINT SEALANTS

Acrylic-Based Solvent-Release Joint-Sealant Standard: Comply with ASTM C 1311 for each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3.

Butyl-Rubber-Based Solvent-Release Joint-Sealant Standard: Comply with ASTM C 1085 for each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3.

Pigmented Narrow Joint Sealant: For each product of this description indicated in the Solvent-Release Joint-Sealant Schedule at the end of Part 3 provide manufacturer's standard, solvent-release-curing, pigmented, synthetic-rubber sealant complying with AAMA 803.3 and formulated for sealing joints 3/16 inch (5 mm) or smaller in width.

LATEX JOINT SEALANTS

Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated in the Latex Joint-Sealant Schedule at the end of Part 3.

ACOUSTICAL JOINT SEALANTS

Acoustical Sealant for Exposed and Concealed Joints: For each product of this description indicated in the Acoustical Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following:

Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

PREFORMED JOINT SEALANTS

Preformed Silicone-Sealant System: For each product of this description indicated in the Preformed Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard system consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

Preformed Foam Sealants: For each product of this description indicated in the Preformed Joint-Sealant Schedule at the end of Part 3, provide manufacturer's standard preformed, precompressed, impregnated, open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent; factory produced in precompressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by manufacturer; and complying with the following:

Properties: Permanently elastic, mildew resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealants.

Impregnating Agent: Neoprene rubber suspended in water-based emulsion.

Density: Manufacturer's standard.

Backing: Pressure-sensitive adhesive, factory applied to one side with protective wrapping.

JOINT-SEALANT BACKING

General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant

manufacturer based on field experience and laboratory testing.

Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

Type C: Closed-cell material with a surface skin.

Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

MISCELLANEOUS MATERIALS

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

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

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

PART 3 - EXECUTION

EXAMINATION

Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

Proceed with installation only after unsatisfactory conditions have been corrected.

PREPARATION

Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:

Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming

or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:

Remove laitance and form-release agents from concrete.

Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

Metal.

Glass.

Porcelain enamel.

Glazed surfaces of ceramic tile.

Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

INSTALLATION OF JOINT SEALANTS

General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

Do not leave gaps between ends of sealant backings.

Do not stretch, twist, puncture, or tear sealant backings.

Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.

Install sealants by proven techniques to comply with the following and at the same time backings are installed:

Place sealants so they directly contact and fully wet joint substrates.

Completely fill recesses provided for each joint configuration.

Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

Remove excess sealants from surfaces adjacent to joint.

Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

Use masking tape to protect adjacent surfaces of recessed tooled joints.

Installation of Preformed Silicone-Sealant System: Comply with the following requirements:

Apply masking tape to each side of joint, outside of area to be covered by sealant system.

Apply a bead of silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's printed schedule and covering a bonded area of not less than a 3/8 inch (10 mm). Hold edge of sealant bead inside of masking tape by 1/4 inch (6 mm).

Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.

Complete installation of horizontal joints before installing vertical joints. Lap vertical joints over horizontal joints. At end of joints, cut silicone extrusion with a razor knife.

Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, to produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant to comply with sealant manufacturer's written instructions.

FIELD QUALITY CONTROL

Field-Adhesion Testing: Field-test joint-sealant adhesion to joint substrates as follows:

Perform one test for each 1000 feet (300 m) of joint length thereafter or one test per each floor per elevation.

CLEANING

Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

PROTECTION

Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

ELASTOMERIC JOINT-SEALANT SCHEDULE

A. Bituminous based (Type B): Single component, asphalt compound, elongation capability of 2% of joint width.

    1. Use for roof sealant and dissimilar material separation at roof.
    2. Approved Manufacturers:
        a) Barrier International "BR-30".
        b) Kamak "AR Elastomeric.

B. Acrylic Emulsion Latex (Type C): ASTM C834, single component; color as selected.

    1. Formulated to be non-sag printable.
    2. Approved Manufacturers:
        a) Bostik "Chem-Calk 600."
        b) Pencora "AC-20."
        c) Sonneborn "Sonolac."
        d) Tremco "Tremco Acrylic Latex 834."

C. Polyurethane Sealant (Type G): ASTM C920, Grade NS, Class 25, Use for exterior sealant joints except where specified herein for silicone type; single component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, none-sagging type; color as selected.

    1. Approved Manufacturers
        a) Bostik "Chem-Calk 900."
        b) Mameco "Vulkem 921."
        c) Pecora Dynatrol 1."
        d) Sika "Sikaflex IA."

D. Silicone Sealant (Type K): ASTM C920, Grade NS, Class 25, Use for exterior sealant joints where both faces are metal, glass or other non-porous material; single component, fungus resistant, acidic curing, non-sagging, non-staining, non-bleeding; color as selected.

    1. Approved Manufacturers:
        a) Bostik "Chem-Calk 1200."
        b) Dow "Dow Corning 999A."
        c) General Electric "Construction 1200."
        d) Pecora Corp. "863."
        e) Tremco, Inc. "Proglaze."

END OF SECTION 07920

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes steel doors and frames.

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

Division 4 Section "Unit Masonry" for building anchors into and grouting frames in masonry construction.

Division 8 Section "Flush Wood Doors" for hollow-core and solid-core wood doors installed in steel frames.

Division 8 Section "Door Hardware" for door hardware and weatherstripping.

Division 9 Section "Painting" for field painting primed doors and frames.

SUBMITTALS

General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

Product Data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.

Shop Drawings showing fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

Door Schedule: Submit schedule of doors and frames using same reference numbers for details and openings as those on Contract Drawings.

Indicate coordination of glazing frames and stops with glass and glazing requirements.

Samples for initial selection in the form of manufacturer's color charts showing the full range of colors available for factory-finished doors and frames.

Samples for verification of each type of exposed finish required, prepared on Samples not less than 3 by 5 inches (75 by 125 mm) and of same thickness and material indicated for final unit of Work. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.

Oversize Construction Certification: For door assemblies required to be fire rated and exceeding limitations of labeled assemblies, submit certification of a testing agency acceptable to authorities having jurisdiction that each door and frame assembly has been constructed to conform to design, materials, and construction equivalent to requirements for labeled construction.

QUALITY ASSURANCE

Provide doors and frames complying with ANSI/SDI 100 "Recommended Specifications for Standard Steel Doors and Frames" and as specified.

Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies tested for fire-test-response characteristics per ASTM E 152, and are labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors conform to all standard construction requirements of tested and labeled fire-rated door assemblies except for size.

Temperature-Rise Rating: Where indicated, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

DELIVERY, STORAGE, AND HANDLING

Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.

Inspect doors and frames on delivery for damage. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect; otherwise, remove and replace damaged items as directed.

Store doors and frames at building site under cover. Place units on minimum 4-inch- (100-mm-) high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If cardboard wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) spaces between stacked doors to promote air circulation.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

Steel Doors and Frames:

Amweld Building Products, Inc.
Ceco Door Products.
Steelcraft.
Metal Products, Inc.

MATERIALS

Hot-Rolled Steel Sheets and Strip: Commercial-quality carbon steel, pickled and oiled, complying with ASTM A 569 (ASTM A 569M).

Cold-Rolled Steel Sheets: Carbon steel complying with ASTM A 366 (ASTM A 366M), commercial quality, or ASTM A 620 (ASTM A 620M), drawing quality, special killed.

Galvanized Steel Sheets: Zinc-coated carbon steel complying with ASTM A 526 (ASTM A 526M), commercial quality, or ASTM A 642 (ASTM A 642M), drawing quality, hot-dip galvanized according to ASTM A 525, with A 60 or G 60 (ASTM A 525M, with Z 180 or ZF 180) coating designation, mill phosphatized.

Supports and Anchors: Fabricated from not less than 0.0478-inch- (1.2-mm-) thick steel sheet; 0.0516-inch- (1.3-mm-) thick galvanized steel where used with galvanized steel frames.

Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize complying with ASTM A 153, Class C or D as applicable.

DOORS

Steel Doors: Provide 1-3/4-inch- (44-mm-) thick doors of materials and ANSI/SDI 100 grades and models specified below, or as indicated on Drawings or schedules:

Exterior Doors: Grade II, heavy-duty, Model 2, seamless design, minimum 0.0516-inch- (1.3-mm-) thick galvanized steel sheet faces.

FRAMES

Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, according to ANSI/SDI 100, and of types and styles as shown on Drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 0.0478-inch- (1.2-mm-) thick cold-rolled steel sheet.

Fabricate frames with mitered or coped corners, continuously welded construction.

Fabricate frames for interior openings over 48 inches (1220 mm) wide from 0.0598-inch- (1.5-mm-) thick steel sheet.

Fabricate exterior frames for openings over 48 inches (1220 mm) wide from 0.0635-inch- (1.6-mm-) thick galvanized steel sheet.

Form exterior frames from 16 gauge thick galvanized steel sheet.

Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-door frames and 2 silencers on heads of double-door frames.

Plaster Guards: Provide minimum 0.0179-inch- (0.45-mm-) thick steel plaster guards or mortar boxes at back of hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.

Grout: When required in masonry construction, as specified in Division 4 Section "Unit Masonry."

FABRICATION

Fabricate steel door and frame units to be rigid, neat in appearance, and free from defects, warp, or buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site. Comply with ANSI/SDI 100 requirements.

Internal Construction: One of the following manufacturer's standard core materials according to SDI standards:

Resin-impregnated paper honeycomb.

Clearances: Not more than 1/8 inch (3.2 mm) at jambs and heads, except not more than 1/4 inch (6.4 mm) between non-fire-rated pairs of doors. Not more than 3/4 inch (19 mm) at bottom.

Fire Doors: Provide clearances according to NFPA 80.

Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel sheet.

Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."

Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

Galvanized Steel Doors, Panels, and Frames: Fabricate doors, panels, and frames from galvanized steel sheet according to SDI 112. Close top and bottom edges of doors flush as an integral part of door construction or by addition of minimum 0.0635-inch- (1.6-mm-) thick galvanized steel channels, with channel webs placed even with top and bottom edges. Seal joints in top edges of doors against water penetration.

Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.

Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies.

Unless otherwise indicated, provide thermal-rated assemblies with U-value rating of 0.41 Btu/sq. ft. x h x deg F (2.33 W/sq. m x K) or better.

Sound-Rated (Acoustical) Assemblies: Where shown or scheduled, provide door and frame assemblies fabricated as sound-reducing type, tested according to ASTM E 1408, and classified according to ASTM E 413.

Unless otherwise indicated, provide acoustical assemblies with STC sound ratings of 33 or better.

Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of SDI 107 and ANSI A115 Series specifications for door and frame preparation for hardware.

For concealed overhead door closers, provide space, cutouts, reinforcing, and provisions for fastening in top rail of doors or head of frames, as applicable.

Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

Locate hardware as indicated on Shop Drawings or, if not indicated, according to the Door and Hardware Institute's (DHI) "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

Glazing Stops: Minimum 0.0359-inch- (0.9-mm-) thick steel or 0.040-inch- (1-mm-) thick aluminum.

Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.

Provide screw-applied, removable, glazing beads on inside of glass, louvers, and other panels in doors.

FINISHES, GENERAL

Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

Comply with SSPC-PA 1, "Paint Application Specification No. 1," for steel sheet finishes.

Apply primers and organic finishes to doors and frames after fabrication.

GALVANIZED STEEL SHEET FINISHES

Surface Preparation: Clean surfaces with nonpetroleum solvent so that surfaces are free of oil or other contaminants. After cleaning, apply a conversion coating of the type suited to the organic coating applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.

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.

Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply air-dried primer specified below immediately after cleaning and pretreatment.

Shop Primer: Zinc-dust, zinc-oxide primer paint complying with performance requirements of FS TT-P-641, Type II.

PART 3 - EXECUTION

INSTALLATION

General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.

Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

Except for frames located in existing concrete, masonry, or gypsum board assembly construction, place frames before constructing enclosing walls and ceilings.

In masonry construction, install at least 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.

At existing concrete or masonry construction, install at least 3 completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.

In metal-stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. In steel-stud partitions, attach wall anchors to studs with screws.

In in-place gypsum board partitions, install knock-down, slip-on, drywall frames.

Install fire-rated frames according to NFPA 80.

Door Installation: Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100.

Fire-Rated Doors: Install with clearances specified in NFPA 80.

Smoke-Control Doors: Comply with NFPA 105.

ADJUSTING AND CLEANING

Prime Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION 08110

SECTION 08211 - FLUSH WOOD DOORS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Solid-core doors with wood-veneer faces.

Factory finishing flush wood doors.

Factory fitting flush wood doors to frames and factory machining for hardware.

Louvers for flush wood doors.

Related Sections include the following:

Division 6 Section "Interior Architectural Woodwork" for requirements for veneers from the same flitches for both flush wood doors and architectural woodwork.

Division 6 Section "Finish Carpentry" for wood door frames.

Division 6 Section "Interior Architectural Woodwork" for wood door frames.

SUBMITTALS

Product Data: For each type of door. Include details of core and edge construction, trim for openings, and louvers.

Include factory-finishing specifications.

Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.

Indicate dimensions and locations of mortises and holes for hardware.

Indicate dimensions and locations of cutouts.

Indicate requirements for veneer matching.

Indicate doors to be factory finished and finish requirements.

Indicate fire ratings for fire doors.

Samples for Initial Selection: Color charts consisting of actual materials in small sections for the following:

Faces of factory-finished doors with transparent finish.

Samples for Verification: As follows:

Corner sections of doors approximately 8 by 10 inches (200 by 250 mm) with door faces and edgings representing the typical range of color and grain for each species of veneer and solid lumber required. Finish sample with same materials proposed for factory-finished doors.

Louver blade and frame sections, 6 inches (150 mm) long, for each material and finish specified.

QUALITY ASSURANCE

Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

Quality Standard: Comply with the following standard:

AWI Quality Standard: AWI's "Architectural Woodwork Quality Standards" for grade of door, core, construction, finish, and other requirements.

DELIVERY, STORAGE, AND HANDLING

Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's written instructions.

Individually package doors in plastic bags or cardboard cartons.

Individually package doors in cardboard cartons and wrap bundles of doors in plastic sheeting.

Comply with WIC's Technical Bulletin 420-R for delivery, storage, and handling of doors.

Mark each door with individual opening numbers used on Shop Drawings. Use removable tags or concealed markings.

PROJECT CONDITIONS

Environmental Limitations: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with requirements of the referenced quality standard for Project's geographical location.

WARRANTY

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

Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form, signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch (6.35 mm) in a 42-by-84-inch (1067-by-2134-mm) section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span, or do not comply with tolerances in referenced quality standard.

Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

Warranty shall be in effect during the following period of time after the date of Substantial Completion:

Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

MANUFACTURERS

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:

Flush Wood Doors:

Algoma Hardwoods Inc.
Eggers Industries; Architectural Door Division.
Weyerhaeuser Co.

DOOR CONSTRUCTION, GENERAL

Doors for Transparent Finish: Comply with the following requirements:

Grade: Custom (Grade A faces).

Faces: White birch, rotary cut.

Match between Veneer Leaves: Book match.

Pair and Set Match: Provide for pairs of doors and for doors hung in adjacent sets.

SOLID-CORE DOORS

Solid (Non-Rated): AWI Section 1300, Type PC-5 - Particleboard.

Interior Veneer-Faced Doors: Comply with the following requirements:

Core: Particleboard core.

Edge Construction: At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.

LOUVERS AND LIGHT FRAMES

Wood Louvers: Door manufacturer's standard solid wood louvers, unless otherwise indicated.

FABRICATION

Fabricate flush wood doors in sizes indicated for Project site fitting.

Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:

Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-rated doors.

Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

Light Openings: Trim openings with moldings of material and profile indicated.

Louvers: Factory install louvers in prepared openings.

Flash top of outswinging doors (with manufacturer's standard metal flashing).

PART 3 - EXECUTION

EXAMINATION

Examine installed door frames before hanging doors.

Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.

Reject doors with defects.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

Hardware: For installation, see Division 8 Section "Door Hardware."

Manufacturer's Written Instructions: Install wood doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.

Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.

Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4 inch (6.4 mm) from bottom of door to top of threshold.

Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.

Factory-Finished Doors: Restore finish before installation, if fitting or machining is required at Project site.

ADJUSTING AND PROTECTING

Operation: Rehang or replace doors that do not swing or operate freely.

Finished Doors: Refinish or replace doors damaged during installation.

Protect doors as recommended by door manufacturer to ensure that wood doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08211

SECTION 08410 - ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Exterior storefront systems.

Related sections include the following:

Division 7 Section "Joint Sealants" for joint sealants installed as part of aluminum entrance and storefront systems.

Division 8 Section "Glazing."

SYSTEM DESCRIPTION

General: Provide aluminum entrance and storefront systems capable of withstanding loads and thermal and structural movement requirements indicated without failure, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project. Failure includes the following:

Air infiltration and water penetration exceeding specified limits.

Framing members transferring stresses, including those caused by thermal and structural movement, to glazing units.

Glazing: Physically and thermally isolate glazing from framing members.

Thermally Broken Construction: Provide systems that isolate aluminum exposed to exterior from aluminum exposed to interior with a material of low thermal conductance.

Wind Loads: Provide entrance and storefront systems, including anchorage, capable of withstanding wind-load design pressures calculated according to requirements of authorities having jurisdiction or the American Society of Civil Engineers' ASCE 7, "Minimum Design Loads for Buildings and Other Structures," 6.4.2, "Analytical Procedure," whichever are more stringent.

Deflection of framing members in a direction normal to wall plane is limited to 1/175 of clear span or 3/4 inch (19 mm), whichever is smaller, unless otherwise indicated.

Static-Pressure Test Performance: Provide entrance and storefront systems that do not evidence material failures, structural distress, failure of operating components to function normally, or permanent deformation of main framing members exceeding 0.2 percent of clear span when tested according to ASTM E 330.

Test Pressure: 150 percent of inward and outward wind-load design pressures.

Duration: As required by design wind velocity; fastest 1 mile (1.609 km) of wind for relevant exposure category.

Dead Loads: Provide entrance- and storefront-system members that do not deflect an amount which will reduce glazing bite below 75 percent of design dimension when carrying full dead load.

Provide a minimum 1/8-inch (3.18-mm) clearance between members and top of glazing or other fixed part immediately below.

Provide a minimum 1/16-inch (1.59-mm) clearance between members and operable windows and doors.

Live Loads: Provide entrance and storefront systems, including anchorage, that accommodate the supporting structures' deflection from uniformly distributed and concentrated live loads indicated without failure of materials or permanent deformation.

Air Infiltration: Provide entrance and storefront systems with permanent resistance to air leakage through fixed glazing and frame areas of not more than 0.06 cfm/sq. ft. (0.3 L/s/sq. m) of fixed wall area when tested according to ASTM E 283 at a static-air-pressure difference of 1.57 lbf/sq. ft. (75.2 Pa).

Water Penetration: Provide entrance and storefront systems that do not evidence water leakage through fixed glazing and frame areas when tested according to ASTM E 331 at minimum differential pressure of 20 percent of inward-acting wind-load design pressure as defined by ASCE 7, "Minimum Design Loads for Buildings and Other Structures," but not less than 6.24 lbf/sq. ft. (299 Pa). Water leakage is defined as follows:

Uncontrolled water infiltrating systems or appearing on systems' normally exposed interior surfaces from sources other than condensation. Water controlled by flashing and gutters that is drained back to the exterior and cannot damage adjacent materials or finishes is not water leakage.

Thermal Movements: Provide entrance and storefront systems, including anchorage, that accommodate thermal movements of systems and supporting elements resulting from the following maximum change (range) in ambient and surface temperatures without buckling, damaging stresses on glazing, failure of joint sealants, damaging loads on fasteners, failure of doors or other operating units to function properly, and other detrimental effects.

Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

Structural-Support Movement: Provide entrance and storefront systems that accommodate structural movements including, but not limited to, sway and deflection.

Condensation Resistance: Provide storefront systems with condensation resistance factor (CRF) of not less than 45 when tested according to AAMA 1503.1.

Average Thermal Conductance: Provide storefront systems with average U-values of not more than 0.63 Btu/sq. ft. x h x deg F (3.57 W/sq. m x K) when tested according to AAMA 1503.1.

Dimensional Tolerances: Provide entrance and storefront systems that accommodate dimensional tolerances of building frame and other adjacent construction.

SUBMITTALS

Product Data: For each product specified. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.

Shop Drawings: For entrance and storefront systems. Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.

For entrance systems, include hardware schedule and indicate operating hardware types, quantities, and locations.

Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.

Samples for Verification: Of each type of exposed finish required in manufacturer's standard sizes. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.

Cutaway Sample: Of each vertical-to-horizontal framing intersection of systems, made from minimum 6-inch (150-mm) lengths of full-size components and showing details of the following:

Joinery.

Anchorage.

Expansion provisions.

Glazing.

Flashing and drainage.

Structural-sealant joints.

Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

Sealant Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating that materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with sealants; include joint sealant manufacturers' written interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.

Field Test Reports: Indicate and interpret test results for compliance with storefront systems' performance requirements.

Product Test Reports: Based on evaluation of tests performed by manufacturer and witnessed by a qualified independent testing agency, indicate compliance of entrance and storefront systems with requirements based on comprehensive testing of current systems.

QUALITY ASSURANCE

Installer Qualifications: Engage an experienced installer to assume engineering responsibility and perform work of this Section who has specialized in installing entrance and storefront systems similar to those required for this Project and who is acceptable to manufacturer.

Engineering Responsibility: Prepare data for entrance and storefront systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

Testing Agency Qualifications: Demonstrate to Architect's satisfaction, based on Architect's evaluation of criteria conforming to ASTM E 699, that the independent testing agency has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

Source Limitations: Obtain each type of entrance and storefront system through one source from a single manufacturer.

Product Options: Drawings indicate size, profiles, and dimensional requirements of entrance and storefront systems and are based on the specific systems indicated. Other manufacturers' systems with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

Do not modify intended aesthetic effect, as judged solely by Architect, except with Architect's approval and only to the extent needed to comply with performance requirements. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.

PROJECT CONDITIONS

Field Measurements: Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating systems without field measurements. Coordinate construction to ensure actual dimensions correspond to established dimensions.

WARRANTY

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

Special Warranty: Submit a written warranty executed by the manufacturer agreeing to repair or replace components of entrance and storefront systems that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:

Structural failures including, but not limited to, excessive deflection.

Adhesive sealant failures.

Cohesive sealant failures.

Failure of system to meet performance requirements.

Deterioration of metals, metal finishes, and other materials beyond normal weathering.

Failure of operating components to function normally.

Water leakage through fixed glazing and frame areas.

Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

MANUFACTURERS

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:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

EFCO Corporation.
Kawneer Company, Inc.

MATERIALS

Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.

Sheet and Plate: ASTM B 209 (ASTM B 209M).

Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221 (ASTM B 221M).

Extruded Structural Pipe and Tubes: ASTM B 429.

Bars, Rods, and Wire: ASTM B 211 (ASTM B 211M).

Welding Rods and Bare Electrodes: AWS A5.10.
Steel Reinforcement: Complying with ASTM A 36 (ASTM A 36M) for structural shapes, plates, and bars; ASTM A 611 for cold-rolled sheet and strip; or ASTM A 570 (ASTM A 570M) for hot-rolled sheet and strip.

Glazing as specified in Division 8 Section "Glazing."

Glazing Gaskets: Manufacturer's standard pressure-glazing system of black, resilient glazing gaskets, setting blocks, and shims or spacers, fabricated from an elastomer of type and in hardness recommended by system and gasket manufacturer to comply with system performance requirements. Provide gasket assemblies that have corners sealed with sealant recommended by gasket manufacturer.

Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system

performance requirements.

Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.

Sealants and joint fillers for joints at perimeter of entrance and storefront systems as specified in Division 7 Section "Joint Sealants."

Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements, except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

COMPONENTS

Provide manufacturer's standard 5-5/16 inch thick frames (44.5-mm-) similar to NuCore 1/4" system with minimum 0.125-inch- (3.2-mm-) thick, extruded tubular members. Mechanically fasten corners with reinforcing brackets that are deep penetration and fillet welded or that incorporate concealed tie-rods.

Glazing Stops and Gaskets: Provide manufacturer's standard snap-on extruded-aluminum glazing stops and preformed gaskets.

Brackets and Reinforcements: Provide manufacturer's standard brackets and reinforcements that are compatible with adjacent materials. Provide nonstaining, nonferrous shims for aligning system components.

Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

Reinforce members as required to retain fastener threads.

Do not use exposed fasteners, except for hardware application. For hardware application, use countersunk Phillips flat-head machine screws finished to match framing members or hardware being fastened, unless otherwise indicated.

Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.

Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing, compatible with adjacent materials, and of type recommended by manufacturer.

Concealed Flashing: Dead-soft, 0.018-inch- (0.457-mm-) thick stainless steel, complying with ASTM A 666, of type selected by manufacturer for compatibility with system.

FABRICATION

General: Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

Fabricate components for screw-spline frame construction.

Forming: Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.

Prepare components to receive concealed fasteners and anchor and connection devices.

Fabricate components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.

Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

Glazing Channels: Provide minimum clearances for thickness and type of glass indicated according to FGMA's "Glazing Manual."

Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

Storefront: Fabricate framing in profiles indicated for flush glazing (without projecting stops). Provide subframes and reinforcing of types indicated or, if not indicated, as required for a complete system. Factory assemble components to greatest extent possible. Disassemble components only as necessary for shipment and installation.

ALUMINUM FINISHES

General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.

Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 606.1 or AAMA 608.1.

Color: As selected by Architect from the full range of industry colors and color densities.

PART 3 - EXECUTION

EXAMINATION

Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of entrance and storefront systems. Do not proceed with installation until unsatisfactory conditions have been corrected.

INSTALLATION

General: Comply with manufacturer's written instructions for protecting, handling, and installing entrance and storefront systems. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight.

Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

Install components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.

Set continuous sill members and flashing in a full sealant bed to provide weathertight construction, unless otherwise indicated. Comply with requirements of Division 7 Section "Joint Sealants."

Install framing components plumb and true in alignment with established lines and grades without warp or rack of framing members.

Install glazing to comply with requirements of Division 8 Section "Glazing," unless otherwise indicated.

Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

Install structural silicone sealant according to sealant manufacturer's written instructions.

Mechanically fasten glazing in place until structural sealant is cured.

Remove excess sealant from component surfaces before sealant has cured.

Install secondary-sealant weatherseal according to sealant manufacturer's written instructions to provide weatherproof joints. Install joint fillers behind sealant as recommended by sealant manufacturer.

Install perimeter sealant to comply with requirements of Division 7 Section "Joint Sealants," unless otherwise indicated.

Erection Tolerances: Install entrance and storefront systems to comply with the following maximum tolerances:

Variation from Plane: Limit variation from plane or location shown to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.

Alignment: Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm). Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).

Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).

FIELD QUALITY CONTROL

Testing Agency: Engage a qualified independent testing agency to perform field quality-control testing indicated.

Structural-Silicone-Sealant Adhesion Test: Test installed structural silicone sealant according to field adhesion test method described in AAMA CW #13, "Structural Sealant Glazing Systems (A Design Guide)."

Test a minimum of 2 areas.

Water Spray Test: After completing the installation of test areas indicated, test storefront system for water penetration according to AAMA 501.2 requirements.

Repair or remove and replace Work that does not meet requirements or that is damaged by testing; replace to conform to specified requirements.

ADJUSTING AND CLEANING

Adjust doors and hardware to provide tight fit at contact points and weather stripping, smooth operation, and weathertight closure.

Remove excess sealant and glazing compounds, and dirt from surfaces.

PROTECTION

Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure entrance and storefront systems are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08410

SECTION 08710 - DOOR HARDWARE

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

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

Division 8 Section "Standard Steel Frames" for silencers integral with hollow metal frames.

Division 8 Section "Flush Wood Doors" for factory prefitting and factory premachining of doors for door hardware.

Contractor's responsibilities shall be as follows:

SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

Type, style, function, size, and finish of each hardware item.

Name and manufacturer of each item.

Fastenings and other pertinent information.

Location of each hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.

Explanation of all abbreviations, symbols, and codes contained in schedule.

Mounting locations for hardware.

Door and frame sizes and materials.

Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

QUALITY ASSURANCE

Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.

Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) as certified by the Door and Hardware Institute who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.

Require supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.

Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey, FM, or other testing and inspecting organization acceptable to authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

PRODUCT HANDLING

Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

PART 2 - PRODUCTS

MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Butts and Hinges:

* Hager Hinge Co.
  McKinney Products Co.
  Stanley Hardware, Div. Stanley Works

Cylinders and Locks:

Corbin & Russwin Architectural Hardware
CL 3300 NZD
Schlage locks D Rhodes

Bolts:

Glynn-Johnson Corp.
H. B. Ives, A Harrow Company
* Rockwood Manufacturing Co.

Overhead Closers:

* LCN, Div. Ingersoll-Rand Door Hardware Group., 4111 Norton, 7500

Kick, Mop, and Armor Plates:

Hager Hinge Co.
H. B. Ives, A Harrow Company
* Rockwood Manufacturing Co.

Exit Devices

Von Duprin, Division of Ingersoil-Rand Door Hardware Group.

SCHEDULED HARDWARE

HINGES, BUTTS, AND PIVOTS

Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

Screws: Provide Phillips flat-head screws complying with the following requirements:

Out-Swing Exterior Doors: Nonremovable pins.

Number of Hinges: Provide number of hinges indicated but not less than 3 hinges per door leaf for doors 90 inches or less in height and one additional hinge for each 30 inches of additional height.

Fire-Rated Doors: Not less than 3 hinges per door leaf for doors 86 inches or less in height with same rule for additional hinges.

LOCK CYLINDERS AND KEYING

Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), integrated with Owner's existing Russwin system.

Equip locks with manufacturer's standard 6-pin tumbler cylinders.

Deliver keys to Owner. 6 GMK, 6 EA MK, 2 keys per lockl

LOCKS, LATCHES, AND BOLTS

Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated.

Lock Throw: Provide 5/8-inch minimum throw of latch on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

Provide 1/2-inch minimum throw of latch for other bored and preassembled types of locks and 3/4-inch minimum throw of latch for mortise locks. Provide 1-inch minimum throw for all dead bolts.

CLOSERS AND DOOR CONTROL DEVICES

Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit depending on size of door, exposure to weather, and anticipated frequency of use.

Access-Free Manual Closers: All manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force and delayed action closing.

DOOR TRIM UNITS

Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.

Fabricate protection plates not more than 1-1/2 inches less than door width on hinge side and not more than 1/2 inch less than door width on pull side by height indicated (10”).

Metal Plates: Stainless steel, 0.050 inch (U.S. 18 gage).

HARDWARE FINISHES

The designations below indicate hardware finishes which are the industry-recognized standard commercial finishes:

Butts	US26D Interior, US32D Exterior
Locks	US26D
Closers	AL
Kick Plates	US32D
Stops/Misc.	US32D
Exit Devices	US26D (US28 not acceptable)

PART 3 - EXECUTION

INSTALLATION

Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.

Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers."

Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

ADJUSTING, CLEANING, AND DEMONSTRATING

Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

Clean adjacent surfaces soiled by hardware installation.

Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.

HARDWARE SCHEDULE:

HW-1
DOORS: 2,3

EACH TO HAVE:	
3 HINGES	BB1191 NRP
1 EXIT DEVICE	99L X 994L X 20-057
1 CLOSER	PA-DA
1 KICK PLATE	
1 STOP	
1 THRESHOLD	2005AS
1 SET SEAL	305CR
1 SWEEP	

HW-2
DOOR: 1

EACH TO HAVE:	
6 HINGES	BB1191 NRP
1 LOCK	L9080P
2 EXIT DEVICES	98L-F 996L
2 FLUSH BOLTS	555 12
2 HOLDERS	GJ800H
1 THRESHOLD	2005AS
1 SET SEAL	305CR
1 ASTRAGAL	357SC

HW-3
DOORS: 4

EACH TO HAVE:	
3 HINGES	BB1168
1 LOCK	L463P
1 PUSH PLATE	
1 DOOR PULL	
1 CLOSER	DA
1 KICK PLATE	
1 STOP	

HW- 4
DOORS: 5,6

EACH TO HAVE:	
3 HINGES	BB1279
1 LOCK	D94PD
1 CLOSER	DA
1 KICK PLATE	
1 STOP	

SECTION 08800 - GLAZING

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes glazing for the following products, including those specified in other Sections where glazing requirements are specified by reference to this Section:

Entrances and other doors.

