PROJECT MANUAL

TOWN of JAMESTOWN

WRENN MILLER PARK

Toilet Building

101 Guilford Road

Jamestown, NC

November 2022

Ramsay Burgin Smith Architects
225 North Main Street - Suite 501
Salisbury, NC 28144

Phone: (704) 633-3121
Web Site: www.rbsarch.com

SET # _____

INVITATION TO BID

1. a. Sealed proposals will be informally received by the **Town of Jamestown** in the Civic Center at Town Hall located at 301 E. Main St., Jamestown, North Carolina, up to **3:00 pm on Thursday, December 8 th, 2022** and immediately thereafter publicly opened and read for the furnishing of labor, materials and equipment entering into the construction of the Town of Jamestown, Jamestown's Wrenn Miller Park Toilets , Jamestown, North Carolina, including all required work described on the plans and specifications for general work (which includes site, structural, plumbing, mechanical and electrical work).

   b. The Project consists of 748 sf new construction for a public Toilet Building. The building is a wood framed building measuring 34'-0" Wide by 22'-0" Long with 6:12 gable roof. Construction includes a covered breezeway hall with public toilets on either side. The building has a standing seam metal roof with an alternate for a roof mounted cupula. Base bid work also includes associated site grading; concrete ramps, steps & sidewalks.

   General Construction work includes major subcontractors:
   Site / Utility work.
   Plumbing work.
   HVAC work.
   Electrical work.

   Alternates per requirements of Division1, listed in Section 01030.

   c. Proposals shall be received for a **Single Prime** contract for General Construction, including Plumbing, Mechanical, and Electrical work.

2. a. After Monday November 21, 2022 , complete plans, specifications, and contract documents will be available for inspection on our website at www.rbsarch.com or in the following offices:

   RAMSAY BURGIN SMITH ARCHITECTS, INC. - 225 N. Main Street, Suite 501, Salisbury, NC
   And on the RBSA web site www.rbsarch.com

   b. Procedure for Obtaining Bidding Documents (General Contractors): Contact the Architect, Ramsay Burgin Smith Architects, Inc, 225 North Main Street, Suite 501, Salisbury, NC 28144. Phone: 704-633-3121 to **register for Bidding** and to receive any addenda to follow.
   Plans and Specifications may be viewed (and down-loaded from) without charge on the architect's website www.rbsarch.com by clicking " **Bidding Projects**".

   General Contractors are responsible for downloading and printing of all Bidding Documents.
   Contractors shall access bid documents from RBSA Website and order printing from ACCENT IMAGING of Hickory, NC at 828-322-5050 or printer of their choice.
   All printing costs shall be paid for by the General Contractor.

   c. Subcontractors and material suppliers may purchase single sheets of plans as they so chose. Subcontractors and material suppliers are invited to visit RBSA Website (www.rbsarch.com) to ascertain the quantity and specific sheets desired. The Architect will assume no responsibility in the selection of required drawings or specification sheets.

3. A **Pre-Bid Conference** will be held on site located at 101 Guilford Rd.,Jamestown, North Carolina, **on Monday, November 28th, 2022 at 10:00 am** to allow contractors the opportunity to ask questions and/or clarify pertinent issues. **Attendance is not mandatory but recommended** for project clarity.

4. All Contractors and Subcontractors must have all required construction licenses under North Carolina State laws governing their respective trades.

5. Each proposal must be accompanied by a certified check drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation in an amount equal to not less than 5% of the proposal. In lieu thereof, a bidder may offer a bid bond of 5% of the bid, executed by a surety company licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will, upon demand forthwith make payment to the Obligee upon said bond, if the bidder fails to execute the contract in accordance with the bid bond. Upon failure to forthwith make payment, the surety will pay to the Obligee an amount equal to the amount of said bond. Said deposit shall be retained by the Owner as liquidated damages in the event of failure of the successful bidder to execute the contract within ten days after the award, or to give satisfactory surety as required by law. (General Statutes of North Carolina, C0143, Article 85 - 129).

6. Bonds: Separate Performance and Payment Bond will be required each for one hundred percent (100%) of the contract price.

7. Payments will be made at ninety five percent (95%) of approved monthly applications until a maximum of two and one half percent (2.5%) retainage is reached per N.C.G.S. 143-134.1 (b1)- through (e). Final Certificates and payment will be issued upon acceptance of the work as complete.

8. No bid may be withdrawn after time set for receiving bids for a period of **forty (45) days**.

9. **Low bidders** shall be required to submit to the Architect a *Contractor's Qualification Statement* (**AIA Document A305**) prior to award of bid. This information shall be considered privileged and confidential. Owner reserves the right to award or not to award contracts based on qualifications.

10. Town of Jamestown maintains the goal of ten percent (10%) minority participation in all contracts. All bidders are expected to make and document a good faith effort to achieve this goal. **All the MBE documents are at the front of this project manual.**

11. The Owner reserves the right to waive irregularities and to reject any or all proposals.

RAMSAY BURGIN SMITH ARCHITECTS, INC.
225 North Main Street, Suite 501
Salisbury, North Carolina 28l44

for

Town of Jamestown
Mathew Johnson, Town Manager
301 East Main Street
Jamestown, NC 27282

November 2022

INSTRUCTIONS TO BIDDERS

SECTION 1. SITE CONDITIONS:

Bidders shall inform themselves fully of site conditions relating to construction and labor as well as other pertinent conditions before submitting a proposal.

SECTION 2. EXAMINATION OF PLANS, SPECIFICATIONS AND CONTRACT DOCUMENTS:

Should a bidder find discrepancies in or omissions from the plans, specifications, and/or contract documents, or should he be in doubt as to their meaning, he should at once notify the Architect who will send written instructions to all bidders. Neither Owner nor Architect will be responsible for any oral instructions.

Bidders must verify that they have received all drawings and specification by comparing their drawing sheets and specification sections with the projects drawing index and specification index. Neither Owner or Architect will be responsible for any claim of missing drawings of specifications listed on the indexes.

Every request for such interpretation or clarification shall be in writing addressed to the Architect, RAMSAY BURGIN SMITH ARCHITECTS, INC., 225 North Main Street, Suite 501, Salisbury, North Carolina 28144. **To be given consideration, the request must be received at least five (5) days prior to the bid date of the project. The interpretation and/or supplementary information will be mailed (AND/OR Emailed) to all prospective bidders generally not later than three (3) days prior to the date fixed for the receipt of bids.**

Bulletins or Addendum issued and received during the bidding period become a part of the contract documents and must be acknowledged on the Form of Proposal by all bidders. Addendum will posted on the architect's website www.rbsarch.com.

SECTION 3. PROPOSALS:

Each bid must be submitted on the prescribed form. All blank spaces must be filled in with ink or typewritten in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, listing their address and license number, and stating that the proposal is for General Construction, including Plumbing, Mechanical, and Electrical work. Address proposals to the Owner, in care of the Architect, at the place set for opening of bids. If forwarded by mail (mailed to the Owner at the bid site address), the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form and must be received prior to the closing time for bids. Proposals not received by the Architect prior to the closing of bids, no matter what the post mark date, shall be rejected.

SECTION 4. PROCEDURE TO FOLLOW IN EXECUTING CONTRACT DOCUMENTS:

The Form of Proposal on which all bids must be submitted is inserted herewith. Duplicate copies may be made by the Contractor for recording his bid and for his records. The current AIA contract form will be used for Owner-Contractor agreement. Invoices will be presented on appropriate AIA Form G702. See Article 24 of General Conditions.

Signatures: Each Contractor shall execute all copies of the Form of Proposal, Bid Bond, Contract and Performance Bond.

If the contract documents are executed by a sole owner, that fact shall be evidenced by the word "Owner" appearing after the name of the person executing them.

If the contract documents are executed by a partnership, that fact shall be evidenced by the words "Co-Partner" appearing after the name of the partner executing them.

If the contract documents are executed on the part of a corporation, they shall be executed by either the President or the Vice President and attested by the Secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each copy of the contract documents.

Signatures shall be properly witnessed.

Performance Bond:

Where the Performance Bond is executed by an Attorney-in-fact, there shall be attached to each copy of the Performance Bond a certified copy of Power of Attorney properly executed and dated.

Each copy of the Performance Bond shall be counter-signed by an authorized individual agent of the Bonding Company licensed to do business in North Carolina (see Section 58-44 General Statutes of North Carolina). The title "Licensed Resident Agent" shall appear after the signature.

The seal of the Bonding Company shall be impressed on each copy of the Performance Bond. The Contractor's signature(s) on the Performance Bond shall correspond with that on the Contract.

Form of Proposal:

Single Prime proposals will be received for general construction, including, plumbing, mechanical, and electrical work. See proposal form bound herein.

Owner reserves the right to waive irregularities and to reject any or all proposals.

Bids must be based on these specifications, addendum, bulletins and working drawings (as listed in Division 1), dated OCTOBER 2022 (unless noted otherwise) for the Jamestown Park Toilets, Jamestown, North Carolina.

Town of Jamestown in compliance with the NC Senate Bill 914 has a goal of soliciting 10% participation in the project from Minority Business Enterprises (MBE). **See bidding requirements attached in the front of this project manual.**

Low Bidder's shall be required to submit a completed "Contractor's Qualification Statement" AIA Form A305 prior to award of contract.

Approval of Documents:

Upon completion of the execution of the contract documents, the documents, together with insurance certificates and other pertinent appendages, shall be returned to the Architect for checking and forwarding to the Owner. Following approval by the Owner, documents will be forwarded to the Architect for distribution.

SECTION 5. CONSTRUCTION ADMINISTRATION;

Though this job will be regularly and carefully administered by the Architect, or his representative, and though every reasonable effort will be made to protect the best interest of the Owner, and to assist the Contractor in the interpretation of the contract documents, this project does not include the services of a full-time clerk of the works. The desirability, frequency and timing of the Architect's visits to the site will be decided by the Architect.

END OF INSTRUCTIONS TO BIDDERS

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FORM OF PROPOSAL
Town of Jamestown
Jamestown Park Toilets
Jamestown, NC

Contractor Name:_____

Submitted herewith is my/our proposal for the Town of Jamestown, Jamestown Park Toilets, Jamestown, North Carolina

SECTION 1. PRELIMINARY:

The undersigned, as bidder, hereby declares that the only person(s) interested in this proposal as principal(s) is/are named herein; that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud.

The undersigned bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the specifications for the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; and that he has satisfied himself relative to the work to be performed.

If this proposal is accepted, the undersigned bidder proposes and agrees to contract with Town of Jamestown in the form of contract specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction in full and complete accord with the plans, specifications and contract documents and to the full and complete satisfaction of the Architect and Owner with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and contract documents for the sum of:

Single Prime Contract:

BASE BID: _____DOLLARS ($ _____)
(including allowances specified in Section 01020)

LIST THE FOLLOWING MAJOR SUBCONTRACTORS PART OF BID:

Plumbing: _____

HVAC: _____

Electrical: _____

SECTION 2. ALTERNATES:

Each alternate price listing in this proposal shall cover all costs required for this particular part of the work, complete and in place, including all changes, alterations or modifications to surrounding work required to accommodate the substitution, addition, deletion or other change.

The Architect reserves the right to recommend to the Owner the acceptance or rejection of any or all alternates. The Owner reserves the right to accept or reject any or all such recommendations. The Owner further reserves the right to accept or reject alternates in any order they preferred without regard to whether or not their selected order effects bid outcome.

Should any of the alternates as described in the specifications be accepted, the amount written below shall be the amount to "add to" or "deduct from" the Base Bid. Signify the option intended by the words "add" or "deduct" in front of the written figures and the like "plus" or "minus" signs in front of the numerals.

ALTERNATE #1 - Cupola

This alternate must include all work associated with fabricating & installing the Roof Top Cupula onto the metal roofing and roof structure. Base bid has a fully roofed structure with no cupola.

(ADD or DEDUCT)_____ _____ ____DOLLARS ($ _____)

SECTION 3. UNIT PRICES:

Unit prices are for complete work and no profit or overhead shall be added or deducted when applying unit prices. No work described on the drawings or specifications is to be bid as a unit price. Unit price costs will be used only for additional work the owner may want to include in the work by change order.

UNIT PRICE #1: Undercut including compacted refill, per cubic yard: - GENERAL WORK -

This price must also include cost of hauling and LEGALLY DISPOSING of undercut soil from site and hauling structural quality soil to site and compaction. Testing costs of soil material characteristics and appropriateness of use as structural fill shall be part of unit cost (or otherwise is considered part of general contractor's base bid).

_____ _____DOLLARS ($ _____ /cu.yd.)

NOTE: This unit price cost will be used to determine the exact Allowance dollar amount figure used by the contractor in their base bid for the **75 cu. yds.** of undercut and fill specified in Division 1 - Allowances.

Unit Price #1 Breakout Costs
Provide breakout costs comprising the Unit Price #1 amount listed above.

Excavating Undercut Soil on Site:

_____ DOLLARS ($ _____ /cu.yd.)

Hauling and LEGALLY DISPOSING Undercut Soil from Site:

_____ DOLLARS ($ _____ /cu.yd.)

Hauling Structural Quality Soil to Site:

_____ DOLLARS ($ _____ /cu.yd.)

Compacting Structural Quality Soil on Site:

_____ DOLLARS ($ _____ /cu.yd.)

Note: The Four Breakout Costs listed here must TOTAL the dollar amount listed as Unit Price #1.

SECTION 4. COMPLETION OF WORK:

If the undersigned bidder is notified of the acceptance of this proposal, he agrees to execute a contract for the above stated compensation in the form of the Standard Agreement of the American Institute of Architects and to commence work within ten (l0) days after signing of the contract. The undersigned bidder proposes to complete the construction and have the work ready for Final Inspection **on or before the schedule listed below** from date of "commencement of work".

Construction Duration - 6 Months

The undersigned further agrees that in the case of failure on his part to execute the said contract and required bonding within ten (10) consecutive calendar days after written notice of award of the contract has been given, the check, cash, or bid bond accompanying this bid shall be paid into the funds of the Owner for this project as liquidated damages for such failure.

SECTION 5. ADDENDA/BULLETINS:

The undersigned bidder acknowledges receipt of the following Addenda and/or Bulletins:

Addendum No._____ Dated _____
Addendum No._____ Dated _____
Addendum No._____ Dated _____
Addendum No._____ Dated _____

_____ _____
WITNESS SIGNATURE AND TITLE

_____
FIRM NAME

_____
ADDRESS

_____
ADDRESS

_____
(seal) LICENSE NUMBER

_____
DATE

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN Town of Jamestown **CONSTRUCTION CONTRACTS**

In accordance with G.S. §143-128.2, these Guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods on County construction projects in the amount of $300,000 or more. The Town of Jamestown has established a verifiable goal of 10% for participation by minority businesses in building construction contracts.

SECTION A: INTENT

It is the intent of these Guidelines that the Town of Jamestown, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded, shall cooperate and in good faith do all things legal, proper and reasonable to achieve the goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by G.S. §143-128.2. Nothing in these Guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
   a. Black, that is, a person having origins in any of the black racial groups in Africa;
   b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
   c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
   d. American Indian, that is, a person having origins in any of the original peoples of North America; or
   e. Female

2. Minority Business - means a business:
   a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
   b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.

3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities." "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to

diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged."

4. Public Entity - means the Owner and all public subdivisions and local governmental units.

5. Owner - The Town of Jamestown.

6. Designer - Any person, firm, partnership, or corporation, which has contracted with the Owner to perform architectural or engineering work.

7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.

9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the Owner to perform construction work or repair.

10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

The HUB Office has established a program which allows interested persons or businesses qualifying as a minority business under G.S. §143-128.2 to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

a. Identify those areas of work for which there are minority businesses, as requested.
b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in a government construction program, the HUB Office will:

a. Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
b. Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
c. Inform minority businesses of the contracting and subcontracting process for public

construction building projects.

d. Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in government construction projects.

e. The HUB Office also oversees the minority business program by:
   (1) Monitoring compliance with the program requirements.
   (2) Assisting in the implementation of training and technical assistance programs.
   (3) Identifying and implementing outreach efforts to increase the utilization of minority businesses.
   (4) Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. Owner

The Owner shall do the following:

a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and nonminority businesses.

b. Attend the scheduled prebid conference.

c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office of Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:

   (1) A description of the work for which the bid is being solicited.
   (2) The date, time, and location where bids are to be submitted.
   (3) The name of the individual within the public entity who will be available to answer questions about the project.
   (4) Where bid documents may be reviewed.
   (5) Any special requirements that may exist.

d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.

3. Designer

Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the Designer will:

a. Attend the scheduled prebid conference to assist in explaining minority business requirements to the prospective bidders.
b. Assist the Owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.

d. Review jointly with the Owner, all requirements of G.S. §143-128.2(c) and G.S. § 143-128-2(f) - (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.
e. During construction phase of the project, review "MBE Documentation for Contract Payment" - (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the Owner.
f. Make documentation showing evidence of implementation of Designer's responsibilities available for review by the Owner and State officials upon request.

4. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, construction manager at risk and alternative contracting methods, contractor(s) will:

a. Attend the scheduled prebid conference.
b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
   (1) A description of the work for which the subbid is being solicited.
   (2) The date, time and location where subbids are to be submitted.
   (3) The name of the individual within the company who will be available to answer questions about the project.
   (4) Where bid documents may be reviewed.
   (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

   If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.
d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
e. Identify on the bid the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing Good Faith Efforts as required by G.S. §143-128.2(c) and G.S. §143-128.2(f).
f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by the Owner and State officials upon request.

g. Upon being named the apparent low bidder, the bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all Good Faith Efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and

corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in the General Conditions of the Contract to facilitate payments to the subcontractors.

i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), "MBE Documentation for Contract Payment" - (Appendix E), for Designer's review.

j. During the construction of a project, at any time, if it becomes necessary to replace a minority business subcontractor, immediately advise the Owner of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

k. If during the construction of a project additional subcontracting opportunities become available, make a Good Faith Effort to solicit subbids from minority businesses.

l. It is intended that these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on County projects.

5. Minority Business Responsibilities

While minority businesses are not required to become certified in order to participate in County construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION D: DISPUTE PROCEDURES

It is the policy of this State that disputes that involve a person's rights, duties or privileges should be settled through informal procedures. To that end, minority business disputes arising under these Guidelines should be resolved as governed under G.S. §143-128(g).

SECTION E: ADDITIONAL INFORMATION

Listings of certified woman-owned and minority-owned businesses can be found at the following Web site:

NC Vendor Link - www.ips.state.nc.us/ips/vendor/vndpubmain.asp

MINORITY BUSINESS CONSTRUCTION CONTRACT PROVISIONS

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in** Town of Jamestown **Construction Contracts** are hereby made a part of these contract documents.

MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. §143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contact price, which is equal to or more than the applicable goal.

OR

Provide Affidavit C that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort and Affidavit D if the percentage is not equal to the applicable goal.**

OR

Provide Affidavit B, which includes sufficient information for the Owner to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

MINIMUM COMPLIANCE REQUIREMENTS:

All written statements, affidavits or intentions made by the bidder shall become a part of the agreement between the Contractor and the Owner for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the Owner that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the Owner whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the Owner will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

(1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the Contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.

(2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.

(3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.

(4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

(5) Attending any prebid meetings scheduled by the public Owner.

(6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.

(7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

(8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

(9) Negotiating joint venture and partnership arrangements with minority businesses in order to

increase opportunities for minority business participation on a public construction or repair project when possible.

(10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

Identification of Minority Business Participation

I,_____,
(Name of Bidder)

do hereby certify that on this project, we will use the following minority business enterprises as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work type	*Minority Category

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

The total value of minority business contracting will be ($)_____.

MBForms 2002-Revised
March, 2005

State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- ❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5** – **(10 pts)** Attended prebid meetings scheduled by the public owner.
- ❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10** - **(20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of_____, County of_____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires _____

MBForms 2002-Revised
March, 2005

State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of _____

Affidavit of _____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.
(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20___

Notary Public _____

My commission expires _____

Do not submit with bid Do not submit with bid Do not submit with bid Do not submit with bid

State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by Minority Firms

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by minority businesses as defined in GS143-128.2(g) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

SEAL

Signature:_____

Title:_____

State of _____, County of _____

Subscribed and sworn to before me this _____day of _____20____

Notary Public_____

My commission expires_____

MBForms 2002-Revised
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State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster.

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public_____

My commission expires _____

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT TO BE PAID	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: _____ Approved/Certified By: _____

Name

_____

Title

_____

Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

(Revised on 1/16/2003)

OFFICE STANDARD RATE SHEET

January 2021

For additional architectural services above basic fees for projects, change orders, expert witnessing, special circumstance problem solving or projects without a clearly-defined scope, we provide services at the following hourly rates:

Principal $ 200 per hour

The Partner in responsible charge of each project. The Principal has controlling authority to obligate the Firm in all contractual areas of design, production and finance.

Project Architect $ 160 per hour

The Architect responsible for overall project management. Oversees all design, construction consultations, site evaluations and preliminary studies, the preparation of plans, specifications and contract documents, administration of construction contracts and related services.

Intern Architect $ 80 per hour

Graduate of an accredited School of Design working in the Intern Development Program towards partial satisfaction of the architectural licensing and certification requirements.

Technical Draftsperson $ 70 per hour

Design and production personnel qualified in the preparation of plans, specifications and construction documents.

Administration $ 50 per hour

All clerical, accounting and office management personnel.

Professional Consultants Cost plus 20%

Additional structural, mechanical and electrical engineering or other specialized consultant services.

Travel Time

Travel time is billed at 1/2 the hourly rate if more than 3 hours total travel time is required for any trip.

Reimbursables

Expenses of reproduction	**Cost plus 20%**
Expenses of postage and handling of drawings, specifications, and other documents	**Cost plus 20%**
Expenses of renderings, models, and mock-ups	**Cost plus 20%**
Expense of any additional insurance coverage or limits including professional liability insurance requested by the owner in excess of that normally carried.	**At Cost**
Living expenses in connection with out-of-town travel.	**At Cost**
Long distance communications	**At Cost**
Fees paid for securing approval of authorities having jurisdiction over the Project.	**At Cost**
Transportation in connection with Project	**.58 cents/mile**

SUPPLEMENTARY CONDITIONS

(EDITED PER TOWN OF JAMESTOWN – 27 AUGUST 2021)

The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction," AIA Document A201, Edition, 2017. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

ARTICLE 1; GENERAL PROVISIONS

1.2 Correlations and Intent of the Contract Documents

Add the following Clauses 1.2.1.1 through 1.2.1.3 to Subparagraph 1.2.1:

1.2.1.1 In the event of ambiguity or conflict of statement or directive, the contract documents shall be interpreted in this order:

1. (highest) The General Conditions (edition as issued with the project specifications)
2. The Owner-Contractor Agreement
3. The Supplementary Conditions
4. Written Dimensions on the Drawings
5. Large Scale Details on the Drawings
6. Detailed Specifications
7. Small Scale Details on the Drawings

1.2.1.2 Should the above subparagraph fail to solve the ambiguity or conflict of statement or directive, the Contractor shall have included in the contract price the better quality and/or quantity of work or materials shown or listed.

1.2.1.3 Items shown on smaller plans and details that are not shown on larger plans and details **ARE STILL PART OF THE WORK**. Only information **IN CONFLICT** between small and large details follows the "Larger plans and details rule" that larger plans and details dictate work.

ARTICLE 2; OWNER

Add Subparagraph 2.2.5

2.2.5 The Contractor(s), without cost of copies, will be supplied the following numbers of Contract Documents:

All Contract Documents (Drawings & Specifications) —1 complete set

2.5 Owner's Right to Carry out the Work

Add the following Subparagraph 2.5.1 and Clauses 2.5.1.1 through 2.5.1.7 to Paragraph 2.5:

2.5.1 The Owner may declare the Contractor in default for any one or more of the following reasons:

2.5.1.1 failure to complete the Work within the Contract Time or any extension thereof;
2.5.1.2 failure or refusal to comply with an order of the Architect within a reasonable time;
2.5.1.3 failure or refusal to remove rejected materials within 30 days;
2.5.1.4 failure or refusal to perform anew any defective or unacceptable Work;

2.5.1.5 failure to provide a qualified superintendent, competent workers or subcontractors to carry on the Work in an acceptable manner;
2.5.1.6 failure to promptly pay subcontractors and material suppliers in a timely manner; or
2.5.1.7 if the Contractor abandons the Project for 15 or more days;

ARTICLE 3; CONTRACTOR

3.2 Review of Contract Documents and Field Conditions by Contractor.

Add the following Clauses 3.2.1.1 and 3.2.1.2 and 3.2.1.3 to Subparagraph 3.2.1

3.2.1.1 Should detailed information be lacking, Contractor before proceeding with work and if possible before bidding will refer the matter in writing to the Architect for his decision and/or interpretation. If the Engineer's name appears on drawings in question, the contractor shall refer the matter in writing directly to the Engineer. The Contractor and Engineer shall keep the Architect informed with copies of all communications. Final decisions shall be by the Architect. **Should errors or conflicts occur which are not clarified by the Architect, the Contractor is held to have included in the contract price the better quality and/or quantity of work or materials involved.**

3.2.1.2 Before ordering any materials or doing any work, the contractor shall verify all measurements, grades, levels, and lines at the site and shall be responsible for the correctness of same before starting work. Any differences shall be submitted by written notice to the architect for consideration before continuing the work. No extra changes will be allowed at completion on account of differences between actual dimensions and those indicated on the drawings.

3.2.1.3 The contractor will not be allowed any extra compensation by reason of lack of familiarity concerning site conditions which site inspection might have disclosed had Contractor fully informed himself prior to bidding.

3.2.1.4 If in the Contractor's opinion, any work is indicated in the drawings, or is specified in such a manner as will make it impossible to produce first class work, or discrepancy appear between Drawings and Specifications, Contractor shall refer to Architect for interpretation before proceeding with work. Architect will respond with addenda, bulletin drawings, or construction directives as required.

3.2.1.5 No work shall be installed that obviously will not work, fit or function in the manner intended. Failure to consult with architect/engineer prior to installing such work will not result in the Owner participating in the cost to have the adjusted such that it will work fit or function properly.

Add the following Clause 3.2.2.1 to Subparagraph 3.2.2:

3.2.2.1 The Contractor shall assume full responsibility for accuracy of measurements obtained at the site. No extra compensation will be allowed because of differences between actual measurements and dimensions indicated on the Drawings, nor for Contractor's failure to coordinate work with actual field measurements.

3.3 Supervision and Construction Procedures

Add the following Clause 3.3.2.1 to Subparagraph 3.3.2:

3.3.2.1 Successful completion of the project depends upon the integrity, ability, and interest of the several tradesmen in producing a superior job. The Architect expects Contractor, each subcontractor, and/or craftsman to produce quality results in his own field within the scope of the work outlined by the drawings and specifications that cannot practically cover each construction operation and detail routinely employed by a conscientious craftsman in the normal process of executing his work.