Storefront construction.

DEFINITIONS

Manufacturer is used in this Section to refer to a firm that produces primary glass or fabricated glass as defined in the referenced glazing standard.

Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's directions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated glass standard.

SYSTEM PERFORMANCE REQUIREMENTS

General: Provide glazing systems that are produced, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading (where applicable), without failure including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; and other defects in construction.

Glass Design: Glass thicknesses indicated on Drawings are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for the various size openings in the thicknesses and strengths (annealed or heat-treated) to meet or exceed the following criteria:

Minimum glass thickness, nominally, of lites in exterior walls is 6.0 mm (0.23 inch).

Tinted and heat-absorbing glass thicknesses for each tint indicated are the same throughout Project.

Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials' actual surface temperatures due to both solar heat gain and nighttime sky heat loss.

Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

SUBMITTALS

General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

Product data for each glass product and glazing material indicated.

Samples for verification purposes of 12-inch-square samples of each type of glass indicated except for clear monolithic glass products, and 12-inch-long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system.

Product certificates signed by glazing materials manufacturers certifying that their products comply with specified requirements.

Separate certifications are not required for glazing materials bearing manufacturer's permanent labels designating type and thickness of glass, provided labels represent a quality control program of a recognized certification agency or independent testing agency acceptable to authorities having jurisdiction.

Compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed for adhesion.

Compatibility test report from manufacturer of insulating glass edge sealant indicating that glass edge sealants were tested for compatibility with other glazing materials including sealants, glazing tape, gaskets, setting blocks, and edge blocks.

Product test reports for each type of glazing sealant and gasket indicated, evidencing compliance with requirements specified.

Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual specified in Division 1.

QUALITY ASSURANCE

Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

FGMA Publications: "FGMA Glazing Manual."

AAMA Publications: AAMA TIR-A7 "Sloped Glazing Guidelines" and "Glass Design for Sloped Glazing."

LSGA Publications: "LSGA Design Guide."

SIGMA Publications: TM-3000 "Vertical Glazing Guidelines" and TB-3001 "Sloped Glazing Guidelines."

Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.

Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

Glazier Qualifications: Engage an experienced glazier who has completed glazing similar in material, design, and extent to that indicated for Project with a record of successful in-service performance.

Single-Source Responsibility for Glass: Obtain glass from one source for each product indicated below:

Primary glass of each (ASTM C 1036) type and class indicated.

Single-Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.

Field-Constructed Mockups: Prior to glazing, erect mockups for each glass product indicated below to verify selections made under sample submittals and to demonstrate aesthetic effects and quality of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work:

Glass Products: Erect mockups with the following kinds of glass to match glazing systems required for Project, including typical lite size, framing systems, and glazing methods:

Heat-strengthened coated glass.

Fully tempered glass.

Pre-Installation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

DELIVERY, STORAGE, AND HANDLING

Protect glazing materials to comply with manufacturer's directions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

PROJECT CONDITIONS

Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes.

Install liquid sealants at ambient and substrate temperatures above 40 deg F (4.4 deg C).

WARRANTY

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

Manufacturer's Warranty on Coated Glass Products: Submit written warranty signed by coated glass manufacturer agreeing to furnish replacements for those coated glass units that deteriorate as defined in "Definitions" article, f.o.b. point of manufacture, freight allowed Project site, within specified warranty

period indicated below. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to glass manufacturer's published instructions.

Warranty Period: Manufacturer's standard but not less than 5 years after date of Substantial Completion.

PART 2 - PRODUCTS

MANUFACTURERS

Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the products specified in Product Data Sheets at end of this Section.

PRIMARY FLOAT GLASS PRODUCTS

HEAT-TREATED SAFETY GLASS

Coated, Tinted, Heat-Treated Safety Glass: 1 5/16" IG similar to Rochester Insulated Glass, Inc. or equal, www.rochesterinsulatedglass.com. Glazing composition is ¼" tempered, ½" air space, ¼" clear 090 PVB, ¼" clear. Color selected from manufacture standard range.

Kind FT (fully tempered) where indicated.

Manufacturers: Subject to compliance with requirements, provide heat-treated glass by one of the following companies or equal.

AFG Industries, Inc.
PPG Industries, Inc.
Tempglass.
Color as selected from full range of manufacturer standard colors.

ELASTOMERIC GLAZING SEALANTS

General: Provide products of type indicated, complying with the following requirements:

Suitability: Comply with sealant and glass manufacturer's recommendations for selecting glazing sealants and tapes that are suitable for applications indicated and conditions existing at time of installation.

Colors: Provide color of exposed joint sealants to comply with the following:

Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated.

Elastomeric Glazing Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with ASTM C 920 requirements indicated on each Elastomeric Glazing Sealant Product Data Sheet at the end of this Section, including those referencing ASTM classifications for Type, Grade, Class and Uses.

Additional Movement Capability: Where additional movement capability is specified in Elastomeric Glazing Sealant Product Data Sheet, provide products, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, with the capability to withstand the specified percentage

change in the joint width existing at time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.

Glazing Sealant for Fire-Resistant Glazing Products: Identical to product used in test assembly to obtain fire-resistive rating.

GLAZING TAPES

Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent, nonstaining and nonmigrating in contact with nonporous surfaces, with or without spacer rod as recommended by tape and glass manufacturers for application indicated, packaged on rolls with a release paper backing, and complying with AAMA 800 for products indicated below:

AAMA 804.1.

AAMA 806.1.

AAMA 807.1.

Expanded Cellular Glazing Tape: Closed-cell, polyvinyl chloride foam tape, factory coated with adhesive on both surfaces, packaged on rolls with release liner protecting adhesive, and complying with AAMA 800 for product 810.5.

Available Products: Subject to compliance with requirements, glazing tape that may be incorporated in the Work include, but is not limited to, the following:

Back-Bedding Mastic Glazing Tape With Spacer Rod:

PTI 303 Glazing Tape (with shim), Protective Treatments, Inc.
Pre-shimmed Tremco 440 Tape, Tremco, Inc.
PTI 606 Architectural Sealant Tape, Protective Treatments, Inc.

Expanded Cellular Glazing Tape:

Norseal V-980 Closed-Cell Glazing Tape, Norton Company.

GLAZING GASKETS

Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542, black.

Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:

Neoprene, ASTM C 864.

Soft Compression Gaskets: Extruded or molded closed-cell, integral-skinned gaskets of material indicated below, complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal:

Neoprene.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following companies.

Manufacturers: Subject to compliance with requirements, provide products by one of the following companies.

Lock-Strip Gaskets:

Stanlock Div., Griffith Rubber Mills.

Preformed Gaskets:

Advanced Elastomer Systems, L.P.
Schnee-Morehead, Inc.
Tremco, Inc.

MISCELLANEOUS GLAZING MATERIALS

General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.

Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85 plus or minus 5.

Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side-walking).

Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonextruding, nonoutgassing, strips of closed-cell plastic foam of density, size, and shape to control sealant depth and otherwise contribute to produce optimum sealant performance.

FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

Clean cut or flat grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.

PART 3 - EXECUTION

EXAMINATION

Examine glass framing, with glazier present, for compliance with the following:

Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.

Presence and functioning of weep system.

Minimum required face or edge clearances.

Effective sealing between joints of glass-framing members.

Do not proceed with glazing until unsatisfactory conditions have been corrected.

PREPARATION

Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

GLAZING, GENERAL

Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.

Glazing channel dimensions as indicated on Drawings provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

Protect glass from edge damage during handling and installation as follows:

Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass lites with flares or bevels on bottom horizontal edges so edges are located at top of opening, unless otherwise indicated by manufacturer's label.

Remove damaged glass from Project site and legally dispose of off site. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance.

Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

Install elastomeric setting blocks in sill rabbets, sized and located to comply with referenced glazing standard, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

Provide spacers for glass sizes larger than 50 united inches (length plus height) as follows:

Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have

demonstrated ability to maintain required face clearances and comply with system performance requirements.

Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

Provide edge blocking to comply with requirements of referenced glazing publications, unless otherwise required by glass manufacturer.

Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

Square cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

TAPE GLAZING

Position tapes on fixed stops so that when compressed by glass their exposed edges are flush with or protrude slightly above sightline of stops.

Install tapes continuously but not in one continuous length. Do not stretch tapes to make them fit opening.

Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.
Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

Do not remove release paper from tape until just before each lite is installed.

Apply heel bead of elastomeric sealant.

Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

Apply cap bead of elastomeric sealant over exposed edge of tape.

GASKET GLAZING (DRY)

Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.

Secure compression gaskets in place with joints located at corners to compress gaskets producing a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

Install gaskets so they protrude past face of glazing stops.

SEALANT GLAZING (WET)

Install continuous spacers between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel weep systems until sealants cure. Secure spacers in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

Tool exposed surfaces of sealants to provide a substantial wash away from glass. Install pressurized gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.

LOCK-STRIP GASKET GLAZING

Comply with ASTM C 716 and gasket manufacturer's printed recommendations. Provide supplementary wet seal and weep system unless otherwise indicated.

PROTECTION AND CLEANING

Protect exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

Protect glass from contact with contaminating substances resulting from construction operations including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkali deposits, or stains, and remove as recommended by glass manufacturer.

Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.

Wash glass on both faces in each area of Project not more than 4 days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08800

SECTION 09220 - PORTLAND CEMENT PLASTER

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Metal framing and furring.

Metal lath and accessories.

Plastic accessories.

Portland cement plaster.

Stucco finishes for soffits.

Acrylic-based finishes.

Portland cement plaster with embedded, exposed aggregate (marblecrete).

Sgraffito designs in colored portland cement plaster.

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

Division 3 Autoclaved Concrete Panel

Division 5 Section "Cold-Formed Metal Framing" for load-bearing steel studs and joists.

Division 6 Section "Rough Carpentry" for wood framing and furring.

Division 9 Section "Gypsum Sheathing" for gypsum sheathing installed behind metal lath.

SUBMITTALS

General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

Product Data for each product specified.

Samples for initial selection in the form of manufacturer's color charts consisting of actual units or sections of units at least 12 inches (300 mm) square showing the full range of colors, textures, and patterns available for each type of finish indicated.

Where finish involves normal color and texture variations, include Sample sets composed of 2 or more units showing the full range of variations expected.
Include similar Samples of material for joints and accessories involving color selection.

Samples for verification in units at least 6 inches (300 mm) square of each type of finish indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.

Material Certificates: Submit certificate signed by manufacturer for each kind of plaster aggregate certifying that materials comply with requirements.

QUALITY ASSURANCE

Fire-Test-Response Characteristics: Where fire-resistance-rated portland cement plaster assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

DELIVERY, STORAGE, AND HANDLING

Deliver cementitious materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.

Store materials inside, under cover, and dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

PROJECT CONDITIONS

Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.

Cold-Weather Requirements: Provide heat and protection, temporary or permanent, as required to protect each coat of plaster from freezing for at least 24 hours after application. Distribute heat uniformly to prevent concentration of heat on plaster near heat sources; provide deflection or protective screens.

Warm-Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dry out during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.

Exterior Plaster Work: Do not apply plaster when ambient temperature is below 40 deg F (4 deg C).

Protect plaster against freezing when ambient temperature is below 40 deg F (4 deg C) by heating materials and providing temporary protection and heat as required by ACI 306R.

Interior Plaster Work: Maintain at least 50 deg F (10 deg C) temperature in areas to be plastered for at least 48 hours before, during, and after application.

Ventilation: Provide natural or mechanical means of ventilation to properly dry interior spaces after portland cement plaster has cured.

Protect contiguous work from soiling and moisture deterioration caused by plastering. Provide temporary covering and other provisions necessary to minimize harmful spattering of plaster on other work.

PART 2 - PRODUCTS

MANUFACTURERS

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:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Metal Framing and Supports:

Dietrich Industries, Inc.
National Gypsum Co.

Expanded-Metal Lath:

Dietrich Industries, Inc.
National Gypsum Co.
United States Gypsum Co.

Wire-Fabric Lath:

K-Lath Building Products.

Metal Accessories:

Fry Reglet Corporation.
National Gypsum Co.
United States Gypsum Co.

Plastic Accessories:

Alabama Metal Industries Corp. (AMICO).
Plastic Components, Inc.
Vinyl Corp.

Stucco:

Florida Stucco Corp.
United States Gypsum Co.

METAL SUPPORTS FOR SUSPENDED AND FURRED CEILINGS

General: Size metal ceiling supports to comply with ASTM C 1063, unless otherwise indicated.

Cast-in-Place and Postinstalled Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials, with holes or loops for attaching hanger wires; and with capability to sustain,

without failure, a load equal to 5 times that imposed by ceiling construction, as determined by testing according to ASTM E 488 conducted by a qualified independent testing agency.

Cast-in-place type designed for attachment to concrete forms.

Chemical anchor.

Expansion anchor.

Wire for Hangers and Ties: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper.

Rod Hangers: Mild steel, zinc coated.

Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

Channels: Cold-rolled steel, minimum 0.0598-inch- (1.5-mm-) thick base (uncoated) metal and 7/16-inch- (11.1-mm-) wide flanges, and as follows:

Carrying Channels: 1-1/2 inches (38 mm) deep, 475 lb/1000 feet (0.7 kg/m).

Furring Channels: 3/4 inch (19 mm) deep, 300 lb/1000 feet (0.45 kg/m).

Finish: ASTM A 653, G60 (ASTM A 653M, Z180) hot-dip galvanized coating for framing where indicated.

Steel Studs for Furring Channels: ASTM C 645, with flange edges of studs bent back 90 degrees and doubled over to form 3/16-inch- (5-mm-) wide minimum lip (return), and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:

Thickness: As indicated.

Depth: As indicated.

Protective Coating: ASTM A 653, G40 (ASTM A 653M, Z90) galvanized coating.

STEEL STUDS AND RUNNERS

General: Provide steel studs and runners complying with the following requirements:

Protective Coating: ASTM A 653, G40 (ASTM A 653M, Z90) hot-dip galvanized coating.

Protective Coating: Manufacturer's standard corrosion-resistant coating.

Protective Coating: ASTM A 653, G40 (ASTM A 653M, Z90) hot-dip galvanized coating for framing members of exterior walls and within 10 feet (3 m) of exterior walls.

LATH

Expanded-Metal Lath: Comply with ASTM C 847 for material, type, configuration, and other characteristics indicated below.

Material: Fabricate expanded-metal lath from sheet metal conforming to the following:

Galvanized Steel: Structural-quality, zinc-coated (galvanized) steel sheet complying with ASTM A 653, G60 (ASTM A 653M, Z180) minimum coating designation, unless otherwise indicated.

Diamond-Mesh Lath: Comply with the following requirements:

Configuration: Flat.

Weight: 3.4 lb/sq. yd. (1.8 kg/sq. m).

Configuration: Self-furring.

Weight: 3.4 lb/sq. yd. (1.8 kg/sq. m).

Rib Lath: Comply with the following requirements:

Configuration: Flat, rib depth of not over 1/8 inch (3 mm).

Weight: 3.4 lb/sq. yd. (1.8 kg/sq. m).

Woven-Wire Lath: ASTM C 1032, fabricated into 1-1/2-inch (38-mm) hexagonal-shaped mesh with minimum 0.0510-inch- (1.3-mm-) diameter, galvanized steel wire.

Welded-Wire Lath: ASTM C 933, fabricated into 2-by-2-inch (50-by-50-mm) openings with minimum 0.0625-inch- (1.6-mm-) diameter, galvanized steel wire.

Paper Backing: Where paper-backed lath is indicated, provide the following material factory bonded to back of lath. Comply with FS UU-B-790, Type I, grade and style as indicated below:

Vapor-Retardant Paper: Grade B, Style 1 with flame-spread rating of 25 per ASTM E 84.

ACCESSORIES

General: Comply with material provisions of ASTM C 1063 and the requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.

Galvanized Steel Components: Fabricated from zinc-coated (galvanized) steel sheet complying with ASTM A 653, G40 (ASTM A 653M, Z90) minimum coating designation.

Metal Corner Reinforcement: Expanded, large-mesh, diamond-metal lath fabricated from zinc-alloy or welded-wire mesh fabricated from 0.0475-inch- (1.2-mm-) diameter, zinc-coated (galvanized) wire and specially formed to reinforce external corners of portland cement plaster on exterior exposures while allowing full plaster encasement.

Cornerbeads: Small nose cornerbeads fabricated from the following metal, with expanded flanges of large-mesh diamond-metal lath allowing full plaster encasement.

Galvanized Steel: Minimum 0.0172 inch (0.44 mm) thick.

Casing Beads: Square-edged style, with expanded flanges of the following material:

PVC Plastic: Minimum 0.035 inch (0.89 mm) thick.

Galvanized Steel: Minimum 0.0172 inch (0.44 mm) thick.

Curved Casing Beads: Square-edged style, fabricated from aluminum coated with clear plastic, preformed into curve of radius indicated.

Control Joints: Prefabricated, of material and type indicated below:

Galvanized Steel: Minimum 0.0172 inch (0.44 mm) thick.

One-Piece Type: Folded pair of nonperforated screeds in M-shaped configuration, with expanded or perforated flanges.

Two-Piece Type: Pair of casing beads with back flanges formed to provide slip-joint action, adjustable for joint widths from 1/8 to 5/8 inch (3 to 16 mm).

Provide removable protective tape on plaster face of control joints.

Foundation Sill (Weep) Screed: Manufacturer's standard profile designed for use at sill plate line to form plaster stop and prevent plaster from contacting damp earth, fabricated from zinc-coated (galvanized) steel sheet.

Lath Attachment Devices: Material and type required by ASTM C 1063 for installations indicated.

PLASTER MATERIALS

Base-Coat Cements: Type as indicated below:

Portland cement, ASTM C 150, Type I.

Job-Mixed Finish-Coat Cement: Material and color as indicated below:

Portland cement, ASTM C 150, Type I.

Cement Color: Gray.

Stucco Finish Coat: Manufacturer's standard factory-packaged stucco, including portland cement, aggregate, coloring agent, and other proprietary ingredients.

Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S; or special hydrated lime for masonry purposes, ASTM C 207, Type S.

Sand Aggregate for Base Coats: ASTM C 897.

Aggregate for Finish Coats: ASTM C 897 system and as indicated below:

Manufactured or natural sand, white in color.

Manufactured or natural sand, in color matching Architect's sample.

MISCELLANEOUS MATERIALS

Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch (13 mm) long, free of contaminates, manufactured for use in portland cement plaster.

Water for Mixing and Finishing Plaster: Potable.

Bonding Agent: ASTM C 932.

Acid-Etching Solution: Muriatic acid (10 percent solution of commercial hydrochloric acid) mixed 1 part to not less than 6 nor more than 10 parts water.

Dash-Coat Material: 2 parts portland cement to 3 parts fine sand, mixed with water to a mushy-paste consistency.

Asphalt-Saturated Felt: ASTM D 226, Type I (No. 15), nonperforated.

Line Wire: 0.0475-inch- (1.2-mm-) diameter, zinc-coated (galvanized), soft, annealed steel wire.

Steel drill screws complying with ASTM C 1002 for fastening metal lath to wood or steel members less than 0.033 inch (0.84 mm) thick.

Thermal Insulation: Material as indicated below, of thickness and width to fill voids formed by Z-furring members:

Unfaced Mineral-Fiber Blanket Insulation: Combine mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing) and as follows:

Mineral-Fiber Type: Fibers manufactured from glass, slag wool, or rock wool.

Flame-spread and smoke-developed ratings of 75 and 450, respectively, according to ASTM E 84.

ACOUSTICAL SEALANT

Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:

Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

Available Products: Subject to compliance with requirements, acoustical sealants that may be incorporated into the Work include, but are not limited to, the following:

Products: Subject to compliance with requirements, provide one of the following:

Acoustical Sealant for Exposed and Concealed Joints:

PL Acoustical Sealant; ChemRex, Inc., Contech Brands.

AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
SHEETROCK Acoustical Sealant; United States Gypsum Co.

Acoustical Sealant for Concealed Joints:

BA-98; Pecora Corp.
Tremco Acoustical Sealant; Tremco, Inc.

PLASTER MIXES AND COMPOSITIONS

General: Comply with ASTM C 926 for base- and finish-coat mixes as applicable to plaster bases, materials, and other requirements indicated.

Base-Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.

Fiber Content: Add fiber to following mixes after ingredients have mixed at least 2 minutes. Comply with fiber manufacturer's written instructions but do not exceed 1 lb/cu. ft. (16 kg/cu. m) of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

Three-Coat Work over Metal Lath and Concrete Unit Masonry: Base-coat proportions as indicated below:

Scratch Coat: 1 part portland cement, 1 to 2 parts masonry cement, 2-1/2 to 4 parts aggregate.
Brown Coat: 1 part portland cement, 1 to 2 parts masonry cement, 3 to 5 parts aggregate.

Two-Coat Work over Concrete Unit Masonry: Base-coat proportions as indicated below:

Job-Mixed Finish Coats: Proportion materials for finish coats in parts by volume for cementitious materials and parts by volume per sum of cementitious materials to comply with the following requirements:

Proportions using sand aggregates as indicated below:

1 part portland cement, 1-1/2 to 2 parts lime, 3 parts sand.

Factory-Prepared Finish Coats: Add water only; comply with finish coat manufacturer's written instructions.

Stucco Finish Coat: Add water only; comply with stucco manufacturer's written instructions.

MIXING

Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

PART 3 - EXECUTION

INSTALLATION OF LATH AND FURRING, GENERAL

Standards: Comply with ML/SFA 920, "Guide Specifications for Metal Lathing and Furring," and with

requirements of ASTM C 1063.

Install supplementary framing, blocking, and bracing at terminations in work and for support of fixtures, equipment services, heavy trim, grab bars, handrails, furnishings, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable written instructions of lath and furring manufacturer.

Isolation: Where lathing and metal support system abuts building structure horizontally and where partition or wall abuts overhead structure, sufficiently isolate from structural movement to prevent transfer of loading from building structure. Install slip- or cushion-type joints to absorb deflections but maintain lateral support.

Frame both sides of control joints independently and do not bridge joints with furring and lathing or accessories.

Install additional framing, furring, runners, lath, and beads, as required to form openings and frames for other work as indicated. Coordinate support system for proper support of framed work that is not indicated to be supported independently of metal furring and lathing system.

INSTALLATION OF CEILING SUSPENSION SYSTEMS

Preparation and Coordination: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure inserts and other structural anchorage provisions have been installed to receive ceiling hangers in a manner that will develop their full strength and at spacings required to support ceiling.

Furnish concrete inserts, and other anchorage devices indicated, to other trades for installations well in advance of time needed for coordination with other work.

Hanger Installation: Attach hangers to structure above ceiling to comply with ML/SFA 920, "Guide Specifications for Metal Lathing and Furring," and with referenced standards.

Do not attach hangers to metal deck tabs.

Install ceiling suspension system components of sizes and spacings indicated, but not in smaller sizes or greater spacings than those required by referenced lathing and furring installation standards.
BELOW ARE EXAMPLES BASED ON CHANNEL SIZES LISTED IN PART 2. DELETE IF INFORMATION IS INDICATED ON DRAWINGS. REVISE IF OTHER SIZES, MATERIALS, OR SPACINGS ARE REQUIRED.

Wire Hangers: Space 0.16-inch- (4-mm-) diameter wire hangers not over 48 inches (1219 mm) o.c., parallel with and not over 36 inches (914 mm) perpendicular to direction of carrying channels, unless otherwise indicated, and within 6 inches (152 mm) of carrying channel ends.

Carrying Channels: Space carrying channels not over 36 inches (914 mm) o.c. with 48-inch (1219-mm) o.c. hanger spacing.

Furring Channels to Receive Metal Lath: Space furring channels not over 16 inches (406 mm) o.c. for 3.4-lb/sq. yd. (1.8-kg/sq. m) diamond-mesh lath, 19 inches (483 mm) o.c. for 3.4-lb/sq. yd. (1.8-kg/sq. m) flat rib lath, or 24 inches (609 mm) o.c. for 3.4-lb/sq. yd. (1.8-kg/sq. m), 3/8-inch (9.5-mm) rib lath.

LATHING

Install metal lath for the following applications where plaster base coats are required. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated that comply with referenced ML/SFA specifications and ASTM lathing installation standards.

Suspended and furred ceilings using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, diamond-mesh lath.

Vertical metal framing and furring using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, diamond-mesh lath and cold-rolled channel stud framing.

Ceramic-tile setting beds using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, diamond-mesh lath.

Exterior sheathed wall surfaces using woven-wire lath with 1-1/2-inch (38-mm) hexagonal-shaped mesh with minimum 0.0510-inch- (1.3-mm-) diameter, galvanized steel wire.

Monolithic surfaces using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, self-furring, diamond-mesh lath or vertical metal framing and furring as required for plaster thickness.

PREPARATIONS FOR PLASTERING

Clean plaster bases and substrates for direct application of plaster, removing loose material and substances that may impair the Work.

Etch concrete and concrete unit masonry surfaces indicated for direct plaster application. Scrub with acid-etching solution on previously wetted surface and rinse thoroughly with clean water. Repeat application, if necessary, to obtain adequate suction and mechanical bond of plaster (where dash coat, bonding agent, or additive is not used).

Apply bonding agent on concrete and concrete unit masonry surfaces indicated for direct plaster application; comply with manufacturer's written instructions for application.

Apply dash coat on concrete surfaces indicated for direct plaster application. Moist-cure dash coat for at least 24 hours after application and before plastering.

Install temporary grounds and screeds to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.

Refer to Division 6 Sections for installing permanent wood grounds, if any.

Flashing: Refer to Division 7 Sections for installing flashing as indicated.

Surface Conditioning: Immediately before plastering, dampen concrete and concrete unit masonry surfaces that are indicated for direct plaster application, except where a bonding agent has been applied. Determine and apply amount of moisture and degree of saturation that will result in optimum suction for plastering.

INSTALLATION OF PLASTERING ACCESSORIES

General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during

plastering. Install accessories of type indicated at following locations:

External Corners: Install corner reinforcement at external corners.

Terminations of Plaster: Install casing beads, unless otherwise indicated.

Control Joints: Install at locations indicated or, if not indicated, at locations complying with the following criteria and approved by Architect:

Where an expansion or contraction joint occurs in surface of construction directly behind plaster membrane.

Distance between Control Joints: Not to exceed 18 feet (5.4 m) in either direction or a length-to-width ratio of 2-1/2 to 1.

Wall Areas: Not more than 144 sq. ft. (13 sq. m).

Horizontal Surfaces: Not more than 100 sq. ft. (9 sq. m) in area.

Where plaster panel sizes or dimensions change, extend joints full width or height of plaster membrane.

PLASTER APPLICATION

Plaster Application Standard: Apply plaster materials, composition, and mixes to comply with ASTM C 926.

Do not use materials that are frozen, caked, lumpy, dirty, or contaminated by foreign materials.

Do not use excessive water in mixing and applying plaster materials.

Flat Surface Tolerances: Do not deviate more than plus or minus 1/8 inch in 10 feet (3 mm in 3 m) from a true plane in finished plaster surfaces, as measured by a 10-foot (3-m) straightedge placed at any location on surface.

Grout hollow-metal frames, bases, and similar work occurring in plastered areas, with base-coat plaster material, and before lathing where necessary. Except where full grouting is indicated or required for fire-resistance rating, grout at least 6 inches (152 mm) at each jamb anchor.

Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of other.

Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where interior plaster is not terminated at metal frame by casing beads, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.

Corners: Make internal corners and angles square; finish external corners flush with cornerbeads on interior work, square and true with plaster faces on exterior work.

Number of Coats: Apply plaster of composition indicated, to comply with the following requirements:

Three Coats: Over the following plaster base:

Metal lath.

Concrete Unit Masonry cast -in-place concrete.

Finish Coats: Apply finish coats to comply with the following requirements:

Float Finish: Apply finish coat to a minimum thickness of 1/8 inch (3 mm) to completely cover base coat, uniformly floated to a true even plane with fine-textured finish matching Architect's sample.

Dash Finish: Machine-apply finish-coat plaster in 2 coats evenly and uniformly to produce textured finish matching Architect's sample.

Moist-cure plaster base and finish coats to comply with ASTM C 926, including written instructions for time between coats and curing in "Annex A2 Design Considerations."

CUTTING AND PATCHING

Cut, patch, replace, repair, and point up plaster as necessary to accommodate other work. Repair cracks and indented surfaces. Point-up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar defects. Repair or replace work as necessary to comply with required visual effects.

CLEANING AND PROTECTING

Remove temporary covering and other provisions made to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows, and other surfaces not to be plastered. Repair surfaces stained, marred or otherwise damaged during plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster debris.

Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure plaster work is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09220

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Nonload-bearing steel framing members for gypsum board assemblies.

Gypsum board assemblies attached to steel framing.

Cementitious backer units installed with gypsum board assemblies for ceramic tile installation.

Access doors for ceiling

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

Division 5 Section "Cold-Formed Metal Framing" for load-bearing steel framing and/or metal stud partition framing.

Division 6 Section "Rough Carpentry" for wood blocking and furring, and gypsum sheathing applied over wood framing.

Division 9 Section "Tile" for cementitious backer units installed as substrates for ceramic tile.

DEFINITIONS

Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

ASSEMBLY PERFORMANCE REQUIREMENTS

Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.

Fire Resistance: Provide gypsum board assemblies with fire-resistance ratings indicated.

SUBMITTALS

Product Data from manufacturer for each type of product specified.

QUALITY ASSURANCE

Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.

Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

Fire-Test-Response Characteristics: Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with the following requirements:

Fire-Resistance Ratings: As indicated by GA File Numbers in GA-600 "Fire Resistance Design Manual" or design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.

Gypsum board assemblies indicated are identical to assemblies tested for fire resistance according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

Deflection and Firestop Track: Top runner provided in fire-resistance-rated assemblies indicated is labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

DELIVERY, STORAGE, AND HANDLING

Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

PROJECT CONDITIONS

Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.

Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours before application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.

Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Grid Suspension Assemblies:

Armstrong World Industries, Inc.

Chicago Metallic Corp.
USG Interiors, Inc.
Worthington Steel Company (formerly National Rolling Mills).

Gypsum Board and Related Products:

Domtar Gypsum.
Georgia-Pacific Corp.
National Gypsum Co.; Gold Bond Building Products Division.
United States Gypsum Co.

Available Products: Subject to compliance with requirements, products that may be incorporated in the Work where proprietary gypsum wallboard is indicated include, but are not limited to, the following:

Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:

Gyprock Fireguard C Gypsum Board; Domtar Gypsum.
Firestop Type C; Georgia-Pacific Corp.
Fire-Shield G; National Gypsum Co.; Gold Bond Building Products Division.
SHEETROCK Brand Gypsum Panels, FIRECODE C Core; United States Gypsum Co.
SHEETROCK Brand Gypsum Panels, ULTRACODE Core; United States Gypsum Co.

STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

General: Provide components complying with ASTM C 754 for conditions indicated.

Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190 conducted by a qualified independent testing agency.

Wire Ties: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.062 inch (1.6 mm) thick.

Wire Hangers: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.162-inch (4.1-mm) diameter.

Hanger Rods: Mild steel and zinc coated or protected with rust-inhibitive paint.