3.4 Labor and Material

Add the following Subparagraphs 3.4.4 through 3.4.7 to Paragraph 3.4:

3.4.4 During Architect's site visits, Contractor shall furnish necessary incidental mechanics, labor, tools, etc. to assist Architect in observing progress of the work.

3.4.5 During inspections (Preliminary Final and Final Inspections) Contractor shall furnish necessary mechanics, labor, tools, etc. for thorough inspection of project.

3.4.6 The Contractor shall provide, maintain, and make available to other contractors, subcontractors and craftsmen, while in place for his own use, scaffolding, temporary stairs, ladders, ramps, runways, hoists, chutes, etc., as required for proper execution of work by all trades, and remove same at completion of job.

3.4.7 The Contractor shall be responsible for inspection of portions of work already performed under this contract by the Contractor and/or his subcontractors to determine that such portions are in proper condition to receive subsequent work."

3.5 Warranty

Add the following Subparagraphs 3.5.1.

3.5.1 The warranty period shall be defined as being **one (1) year** after the date of Substantial Completion.

3.6 Taxes

Add the following to Subparagraph 3.6.1 to Paragraph 3.6:

3.6.1 Pursuant to North Carolina General Statutes, Section 105-164.14, the Owner is eligible for sales and use tax refund on all materials that become a permanent part of the construction. Since the Owner will desires to receive and keep all sales tax refunds the contractor must include these same sales tax charges in his bid price. NO REFUND OF SALES TAX WILL BE FORWARDED TO THE CONTRACTOR! The Contractor agrees to provide the Owner documentation that meets the requirements of Sales and Use Tax Regulations 42 regarding requests for refund of sales and use taxes. Those requirements are outlined below:

(g) All refund claims must be substantiated by proper documentary proof and only those taxes actually paid by the claimant during the fiscal year covered by the refund claim may be included in the claim.

Any local sales or use taxes included in the claim must be separately stated in the claim for refund. In cases where more than one county's sales and use tax has been paid, a break down must be attached to the claim for refund showing the amount of each county's local tax separately.

To substantiate a refund claim for sales and use taxes paid on purchase of building materials, supplies, fixtures, and equipment by its Contractor, the claimant must secure from such Contractor certified statements setting forth the cost of the property purchases from each vendor and the amount of state and local stales and/or use taxes paid thereon. Such statement must also include the cost of any tangible personal property withdrawn from the Contractor's warehouse stock and the amount of state and local sales or use tax paid thereon by the Contractor. Similar certified statements by his subcontractors must be obtained by the General contractor and furnished to the claimant (Owner). Any local sales or use taxes included in the Contractor's statements must be shown separately from the State sales or use taxes. The Contractor's statements must be shown separately from the State sales or use taxes. The Contractor's

statements must not contain sales or use taxes paid on purchase of tangible personal property purchased by such Contractors for use in performing the contract which does not annex to, affix to or in some manner become a part of the building or structure being erected, altered or repaired for the governmental entities as defined by G.S. 105-164.14(c). Examples of property on which sales and use tax has been paid by the Contractor and which should not be included in the Contractor's statement are scaffolding, forms for concrete, fuel for the operation of machinery and equipment, tools, equipment repair parts and equipment rentals, blueprints, etc.

The Contractor shall submit notarized sales tax certificates that meet the requirements detailed above with each Application for Payment. Payment will not be made until the sales tax certificate(s) have been submitted to the Owner."

3.9 Superintendent

Add the following Subparagraph 3.9.2 to Paragraph 3.9:

3.9.2 Should the superintendent be changed for the convenience of the Contractor without the Architect's approval, the Contractor agrees to compensate the Architect for the time required to acquaint the new superintendent with previous instructions. Compensation will be in accordance with the OFFICE STANDARD RATE SHEET. A copy of which is attached and incorporated herein by reference.

3.10 Contractor' Construction Schedules

Add the following Clause 3.10.1.1 to Subparagraph 3.10.1:

3.10.1.1 No application for payment will be approved until the Construction Progress Schedule has been received and approved by the Architect."

3.14 Cutting and Patching

Add the following Subparagraphs 3.14.1 through 3.14.3 to Paragraph 3.14:

3.14.1 The General Contractor shall typically provide openings and lintels for other prime contractors and/or subcontractors' work as building construction progresses. The General Contractor shall coordinate with these contractor's and/or subcontractors their requirements prior to beginning construction. **Should another prime or subcontractor in need of the opening fail to coordinate the required opening with the General Contractor and there is no evidence on the drawing that an opening is required, the prime or subcontractor involved shall bear the financial responsibility for having the General Contractor provide the required opening in previously constructed work.**

3.14.2 The General Contractor shall provide all chases, vertical openings, structural framing around same, etc. of proper size as required by subcontractors whether specifically shown or not. Verify locations with Architect prior to constructing same or routing work toward same.

3.14.3 Openings required in existing walls, floor and roof structure shall be made by the prime contractor whose work requires the passage, unless the opening is specifically called out as General construction work. Openings shall be reasonably sized, made in a clean cut manner, and be supported with a lintel appropriate for the span.

ARTICLE 4; ADMINISTRATION OF THE CONTRACT

4.2 Architects Administration or the Contract

Add the following Clauses 4.2.4.1 and 4.2.4.2 to Subparagraph 4.2.4:

4.2.4.1 Should the Contractor perform work directed by the Owner, without the knowledge and approval of the Architect, including but not limited to work relating to artistic effect, code compliance, structures, building plumbing- mechanical- electrical systems performance, and "life safety", **the cost of necessary corrective measures will be borne by the Contractor executing such work.**

4.2.4.2 The Contractor shall copy Architect on all communications directly with the Owner.

4.2.4.3 Failure on the part of the Architect to condemn or detect defective material or workmanship shall not relieve the Contractor from liability to make good should it be discovered later or cause damage to the building.

ARTICLE 5; SUBCONTRACTORS

Add new Paragraph 5.5 (including Subparagraphs 5.5.1 through 5.5.4) to ARTICLE 5:

5.5 Mutual Responsibility

5.5.1 The contractor and subcontractors shall check and verify data contained in drawings, specifications, and work for which they are responsible, as well as the drawings, specifications, and work of other related contractor, subcontractors and/or trades before bidding if possible and again before construction to avoid bidding and/or installation conflicts**. The division of these specifications into sections is not intended to control the Contractor in dividing the work among subcontractors or to limit the scope of work performed by any trade under a given section.** The Architect will not undertake to settle any differences between the Contractor and his Subcontractors as to inclusion of work or materials items. It shall be the Contractor's entire responsibility for the proper coordination and completion of all the work described in these Specifications whether performed by the Contractor or Subcontractors, if any.

5.5.2 Defects in work by others affecting proper application and/or installation of work, materials, devices, fixtures, and/or appliances, unless reported in writing to Architect and the General Contractor for their action, shall be the responsibility of the contractor or subcontractor failing to make report and corrected at his expense.

5.5.3 Installation of materials, devices, fixtures, and/or appliances by the contractor or subcontractors is tantamount to his unqualified acceptance and check or related work by others.

5.5.4 Each Subcontractor shall as a portion of his contract, anticipate and include normal cutting, patching, and digging required for the successful completion of his contract which may not practically be accomplished by the General Contractor as outlined in paragraph 3.14 Cutting and Patching.

ARTICLE 7; CHANGES IN THE WORK

7.3. Construction Change Directives

Add the following Clause 7.3.6.6 to Subparagraph 7.3.6:

7.3.6.6 The maximum allowance for overhead and profit combined shall not exceed fifteen percent (15%) of net cost for work not sublet by General Contractor; for work sublet, five percent (5%); for work by other Prime Contractors, if applicable, no percent (0%).

ARTICLE 8; TIME

8.1 Definitions

Add the following Clauses 8.1.1.1 and 8.1.1.2 to Subparagraph 8.1.1:

8.1.1.1 The contractors shall commence work to be performed under this agreement on a date to be specified in written order from the architect (or from the date of the Owner-Contractor Agreement if no such notice is given.) and shall fully complete all work hereunder by:

TOTAL 6 Months – See Form of Proposal for details.

Contract time listed includes normal average number of bad weather days. It shall be Contractor's responsibility to keep accurate records and substantiate Climatic Center records for any possible extension he might later request.

Liquidated Damages shall be assessed and levied against the General Contractor (Single Prime) not attaining substantial completion in the amount of time indicated above. See Liquidated Damage Provision in Specification section 01011 "Summary of the Work".

8.1.1.2 Normal bad weather days are defined as those days on which precipitation is 0.10 of an inch, or greater; or any 24 hour daylight period the temperature fails to exceed an average of 40 degrees F. **The normal bad weather days and any time extension will be based on the Local Climatological Data Sheets compiled and published by weatherbase.com for the nearest available city (Jamestown, NC).** If the total accumulated number of working days lost due to bad weather, from the start of work until the project is completed, exceeds the listed average number of bad weather days (*Average number of Rainy Days or Cold Weather Days*), the time for completion will be extended by the difference.

The Contractor's claims, if any, for extension of time must be made in writing to the Architect not more than five working days after the Contractor has notice of the delay. Thereafter, the Contractor must provide full details and supporting documentation with regard to the cause of the delay within 15 working days of the initial notice of the delay to the Architect. If either the initial notice or the supporting documentation are not filed with the Architect in writing within the time periods specified, the claim for delay shall be waived. If the cause for the delay is a continuing one then only one claim is necessary. The Contractor's supporting documentation to the Architect shall include and estimate of the probable effects of the delay on the progress of the Work and the Project Schedule.

Contractor claims for delays and/or extensions of time will not be accepted at the end of the project.

Not withstanding any other provisions of the Contract, Contractor agrees as between and among itself and the Owner, Architect, the General Contractor, and any other AE Representative that the Contractor's right to receive an extension of time pursuant to the provisions of this Paragraph shall be the Contractor's sole and exclusive remedy with regard to any Work and The Contractor hereby waives and releases claims for monetary damages arising out of or related to any such delay or interference, including but not limited to, claims for delay damages, interference damages, impact damages, acceleration damages and any other form of the time-related damages against the Owner and the Design Professional.

ARTICLE 9; PAYMENTS AND COMPLETION

9.3 Applications for Payment

Add the following Clause 9.3.1.3 to Subparagraph 9.3.1:

9.3.1.3 Prior to reaching a maximum retainage of two and one half percent (2.5%) of the total contract amount, the Owner will pay ninety five percent of the amount due on the Contractor's monthly application for payment. Thereafter the owner will pay one hundred percent (100%) of the Contractor's monthly application for payment amount, holding the 2.5% maximum retainage as a fixed amount until substantial completion is certified. Provisions of NC General Statutes 143-134.1 (b1) through (e) will be followed.

The following conditions must be met to qualify for contractual retainage reduction:

1. The project be on or ahead of schedule, and
2. Written permission from the Contractor's bonding company must be submitted.

9.8 Substantial Completion

Add the following Subparagraph 9.8.6 to Paragraph 9.8:

9.8.6 Should more that **two** substantial completion inspections be necessary, **the cost of the additional inspections shall be borne by the Contractor.** Compensation will be made for each authorized Owner's representatives involved in these inspections at the rate of $100.00 per hour or fraction thereof. Compensation to the Architect and his consultants will be accordance with the OFFICE STANDARD RATE SHEET, a copy of which is attached and incorporated herein by reference.

ARTICLE 11; INSURANCE AND BONDS

Contractor's Liability Insurance

Add the following Clause 11.1.2.1 to Subparagraph 11.1.2:

11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following, or greater if required by law.

1. Workers' Compensation:

(a) State:	Statutory
(b) Applicable Federal:	Statutory
(c) Employer's Liability:	$ 500,000.00

2. Comprehensive General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):

(a) Bodily Injury - including Personal injuries:
$ 2,000,000.00 Each Occurrence and Annual Aggregate

(b) Property Damage:
$ 2,000,000.00 Each Occurrence and Annual Aggregate

(c) Products and Completed Operations to be maintained for twelve months (12) after final payment.

3. Contractual Liability:

(a) Bodily Injury:
$ 2,000,000.00 Each Occurrence and Annual Aggregate

(b) Property Damage:
$ 2,000,000.00 Each Occurrence and Annual Aggregate

4. Personal Injury, with Employment Exclusion deleted:

$ 2,000,000.00 Annual Aggregate

5. Comprehensive Automobile Liability:

(a) Bodily Injury:
$ 2,000,000.00 Each Person

$ 2,000,000.00 Each Occurrence

(b) Property Damage:
$ 2,000,000.00 Each Occurrence

Add the following Subparagraph 11.1.4 and 11.1.5 to Paragraph 11.1:

11.1.4 The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage of limits.

11.1.5 Provide either in the body of the policy or by appropriate endorsement (rider) to the policy, a clause prohibiting cancellation or amendment of policy until thirty (30) days prior written notice has been sent to both the Architect and Owner of such alterations or cancellation.

Edit 11.2. Owner's Insurance

Amend clause 11.2.1 and 11.2.2 and 11.2.3 to include the purchase of Property Insurance by each prime contractor as part of their contract requirements. Provide Builder's Risk Insurance for amount of project over and above contractor's liability coverage. The insured amount each contractor shall provide shall be as follows:

General Contractor: "all risk" - minimum of General contract amount.**11.2.4 Performance Bond and Payment Bond**

Add Subparagraph 11.2.4

11.2.4 Performance Bond and Labor and Material Payment Bond are required by Owner. Both bonds shall be in an amount equal to 100 percent of the contract sum and the cost shall be part of the contract price.