Flat Hangers: Mild steel and zinc coated or protected with rust-inhibitive paint.

Angle-Type Hangers: Angles with legs not less than 7/8 inch (22.2 mm) wide, formed from 0.0635-inch- (1.6-mm-) thick galvanized steel sheet complying with ASTM A 653, G 90 (ASTM A 653M, Z 180) coating designation, with bolted connections and 5/16-inch (8-mm) diameter bolts.

Channels: Cold-rolled steel, 0.0598-inch (1.5-mm) minimum thickness of base (uncoated) metal and 7/16-inch-(11.1-mm-) wide flanges, and as follows:

Carrying Channels: 2 inches (50.8 mm) deep, 590 lb/1000 feet (88 kg/100 m), unless otherwise indicated.

Carrying Channels: 1-1/2 inches (38.1 mm) deep, 475 lb/1000 feet (70 kg/100 m), unless otherwise indicated.

Furring Channels: 3/4 inch (19.1 mm) deep, 300 lb/1000 feet (45 kg/100 m), unless otherwise indicated.

Finish: ASTM A 653, G 60 (ASTM A 653M, Z 180) hot-dip galvanized coating for framing for exterior soffits and where indicated.

Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M) to form 1/2-inch- (12.7-mm-) deep channel of the following configuration:

Single- or Double-Leg Configuration: Asymmetric-shaped channel with face connected to a single flange by a single-slotted leg (web) or hat-shaped channel, with 1-1/2-inch- (38.1-mm-) wide face connected to flanges by double-slotted or expanded-metal legs (webs).

Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross-furring members that interlock to form a modular supporting network.

In locations to receive cementitious backer units.

Where indicated.

GYPSUM BOARD PRODUCTS

General: Provide gypsum board of types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.

Widths: Provide gypsum board in widths of 48 inches (1219 mm).

Gypsum Wallboard: ASTM C 36 and as follows:

Type: Regular for vertical surfaces, unless otherwise indicated.

Type: Sag-resistant type for ceiling surfaces.

Type: Proprietary type as required for specific fire-resistance-rated assemblies.

Edges: Tapered.

Thickness: 1/2 inch (12.7 mm), for ceilings..

Thickness: 5/8 inch (15.9 mm) for walls.

Water-Resistant Gypsum Backing Board: ASTM C 630 and as follows:

Type: Regular, unless otherwise indicated.

Thickness: 5/8 inch (15.9 mm)

Gypsum Sheathing Board: ASTM C 79:

Type: Exterior, regular, unless otherwise indicated.

Thickness: 5/8 inch (15.9 mm)

TRIM ACCESSORIES

Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:

Material: Formed metal or plastic, with metal complying with the following requirement:
Steel sheet zinc coated by hot-dip or electrolytic process, or steel sheet coated with aluminum or rolled zinc.

Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:

Cornerbead on outside corners, unless otherwise indicated.

LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.

L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.

U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.

One-piece control joint formed with V-shaped slot and removable strip covering slot opening.

JOINT TREATMENT MATERIALS

General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.

Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.

Joint Tape for Cementitious Backer Units: As recommended by cementitious backer unit manufacturer.

Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.

Ready-Mixed Formulation: Factory-mixed product.

Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.

Topping compound formulated for fill (second) and finish (third) coats.

All-purpose compound formulated for both taping and topping compounds.

Joint Compound for Cementitious Backer Units: Material recommended by cementitious backer unit manufacturer.

ACOUSTICAL SEALANT

Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining

latex sealant complying with ASTM C 834 and the following requirements:

Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

Available Products: Subject to compliance with requirements, acoustical sealants that may be incorporated in the Work include, but are not limited to, the following:

Products: Subject to compliance with requirements, provide one of the following:

Acoustical Sealant for Exposed and Concealed Joints:

PL Acoustical Sealant; ChemRex, Inc.; Contech Brands.
AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
SHEETROCK Acoustical Sealant; United States Gypsum Co.

MISCELLANEOUS MATERIALS

General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.

Spot Grout: ASTM C 475, setting-type joint compound recommended for spot-grouting hollow metal door frames.

Steel drill screws complying with ASTM C 1002 for the following applications:

Fastening gypsum board to steel members less than 0.033 inch (0.84 mm) thick.

Fastening gypsum board to wood members.

Fastening gypsum board to gypsum board.

Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

Steel drill screws of size and type recommended by unit manufacturer for fastening cementitious backer units.

Sound-Attenuation Blankets: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing).

Mineral-Fiber Type: Fibers manufactured from glass, slag wool, or rock wool.

Extruded-Polystyrene Board Insulation: Rigid, cellular, polystyrene thermal insulation formed from a polystyrene base resin by an extrusion process using hydrochlorofluorocarbons as the blowing agent to comply with ASTM C 578 for Type IV, and with the following surface-burning characteristics:

Flame-spread and smoke-developed ratings of 75 and 450, respectively, according to ASTM E 84.

TEXTURE FINISH PRODUCTS

Primer: Of type recommended by texture finish manufacturer.

Aggregated Finish for Ceilings: Factory-packaged proprietary drying type powder product formulated with aggregates for mixing with water at Project site to produce texture indicated below by spray application.

Sand textured finish.

Aggregate Finish for Walls: Factory-packaged proprietary drying-type powder product formulated with aggregate for mixing with water at Project site for spray application to produce texture indicated below:

Sand textured finish.

Available Products: Subject to compliance with requirements, texture finishes that may be incorporated in the Work include, but are not limited to, the following:

Products: Subject to compliance with requirements, provide one of the following products:

ACCESS PANEL: As indicated on drawings.

Equal to NYSTRO 24 x 24 standard steel door.

Door	14 ga. cold rolled steel
Frame	16 ga. cold rolled steel
Hinge	consealed spring pin hinge
Latch	screwdriver can latch
Finish	phosphate dipped and prime coatedpainted to match ceiling

PART 3 - EXECUTION

EXAMINATION

Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

PREPARATION

Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

Furnish concrete inserts and other devices indicated to other trades for installation well in advance of time needed for coordination with other construction.

Existing sprayed-on fireproofing remove only as much fireproofing as needed to complete installation of gypsum board assemblies without reducing thickness of fireproofing below that is required to obtain fire-resistance rating indicated. Protect remaining fireproofing from damage.

INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

Screw furring members to wood framing.

Suspend ceiling hangers from building structural members and as follows:

Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part

of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.

Secure flat, angle, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or otherwise fail.

Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.

Do not attach hangers to steel deck tabs.

Do not attach hangers to steel roof deck. Attach hangers to structural members.

Do not connect or suspend steel framing from ducts, pipes, or conduit.

Sway-brace suspended steel framing with hangers used for support.

Install suspended steel framing components in sizes and at spacings indicated, but not less than that required by the referenced steel framing installation standard.

Wire Hangers: 48 inches (1219 mm) o.c.

Carrying Channels (Main Runners): 48 inches (1219 mm) o.c.

Furring Channels (Furring Members): 24 inches (610 mm) o.c.

Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring or grid suspension members are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) as measured both lengthwise on each member and transversely between parallel members.

Wire-tie or clip furring members to main runners and to other structural supports as indicated.

Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

Install thermal insulation as follows:

Erect insulation vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.

Erect insulation vertically and hold in place with Z-furring members spaced 600 mm o.c.

Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub

nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.

At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring channel with standard width insulation panel and continue in regular manner. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.

Until gypsum board is installed, hold insulation in place with 10-inch (250-mm) staples fabricated from 0.0625-inch (1.6-mm) diameter tie wire and inserted through slot in web of member.

APPLYING AND FINISHING GYPSUM BOARD, GENERAL

Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.

Install sound-attenuation blankets, where indicated, prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.

Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Avoid joints other than control joints at corners of framed openings where possible.

Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

Attach gypsum panels to framing provided at openings and cutouts.

Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Instead, float gypsum panels over these members using resilient channels or provide control joints to counteract wood shrinkage.

Spot grout hollow metal door frames for solid-core wood doors, hollow metal doors, and doors over 32 inches (813 mm) wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.

Form control and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.

Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases that are braced internally.

Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.

Fit gypsum panels around ducts, pipes, and conduits.

Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.

Isolate perimeter of nonload-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

Floating Construction: Where feasible, including where recommended by manufacturer, install gypsum panels over wood framing, with floating internal corner construction.

Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.

Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.

Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications.

Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.

GYPSUM BOARD APPLICATION METHODS

Single-Layer Application: Install gypsum wallboard panels as follows:

On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.

On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.

Stagger abutting end joints not less than one framing member in alternate courses of board.

Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with the following:

Install cementitious backer units to comply with ANSI A108.11 at locations indicated to receive wall tile.

Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:

Fasten with screws.

INSTALLING TRIM ACCESSORIES

General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.

Install cornerbead at external corners.

Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.

Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.

Install L-bead where edge trim can only be installed after gypsum panels are installed.

Install U-bead where indicated.

Install aluminum trim and other accessories where indicated.

Install control joints according to ASTM C 840 and manufacturer's recommendations and in specific locations approved by Architect for visual effect.

FINISHING GYPSUM BOARD ASSEMBLIES

General: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.

Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.

Apply joint tape over gypsum board joints and to flanges of trim accessories as recommended by trim accessory manufacturer.

Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.

Level 4 for gypsum board surfaces, unless otherwise indicated.

For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.

APPLYING TEXTURE FINISHES

Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes according to texture finish manufacturer's instructions. Apply primer only to surfaces that are clean, dry, and smooth.

Texture Finish Application: Mix and apply finish to gypsum panels and other surfaces indicated to receive texture finish according to texture finish manufacturer's directions. Using powered spray equipment, produce a uniform texture matching approved mockup and free of starved spots or other evidence of thin application or of application patterns.

Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray as recommended by texture finish manufacturer to prevent damage.

FIELD QUALITY CONTROL

Above-Ceiling Observation: Architect will conduct an above-ceiling observation prior to installation of gypsum board ceilings and report any deficiencies in the Work observed. Do not proceed with installation of gypsum

board to ceiling support framing until deficiencies have been corrected.

Notify Architect one week in advance of the date and the time when the Project, or part of the Project, will be ready for an above-ceiling observation.

Prior to notifying Architect, complete the following in areas to receive gypsum board ceilings:

Installation of 80 percent of lighting fixtures, powered for operation.

Installation, insulation, and leak and pressure testing of water piping systems.

Installation of air duct systems.

Installation of air devices.

Installation of mechanical system control air tubing.

Installation of ceiling support framing.

CLEANING AND PROTECTION

Promptly remove any residual joint compound from adjacent surfaces.

Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure gypsum board assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09255

SECTION 09300 - TILE

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes installation of owner provided and contract provided tile.

This Section includes the following:

Related Sections: The following sections contain requirements that relate to this Section:

Division 2 Section "Selective Demolition" for removal of existing carpet tile.

SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data, including installation instructions, for each type of product specified.

Shop drawings indicating tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordinate them with tile joint locations, in consultation with Architect.

Provide section details, drawn to scale and dimensioned, depicting exact profile of all stone thresholds. Dimensions shall reflect field verification of actual conditions.

Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected.

Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted.

Full-size units of each type of trim and accessory for each color required.

Stone thresholds in 6-inch lengths.

Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

QUALITY ASSURANCE

Single-Source Responsibility for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.

Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.

Preinstallation Conference: Conduct conference at Project site following approval of submittals and prior to tile installation.

Attendees: The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect of scheduled meeting dates (48 hours minimum notice).

Review the preparations for the tile installation including requirements for the following:

Contract Documents
Options
Deliveries
Shop Drawings, Product Data, and quality-control samples
Possible conflicts
Time schedules
Weather limitations
Manufactuer's recommendations
Warranty requirements
Compatibility of materials
Acceptability of substrates
Temporary facilities
Space and access limitations
Governing regulations
Safety
Inspecting and testing requirements
Required performance results
Protection

Record significant discussions and agreements and disagreements of the conference, and the approved schedule. Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.

Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

DELIVERY, STORAGE, AND HANDLING

Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

EXTRA MATERIALS

Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.

Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size.

PART 2 - PRODUCTS

PRODUCTS, GENERAL

Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials compling with the following requirements:

Match color, texture, and pattern indicated by reference to manufacturer's standard designations for these characteristics.

Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show

the same range in colors as those taken from other packages and match approved samples.

TILE MANUFACTURERS

Amerian Olean Product
DAL-TILE

TILE PRODUCTS

Ceramic Mosaic Floor Tile for Restrooms:

1.	Moisture Absorption	0 to 0.5 percent
2.	Size	2" x 2" x 1/8" inch
3.	Shape	square
4.	Edge	cushioned
5.	Surface Finish	slip resistant
6.	Color by Architect	as selected from mfg. full color line
7.	Mounted Sheet Size	12 x 12 inches
8.	Wall Base	2” x 2” x 1/8” inch with cove

Porcelain Ceramic Wall Tile: ANSI A 137.1 conforming to the following:

1.	Moisture Absorption	0 to 0.5
2.	Size	Nominal 4” x 4” x 1/4” modular, for joint alignment with ceramic floor tile
3.	Shape	Square
4.	Edge	All purpose edge
5.	Surface Finish	Glazed as selected

STONE THRESHOLDS

White Marble Thresholds granite used at thresholds shall be equivalent to 'Cashmere White' as produced by Florence Mabrble and Granite. Provide with honed finish in profiles as detailed on drawing. Field verify all measurements and conditions. Prior to fabrication, provide sample for material and finish verification an submit shop drawings of each condition, with profiles drawn at full scale.

SETTING MATERIALS

Provide one of the following manufacturers or equal for thin setting ceramic and mosaic tiles. Color as selected from full range of colors:

1. Jamo
2. Laticrete
3. Bonsal

GROUTING MATERIALS

Provide one of the following manufacturers or equal for grouting ceramic and mosaic tiles. Color as selected from full range of colors:

1. Laticrete
2. Customer Building
3. American Olean

Grout: ANS1 A118.6 Tile Grout, latex additive color as selected.

GROUT SEALER

Silicone Grout Sealer, as manufactured by, TEC Incorporated.

PART 3 - EXECUTION

EXAMINATION

Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

Verify that substrates for setting tile are firm, dry, clean, and acceptable for installation of tile and related work.

INSTALLATION, GENERAL

Installation of all tile work, including but not limited to, setting materials, tile, grout and sealer shall be in strict accordance with the manufacturers' recommendations and the TCA Handbook for Ceramic Tile Installation. Said manufacturers' recommendations, in the form of approval submittals, shall be on-site and available for reference, at all times during the installation.

Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.

Existing building plans do not indicate expansion control joints in existing slab. If discovered during carpet removal, notify Architect, for advisement of revised joint locations in new tile work.

Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile unless otherwise recommended my manufacturer of setting materials.

CLEANING AND PROTECTION

Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

Remove latex-portland cement grout residue from tile as soon as possible.

Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

Sealing: Provide two (2) separate applications of Silicone Grout Sealer in accordance with manufacturer recommendations. Do not proceed with installation of sealer until tile installation is complete and reviewed by Architect. Following application of sealer, clean up per manufacturers' recommendations.

END OF SECTION 09300

SECTION 09512 - ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Ceilings consisting of acoustical tiles and concealed suspension systems.

Related Sections include the following:

Division 9 "Gypsum Board Assemblies."

SUBMITTALS

Product Data: For each type of product specified.

Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:

Ceiling suspension system members.

Method of attaching suspension system hangers to building structure.

Initial direct-access openings.

Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinklers; and special moldings at walls, column penetrations, and other junctures of acoustical ceilings with adjoining construction.

Minimum Drawing Scale: 1/4 inch = 1 foot (1:48).

Samples for Initial Selection: Manufacturer's color charts consisting of actual acoustical tiles or sections of acoustical tiles, suspension systems, and moldings showing the full range of colors, textures, and patterns available for each type of ceiling assembly indicated.

Samples for Verification: Full-size units of each type of ceiling assembly indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.

Full-size samples of each acoustical tile type, pattern, and color.

Set of 12-inch- (300-mm-) long samples of concealed suspension system members.