Add the following Subparagraphs 11.2.4.1 and 11.2.4.2 to Paragraph 11.2.4:

11.2.4.1 The bonds shall be written on the standard AIA forms A311 or form A312; and shall guarantee faithful performance of the contract and shall guarantee payment of all bills for labor and materials when said bills are due, as provided by Article 3 of Chapter 44A of the North Carolina General Statutes.

11.2.4.2 The bonds shall remain in full force and effect for at least twelve months after completion of the work and Architect's final Certificate is approved for payment to the Owner.

ARTICLE 13; MISCELLANEOUS

13.1 Governing Law

Delete paragraph 13.1 and substitute the following:

13.1 This agreement shall be construed and enforced in accordance with the laws of the State of North Carolina. The parties to this agreement confer exclusive jurisdiction of all disputes arising hereunder upon the **General Courts of Justice of Guilford County, North Carolina.**

13.4 Tests and Inspections

Add the following Subparagraph 13.4.7 to Paragraph 13.5:

13.4.7 Mechanical devices, machinery, apparatus, or equipment supplied under contract may be tested by trial usage for a reasonable period as determined by the Architect before final acceptance. Such usage

shall not be construed as evidence of acceptance, and no claim for damages, injury, or breakage shall be made if caused by weakness, inaccuracy of structural parts, defective materials or workmanship.

13.5 Interest

Delete paragraph 13.5 – Owner will not pay interest.

ARTICLE 14; TERMINATION OR SUSPENSION OF THE CONTRACT

14.4 – Termination by the Owner for Convenience

Delete Subparagraph 14.4.3 and replace with the following Subparagraphs 14.4.3 and 14.4.4:

14.4.3 Upon such termination, the Contractor shall recover as its sole remedy payment for Work properly performed in connection with the terminated portion of the Work prior to the effective date of termination and for items properly and timely fabricated off the Project site, delivered and stored in accordance with the Owner's instructions. The Contractor hereby waives and forfeits all other claims for payment and damages, including, without limitation, anticipated profits.

14.4.4 The Owner shall be credited for: (1) payments previously made to the Contractor for the terminated portions of the Work; (2) claims which the Owner has against the Contractor under the Contract Documents; and (3) the value of the materials, supplies, equipment or other items that are to be disposed of by the Contractor that are part of the Contract Sum.

ARTICLE 15; CLAIMS AND DISPUTES

Delete 15.3 Mediation, et seq., 15.4 Arbitration, et seq.

ADD THE FOLLOWING NEW ARTICLE

ARTICLE 16; EQUAL OPPORTUNITY

16.1 Equal Opportunity

16.1.1 In connection with the performance of work under this contract or purchase order, the Contractor or supplier agrees as follows:

16.1.1.1 The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination, rates of pay, or other forms of compensation, and selection for training, including apprenticeship.

16.1.1.2 The Contractor will, in all solicitation or advertisements for employees placed by or on behalf of the contractor, state that all applicants will receive consideration for employment without regard to race, creed, color, or national origin.

End of SUPPLEMENTARY CONDITIONS

SECTION 01011 - SUMMARY OF THE WORK

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.

PROJECT/WORK IDENTIFICATION:

General: Project name is Town of Jamestown, **Jamestown Park Toilets,** Jamestown, North Carolina, as shown on Contract Documents prepared by RAMSAY BURGIN SMITH ARCHITECTS, INC. Drawings and Specifications dated OCTOBER 2022 unless noted otherwise.

Prime Contracts, in the context used in this Section, are separate contracts that represent significant elements of work that are performed concurrently with and in close coordination with work performed on the project under other prime contracts. Prime contracts for this project include the following:

Contract for General Work including the work associated with Site Work, Architectural, Structural, Plumbing, Heating, Ventilating and Air Conditioning and Electrical work as required to complete the building for its intended use and function.

Contract Documents indicate the work of Contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include, but are not necessarily limited to the following:

Existing site conditions and restrictions on use of the site

New Construction.

Work to be performed subsequent to work under the prime contract.

Items to be installed by prime contractor(s) that will be furnished by the Owner.

Work associated with accepted Alternates.

Unit Prices that may be applicable to conditions found during construction.

Allowances.

PROJECT COMPLETION: Prime Contractor shall deliver to the Owner from the notice to proceed, a completed building with related fire protection, plumbing, HVAC, electrical systems functioning, as designed and specified for its intended use as a Public Toilet facility.

Construction Duration: 6 Month Project

LIQUIDATED DAMAGES shall be assessed and levied against each Prime Contractor not attaining substantial completion of the contractual work in the amount of time indicated above. The damage amount applicable to each Contractor shall be as listed below and shall begin the day following the

scheduled date of substantial completion above (plus any written, approved extensions) and continue until final acceptance is obtained.

Each day following the intended substantial completion date for work not found substantially complete will be subject to damage assessment at the following rate:

GENERAL WORK ---------- $ 250.00 per calendar day

Submittal of proposals constitutes acknowledgement by the General Contractor that time is of the essence to the Owner and of material value equal to the damage amounts listed above. These amounts are pre-established equitable values required to recover the losses incurred by the Owner for failure to have complete use of the new facility by the required completion date.

Each Subcontractor shall be responsible for reviewing the General Contractor's initial construction schedule and report any unacceptable scheduling. Failure by a subprime contractor to report objections within 30 days to the General Contractor (with copy to Architect) after issuance of initial schedule constitutes acceptance of the schedule.

The General Contractor shall accept clerical responsibility for reporting any delays due to extremes in weather or other uncontrollable events which create deviations from the established construction schedule that unduly exposes the contractor to liquidated damages. These reports are required to be submitted to the Architect on a monthly basis coinciding with the Contractor's monthly application for payments. Failure to report delays constitutes agreement by the General Contractor, that no time extension is forthcoming for each applicable month at the end of the project completion date.

NOTE: Reporting of delays does not guarantee Owner or Architect agreement that delays are acceptable or justified.

The completion date includes normal bad weather days. See Supplementary Conditions for definition of a bad weather day and the allowance for numbers of bad weather days included as "normal" within the contract base bid.

Change Orders will not automatically mean additional time. If events beyond the Prime Contractor's(s') control or if additional work adds time to the project's "critical path", a change order may then include an appropriate extension to the contract completion date.

GENERAL WORK includes work that is primarily architectural, structural and civil in nature plus work traditionally recognized as general construction, including demolition of existing where required, and new construction. It also includes both administrative and coordination responsibilities.

Pay for all permits required, including all government and utility fees; sales, consumer and use taxes for the proper execution of the work.

File and Pay for Water & Sewer Tap fees - Contractors shall be responsible for hooking to meters and providing & installing all other piping – including providing and installing RPZ(s).

File & Pay for all Building & Permit fees.

Project coordination work.

Temporary facilities related to General work as specified in the "Temporary Facilities" section of these specifications.

Typically, work described on drawing Sheets A1, A2, A3 and specifications including Invitation to Bids, Instructions to bidders, General Conditions, Supplementary General Conditions, Specification Divisions 1 thru 14, and MBE requirements represents General Work.

Complete drawings and specifications are included in bid package to assist General Contractor in including coordination costs of his work as it relates to other prime contracts (or major subcontracts) and to assist General Contractor in determining how other prime contractor(s) (or major subcontractors) work effects General Work construction. Only specifically noted work by General Contractor on P1.1, P2.1, M1.1, E1.1, E2.1, E3.1 is part of General Work.

PLUMBING WORK includes the work required to provide complete domestic water and sewer piping systems in the new building including, but not limited to the following:

Water service connection,
Sewer service connection,
Building potable water supply system (hot and cold water piping),
Pipe insulation,
Building sewer system,
Vent piping system,
Plumbing fixtures and equipment, and
Temporary facilities related to plumbing work as specified in the "Temporary Facilities" section of these specifications.

Typically, work described on drawings P1.1, P2.1, Invitation to Bids, Instructions to bidders, General Conditions, Supplementary General Conditions and Specification Division 1, Division 15, and MBE requirements represent bases of Plumbing Work.

Complete drawings and specifications are included in bid package to assist Plumbing Contractor in including coordination costs of his work as it relates to other prime contracts (or major subcontracts) and to assist Plumbing Contractor in determining how other prime contractor(s) (or major subcontractor work) work effects Plumbing Work construction. Only specifically noted work by Plumbing Contractor on Sheets A1, A2, A3 & M1.1, E1.1, E2.1, E3.1 and specifications Division 2 thru 14 is part of Plumbing Work.

HEATING, VENTILATING AND AIR CONDITIONING (MECHANICAL) WORK includes the work required to provide a complete heating, ventilating and air conditioning system in the new building including, but not limited to the following:

Mini Split Heat Pumps
Wall heaters
Condensate drain piping,
Control system,
Piping insulation,
Fans/blowers, power ventilators and exhaust systems,
Motor starters for HVAC equipment motors,
Air filters,
Air diffusers, grilles and registers, and
Temporary facilities related to heating,
ventilating and air-conditioning work as specified in the "Temporary Facilities" section of these specifications.

Typically, work described on drawings M1.1, Invitation to Bids, Instructions to bidders, General Conditions, Supplementary General Conditions and Specification Division 1, Division 15, and MBE requirements represent bases of Heating, Ventilating and Air Conditioning Work (Mechanical Work).

Complete drawings and specifications are included in bid package to assist Mechanical Contractor in including coordination costs of his work as it relates to other prime contracts (or major subcontracts)

and to assist Mechanical Contractor in determining how other prime contractor(s) (or major subcontractor work) work effects Mechanical Work construction. Only specifically noted work by Mechanical Contractor on Sheets A1, A2, A3, and P1.1, P2.1, E1.1, E2.1, E3.1, and specifications Division 2 thru 14 and Division 16 is part of Mechanical Work.

ELECTRICAL WORK includes the work required to provide a complete electrical power distribution and lighting system in the new building including but not necessarily limited to the following:

Power transmission and service extension,
Power distribution (panel boards) including disconnect switches at major units of other work requiring power (except as noted otherwise),
Electrical lighting,
Emergency lighting,
Grounding,
Raceways, outlets, etc. for power, lights, , and other special systems.
Temporary facilities related to electrical work as specified in the "Temporary Facilities" section of these specifications.

Typically, described on drawings E1.1, E2.1, E3.1, and Invitation to Bids, Instructions to bidders, General Conditions, Supplementary General Conditions and Specification Division 1 and MBE requirements represent bases of Electrical Work.

Complete drawings and specifications are included in bid package to assist Electrical Contractor in including coordination costs of his work as it relates to other prime contracts (or major subcontracts) and to assist Electrical Contractor in determining how other Prime Contractor(s) (or major subcontractor work) work effects Electrical Work construction. Only specifically noted work by Electrical Contractor on Sheets A1, A2, A3, and P1.1, P2.1, M1.1, and specifications Division 2 thru 15 is part of Electrical Work.

DEFINITION OF THE EXTENT OF PRIME CONTRACT WORK: The extent of the work of the Prime Contract is indicated in/on the Contract Documents. General names and terminology on the drawings and in the specifications may be used to control which subcontract(s) includes a specific element of required work, **but the final extent and demarcation of subcontract work is the sole responsibility of the Prime Contractor.**

Summary by References: Work of the major subcontract(s) can be summarized by reference to the major subcontract(s) drawing sheets, General Conditions, Supplementary Conditions, Specification sections, Addenda and Modifications to Contract Documents issued subsequent to the initial printing of this Project Manual, and including but not necessarily limited to printed material reference by any of these. It is recognized that the work of the Contract(s) is unavoidably affected or influenced by governing regulations, natural phenomenon, including weather conditions, and other forces outside the contract documents.

CONTRACTORS USE OF PREMISES:

General: During the entire construction period all contractors and subcontractors jointly shall have the use of the premises for construction operations, including full use of the site within limits described.

Grading and site work on adjacent property shall be prohibited unless specifically note otherwise.

The site is defined as the property as the area just immediately around the new building. Other areas shall not be encumbered with work materials or construction trash.

Specific work activities as drawn and/or specified are allowed as required beyond the site lines; however, limit time to minimum required to perform work.

Use of the Site: Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is required are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

Do not unreasonably encumber the site with materials of equipment. Confine stockpiling of materials and location of storage sheds to minimum areas.
Lock automotive type vehicles such as passenger cars and trucks and other types of mechanized and motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.

Smoking or open fires will not be permitted within the building enclosure or on the premises as further specified in Division 2 work.

BUILDING USAGE AND SECURITY:

General: The Contract for General Work includes maintaining security and occupant safety during the construction process; however, all Prime Contractors are accountable for conducting their work in a safe, responsible manner that will provide a safe environment for all workers.

ALTERATIONS AND COORDINATION:

General: The Contract for General Work includes coordination of the entire work of the project, acting as the "Project Expeditor" including preparation of general coordination drawings, diagrams and schedules and control of site utilization from the beginning of construction activity through project closeout and warranty period.

MISCELLANEIOUS PROVISIONS: Electrical Requirements: Except as otherwise indicated, comply with applicable provisions of the National Electric Code (NEC) and standards by the National Electrical Manufacturer's Association (NEMA) for electrical components of general work. Provide Underwriter's Laboratories listed and labeled products where applicable.

PART 2 - PRODUCTS (Not Applicable).

SCHEDULE OF DRAWINGS

Architectural

A1 SITE PLAN and DETAILS
A2 FLOOR PLAN
A3 BUILDING ELEVATIONS and SECTIONS

Plumbing & Mechanical

P1.1 PLUMBING
P2.1 PLUMBING DETAILS

M1.1 MECHANICAL

Electrical – Dated June 2021

E1.1 ELECTRICAL SITE PLAN
E2.1 ELECTRICAL POWER PLAN
E3.1 ELECTRICAL LIGHTING PLAN

End of SECTION 01011

SECTION 01020 - ALLOWANCES

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 procedural requirements governing handling and processing allowances.

Selected materials and equipment, and in some cases, their installation are shown and specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. Additional requirements, if necessary, will be issued by Change Order.

Types of allowances required include the following:

Lump sum allowances.
Unit-cost allowances.
Contingency allowance.
Inspection and testing allowances.

Procedures for submitting and handling Change Orders are included in Section "Change Order Procedures."

Use of allowances for inspection and testing agencies is included in Section "Quality Control Services."

SELECTION AND PURCHASE

At the earliest feasible date after Contract award, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed in order to avoid delay in performance of the Work.

When requested by the Architect, obtain proposals for each allowance for use in making final selections; include recommendations that are relevant to performance of the Work.

Purchase products and systems as selected by the Architect from the designated supplier.

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 indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance.

CONTINGENCY ALLOWANCES

Use the contingency allowance only as directed for the Owner's purposes, and only by Change Orders which designate amounts to be charged to the allowance.

The Contractor's related costs for products or equipment ordered by the Owner under the contingency allowance, including delivery, installation, taxes, insurance, equipment rental, and similar costs are not part of the Contract Sum.

Change Orders authorizing use of funds from the contingency allowance will include the Contractor's related costs and reasonable overhead and profit margins (see Supplementary General Conditions).

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

INSPECTION AND TESTING ALLOWANCES

Inspection and testing allowance includes the cost of engaging the inspection or testing agencies and cost for reporting the results of unanticipated below grade soil conditions only. General Contractor shall include in his regular job costs, the testing required for soil compaction, concrete mix and steel connections as specified in those sections of these specifications.

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

UNUSED MATERIALS

Return unused materials to the manufacturer or supplier for credit to the Owner, after installation has been completed and accepted.

Where it is not economically feasible to return unused material for credit and when requested by the Architect, prepare unused material for the Owner's storage, and deliver to the Owner's storage space as directed. Otherwise, disposal of excess material is the Contractor's responsibility.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

INSPECTION

Inspect 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 construction activities.

SCHEDULE OF ALLOWANCES:

NOTE: ALL ALLOWANCES LISTED BELOW SHALL BE INCLUDED IN THE BASE BID.

GENERAL CONTRACT:

Contingency Allowance **$ 5,000.00**

Undercut and Compacted Structural Fill Allowance **75 cubic yards of undercut and fill**

NOTE: See Form of Proposal for unit pricing (Unit Price #1) to be used to compute this allowance value.

Testing Allowance **$ 1,500.00**

This Allowance to be used by Contractor to pay for all required CMT testing - reference Section 01400.

Hardware Allowance **$ 7,000.00**

End of SECTION 01020

SECTION 01026 - UNIT PRICES

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 procedural requirements for unit prices.

A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.

Unit prices include all necessary material, overhead, profit and applicable taxes.

Refer to individual Specification Sections for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

Schedule: A "Unit Price" section is included as part of the "Form of Proposal" and as applicable to each prime contract **must be completed as part of the bid**. Specification Sections referenced in the Schedule contain requirements for materials and methods described under each unit price.

The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

PART 3 - EXECUTION (NOT APPLICABLE).

UNIT PRICE SCHEDULE

Unit prices are for complete work and no profit or overhead shall be added or deducted when applying unit prices. No work described on the drawings or specifications is to be bid as a unit price. Unit price costs will be used only for additional work the owner may want to include in the work by change order.

UNIT COST #1 - Undercut including compacted structural quality soil refill, per cubic yard.

This unit price must also include cost of hauling AND LEGALLY DISPOSING OF undercut soil from site, hauling in structural quality soil to site and compacting structural quality soil refill. Testing costs of soil material characteristics and appropriateness of its use as structural fill shall be part of unit cost or otherwise part of general contractor's base bid.

NOTE: Testing services for undercut and compacted refill for unit price work shall be paid for by Owner out of Testing Allowance.

Unit price shall be paid on the basis of the actual size hole required to be filled after undercut has been removed. Unit price above must account for any "shrinkage" from compaction. **Fill will not be paid per truck load volume.**

See Allowances for unit amount to be included in Base Bid.

"Legal disposal" includes meeting all requirements from NCDENR.

End of SECTION 01026

SECTION 01027 - APPLICATIONS FOR PAYMENT

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 procedural requirements governing the Prime Contractor's(s') Applications for Payment.

This Section specifies administrative and procedural requirements governing each Prime Contractor's Applications for Payment.

Coordinate the Schedule of Values and Applications for Payment with the Prime Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule.

The Construction Schedule and Submittal Schedule are included in Section "Submittals".

SCHEDULE OF VALUES

Coordinate preparation of the Schedule of Values with preparation of the Construction Schedule.

Each Prime Contractor shall coordinate preparation of its Schedule of Values for its part of the Work with preparation of the Construction Schedule.

Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

- General Contractor's construction schedule (as approved by all Prime Contractors).
- Application for Payment form.
- List of subcontractors.
- Schedule of allowances.
- List of products.
- List of principal suppliers and fabricators.

Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.

Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.

Identification: Include the following Project identification on the Schedule of Values:

- Project name and location.
- Name of the Architect.
- Prime Contractor's name and address.
- Date of submittal.

Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

Generic name.
Related Specification Section.
Dollar value.
Percentage of Contract Sum to the nearest one-tenth percent, adjusted to total 100 percent.

Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items including cost of major equipment and labor costs.

Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.

Margins of Cost: Temporary facilities and other major cost items that are not direct cost of actual work-in-place shall be shown as separate line items in the Schedule of Values as general overhead expense.

APPLICATIONS FOR PAYMENT

Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.

The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

Payment Application Times (Unless listed otherwise in the Owner-Contractor Agreement): The date for each progress payment is the 15th day of each month. The period of construction Work covered by each Application for Payment is the period ending 15 days prior to the date for each progress payment and starting the day following the end of the preceding period.

Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment.

Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.

Entries shall match data on the Schedule of Values and Construction Schedule. Use updated schedules if revisions have been made.

Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

Each monthly payment application shall include an attachment listing of all sales tax paid on materials that are billed on the application. (**See SALES TAX REPORT attached at the end of this Section 01027**.) Listing shall breakdown, per vendor, the tax amount paid to each state and each county.

Payments requested for stored materials or major pieces of equipment will be paid from invoice costs documented with applications. Submit "Amendment to Protect Stored Materials" (**sample attached at the end of this Section 01027**) on Bonding Company letterhead with application for payment.

Transmittal: Submit 4 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours; all copies shall be complete.

Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.

Waivers of Mechanics Lien: With Final Application for Payment, submit waivers of mechanics lien from every entity who may lawfully be entitled to file a mechanics lien arising out of the Contract, and related to the Work covered by the payment.

Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.

Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:

List of subcontractors,
List of principal suppliers and fabricators,
Schedule of Values,
General Contractor's Construction Schedule (preliminary if not final),
List of Prime Contractor's(s') staff assignments,
Initial progress report,
Copies of authorizations and licenses from governing authorities for performance of the Work,
Certificates of insurance and insurance policies (Part of Owner-Contractor Agreement documents),
Performance and payment bonds (Part of Owner-Contractor Agreement documents), and
Data needed to acquire Owner's insurance (Part of Owner-Contractor Agreement documents).

Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

Administrative actions and submittals that shall proceed or coincide with this application include:

Occupancy permits and similar approvals,
Warranties (guarantees) and maintenance agreements,
Test/adjust/balance records,
Maintenance instructions,
Start-up performance reports,
Changeover information related to Owner's occupancy, use, operation and maintenance,
Final cleaning,
Application for reduction of retainage, and consent of surety,
Advice on shifting insurance coverages,
List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion,
Change of door locks to Owner's access, and
Issue final keys to Owner with door numbers marked on each key.

Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final payment Application for Payment include the following:

Completion of Project closeout requirements,
Completion of items specified for completion after Substantial Completion,
Submit signed off completed Punch List items to the Architect
Assurance that unsettled claims will be settled,
Assurance that Work not complete and accepted will be completed without undue delay,
Transmittal of required Project construction records to Owner,
Proof that taxes, fees and similar obligations have been paid,
Removal of temporary facilities and services, and
Removal of surplus materials, rubbish and similar elements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

End of SECTION 01027

AMENDMENT TO PROTECT STORED MATERIALS

Below is the outline form letter noted in Division 1 of the specifications required by the Architect prior to recommending to the Owner payments for materials stored off site.

COMPANY LETTER HEAD

CURRENT DATE

Ramsay, Burgin, Smith, Architects, Inc.
225 North Main Street, Suite 501
Salisbury, North Carolina 28144

Subject: Town of Jamestown
Jamestown Park - Toilets
Jamestown, NC

Dear Sirs:

This letter represents consent from **LIST NAME OF BONDING COMPANY** allowing Ramsay, Burgin, Smith, Architects, Inc. to release payment to **LIST NAME OF CONTRACTOR** all materials claimed on applications for payment as stored materials for Town of Jamestown – Jamestown Park Toilets, Jamestown, North Carolina This applies to materials whether stored on or off site.

The bonding company does not require the Owner or Architect to inventory or monitor inventory for said stored materials.

The bonding company also acknowledge that in the event of contractor default, bond coverage includes all costs and expenses for recovery or repurchase or these paid stored materials as well as all normal bond obligations and responsibilities applicable toward project completion.

Very truly yours,

AUTHORIZED SIGNATURE

SIGNEE'S TITLE

SIGNEE'S COMPANY NAME

XXX/xx

APPLICABLE OR DESIRED COPIES

Attachment: Power of Attorney statement

XXX/xx

STATE AND COUNTY SALES/USE TAX STATEMENT
And Certification

Sheet # ____________

Contractor: ______________________________ Sales Taxes Paid from ____________ To ____________

Project Name: ______________________________ Payment Application # ____________

Invoice #	Invoice Date	Vendor	Vendor Address	Type of Materials	TL. Amt. of Invoice	NC Tax	CTY Tax	Total Taxes

We certify that the above listing includes all materials purchased by us and incorporated into the above referenced project for the period stated, became a permanent part of the project, and that the sales tax shown has been paid. The above represents a complete listing of these sales taxes paid for the application number.

SWORN AND SUBSCRIBED BEFORE ME THIS

BY: ______________________________

NOTARY PUBLIC

TITLE ______________________________

MY COMMISSION EXPIRES: ______________________________

SECTION 01030 - ALTERNATES

PART 1 - GENERAL

RELATED DOCUMENTS

DRAWINGS, GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS AND OTHER DIVISION-1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

SUMMARY

This Section specifies administrative and procedural requirements for Alternates.

Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.

Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.

Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.

Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Alternate.

> Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

PART 2 - PRODUCTS

PART 3 - EXECUTION

SCHEDULE OF ALTERNATES:

NOTE: PRICES FOR ALL ALTERNATES LISTED BELOW ARE TO BE INCLUDED ON THE CONTRACTOR'S FORM OF PROPOSAL.

Each alternate price listing in this proposal shall cover all costs required for this particular part of the work, complete and in place, including all changes, alterations or modifications to surrounding work required to accommodate the substitution, addition, deletion or other change.

The Architect reserves the right to recommend to the Owner the acceptance or rejection of any or all alternates. The Owner reserves the right to accept or reject any or all such recommendations. The Owner further reserves the right to accept or reject alternates in any order they preferred without regard to whether or not their selected order effects bid outcome.

Should any of the alternates as described in the specifications be accepted, the amount written on the **"Form of Proposal"** shall be the amount to "add to" or "deduct from" the Base Bid. Signify the option intended by the words "add" or "deduct" in front of the written figures and the like "plus" or "minus" signs in front of the numerals.

ALTERNATE #1 - CUPOLA

Work of this alternate must include all work associated with providing materials, fabricating, installing, flashing and waterproofing the new 4 sided wood framed cupola with standing seam metal roofing onto the roof structure and metal roof.. Roof area under the cupola shall be built consistant with the rest of the roof structure if this alternate isn't accepted. See the architectural Drawings.

END OF SECTION 01030

SECTION 01041 - PROJECT COORDINATION - SINGLE PRIME CONTRACTS

PART 1 - GENERAL

RELATED DOCUMENTS:

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

DESCRIPTION OF WORK:

Maximum administrative and supervisory requirements necessary for coordination of work on the project to be fulfilled collectively by the prime contractors include but are not necessarily limited to the following:

Coordination and meetings,
Administrative and supervisory personnel,
Surveys and records or reports,
Special reports,
General installation provisions,
Cleaning and protection, and
Conservation and salvage.

These coordination requirements must be participated in by the General Contractor and each major subcontractor (plumbing, HVAC, electrical, and sprinkler), where applicable, even though certain items of work may be assigned to a specific prime contractor, and even though the Contractor for General Work may be assigned certain general work for overall coordination purposes.

COORDINATION AND MEETINGS:

Coordination Drawings: Each subcontractor shall prepare their related coordination drawings where work by separate entities requires fabrication off-site of products and materials that must accurately interface. Coordination drawings shall indicate how work shown by separate shop drawings will interface and shall indicate installation sequence. Comply with all requirements of the "Submittals" section.

Monthly Coordination Meetings: The Contractor for General Work shall schedule and hold monthly general project coordination meetings at regularly scheduled times that are convenient for the attendance of other major subcontractors and other parties involved. Required attendance includes the General Contractor and each subcontractor and every other entity identified by any contractor or subcontractor as being currently involved in the coordination or planning for the work of the entire project. Conduct meetings in a manner that resolve coordination problems. The Contractor for General Work shall preside at each meeting, and shall record meeting results. The Contractor for General Work shall distribute copies of the meeting result to everyone in attendance and to others affected by the decisions and actions resulting from each meeting.