Set of 12-inch- (300-mm-) long samples of exposed moldings for each color and system type required.

Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

Product Test Reports: Indicate compliance of acoustical tile ceilings and components with requirements based on comprehensive testing of current products.

Research/Evaluation Reports: Evidence of acoustical tile ceiling's and components' compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.

QUALITY ASSURANCE

Installer Qualifications: Engage an experienced installer who has completed acoustical tile ceilings similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

Source Limitations for Ceiling Units: Obtain each acoustical ceiling tile from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

Source Limitations for Suspension System: Obtain each suspension system from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

Obtain both acoustical ceiling tiles and suspension system from the same manufacturer.

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

DELIVERY, STORAGE, AND HANDLING

Deliver acoustical tiles and suspension system components to Project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

Before installing acoustical tiles, permit them to reach room temperature and a stabilized moisture content.

Handle acoustical tiles carefully to avoid chipping edges or damaging units in any way.

PROJECT CONDITIONS

Environmental Limitations: Do not install acoustical tile ceilings until spaces are enclosed and weatherproof, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

COORDINATION

Coordinate layout and installation of acoustical tiles and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

EXTRA MATERIALS

Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

Acoustical Ceiling Units: Full-size units equal to 2.0 percent of amount installed.

Suspension System Components: Quantity of each grid and exposed component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

MANUFACTURERS

Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated for each designation in the Acoustical Tile Ceiling Schedule at the end of Part 3.

ACOUSTICAL TILES, GENERAL

Acoustical Tile Standard: Provide manufacturer's standard tiles of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.

Mounting Method for Measuring Noise Reduction Coefficient: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface per ASTM E 795.

Acoustical Tile Colors and Patterns: Match appearance characteristics indicated for each product type.

Where appearance characteristics of acoustical tiles are indicated by referencing ASTM E 1264 pattern designations and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range of products that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

Tile Characteristics: Comply with requirements indicated in the Acoustical Tile Ceiling Schedule at the end of Part 3, including those referencing ASTM E 1264 classifications.

METAL SUSPENSION SYSTEMS, GENERAL

Metal Suspension System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.

Metal Suspension System Characteristics: Comply with requirements indicated in the Acoustical Panel Ceiling Schedule at the end of Part 3.

Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.

High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.

Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung, unless otherwise indicated.

Postinstalled Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:

Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, Direct Hung) will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

Angle Hangers: Angles with legs not less than 7/8 inch (22 mm) wide; formed with 0.04-inch- (1-mm-) thick, galvanized steel sheet complying with ASTM A 653/A 653M, G90 (Z275) coating designation; with bolted connections and 5/16-inch- (8-mm-) diameter bolts.

Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical tile edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.

For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

Extruded-Aluminum Edge Moldings and Trim: Where indicated, provide manufacturer's extruded-aluminum edge moldings and trim of profile indicated or referenced by manufacturer's product designations, including splice plates, corner pieces, and attachment and other clips, complying with the following requirements:

Aluminum Alloy: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of aluminum extrusions complying with ASTM B 221/B 221M for alloy and temper 6063-T5.

Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.

Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Comply with paint manufacturer's written instructions for applying and baking and for minimum dry film thickness.

Organic Coating: Manufacturer's standard thermosetting coating system with a minimum dry film thickness of 0.8 to 1.2 mils (0.02 to 0.03 mm).

Color: As selected by Architect from manufacturer's standard colors.

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:

Armstrong World Industries, Inc.
Celotex Corporation (The); Building Products Division; Architectural Ceilings Marketing Dept.

Chicago Metallic Corporation.
Fry Reglet Corporation.

PART 3 - EXECUTION

EXAMINATION

Examine substrates and structural framing to which acoustical tile ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage, and other conditions affecting performance of acoustical tile ceilings.

Proceed with installation only after unsatisfactory conditions have been corrected.

PREPARATION

Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other Sections.

Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordinating other work.

Testing Substrates: Before installing adhesively applied tiles on wet-placed substrates such as cast-in-place concrete or plaster, test and verify that moisture level is below tile manufacturer's recommended limits.

Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width units at borders, and comply with layout shown on reflected ceiling plans.

INSTALLATION

General: Install acoustical tile ceilings to comply with publications referenced below per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

Standard for Ceiling Suspension System Installations: Comply with ASTM C 636.

Standard for Ceiling Suspension Systems Requiring Seismic Restraint: Comply with ASTM E 580.

CISCA's Recommendations for Acoustical Ceilings: Comply with CISCA's "Recommendations for Direct-Hung Acoustical Tile and Lay-in Panel Ceilings--Seismic Zones 0-2."

CISCA's Guidelines for Systems Requiring Seismic Restraint: Comply with CISCA's "Guidelines for Seismic Restraint of Direct-Hung Suspended Ceiling Assemblies--Seismic Zones 3 & 4."

U.B.C.'s "Metal Suspension Systems for Acoustical Tile and for Lay-in Panel Ceilings": U.B.C. Standard 25-2.

Suspend ceiling hangers from building's structural members and as follows:

Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure; that are appropriate for substrate; and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both structure to which hangers are attached and type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.

Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, powder-actuated fasteners, or drilled-in anchors that extend through forms into concrete.

Do not attach hangers to steel deck tabs.

Do not attach hangers to steel roof deck. Attach hangers to structural members.

Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers, unless otherwise indicated; and provide hangers not more than 8 inches (200 mm) from ends of each member.

Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

Install edge moldings and trim of type indicated at perimeter of acoustical tile ceiling area and where necessary to conceal edges of acoustical units.

Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3 mm in 3.6 m). Miter corners accurately and connect securely.

Do not use exposed fasteners, including pop rivets, on moldings and trim.

Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

Arrange directionally patterned acoustical tiles as follows:

As indicated on reflected ceiling plans.

Install tiles with pattern running in one direction parallel to long axis of space.

Install tiles with pattern running in one direction parallel to short axis of space.

Install tiles in a basket-weave pattern.

Install acoustical tiles in coordination with suspension system and exposed moldings and trim. Place splines or suspension system flanges into kerfed edges so tile-to-tile joints are closed by double lap of material.

Fit adjoining tile to form flush, tight joints. Scribe and cut tile for accurate fit at borders and around penetrations through tile.

Hold tile field in compression by inserting leaf-type, spring-steel spacers between tile and moldings, spaced 12 inches (305 mm) o.c.

Fabricate access units for special suspension system access members and tile units modified as required to allow for removal of access units.

Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.

CLEANING

Clean exposed surfaces of acoustical tile ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace tiles and other ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

Products: Similar to Armstrong Georgian 764 and 763 as indicated in drawings.
Similar to Armstrong Georgian 898 (for corridor only) UL P265.

Light Reflectance Coefficient: Not less than [LR 0.65.]

Ceiling Tile Schedule

Type: Georgian (Armstrong) or equal

Noise Reduction Coefficient: [NRC 0.65.]

Thickness: [3/4 inch (19 mm).]

Size: 24" x 48"
24” x 24” as indicated on drawings

Suspension System for Acoustical Tile Ceiling: Where this designation is indicated, provide acoustical tile ceiling suspension system complying with the following:

Products: Similar to Armstrong Prelude Plus XL.

Direct-Hung, Double-Web Suspension System: Main and cross runners roll formed from and capped with cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, G01 (Z001) coating designation; other characteristics as follows:

Structural Classification: Intermediate-duty system.

END OF SECTION 09512

SECTION 09651 - RESILIENT TILE FLOORING

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Vinyl composition floor tile.

Resilient wall base and accessories.

Related Sections include the following:

SUBMITTALS

Product Data: For each type of product specified.

Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors and patterns available for each type of product indicated.

Samples for Verification: Full-size tiles of each different color and pattern of resilient floor tile specified, showing the full range of variations expected in these characteristics.

For resilient accessories, manufacturer's standard-size samples, but not less than 12 inches (300 mm) long, of each resilient accessory color and pattern specified.

Product Certificates: Signed by manufacturers of resilient products certifying that each product furnished complies with requirements.

Maintenance Data: For resilient floor tile to include in the maintenance manuals specified in Division 1.

QUALITY ASSURANCE

Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing resilient products similar to those required for this Project and with a record of successful in-service performance.

Source Limitations: Obtain each type, color, and pattern of product specified from one source with resources to provide products of consistent quality in appearance and physical properties without delaying the Work.

Fire-Test-Response Characteristics: Provide products with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction.

Critical Radiant Flux: 0.45 W/sq. cm or greater when tested per ASTM E 648.

Smoke Density: Maximum specific optical density of 450 or less when tested per ASTM E 662.

DELIVERY, STORAGE, AND HANDLING

Deliver products to Project site in manufacturer's original, unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

Store products in dry spaces protected from the weather, with ambient temperatures maintained between 50 and 90 deg F (10 and 32 deg C).

Store tiles on flat surfaces.

Move products into spaces where they will be installed at least 48 hours before installation, unless longer conditioning period is recommended in writing by manufacturer.

PROJECT CONDITIONS

Maintain a temperature of not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C) in spaces to receive products for at least 48 hours before installation, during installation, and for at least 48 hours after installation, unless manufacturer's written recommendations specify longer time periods. After postinstallation period, maintain a temperature of not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).

Do not install products until they are at the same temperature as the space where they are to be installed.

Close spaces to traffic during flooring installation and for time period after installation recommended in writing by manufacturer.

Install tiles and accessories after other finishing operations, including painting, have been completed.

Where demountable partitions and other items are indicated for installation on top of resilient tile flooring, install tile before these items are installed.

Do not install flooring over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive, as determined by flooring manufacturer's recommended bond and moisture test.

EXTRA MATERIALS

Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

Furnish not less than one box for each 50 boxes or fraction thereof, of each type, color, pattern, class, wearing surface, and size of resilient tile flooring installed.

Furnish not less than 10 linear feet (3 linear m) for each 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient accessory installed.

Deliver extra materials to Owner.

PART 2 - PRODUCTS

MANUFACTURERS

Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated in the Resilient Tile Flooring Schedule at the end of Part 3.

RESILIENT TILE

Vinyl Composition Floor Tile: Products complying with ASTM F 1066 and with requirements specified in the Resilient Tile Flooring Schedule.

RESILIENT ACCESSORIES

Vinyl Wall Base: Products complying with FS SS-W-40, Type II and with requirements specified in the Resilient Tile Flooring Schedule.

INSTALLATION ACCESSORIES

Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by flooring manufacturer for applications indicated.

Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

EXAMINATION

Examine substrates, areas, and conditions where installation of resilient products will occur, with Installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for resilient product installation and comply with requirements specified.

Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:

Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by flooring manufacturer.

Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving resilient flooring.

Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.

For wood subfloors, verify the following:

Underlayment over subfloor complies with requirements specified in Division 6 Section "Rough

Carpentry."

Underlayment surface is free of irregularities and substances that may interfere with adhesive bond, show through surface, or stain flooring.

Do not proceed with installation until unsatisfactory conditions have been corrected.

PREPARATION

General: Comply with resilient product manufacturer's written installation instructions for preparing substrates indicated to receive resilient products.

Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.

Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

Broom and vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Do not proceed with installation until unsatisfactory conditions have been corrected.

TILE INSTALLATION

General: Comply with tile manufacturer's written installation instructions.

Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half of a tile at perimeter.

Lay tiles square with room axis, unless otherwise indicated.

Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Cut tiles neatly around all fixtures. Discard broken, cracked, chipped, or deformed tiles.

Lay tiles with grain running in one direction.

Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures, including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.

Extend tiles into toe spaces, door reveals, closets, and similar openings.

Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent, nonstaining marking device.

Install tiles on covers for telephone and electrical ducts, and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on covers. Tightly adhere edges to perimeter of floor around covers and to covers.

Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to comply with tile manufacturer's written instructions, including those for trowel notching, adhesive mixing, and adhesive open and working times.

Provide completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

Hand roll tiles according to tile manufacturer's written instructions.

RESILIENT ACCESSORY INSTALLATION

General: Install resilient accessories according to manufacturer's written installation instructions.

Apply resilient wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

Do not stretch base during installation.

On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

Form outside corners on job from straight pieces of maximum lengths possible, without whitening at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.

Form inside corners on job, from straight pieces of maximum lengths possible, by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.

Place resilient accessories so they are butted to adjacent materials and bond to substrates with adhesive. Install reducer strips at edges of flooring that would otherwise be exposed.

Apply resilient products to stairs as indicated and according to manufacturer's written installation instructions.

CLEANING AND PROTECTING

Perform the following operations immediately after installing resilient products:

Remove adhesive and other surface blemishes using cleaner recommended by resilient product manufacturers.

Sweep or vacuum floor thoroughly.

Do not wash floor until after time period recommended by flooring manufacturer.

Damp-mop floor to remove marks and soil.

Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by flooring manufacturer.

Apply protective floor polish to floor surfaces that are free from soil, visible adhesive, and surface blemishes, if recommended in writing by manufacturer.

Use commercially available product acceptable to flooring manufacturer.

Coordinate selection of floor polish with Owner's maintenance service.

Cover products installed on floor surfaces with undyed, untreated building paper until inspection for Substantial Completion.

Do not move heavy and sharp objects directly over floor surfaces. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

Clean floor surfaces not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products according to manufacturer's written recommendations.

Before cleaning, strip protective floor polish that was applied after completing installation only if required to restore polish finish and if recommended by flooring manufacturer.

After cleaning, reapply polish to floor surfaces to restore protective floor finish according to flooring manufacturer's written recommendations. Coordinate with Owner's maintenance program.

RESILIENT TILE FLOORING SCHEDULE

Size: 12 by 12 inches (304.8 by 304.8 mm).

Vinyl Composition Tile VCT: Where this designation is indicated, provide vinyl composition floor tile complying with the following:

Armstrong
Tarkett

Color and Pattern: As selected by Architect from manufacturer's full range of colors and patterns produced for tile complying with requirements indicated.

Wearing Surface: Smooth.

Thickness: 1/8 inch (3.2 mm).

Size: 12 by 12 inches

Vinyl Wall Base VWB: Where this designation is indicated, provide vinyl wall base complying with the following:

Armstrong
Roppe
Mercer

Color and Pattern: As selected by Architect from manufacturer's full range of colors and patterns produced for vinyl wall base complying with requirements indicated.

Style: Cove with top-set toe.

Minimum Thickness: 1/8 inch (3.2 mm).

Height: 4 inches (101.6 mm).

Lengths: Coils in lengths standard with manufacturer, but not less than 96 feet (29.26 m).

Outside Corners: Job formed.

Inside Corners: Formed on job.

Surface: Smooth.

Vinyl Accessory Molding: Where this designation is indicated, provide vinyl accessory molding complying with the following:

Armstrong
Roppe
Mercer

Color: As selected by Architect from manufacturer's full range of colors produced for vinyl accessory molding complying with requirements indicated.

Product Description: For all applicable locations, see Finish Schedule. Cap for cove vinyl sheet floor covering. Carpet bar for tackless installations. Carpet edge for glue-down applications. Carpet nosing. Nosing for resilient floor covering. Reducer strip for resilient flooring.

Profile and Dimensions: Manufacturer’s standard product.

END OF SECTION 09651

SECTION 09900 - PAINTING

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

SUMMARY

This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces.

Surface preparation, priming, and finish coats specified in this section are in addition to shop priming and surface treatment specified under other sections.

Paint exposed surfaces whether or not colors are designated in "schedules," except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.

Painting includes field painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.

Prefinished items not to be painted include the following factory-finished components:

Finished mechanical and electrical equipment.
Light fixtures.
Switchgear.
Distribution cabinets.

Concealed surfaces not to be painted include wall or ceiling surfaces in the following generally inaccessible areas:

Foundation spaces.
Furred areas.
Utility tunnels.
Pipe spaces.
Duct shafts.
Elevator shafts.

Finished metal surfaces not to be painted include:

Anodized aluminum.
Stainless steel.
Chromium plate.
Copper.

Bronze.
Brass.
Operating parts not to be painted include moving parts of operating equipment such as the following:

Valve and damper operators.
Linkages.
Sensing devices.
Motor and fan shafts.