ADMINISTRATIVE/SUPERVISORY PERSONNEL:

General: In addition to a General Superintendent and other administrative and supervisory personnel required for performance of the work, each major subcontractor shall provide specific coordinating personnel as reasonably required for interfacing work with other work of total project.

Project Coordinator: The Contractor for General Work shall provide a Project Coordinator, who is experienced in administration and supervision of building construction, including plumbing, mechanical, electrical, and sprinkler work. This Project Coordinator is hereby authorized to act as the general coordinator of interfaces between the work. For the purpose of this provision, "interface" is defined to include scheduling and sequencing of work, sharing of access to work spaces, installations, protection of each other's work, cutting and patching, tolerances, cleaning, selections for compatibility, preparation of coordination drawings, inspection, tests and temporary facilities and services.

Submittals of Staff Names, Duties: Within 15 days of Notice to Proceed the General Contractor and each major subcontractor shall submit a listing of Contractor's principal staff assignments and consultants, naming persons and listing their addresses and telephone numbers.

SURVEYS AND RECORDS/REPORTS:

General: Working from lines and levels established by the property survey, the Contractor for General Work shall establish and maintain bench marks and other dependable markers. These bench marks and markers are established to set lines and levels for work at each story of construction and elsewhere as needed to properly locate each element of the project. Each major subcontractor shall calculate and measure required dimensions as shown, within recognized tolerances. Drawings shall not be scaled to determine dimensions. Advise entities performing work, of marked lines and levels provided for their use.

Survey Procedures: Before proceeding with the layout of actual work, each major subcontractor shall verify the layout information shown on the drawings, in relation to the property area and existing bench marks. As the work proceeds, check every major element for line, level and plumb. Each contractor and subcontractor shall report (to the General Contractor and Architect) and record deviations which are accepted and/or not corrected, on record drawings.

LIMITATIONS ON USE OF THE SITE:

General: Limitations on site usage as well as specific requirements that impact utilization are indicated on the drawings and by other contract documents. In addition to these limitations and requirements, the Contractor for General Work shall administer allocation of available space equitably among the subcontractors and other entities needing access and space, so as to produce the best overall efficiency in performance of the total work of the project. Each contractor and subcontractor shall schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site.

SPECIAL REPORTS:

General: Submit special reports directly to the Architect and other entities affected by the occurrence.

Reporting Unusual Events: When an event of an unusual and significant nature occurs at the site, the Contractor for General Work shall prepare and submit a special report. The report shall list chain of events, persons participating, the response by the contractor's personnel and by the personnel of the other subcontractors, an evaluation of the results or effects, and similar pertinent information. It is the responsibility of each contractor and subcontractor to advise the Architect in advance date, when such events are known or predictable.

Reporting Accident: Each contractor and subcontractor shall prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document data and actions. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

PART 3 - EXECUTION

GENERAL INSTALLATION PROVISIONS:

Installer's Inspection of Conditions: The contractor (General and/or Subcontractor) involved require the Installer of each major unit of work to inspect the substrate to receive the work and the conditions under which the work is to be performed. The Installer shall report all unsatisfactory conditions in writing to the General Contractor and Architect. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

Manufacturer's Instructions: Where installations include manufactured products, comply with the manufacturer's applicable instructions and recommendations for installation, to the extent that these instructions and recommendations are more explicit or more stringent than requirements indicated in the contract documents.

Inspect each item of materials or equipment immediately prior to installation. Reject damaged and defective items.

Provide attachment and connection devices and methods for securing work properly. Secure work true to line and level, and within recognized tolerances. Allow expansion and building movement. Provide uniform joint width in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable visual-effect choices to the Architect/Engineer for final decision.

Recheck measurements and dimensions of the work, as an integral step of starting each installation.

Install each unit of work during weather conditions and project status which will ensure the best possible results in coordination with the entire work. Isolate each unit of work from incompatible work as necessary to prevent deterioration.

Enclosure of the Work: Each prime contractor shall coordinate the closing-in of the work with required inspections and tests, so as to minimize the necessity of uncovering work for that purpose.

Mounting Heights: Where mounting heights are not indicated, mount individual units of work at industry recognized standard mounting heights for the particular application indicated. Refer questionable mounting height choices to the Architect/Engineer for final decision.

CLEANING AND PROTECTION:

General: During handling and installation of work at the project site, each prime contractor shall clean and protect work in progress and adjoining work in the basis of continuous maintenance. Apply protective covering on installed work where it is required to ensure freedom from damage or deterioration at the time of substantial completion.

Clean and perform maintenance on installed work as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

Limiting Exposure of Work: To the extent possible through reasonable control and protection methods, each prime contractor shall supervise performance of the work in such a manner and by such means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period.

End of SECTION 01041

SECTION 01050 - FIELD ENGINEERING

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

General: This Section specifies administrative and procedural requirements for field engineering services required as part of the **General Work**, including, but not necessarily limited to, the following:

Survey and Building Layout Work.

Post Construction Survey Work.

SUBMITTALS

Certificates: Submit a certificate signed by the Land Surveyor certifying that the location and elevation of improvements comply with the Contract Documents.

Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of Sections "Submittals" and "Project Closeout".

QUALITY ASSURANCE

Surveyor: Engage a Registered Land Surveyor registered in the State where the project is located, to perform land surveying services required.

Pre Construction Property and Topographic Map survey for the project Site plan was provided by:

Ramsay Burgin Smith Architects – proposed site plan

as well as - Survey Information provided by the Town of Jamestown Public Works

Post Construction Survey: Prepare, provide and submit Final Project Site Survey including all as built structures, utilities, storm sewer improvements including storm basin grate tops, inlet and outlet elevations to the City of Salisbury as part of the close-out documents required for project completion.

Original surveyor may be contacted to provide final Project Survey.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

EXAMINATION

Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.

Existing utilities and equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.

Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer and water service piping.

PERFORMANCE

Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

Advise entities engaged in construction activities, of marked lines and levels provided for their use.

As construction proceeds, check every major element for line, level and plumb.

Record deviations from required lines and levels, and advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.

Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.

Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical Work.

Existing Utilities: Furnish information necessary to adjust, move or relocate existing structures, utility poles, lines, services or other appurtenances located in, or affected by construction. Coordinate with local authorities having jurisdiction.

End of SECTION 01050

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

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.

DEFINITIONS

General: Basic Contract definitions are included in the General Conditions.

Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.

Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Architect," "requested by the Architect," and similar phrases.

Approve: The term "approved," where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in General and Supplementary Conditions.

Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."

Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."

Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor, for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

> The term "experienced" when used with the term "Installer" means having a minimum of 5 previous Projects similar in size and scope to this Project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.

Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

SPECIFICATION FORMAT AND CONTENT EXPLANATION

Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTERFORMAT numbering system.

Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the full context of the Contract Documents so indicates.

Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.

INDUSTRY STANDARDS

Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.

Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.

Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Architect for a decision before proceeding.

Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.

Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.

Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

GOVERNING REGULATIONS/AUTHORITIES

The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents; that information may or may not be of significance to the Contractor. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

SUBMITTALS

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

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

End of SECTION 01095

SECTION 01200 - PROJECT MEETINGS

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 procedural requirements for project meetings including but not limited to:

Pre-Construction Conference.
Coordination Meetings.
Progress Meetings.

Construction schedules are specified in another Division-1 Section.

PRE-CONSTRUCTION CONFERENCE

Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

Attendees: The Owner, Architect and their consultants, the Prime Contractor(s) and their superintendent(s), major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

Agenda: Discuss items of significance that could affect progress including such topics as:

Tentative construction schedule,
Critical Work sequencing,
Designation of responsible personnel,
Procedures for processing field decisions and Change Orders,
Procedures for processing Applications for Payment,
Submittal of Shop Drawings, Product Data and Samples,
Preparation of record documents,
Use of the premises,
Office, Work and storage areas,
Equipment deliveries and priorities,
Safety procedures,
First aid,
Security,
Housekeeping, and
Working hours.

COORDINATION MEETINGS

Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PROGRESS MEETINGS

Conduct progress meetings at the Project site at regularly scheduled intervals. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

Attendees: In addition to representatives of the Owner, Architect, and Prime Contractor(s), each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

Review the present and future needs of each entity present, including such items as:

Interface requirements,
Time,
Sequences,
Deliveries,
Off-site fabrication problems,
Access,
Site utilization,
Temporary facilities and services,
Hours of Work,
Hazards and risks,
Housekeeping,
Quality and Work standards,
Change Orders, and
Documentation of information for payment requests.

Reporting: No later than 3 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

End of SECTION 01200

SECTION 01300 - SUBMITTALS

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 procedural requirements for submittals required for performance of the Work, including:

Contractor's construction schedule.
Shop Drawings.
Note: Contractors/Subs shall not assume CAD files will be released from Architect or Engineers for Shop Drawing production. PDF ONLY will be available for this use.
Product Data.
Samples.

Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

Permits.
Applications for payment.
Performance and payment bonds.
Insurance certificates.
List of Subcontractors.

The Schedule of Values submittal is included in Section "Applications for Payment."

Inspection and test reports are included in Section "Quality Control Services."

SUBMITTAL PROCEDURES

Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.

Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.

If an intermediate submittal is necessary, process the same as the initial submittal.

Allow two weeks for reprocessing each submittal.

No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.

Note that Contractors are responsible for REVIEW of all submittals/shop drawings/samples/etc **PRIOR to submittal to the Architect**. Contractors shall review all data for compliance with the contract documents prior to submittal and review by the Architect.

Include the following information on the label for processing and recording action taken.

Project name.
Date.
Name and address of Contractor.
Name and address of subcontractor.
Name and address of supplier.
Name of manufacturer.
Drawing number and detail references, as appropriate.

Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.

On the transmittal Record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

CONTRACTOR'S CONSTRUCTION SCHEDULE

Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 30 days of the date established for "Commencement of the Work".

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."

SHOP DRAWINGS

Submit newly prepared information, drawn to accurate scale.

Highlight, encircle, and otherwise indicate deviations from the Contract Documents. ALSO SEE GENERAL CONDITIONS REQUIREMENTS FOR SUBMITTAL – ARTICLE 3, paragraph 3.12, and all related subparagraphs.

Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:

Dimensions.
Identification of **specific** products, model #'s and/or materials included.
Compliance with specified standards.
Notation of coordination requirements.
Notation of dimensions established by field measurement.

Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 30" x 42".

Paper - Initial Submittal: Submit two prints for the Architect's review; one print will be returned.

Electronic - PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

Please Note: If possible, **electronic submittals are preferred** method of submittal / review.

However, CONTRACTOR must then print all electronic submittals and provide FINAL stamped/approved PAPER COPIES on the Job Site -in the Job Trailer.

Paper - Final Submittal: Submit 5 blue-line prints, 2 prints will be retained; the remainder will be returned.

NOTE: Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.

PRODUCT DATA

Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

Manufacturer's printed recommendations.
Compliance with recognized trade association standards.
Compliance with recognized testing agency standards.

Application of testing agency labels and seals.
Notation of dimensions verified by field measurement.
Notation of coordination requirements.

Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.

Submittals: Submit 5 copies of each required submittal. The Architect will retain two, and will return the others marked with action taken and corrections or modifications required.

Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.

Do not permit use of unmarked copies of Product Data in connection with construction.

SAMPLES

Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:

Generic description of the Sample.
Sample source.
Product name or name of manufacturer.
Compliance with recognized standards.
Availability and delivery time.

Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.

Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.

Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.

Note that the Architect must see a full selection of all samples of products that require a color selection together at one time. No decision can be made on any one color product without first seeing the full range of all color choices that must be made. No Delay may be claimed for Satisfying that requirement.

Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit four sets; two will be returned marked with the action taken.

Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

Sample sets may be used to obtain final acceptance of the construction associated with each set.

Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.

Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

ARCHITECT'S ACTION

Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.

Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

Final Unrestricted Release: Where submittals are marked "Approved," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

Final-But-Restricted Release: When submittals are marked "Approved as Noted," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

Returned for Resubmittal: When submittal is marked "Not Approved, Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication,

delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.

NOTE: Do not permit submittals marked "Not Approved, Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

End of SECTION 01300

SECTION 01400 - QUALITY CONTROL SERVICES

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 procedural requirements for quality control services.

Special Inspections required by NC Building Code Chapter 17 shall be performed under a separate contract between the Owner and the inspections firm.

Statement of Special Inspections is Not Required.

Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include Contract enforcement activities performed by the Architect.

Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.

Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.

Requirements for the Contractor to provide quality control services required by the Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

RESPONSIBILITIES

Contractor Responsibilities: The Contractor shall employ a Testing Agency (approved by the Owner) to perform all inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities. Costs for these services shall be paid via the Owner’s Testing Allowance. Contractors are warned not to abuse this right but to be responsible with agency’s time and the Owner’s Testing Allowance Funds.

The Owner will engage the services of an independent agency to perform inspections and tests specified as the Owner's responsibilities – specifically, the Special Inspections Requirements.

Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:

Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.

Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.

Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.

Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.

Security and protection of samples and test equipment at the Project site.

Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Architect and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.

The agency shall notify the Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

The testing agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.

The agency shall not perform any duties of the Contractor.

Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition to Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

SUBMITTALS

The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Architect, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.

Submit additional copies of each written report directly to the governing authority, when the authority so directs.

Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:

Date of issue,
Project title and number,
Name, address and telephone number of testing agency,
Dates and locations of samples and tests or inspections,
Names of individuals making the inspection or test,
Designation of the Work and test method,
Identification of product and Specification Section,
Complete inspection or test data,
Test results and an interpretation of test results,
Ambient conditions at the time of sample-taking and testing,
Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements,
Name and signature of laboratory inspector, and
Recommendations on retesting.

QUALITY ASSURANCE

Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.

Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

REPAIR AND PROTECTION

General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."

Protect construction exposed by or for quality control service activities, and protect repaired construction.

Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

End of SECTION 01400

~~(See attached Statement of Special Inspections)~~

SECTION 01501 - TEMPORARY FACILITIES, SINGLE PRIME CONTRACTS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of each prime Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF REQUIREMENTS:

This section specifies administrative and procedural requirements for temporary services and facilities, including such items as temporary utility services, temporary construction and support facilities, and project security, protection and temporary storage shed.

Division of Responsibilities:

General: Each Prime Contractor and/or subcontractor is specifically assigned certain responsibilities for temporary services and facilities to be used by other contractors, and other entities at the site. **The Contractor for General Work is responsible for providing all temporary services and facilities that are not related to other Prime Contracts or other subcontractors' normal work and are not specifically assigned otherwise by these specifications**.

Work of each Prime contractor and/or subcontractor: Except as otherwise indicated, each Prime Contractor and subcontractor is responsible for the following:

Installation, operation, maintenance and removal of each temporary service or facility usually recognized as related to its own normal scope of work, and the costs and use charges associated with each service or facility.

Plug-in electric power cords and extension cords, and supplementary plug-in task lighting and special lighting necessary exclusively for its own work.

Storage and fabrication sheds necessary for its own work.

Specialized or unusual hoisting requirements.

Collection and disposal of its own hazardous, dangerous, unsanitary or otherwise harmful waste material.

Construction aids and miscellaneous services and facilities necessary for its own work.

The Contractor for General Work is responsible for the following:

Temporary telephone, superintendent cellphone, and jobsite **internet** service.
Temporary storm piping, dewatering and drainage.
Temporary Field Office – Not Required
Temporary roads and paving.
Temporary toilets, including disposable supplies.
Temporary enclosure of the building.
Temporary heat.
Minimum emergency fire protection.
Project identification and temporary signs.
General collection and disposal of wastes.
Barricades, warning signs.
Environmental protection.
Rodent and Pest Control.
General project Construction Aids and Miscellaneous Services and Facilities.

The **Subcontractor** for Plumbing Work is responsible for the following:

Piped temporary water service.

The **Subcontractor** for Mechanical Work is responsible for the following:

NONE

The **Subcontractor** for Electrical Work is responsible for the following:

Temporary electric power service and distribution.
Temporary lighting.

Use Charges:

Cost or usage charges for temporary services or facilities are not chargeable to the Owner or Architect. General Contractor's cost or use charges for temporary services or facilities will not be accepted as a basis of claims for a change-order extra. These charges must be part of base bid costs.

Water Service Use Charges: The Contractor for the General work shall pay water service use charges, whether metered or otherwise, for water used by all entities authorized to be at or to perform work at the project site. This contractor may exercise reasonable control over water use in an effort to conserve water.

Electric Power Service Use Charges: The Contractor for the General Work shall pay electric power service use charges, whether metered or otherwise, for electricity used by all entities authorized to be at or to perform work at the project site. This contractor may exercise reasonable control over power use in an effort to conserve energy.

Telephone Charges: The Contractor for the General Work shall pay basic and local phone changes; however, each other Prime Contractor(s) and subcontractor(s) will be responsible for any long distance charges relating to their work and made by their employees (or sub-subcontractors). Contractor of the General Work will be responsible for invoicing these costs to other contractors.

Internet Charges: The contractor for the General Contractor shall pay for internet usage charges for online electronic service available at the jobsite for communications.

Other entities using temporary services and facilities may include, but are not limited to the following:

Other Prime Contractor(s) if multi-prime,
Other nonprime contractors,
The Owner's work forces,
Occupants of the Project,
The Architect/Engineer,
Testing agencies, and
Personnel of governing agencies.

QUALITY ASSURANCE:

Regulations: Prime Contractor shall comply with local laws and regulations governing construction and local industry standards, in the installation and maintenance of temporary services and facilities, including but not limited to the following:

Building Codes, including local requirements for permits, testing and inspection,
Health and safety regulations, (OSHA)

Utility company regulations and recommendations governing temporary utility services,
Fire Department rules and recommendations,
Police and Rescue Squad recommendations, and
Environmental protection regulations governing use of water and energy, and control of dust, noise and other nuisances. (DENR)

JOB CONDITIONS:

General: Contractor for the General work shall provide each temporary service and facility ready for use at each location, when first needed to avoid delays in performance of work. Maintain, expand as required, and modify as needed throughout the progress of the work. Do not remove until services or facilities are no longer needed, or are replaced by the authorized use of completed permanent facilities.

Heat and Humidity control: The General Contractor must be aware that the unconditioned/exposed atmosphere inside the building produces extremely wet conditions in warm damp weather which causes causes condensation to form on cool interior surfaces. Temperature and humidity controls will be required to maintain newly installed finishes.

Mold control: The General Contractor will be required to protect construction in progress from the development of conditions that will be favorable for the development of mold. Means of removing moisture from within building enclosure shall be the responsibility of the General Contractor as required to inhibit mold development within the project.

Conditions of Use: Operate temporary services and facilities in a safe and efficient manner. Do not overload, and do not permit temporary services and facilities to interfere with the progress of work. Do not allow unsanitary conditions, public nuisances or hazardous conditions to develop or persist on the site.

Temporary Utilities: Do not permit freezing of pipes, flooding or the contamination of water sources.

Temporary Construction and Support Facilities: Maintain temporary facilities in a manner to prevent discomfort to users. Take necessary fire prevention measures. Maintain temporary facilities in a sanitary manner so as to avoid health problems.

Security and Protection: Maintain site security and protection facilities in a safe, lawful, publicly acceptable manner. Take measures necessary to prevent site erosion.

PART 2 - PRODUCTS

MATERIALS AND EQUIPMENT:

General: Contractor for the General work shall provide new materials and equipment for temporary services and facilities; used materials and equipment that are substantially undamaged and in serviceable condition may be used, if acceptable to the Architect/Engineer. Provide only materials and equipment that are suitable for their intended use.

Temporary Utilities: Where the local utility company provides only a portion of the temporary utility, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

Electrical Service: Comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service, including requirements included in Division-16 sections.

Voltage Differences: Provide identification warning signs at power outlets other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets.

Ground-Fault Protection: Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for plug-in connection of power tools and equipment.

Electrical Power Cords: Use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or waterproof connectors to connect separate lengths, if single lengths will not reach work areas.

Lamps and Light Fixtures: Provide general service incandescent lamps of wattage indicated or required for adequate illumination. Provide exterior fixtures where fixtures are exposed to weather or moisture.

Temporary Construction and Support Facilities: Provide facilities that can be maintained properly throughout the course of use at the project site.

Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the fuel being consumed.

Temporary Offices and Similar Construction: For temporary offices, fabrication shops, storage sheds and similar construction, provide standard prefabricated or mobile units. Provide insulated, weathertight units, that are heated and air-conditioned, with lockable entrances, operable windows, roofing, foundations adequate for normal loading, including wind loads, serviceable finishes, and mechanical and electrical equipment necessary to achieve ambient conditions indicated.

Self-Contained Toilet Units: Provide single-occupant self-contained toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with glass fiber reinforced polyester shell or similar non-absorbent material.

First Aid Supplies: Comply with governing regulations and recognized recommendations within the construction industry.

Drinking Water: Provide potable water complying with local health authority requirements.

Sign Materials: For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thicknesses indicated. Provide exterior grade acrylic-latex-base enamel for painting sign panels and applying graphics.

Security and Protection Facilities:

Fire Extinguishers: Provide type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical fires or grease-oil-flammable liquid fires. In other locations provide either type "ABC" dry chemical extinguishers, or a combination of several extinguishers of NFPA recommended types for the exposures in each case.

PART 3 - EXECUTION

INSTALLATION - GENERAL:

General: Use qualified tradesmen for installation of temporary services and facilities. Locate temporary services and facilities where they will serve the entire project adequately and result in minimum interference with performance of the Work.

Relocate, modify and extend services and facilities as required during the course of work so as to accommodate the entire work of the project.

TEMPORARY UTILITY INSTALLATION:

General: Engage the local utility company to install temporary service to the project, or to make connections to existing service. Arrange with the companies and existing users for an acceptable time when service can be interrupted, where necessary, to make connections for temporary services.

Water Service:

General: Install water service and distribution piping of sizes and pressures adequate for temporary construction purposes during the construction period and until permanent service is in use, including but not limited to the following uses:

Construction processes,
Drinking water,
Sanitary facilities, and
Cleaning.

Obtain metered water service.

Temporary Electric Power Service:

General: Provide a weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of work during the construction period. Whenever an overhead floor or roof deck has been installed, install temporary lighting adequate to provide sufficient illumination for safe work and traffic conditions in every work area.

Temporary Service: Install service and grounding in compliance with the National Electric Code (NFPA 70). Include necessary meters, transformers, overload protection disconnect and main distribution switch gear.

Install electric power service overhead except where underground service must be used to avoid construction conflicts or to comply with governing regulations.

Connect temporary service to the local electric power company main in the manner directed by company officials.

Provide temporary service with an automatic ground-fault interrupter feature, activated from the circuits of the system.

Power Distribution System: Provide circuits of adequate size and proper characteristics for each use.

Provide overload-protected disconnect switch for each temporary power circuit and each temporary lighting circuit, located at the power distribution center.

For power hand tools and task lighting, provide temporary 4-gang outlets at each floor level, spaced so that a 100 foot extension cord can reach each work area. Provide separate 110-120 Volt, 20 Amp circuit for each 4-gang outlet (4 outlets per circuit).

Temporary Lighting:

Provide not less than one 200-watt incandescent lamp per 1000 sq. ft. of floor area, uniformly distributed, for general construction lighting, or illumination of a similar nature. In corridors and similar traffic areas provide one 100-watt incandescent lamp every 50 feet. In stairways and at ladder runs, provide one lamp every story, located to illuminate each landing and flight.

Install and operate temporary lighting to fulfill security and protection requirements, without the necessity of operating the entire system.

Temporary Telephones:

General: Arrange for the local telephone company to install temporary service to the project. Provide service of the type and capacity indicated in other Division-1 sections.

TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION:

General: Provide a neat and uniform appearance in temporary construction and support facilities acceptable to the Architect/Engineer and the Owner.

Locate field offices, storage and fabrication sheds and other facilities for easy access to the work. Position offices so that windows give the best possible view of construction activities.

Maintain field offices, storage and fabrication sheds, temporary sanitary facilities, waste collection and disposal system, and project identification and temporary signs until near substantial completion. Immediately prior to substantial completion remove these facilities. Personnel remaining at the site beyond substantial completion will be permitted to use certain permanent facilities, under restricted use conditions acceptable to the Owner.

Temporary Heat:

General: Provide temporary heat where indicated or needed for proper performance of the Work, curing or drying of recently installed work or protection of work in place from adverse effects of low temperatures or high humidity. Select facilities known to be safe and without deleterious effect upon work in place or being installed. Coordinate with ventilation requirements to produce indicated ambient condition required and to minimize consumption of fuel or energy.

Maintain a minimum temperature of 45 deg.F (7 deg.C) in permanently enclosed portions of the building and areas where finished work has been installed.

Heating Facilities: Except where conditions make it necessary to use another system, and where use of permanent heating system is available and authorized, provide properly vented self-contained LP gas or fuel oil heaters with individual space thermostatic control for temporary heat.

Do not use open burning or salamander type temporary heating units where prohibited by governing regulations, or when combustible materials are located in or near the space being heated, or when work installed or being installed includes work exposed to view in the completed project.

Field Offices: NOT REQUIRED

General: The Contractor for the General Work shall provide a temporary field office of sufficient size to accommodate required office personnel of all subcontractors at the project site.

Provide a vented space heater, capable of maintaining uniform indoor temperature of 68 deg.F (20 deg.C), and an air-conditioning unit capable of maintaining a maximum indoor temperature of 72 deg.F (24 deg.C).

Furnish with not less than a desk and chair, a 4-drawer file cabinet, plan table and plan rack and seated meeting space for 8 people minumum.

Storage and Fabrication Sheds: Install storage and fabrication sheds, properly sized, furnished and equipped, as required to accommodate work. Comply with applicable provisions specified elsewhere for distribution and use of temporary utilities. Sheds may be open shelters or fully enclosed spaces, within the building construction area or elsewhere on the project site.

Temporary Roads and Paving:

General: To the fullest extent possible, locate temporary roads and paving for storage areas and temporary parking, in the same locations as permanent facilities for similar uses. To incorporate temporary paving provisions, review significant modifications of permanent paving requirements with the Architect for acceptance of the proposed improvements.

Coordinate development of temporary roads and paved areas with grading and the compaction of the subgrade, installation and stabilization of the subbase and installation of the base and finish courses of

permanent paving. Coordinate development in a manner that will minimize exposure of incomplete work to deterioration and the need to rework installations, that will provide adequate temporary roads and paving during the course of the work, and that will result in completion of permanent roads and paved areas in a manner that will be new in appearance and without damage or deterioration at the time of the Owner's occupancy.

Delay installation of the final course of permanent asphalt concrete paving in areas exposed to temporary use, until immediately before substantial completion. Coordinate with normal weather conditions to avoid unsatisfactory results.

Extend temporary roads and/or paving in and around the site construction area as necessary to accommodate the following:

Delivery and storage of materials,
Fabrication operations,
Use of equipment, including truck cranes,
Mock-ups,
Testing operations,
Administration and supervision, and
Safety and protection activities.