Labels: Do not paint over Underwriter's Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

Related Sections: The following sections contain requirements that relate to this section:

Division 5 Section "Structural Steel" for shop priming structural steel.

Division 5 Section "Metal Fabrications" for shop priming ferrous metal.

Division 8 Section "Steel Doors and Frames" for shop priming steel doors and frames.

DEFINITIONS

"Paint" includes coating systems materials, primers, emulsion, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

SUBMITTALS

Product Data: Manufacturer's technical information, label analysis, and application instructions for each material proposed for use.

List each material and cross-reference the specific coating and finish system and application. Identify each material by the manufacturer's catalog number and general classification.

Samples for initial color selection in the form of manufacturer's color charts.

Samples for verification purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate. Define each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.

Provide a list of material and application for each coat of each sample. Label each sample as to location and application.

QUALITY ASSURANCE

Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

Notify the Architect of problems anticipated using the materials specified.

Field Samples: On wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full- coat finish samples on at least 100 sq. ft. of surface until required sheen, color and texture are obtained; simulate finished lighting conditions for review of in-place work.

Final acceptance of colors will be from job-applied samples.

Material Quality: Provide the manufacturer's best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

Used to designate colors or materials are not intended to imply that products named are required or to exclude equal products of other manufacturers.

DELIVERY, STORAGE, AND HANDLING

Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:

Product name or title of material.
Product description (generic classification or binder type).
Federal Specification number, if applicable.
Manufacturer's stock number and date of manufacture.
Contents by volume, for pigment and vehicle constituents.
Thinning instructions.
Application instructions.
Color name and number.

Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.

Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

JOB CONDITIONS

Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).

Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).

Do not apply paint in snow, rain, fog, or mist, when the relative humidity exceeds 85 percent, at temperatures less than 5 deg F (3 deg C) above the dew point, or to damp or wet surfaces.

Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include but are not limited to the following:

ICI
Benjamin Moore and Co. (Moore).
PPG Industries, Pittsburgh Paints (Pittsburgh).
Pratt and Lambert (P & L).
The Sherwin-Williams Company (S-W).
Porter Paints, Division PPG Architectual Finishes

MASONRY BLOCK FILLER

High-Performance Latex Block Filler: Heavy-duty latex block fillers used for filling open textured interior and exterior concrete masonry block before application of top coats:

Porter:	6223 Promaster 2000 Latex Block Filler.
ICI	3010 Ultra-Hide Filler 5317.
Moore:	Super Craft 285.
Pittsburgh:	6-7 Latex Masonry Block Filler.
P & L:	Pro-Hide Plus Block Filler.
S-W:	Preprite Block Filler B-25.

PRIMERS

Interior Flat Latex-Based Paint: Flat latex paint used as a primer over concrete and masonry under alkyd flat and semigloss enamel:

Porter:	335 Acri-Pro 100 Acryric Primer.
ICI	3210 Gripper UH250.
Moore:	Fresh Start 023.
Pittsburgh:	Seal Grip Primer 17-21.
P & L:	Vapex Latex Flat Wall Finish.
S-W:	PrePite Pro Block Latex B5.

Synthetic, Rust-Inhibiting Primer: Quick-drying, rust-inhibiting primer for priming ferrous metal on the exterior under full-gloss and flat alkyd enamel and on the interior under flat latex paint or odorless alkyd semigloss or alkyd gloss enamels:

Porter:	272/276 Alkyd Metal Primer.
ICI	Devguard 4100 Primer.
Moore:	M06 Alkyd Red Primer.
Pittsburgh:	Speedhide Primer Rust-INH 6-212, 6-208.
P & L:	Effecto Rust-Inhibiting Primer.
S-W:	Kem Kromik Metal Primer B50N2/B50W1.

Galvanized Metal Primer: Primer used to prime interior and exterior zinc-coated (galvanized) metal surfaces:

Porter:	290 Galvanized Primer.
ICI	Devuard 4120 Primer.
Moore:	M04 Metal Primer.
Pittsburgh:	Speedhide Galvanized Primer 6-209.
S-W:	Galvite B50W230.

UNDERCOAT MATERIALS

Interior Enamel Undercoat: Ready-mixed enamel for use on the interior as an undercoat over a primer on concrete or masonry under an odorless semigloss enamel:

Porter:	6064 Fast Dry Enamel Undercoat.
ICI	1120 Ultra-Hide Alkyd Undercoater.
Moore:	Super Spec 245.
Pittsburgh:	6-6 Speedhide Quick-Dry Enamel Undercoater.
P & L:	E6 Enamel Undercoater.
S-W:	Preprite Wall & Wood B49W42.

Interior Enamel Undercoat: Ready-mixed enamel for use on the interior as an undercoat over a primer on filled concrete masonry under an odorless semigloss enamel finish:

Porter:	6064 Fast Dry Enamel Undercoat.
ICI	1120 Ultra-Hide Alkyd Undercoater.
Moore:	Super Spec 245.
Pittsburgh:	6-6 Speedhide Quick-Dry Enamel Undercoater.
P & L:	E6 Enamel Undercoater.
S-W:	Preprite Wall & Wood B49W42.

Interior Enamel Undercoat: Ready-mixed enamel for use as an undercoat over a primer on ferrous or zinc-coated metal under an interior alkyd semigloss enamel or a full-gloss alkyd enamel:

Porter:	Porter 215 Dim Acrylic Primer.
ICI:	608 Devflex DTM Primer.
Moore:	M04 Acrylic Primer.
Pittsburgh:	90-712 Pitt-Tech Acrylic Primer.
P & L:	Interior Trim Primer.
S-W:	Pro-Mar 200 Alkyd Enamel Undercoater B49W200.

EXTERIOR FINISH PAINT MATERIAL

Exterior Acrylic Emulsion: Quick-drying, flat, acrylic paint for use on the exterior over concrete, stucco, masonry (including concrete masonry block), and mineral-fiber-reinforced cement-panel surfaces:

Porter:	739 Acri-Shield Satin Acrylic.
ICI:	Dulux Satin 2403.
Moore:	Moore's Flat Exterior Latex Masonry & House Paint #103 Satin.
Pittsburgh:	Sun roof Satin 76-45.
P & L:	Vapex Latex Flat House Paint.
S-W:	Super Paint Satin A89 W507.

D.T.M. Gloss Enamel: Weather-resistant high-gloss enamel for use over primed, zinc-coated (galvanized) metal surfaces and aluminum:

Porter:	2909 D.T.M. Gloss Acrylic.
ICI:	Devflex 4218 D.I.M. Gloss.
Moore:	M28 D.T.M. Gloss.
Pittsburgh:	Pitt-Tech 90-374 D.T.M. Gloss.
P & L:	Effecto Enamel.
S-W:	B66W100 DTM Acrylic.

INTERIOR FINISH PAINT MATERIAL

Interior Semigloss Odorless Alkyd Enamel: Low-odor, semigloss, alkyd enamel for use over a primer and undercoat on concrete, masonry (including concrete masonry block), plaster, wood, and hardboard and both ferrous and zinc-coated (galvanized) metal surfaces and over a primer on gypsum drywall:

Porter:	149 Alkyd Seim-Gloss Enamel.
ICI:	1516 Ultra-Hide Alkyd Semi-Gloss.
Moore:	271 Super Spec.
Pittsburgh:	6-1110 Speed Hide Oil Semi-Gloss.
P & L:	Cellu-Tone Alkyd Satin Enamel.
S-W:	B34W201 Promar 200.

Exterior Acrylic Gloss Enamel for use over a primer and undercoat on interior plaster surfaces, wood, and hardboard and ferrous and zinc-coated metal surfaces:

Porter:	909 Acrylic Gloss Enamel.
ICI:	Devflex 4308 Gloss.
Moore:	309 Impervex.
Pittsburgh:	51-45 Brilliant Replections Gloss.
P & L:	Effecto Enamel.
S-W:	B21 Proclassic Gloss.

PART 3 - EXECUTION

EXAMINATION

Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected.

Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

PREPARATION

General Procedures: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.

Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates primed by others.

Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

Use abrasive blast-cleaning methods if recommended by the paint manufacturer.

Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

Ferrous Metals: Clean nongalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.

Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.

Galvanized Surfaces: Clean galvanized surfaces with non- petroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

Materials Preparation: Carefully mix and prepare paint materials in accordance with manufacturer's directions.

Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.

Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

Use only thinners approved by the paint manufacturer, and only within recommended limits.

APPLICATION

Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

Paint colors, surface treatments, and finishes are indicated in "schedules."

Provide finish coats that are compatible with primers used.

The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.

Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.

The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas as required to maintain the system integrity and provide desired protection.

Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.

Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

Finish exterior doors on tops, bottoms, and side edges same as exterior faces.

Sand lightly between each succeeding enamel or varnish coat.

Omit primer on metal surfaces that have been shop-primed and touch up painted.

Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure and where application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

Mechanical and Electrical Work: Painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.

Mechanical items to be painted include but are not limited to:

Piping, pipe hangers, and supports.
Heat exchangers.
Tanks.
Ductwork.
Insulation.
Supports.

Motors and mechanical equipment.
Accessory items.

Electrical items to be painted include but are not limited to:

Switch gear.

Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

Prime Coats: Before application of finish coats, apply a prime coat of material as recommended by the manufacturer to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.

Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

FIELD QUALITY CONTROL

The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:

The Owner will engage the services of an independent testing laboratory to sample the paint material being used. Samples of material delivered to the project will be taken, identified, sealed, and certified in the presence of the Contractor.

The testing laboratory will perform appropriate tests for the following characteristics as required by the Owner:

Quantitative materials analysis.
Abrasion resistance.
Apparent reflectivity.
Flexibility.
Washability.
Absorption.
Accelerated weathering.
Dry opacity.
Accelerated yellowness.
Recoating.
Skinning.
Color retention.
Alkali and mildew resistance.

If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are noncompatible.

CLEANING

Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

Upon completion of painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.

PROTECTION

Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

EXTERIOR PAINT SCHEDULE

General: Provide the following paint systems for the various substrates indicated (coordinate locations with architect).

Concrete, Stucco, and Masonry (Other than concrete masonry units):

Lusterless (Flat) Acrylic Finish: 2 coats with total dry film thickness not less than 2.5 mils.

First Coat: Exterior Acrylic Emulsion. Porter 739 Acri-Shield Satin Acrylic.
Second Coat: Exterior Acrylic Emulsion. Porter 739 Acri-Shield Satin Acrylic.

Concrete Masonry Units:

Lusterless (Flat) Acrylic Finish: 2 coats over block filler with total dry film thickness not less than 2.5 mils, excluding the block filler.

Block Filler: High-Performance Latex Block Filler. Porter 6223 Block Filler
First Coat: Exterior Acrylic Emulsion. Porter 739 Acri-Shield Satin Acrylic.
Second Coat: Exterior Acrylic Emulsion. Porter 739 Acri-Shield Satin Acrylic.

Mineral-Fiber-Reinforced Cement Panels:

Ferrous Metal: Primer is not required on shop-primed items.

Deep Color, High-Gloss Alkyd Trim Enamel: Two coats over primer.

Primer: Alkyd-Type Zinc Chromate Primer. Porter 272/276 Alkyd Metal Primer.
First Coat: Deep Color Alkyd Resin Exterior Trim Paint. Porter 2909 D.T.M. Gloss Acrylic.
Second Coat: Deep Color Acrylic Exterior Trim Paint. Porter 2909 D.T.M. Gloss Acrylic.

Zinc-Coated Metal:

High-Gloss D.T.M. Enamel: 2 finish coats over primer.

Primer: Galvanized Metal Primer. Porter 290 Galvanized Primer.
First Coat: D.T.M. Gloss Enamel. Porter 2909 D.T.M. Gloss Acrylic.
Second Coat: D.T.M. Gloss Enamel. Porter 2909 D.T.M. Gloss Acrylic.

INTERIOR PAINT SCHEDULE

General: Provide the following paint systems for the various substrates, as indicated.

Concrete and Masonry (Other than concrete masonry units) Gypsum Board:

Semigloss Enamel Finish: 3 coats with total dry film thickness not less than 3.5 mils.

Primer: Latex-Based Interior Flat Paint. Porter 335 Acri-Pro Primer.
Undercoat: Interior Enamel Undercoat. Porter 6064 Fast Dry Enamel Undercoat.
Finish Coat: Interior Semigloss Odorless Alkyd Enamel. Porter 149 Alkyd Semi-Gloss.

Concrete Masonry Units:

Semigloss Alkyd Enamel Finish: 2 coats over filled surface with total dry film thickness not less than 3.5 mils, excluding filler coat.

Block Filler: High-Performance Latex Block Filler. Porter 6223 Latex Blockfiller.
Undercoat: Interior Enamel Undercoat. Porter 6064 Fast Dry Enamel Undercoat.
Finish Coat: Interior Semigloss Odorless Alkyd Enamel. Porter 149 Alkyd Semi-Gloss.

Ferrous Metal:

Full-Gloss Enamel Finish: 2 coats over primer with total dry film thickness not less than 2.5 mils.

Primer: Synthetic Rust-Inhibiting Primer. Porter 272/276 Alkyd Metal Primer.
Undercoat: Interior D.T.M. Undercoat. Porter 215 D.T.M. Acrylic Primer.
Finish Coat: Exterior D.T.M. Gloss Enamel. Porter 2909 D.T.M. Gloss Acrylic Enamel.

Zinc-Coated Metal:

Full-Gloss Enamel Finish: 2 coats over primer with total dry film thickness not less than 2.5 mils.
Primer: Galvanized Metal Primer. Porter 290 Galvanized Metal
Undercoat: Interior D.T.M. Undercoat. Porter 215 D.T.M. Acrylic Primer.
Finish Coat: Exterior D.T.M. Gloss Enamel. Porter 2909 D.T.M. Gloss Acrylic Enamel.

END OF SECTION 09900

SECTION 10155 - TOILET COMPARTMENTS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes toilet compartments and screens as follows:

Compartment Type: Solid-plastic, core.

Vanity Top: Solid-plastic, Core.

Compartment Style: Floor anchored.

Screen Style: Floor anchored.

Related Sections include the following:

Division 5 Section "Metal Fabrications" for supports that attach units to overhead structural system.

Division 10 "Toilet and Bath Accessories" for toilet paper holders, grab bars, purse shelves, and similar accessories.

SUBMITTALS

Product Data: For each type and style of toilet compartment and screen specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.

Shop Drawings: For fabrication and installation of toilet compartment and screen assemblies. Include plans, elevations, sections, details, and attachments to other work.

Show locations of reinforcement and cutouts for compartment-mounted toilet accessories.

Samples for Initial Selection: Manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment or screen indicated.

Samples for Verification: Of each compartment or screen color and finish required, prepared on 6-inch-(150-mm-) square Samples of same thickness and material indicated for Work.

PROJECT CONDITIONS

Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating units without field measurements. Coordinate supports, adjacent construction, and fixture locations to ensure actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

MANUFACTURERS

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:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Bobrick Washroom Equipment, Inc.
Santana Products, Inc.

MATERIALS

General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are unacceptable.

Solid-Plastic Panels and Vanity Tops (as indicated on drawings: Solid plastic HDPE with colors that extend throughout the surface. Provide units with eased edges and with minimum 3/4-inch- (19-mm-) thick doors and pilasters and minimum 1/2-inch- (13-mm-) thick panels and screens. Provide manufacture standard colors.

Pilaster Shoes and Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.0312 inch (0.8 mm) thick and 3 inches (75 mm) high, finished to match hardware.

For solid-plastic, in lieu of stainless-steel pilaster shoes and sleeves, manufacturer's standard plastic pilaster shoes and sleeves may be provided.

Stirrup Brackets: Manufacturer's standard ear or U-brackets for attaching panels and screens to walls and pilasters of the following material:

Material: Stainless steel.

Full-Height (Continuous) Brackets: Manufacturer's standard design for attaching panels and screens to walls and pilasters of the following material:

Material: Stainless steel.

Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories of the following material:

Material: Stainless steel.

Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile in manufacturer's standard finish.

Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum strip in manufacturer's standard finish.

Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

FABRICATION

General: Provide standard doors, panels, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware, accessories, and grab bars, as indicated.

Provide internal reinforcement in metal units for compartment-mounted hardware, accessories, and grab bars, as indicated.

Solid-Plastic, Polymer-Resin Compartments and Screens: Provide aluminum heat-sink strips at exposed bottom edges of HDPE units to prevent burning.

Floor-Anchored Compartments: Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.

Provide manufacturer's standard 4-inch- (100-mm-) high, overhead cross bracing.

Wall-Hung Screens: Provide units in sizes indicated of same construction and finish as compartment panels, unless otherwise indicated.

Floor-Anchored Screens: Provide pilasters and panels of same construction and finish as toilet compartments. Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.

Doors: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments indicated to be handicapped accessible.

Hinges: Manufacturer's standard self-closing type that can be adjusted to hold door open at any angle up to 90 degrees.

Latch and Keeper: Manufacturer's standard surface-mounted latch unit with combination rubber-faced door strike and keeper designed for emergency access. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicapped accessible.

Door Bumper: Manufacturer's standard rubber-tipped bumpers at out-swinging doors or entrance screen doors.

Door Pull: Manufacturer's standard unit that complies with accessibility requirements of authorities having jurisdiction at out-swinging doors. Provide units on both sides of doors at compartments indicated to be handicapped accessible.

PART 3 - EXECUTION

INSTALLATION

General: Comply with manufacturer's written installation instructions. Install units rigid, straight, plumb, and level. Provide clearances of not more than 1/2 inch (13 mm) between pilasters and panels and not more than 1 inch (25 mm) between panels and walls. Secure units in position with manufacturer's recommended anchoring devices.

Secure panels to walls and panels with not less than 2 stirrup brackets attached near top and bottom of panel. Locate wall brackets so holes for wall anchors occur in masonry or tile joints. Align brackets at pilasters with brackets at walls.

Floor-Anchored Compartments: Set pilaster units with anchors penetrating not less than 2 inches (50 mm) into structural floor, unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.

Screens: Attach with anchoring devices according to manufacturer's written instructions and to suit supporting structure. Set units level and plumb and to resist lateral impact.

ADJUSTING AND CLEANING

Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and swing doors in entrance screens to return to fully closed position.

Provide final protection and maintain conditions that ensure toilet compartments and screens are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10155

SECTION 10425 - SIGNS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following types of signs:

Panel signs. For typical rooms, ADA compliant.

Panel signs for H/C restroom and facility.

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

SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.

Shop drawings showing fabrication and erection of signs. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, layout, reinforcement, accessories, and installation details.

Provide message list for each sign required, including large-scale details of wording and lettering layout.

For signs supported by or anchored to permanent construction, provide setting drawings, templates, and directions for installation of anchor bolts and other anchors to be installed as a unit of Work in other Sections.

Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.

QUALITY ASSURANCE

Sign Fabricator Qualifications: Firm experienced in producing signs similar to those indicated for this Project, with a record of successful in-service performance, and sufficient production capacity to produce sign units required without causing delay in the Work.

Single-Source Responsibility: For sign type required, obtain signs from one source of a single manufacturer.

PROJECT CONDITIONS

Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

Manufacturers of Panel Signs:

Masterwork Studios
APCO Graphics, Inc.
Mohawk Sign Systems.

MATERIALS

Plastic Laminate: Provide high-pressure plastic laminate engraving stock with face and core plies in contrasting colors, in finishes and color combinations indicated or, if not indicated, as selected from the manufacturer's standards.

Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to the sign material and mounting surface.

Anchors and Inserts: Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

Colored Coatings for Acrylic Plastic Sheet: Use colored coatings, including inks and paints for copy and background colors, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are nonfading for the application intended.

PANEL SIGNS

Tactile Signs: Provide message having raised 1/32” high figures. Solid color acrylic plastic 025 inch thick with ½” radius corners; raised letters with contrasting color. Characters formed to Helvetica style.

All ADA compliant signs to be equivalent to Romark Ultra Matte laminated to ¼” styrene substrate with ½” radius corners. Colors as selected. All ADA signs to have 1/32” raised tactile text and Grade II Braille.

ADA Room Signs to have minimum 5/8” text. Room names to be taken from room finish schedule.

Handicap Restroom Signs, provide Pictograms to be men or women or unisex and provide at all universal handicap symbols as required.

PART 3 - EXECUTION

INSTALLATION

General: Locate sign units and accessories at ADA height requirements and on latch side of doors or as directed by Architect, using methods of type described and in compliance with the manufacturer's instructions, unless otherwise indicated.

Install sign units level, plumb and at the height indicated with sign surfaces free from distortion or other defects of appearance.

Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using the methods indicated below:

Vinyl-Tape Mounting: Use double-sided foam tape to mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.

Silicone-Adhesive Mounting: Use liquid silicone adhesive recommended by the sign manufacturer to attach sign units to irregular, porous, or vinyl-covered surfaces. Use double-sided vinyl tape where recommended by the sign manufacturer to hold the sign in place until the adhesive has fully cured.

Shim Plate Mounting: Provide 1/8-inch-thick concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other mounting methods are not practicable. Attach the plate with fasteners and anchors suitable for secure attachment to the substrate. Attach panel sign units to the plate using the method specified above.

CLEANING AND PROTECTION

After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION 10425

SECTION 10520 - FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Portable fire extinguishers.

Fire-protection cabinets for the following:

Portable fire extinguishers.

Related Sections include the following:

Division 9 Section "Painting" for field-painting fire-protection cabinets.

Division 10 Section "Signs" for directional signage to out-of-sight fire extinguishers and cabinets.

SUBMITTALS

Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.

Fire Extinguishers: Include rating and classification.

Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.

Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of cabinet finish indicated.

Samples for Verification: For each type of exposed cabinet finish required, prepared on Samples of size indicated below and of same thickness and material indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

Size: 6-by-6-inch- (150-by-150-mm-) square Samples.

QUALITY ASSURANCE

Source Limitations: Obtain fire extinguishers and cabinets through one source from a single manufacturer.

NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."

Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

Provide extinguishers listed and labeled by FM.

COORDINATION

Coordinate size of cabinets to ensure that type and capacity of fire extinguishers indicated and provided by Owner under separate Contract are accommodated.

Coordinate size of cabinets to ensure that type and capacity of hoses, hose valves, and hose racks indicated are accommodated.

PART 2 - PRODUCTS

MANUFACTURERS

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:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Portable Fire Extinguishers:

Larsen's Manufacturing Company.

Fire-Protection Cabinets:

Larsen's Manufacturing Company.

Available Products: Subject to compliance with requirements, provide one of the products indicated for each designation in the Fire-Protection Cabinet Schedule at the end of Part 3.

MATERIALS

Cold-Rolled Steel Sheet: Carbon steel, complying with ASTM A 366/A 366M, commercial quality, stretcher leveled, temper rolled.

PORTABLE FIRE EXTINGUISHERS

General: Provide fire extinguishers of type, size, and capacity for each cabinet and other locations indicated.

Multipurpose Dry-Chemical Type: UL-rated 4-A:60-B:C, 10-lb (4.5-kg) nominal capacity, in enameled-steel container.

FIRE-PROTECTION CABINETS

Cabinet Construction: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.

Fire-Rated Cabinets: Listed and labeled to meet requirements of ASTM E 814 for fire-resistance rating of wall where it is installed.

Construct fire-rated cabinets with double walls fabricated from 0.0478-inch- (1.2-mm-) thick, cold-rolled steel sheet lined with minimum 5/8-inch- (16-mm-) thick, fire-barrier material.

Provide factory-drilled mounting holes.

Cabinet Metal: Stainless-steel sheet.

Shelf: Same metal and finish as cabinet.

Cabinet Type: Suitable for the following:

Fire extinguisher.

Cabinet Mounting: Suitable for the following mounting conditions:

Semirecessed: Cabinet box partially recessed in walls of shallow depth to suit style of trim indicated.

Cabinet Trim Style: Fabricate cabinet trim in one piece with corners rolled edge, welded, and ground smooth.

Cabinet Trim Material: Manufacturer's standard, as follows:

Steel sheet.

Door Material: Manufacturer's standard, as follows:

Stainless-steel sheet, 18 gauge thick.

Door Construction: Fabricate doors according to manufacturer's standards, of materials indicated, and coordinated with cabinet types and trim styles selected.

Provide minimum 1/2-inch- (13-mm-) thick door frames, fabricated with tubular stiles and rails, and hollow-metal design.

Provide inside latch and lock for break-glass panels.

Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

ACCESSORIES

Mounting Brackets: Manufacturer's standard steel, designed to secure extinguisher, of sizes required for types and capacities of extinguishers indicated, with plated or baked-enamel finish.

Provide brackets for extinguishers located in cabinets.

Door Locks: Provide cylinder lock, with all cabinets keyed alike.

Identification: Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location. Locate as indicated by Architect.

Identify bracket-mounted extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to wall surface.

Identify fire extinguisher in cabinet with the words "FIRE EXTINGUISHER" applied to door.

Application Process: Silk-screened.

Lettering Color: Red.

Orientation: Vertical.

COLORS AND TEXTURES

Colors and Textures: As selected by Architect from manufacturer's full range for these characteristics.

FINISHES, GENERAL

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

Cabinet and Door Finishes: Provide manufacturer's standard baked-enamel paint for the following:

Exterior of cabinets and doors, except for those surfaces indicated to receive another finish.

Interior of cabinets and doors.

STEEL FINISHES

Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond using manufacturer's standard methods.

Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment.

Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free, universal primer, selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field-applied finish paint system indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.05 mm).

STAINLESS-STEEL FINISHES

General: Remove or blend tool and die marks and stretch lines into finish. Grind and polish surfaces to produce uniform, directionally textured polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

Bright, Directional Polish: No. 4 finish.

Satin, Directional Polish: No. 6 finish.

PART 3 - EXECUTION

EXAMINATION

Examine roughing-in for hose valves, hose racks, and cabinets to verify actual locations of piping connections before cabinet installation.

Examine walls and partitions for suitable framing depth and blocking where recessed and semirecessed cabinets are to be installed.

Examine fire extinguishers for proper charging and tagging.

Remove and replace damaged, defective, or undercharged units.

Proceed with installation only after unsatisfactory conditions have been corrected.

INSTALLATION

Comply with manufacturer's written instructions for installing fire-protection specialties.

Install in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.

Prepare recesses for cabinets as required by type and size of cabinet and trim style.

Fasten mounting brackets to structure and cabinets, square and plumb.

Fasten cabinets to structure, square and plumb.

ADJUSTING, CLEANING, AND PROTECTION

Adjust cabinet doors that do not swing or operate freely.

Refinish or replace cabinets and doors damaged during installation.

Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

FIRE-PROTECTION CABINET SCHEDULE

Fire-Protection Cabinet: Where this designation is indicated, provide fire-protection cabinet complying with the following:

Products: Larsen “Cameo” SS-FS C2409-5R

Construction: Nonrated

Cabinet Material: Stainless-steel sheet

Type: Fire extinguisher

Mounting: Semirecessed

END OF SECTION 10520

SECTION 12511 - HORIZONTAL LOUVER BLINDS

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes venetian blinds.

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

Division 8 Sections for windows with horizontal louver blinds mounted in window frames.

SUBMITTALS

General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for each type of horizontal louver blind specified. Include printed data on physical characteristics.

Shop drawings showing location and extent of blinds. Show installation details at and relationship to adjoining work. Include elevations indicating blind units. Indicate location of blind controls.

Samples for initial selection in the form of manufacturer's color charts showing the full range of colors, textures, and patterns available for each type of horizontal louver blind indicated.

Samples for verification of the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare samples from the same material to be used for the Work.

Louver: Manufacturer's standard-size unit, not less than 12 inches (300 mm) long.

Valance: Manufacturer's standard-size unit, not less than 12 inches (300 mm) long.

Schedule of horizontal louver blinds using same room designations indicated on Drawings.

Maintenance data for horizontal louver blinds to include in the operation and maintenance manual specified in Division 1. Include the following:

Methods for maintaining horizontal louver blinds and finishes.

Precautions for cleaning materials and methods that could be detrimental to finishes and performance.

QUALITY ASSURANCE

Fire-Test-Response Characteristics: Provide horizontal louver blinds identical to those tested for the following fire-test-response characteristics as determined by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

Test Method: NFPA 701.

Rating: Pass.

Single-Source Responsibility: Obtain each type of horizontal louver blind from one source and by a single manufacturer.

PROJECT CONDITIONS

Field Measurements: Check actual horizontal louver blind dimensions by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

Space Enclosure and Environmental Limitations: Do not install horizontal louver blinds until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

EXTRA MATERIALS

Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.

Horizontal Louver Blinds: Before installation begins, furnish quantity of full-size units equal to 5 percent of amount of each size installed.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

Manufacturers: Subject to compliance with requirements, provide products by one of the following or equal:

Horizontal Louver Blinds:

Eastern Standard Corp.
Faber.
Hunter Douglas, Inc.
Joanna Western Mills Co.
Kirsch.
Levolor Corp.

Available Products: Subject to compliance with requirements, horizontal louver blinds that may be incorporated in the Work include, but are not limited to, the products specified in each Product Data sheet at the end of this Section.

HORIZONTAL LOUVER BLINDS

Louvers: Manufacturer's standard as follows:

Aluminum.

Nominal Louver Width: 1 inch (25 mm) (miniblinds).

Tilt Operation: Manual with wand.

Length of Tilt Control: Full length of blind.

Position of Tilt Control: Right side, unless otherwise indicated.

Tilt: Full.

Cord-Lock Operation: Cord lock; locks pull cord to stop blind at any position in ascending or descending travel.

Position of Cord Lock: Right side, unless otherwise indicated.

Cord Equalizers: Self-aligning to maintain horizontal louver blind position.

Valance: Match color of louvers.

Mounting: End or head within storefront unit.

Colors and Patterns: Where manufacturer's standard products are indicated, provide horizontal louvers complying with the following requirements:

Provide Architect's selections from manufacturer's full range of colors and patterns for horizontal louver blinds of type indicated.

FABRICATION

Product Standard and Description: Comply with AWCMA Document 1029 for each horizontal louver blind unit consisting of louvers, rails, cord locks, tilting mechanisms, tapes, and installation hardware.

Lifting and Tilting Mechanisms: Noncorrosive, self-lubricating materials.

Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F (23 deg C):

Blind Units Installed Between (Inside) Jambs: Width equal to 1/4 inch (6 mm) per side or 1/2 inch (12 mm) total, plus or minus 1/8 inch (3 mm), less than jamb to jamb dimension of opening in which each

blind is installed. Length equal to 1/4 inch (6 mm), plus or minus 1/8 inch (3 mm), less than head to sill dimension of opening in which each blind is installed.

Blind Units Installed Outside Jambs: Width and length as indicated, with terminations between blinds of end-to-end installations at centerlines of mullion or other defined vertical separations between openings.

Installation Fasteners: Not less than 2 fasteners per bracket, fabricated from metal noncorrosive to blind hardware and adjoining construction; support blind units under conditions of normal use.

Hold-Down Brackets: Manufacturer's standard, as indicated.

Side Channels: Manufacturer's standard, as indicated.

PART 3 - EXECUTION

EXAMINATION

Examine substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of horizontal louver blinds. Do not proceed with installation until unsatisfactory conditions have been corrected.

INSTALLATION

Install blinds level, plumb, and located so exterior louver edges in any position are not closer than 1 inch (25 mm) to interior face of glass lites.

Flush Mounted: Install blinds with louver edges flush with finish face of wall.

ADJUSTING

Adjust components and accessories for proper operation.

CLEANING

Clean blind surfaces, according to manufacturer's instructions, after installation.

Remove surplus materials, packaging, rubbish, and debris resulting from installation. Leave installation areas neat, clean, and ready for use.

PROTECTION

Provide final protection and maintain conditions in a manner acceptable to manufacturer and Installer that ensure that horizontal louver blinds are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 12511