Sanitary Facilities:

General: Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with governing regulations including safety and health codes for the type, number, location, operation and maintenance of fixtures and facilities; provide not less than specified requirements. Install in locations which will best service the project's needs.

Supply and maintain toilet tissue, paper towels, paper cups and other disposable materials as appropriate for each facility. Provide covered waste containers for used material.

Toilets: Install self-contained toilet units or water and sewer connected temporary toilet facilities, to the extent permitted by governing regulations. Use of pit-type privies will not be permitted. Provide a minimum of three units.

Wash Facilities: Install potable-water-supplied wash facilities at locations convenient to construction personnel involved in handling compounds and materials where wash-up is necessary to maintain a healthy, sanitary condition.

Responsibilities: The Contractor for General Work is responsible for temporary sanitary facilities and their maintenance, including disposable supplies.

Temporary Enclosure:

General: At the earliest practical time provide temporary enclosure of materials, equipment, work in progress and completed portions of work to provide protection to the Work and employees from effects of exposure, foul weather, other construction operations, and similar activities on the site.

Provide temporary enclosures where temporary heat is needed and permanent building enclosure is not yet completed, and there is no other provision for containment of temporary heat. Coordinate enclosures with ventilating and material drying or curing requirements to avoid dangerous conditions and adverse effects.

Enclosure: Install tarpaulins or equivalent materials securely, using a minimum of wood framing and combustible materials. Individual openings of 25 sq. ft. or less may be closed with plywood or similar materials.

Close openings through the floor or roof decks and other horizontal surfaces with substantial load-bearing wood-framed or similar construction.

Project Identification and Temporary Signs:

General: Prepare project identification and other temporary signs of the size and with graphic content indicated; install where indicated. Support on posts or framing of treated wood or steel. Maintain signs

to properly inform the public and persons seeking entrance to the project. Do not permit installation of unauthorized signs that are visible outside the site.

Project Identification Signs: Engage an experienced sign painter to apply graphics in a neat professional manner. Comply with details and notations indicated on sketch of sign inserted after end of this section.

Collection and Disposal of Wastes:

General: Establish a system for daily collection and disposal of waste materials from construction areas and elsewhere on the site. Enforce requirements strictly. Do not hold collected materials at the site more than 7 days during normal weather or 3 days when the daily temperature is expected to rise above 80 deg.F (27 deg.C). Handle hazardous, dangerous, or unsanitary waste materials separately from other inert waste by containerizing appropriately. Dispose of waste material in a lawful manner.

Burying or burning of waste materials on the site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

Construction Aids and Miscellaneous Services and Facilities:

General: Design, construct, and maintain construction aids and miscellaneous services and facilities as needed to accommodate performance of work. Construction aids and miscellaneous services and facilities include, but are not limited to the following:

Temporary stairs and ladders,
Guardrails and barriers, and
Walkways.

Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate for performance of work. Cover finished permanent stairs exposed to occupants' use, with a durable protective covering of plywood or similar material so that finishes will undamaged at the time of acceptance.

Walkways: Install and maintain temporary walkways around construction work and to field offices, toilets and similar places. Construct walkways of washed, well graded gravel 6" deep by 36" wide, or duckboard units 20" wide.

Responsibility: General construction aids and miscellaneous facilities required by the Contractor for General Work as well as other subcontractors are the responsibility of the Contractor for General Work. Construction aids and miscellaneous facilities required exclusively for each subcontractor are the responsibility of that subcontractor.

SECURITY AND PROTECTION FACILITIES INSTALLATION:

General: Provide a neat and uniform appearance in security and protection facilities acceptable to the Architect/Engineer and the Owner.

Barricades, Warning Signs:

General: Comply with recognized standards and code requirements for erection of substantial, structurally adequate barricades where needed to prevent accidents and losses. Paint with appropriate colors, graphics and warning signs to inform personnel at the site and the public, of the hazard being protected against. Provide lighting where appropriate and needed for recognition of the facility, including flashing red lights where appropriate.

Storage: Where materials and equipment must be temporarily stored, prior to and during construction, and are of substantial value or are attractive for possible theft, provide a secure lockup. Enforce strict discipline in connection with the timing of installation and release of materials, so that the opportunity for theft and vandalism is minimized.

OPERATION, TERMINATION AND REMOVAL:

Supervision: Enforce strict discipline in the use of temporary services and facilities at the site. Limit availability of temporary services and facilities to essential and intended uses to minimize waste and

abuse. Do not permit temporary installations to be abused or endangered. Do not allow hazardous, dangerous or unsanitary conditions to develop or persist on the site.

Maintenance: Operate and maintain temporary services and facilities in good operating condition throughout the time of use and until removal is authorized. Protect from damage by freezing temperatures and similar elements.

Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results in the work and avoid the possibility of damage to work or the temporary facilities.

Protection: Prevent water filled piping from freezing, by use of ground covers, insulation, by keeping drained or by temporary heating. Maintain distinct markers for underground lines. Protect from damage during excavation operations.

Termination and Removal: Unless the Architect/Engineer requests that it be maintained for a longer period of time, remove each temporary service and facility promptly when the need for it has ended, or when it has been replaced by authorized use of a permanent facility, or no later than the time of substantial completion. Complete or, if necessary, restore permanent work which may have been delayed because of interference with the temporary service or facility. Repair damaged work, clean exposed surfaces and replace work which cannot be satisfactorily repaired.

Materials and facilities that constitute temporary services and facilities are and remain the property of each Prime Contractor.

At substantial completion, clean and renovate permanent services and facilities that have been used to provide temporary services and facilities during the construction period, including but not limited to the following:

Replace air filters and clean the inside of ductwork and housings.

Replace significantly worn parts and parts that have been subject to unusual operating conditions.

Replace lamps in the lighting system that are burned out or dimmed by substantial hours of use.

END OF SECTION 01501

SECTION 01600 - MATERIALS AND EQUIPMENT

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 procedural requirements governing the Prime Contractor's(s') selection of products for use in the Project.

Prime Contracts: Provisions of this Section apply to the construction activities of each Prime Contractor.

The Prime Contractor's(s') Construction Schedule and the Schedule of Submittals are included under Section "Submittals."

Standards: Refer to Section "Definitions and Standards" for applicability of industry standards to products specified.

Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Product Substitutions."

DEFINITIONS

Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.

"Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

"Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

"Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

"Equipment", is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

QUALITY ASSURANCE

Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.

Compatibility of Options: When the Prime Contractor(s) is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

Each Prime Contractor (or subcontractor) is responsible for providing products and construction methods that are compatible with products and construction methods of prime or other separate subcontractors.

If a dispute arises between Prime Contractors or subcontractors over concurrently selectable, but incompatible products, the Architect will determine which products shall be retained and which are incompatible and must be replaced.

Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.

Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the essential operating data and equipment characteristics.

PRODUCT DELIVERY, STORAGE, AND HANDLING

Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

PRODUCT SELECTION

General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.

Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.

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

Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Prime Contractor(s) to use of these products only, the Prime Contractor(s) may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.

Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.

Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.

Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures

Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division-1 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 - EXECUTION

INSTALLATION OF PRODUCTS

Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

End of SECTION 01600

SECTION 01631 - PRODUCT SUBSTITUTIONS

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 procedural requirements for handling requests for substitutions made after award of the Contract.

Prime Contracts: Provisions of this Section apply to the construction activities of each Prime Contractor.

The Prime Contractor's(s') Construction Schedule and the Schedule of Submittals are included under Section "Submittals."

Standards: Refer to Section "Definitions and Standards" for applicability of industry standards to products specified.

Procedural requirements governing the Prime Contractor's(s) selection of products and product options are included under Section "Materials and Equipment."

DEFINITIONS

Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.

Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Prime Contractor(s) after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:

Substitutions requested by Bidders during the bidding period, and incorporated in a project addendum prior to award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.

Revisions to Contract Documents requested by the Owner or Architect.

Specified options of products and construction methods included in Contract Documents.

SUBMITTALS

Substitution Request Submittal: Requests for substitution will be considered if received within 60 days after commencement of the Work. Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Architect.

Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.

Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

Product Data, including Drawings and descriptions of products, fabrication and installation procedures.

Samples, where applicable or requested.

A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.

Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Prime Contractors, that will become necessary to accommodate the proposed substitution.

A statement indicating the substitution's effect on the Construction Schedule compared to the schedule without approval of the substitution.

Cost information, including a proposal of the net change, if any in the Contract Sum.

Certification by the Prime Contractor(s) that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Prime Contractor's(s') waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Architect will notify the Prime Contractor(s) of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

PART 2 - PRODUCTS

SUBSTITUTIONS

Conditions: The Prime Contractor's(s') substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

Extensive revisions to Contract Documents are not required.

Proposed changes are in keeping with the general intent of Contract Documents.

The request is timely, fully documented and properly submitted.

The request is directly related to an "or equal" clause or similar language in the Contract Documents.

The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Prime Contractors, and similar considerations.

The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Prime Contractor(s) certifies that the substitution will overcome the incompatibility.

The specified product or method of construction cannot be coordinated with other materials, and where the Prime Contractor(s) certifies that the proposed substitution can be coordinated.

The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Prime Contractor(s) certifies that the proposed substitution provide the required warranty.

Where a proposed substitution involves more than one Prime Contractor, each Contractor shall cooperate with the other Contractors involved to coordinate the Work, provide uniformity and consistency, and to assure compatibility of products.

The Prime Contractor's(s') submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (Not Applicable).

End of SECTION 01631

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

RELATED DOCUMENTS:

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

DESCRIPTION OF REQUIREMENTS:

Definitions: Project closeout is the term used to describe certain collective project requirements, indicating completion of the Work that are to be fulfilled near the end of the Contract time in preparation for final acceptance and occupancy of the Work by the Owner, as well as final payment to the Prime Contractor(s) and the normal termination of the Contract.

Specific requirements for individual units of work are included in the appropriate sections in Divisions 2 through 16.

Time of closeout is directly related to "Substantial Completion"; therefore, the time of closeout may be either a single time period for the entire Work or a series of time periods for individual elements of the Work that have been certified as substantially complete at different dates. This time variation, if any, shall be applicable to the other provisions of this section.

PREREQUISITES TO SUBSTANTIAL COMPLETION:

General: Complete the following before requesting the Architect's inspection for certification of substantial completion, either for the entire Work or for portions of the Work. List known exceptions in the request.

In the progress payment request that coincides with, or is the first request following, the date substantial completion is claimed, show either 100% completion for the portion of the Work claimed as "substantially complete", or list incomplete items, the value of incomplete work, and reasons for the Work being incomplete.

Include supporting documentation for completion as indicated in these contract documents.

Submit a statement showing an accounting of changes to the Contract Sum.

Advise Owner of pending insurance change-over requirements.

Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

Obtain and submit releases enabling Owner's full, unrestricted use of the Work and access to services and utilities. Where required, include occupancy permits, operating certificates and similar releases.

Submit record drawings, maintenance manuals, damage or settlement survey, and similar final record information.

Deliver tools, spare parts, extra stocks of material and similar physical items to the Owner.

Make the final change-over of locks and transmit the keys to the Owner. Advise the Owner's personnel of the change-over in security provisions.

Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities and services from the project site, along with construction tools and facilities, mock-ups, and similar elements.

Complete final cleaning up requirements, including touch-up painting of marred surfaces.

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

Inspection Procedures: Upon receipt of Prime Contractor's(s') request for inspection, the Architect will either proceed with inspection or advise Prime Contractor(s) of unfulfilled prerequisites.

Following the initial inspection, the Architect will either prepare the certificate of substantial completion, or will advise Prime Contractor(s) of work which must be performed before the certificate will be issued. The Architect will repeat the inspection when requested and when assured that the Work has been substantially completed.

Note requirements of General Conditions, Article 9 and Supplementary Conditions, Article 9 clause 9.8.6.

Results of the completed inspection will form the initial "punch-list" for final acceptance.

Punch lists must be completed by the contractor within 30 days of receipt. Unless items on the list are specifically excluded by the Architect, Liquidated damages will be reassessed for work not completed in the 30 days indicated above.

PREREQUISITES TO FINAL ACCEPTANCE:

General: Complete the following before requesting the Architect's final inspection for certification of final acceptance, and final payment as required by the General Conditions. List known exceptions, if any, in request:

Submit the final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

Submit an updated final statement, accounting for final additional changes to the Contract Sum.

Submit a certified copy of the Architect's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and has been endorsed and dated by the Architect.

Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of substantial completion, or else when the Owner took possession of and responsibility for corresponding elements of the Work.

Submit consent of surety, Prime Contractor's(s') Affidavit of Payment of Debts and Claims; Release of Liens (from each major subcontractor and material supplier.)

Submit evidence of final, continuing insurance coverage complying with insurance requirements.

Re-inspection Procedure: The Architect will re-inspect the Work upon receipt of the Prime Contractor's(s') notice that the work, including punch-list items resulting from earlier inspections, has

been completed, except for these items whose completion has been delayed because of circumstances that are acceptable to the Architect.

Upon completion of re-inspection, the Architect will either prepare a certificate of final acceptance, or will advice the Prime Contractor(s) of work that is incomplete or of obligations that have not been fulfilled, but are required for final acceptance.

If necessary, the re-inspection procedure will be repeated.

Note requirements of General Conditions, Article 9 and Supplementary Conditions, Article 9 clause 9.8.6.

RECORD DOCUMENT SUBMITTALS:

General: Specific requirements for record documents are indicated in the individual sections of these specifications. Other requirements are indicated in the General Conditions. General submittal requirements are indicated in "submittals" sections.

Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.

Record Drawings: Maintain a record set of black line white-prints of contract drawings and shop drawings in a clean, undamaged condition. Mark-up the set of record documents to show the actual installation where the installed work varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing the actual "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at the corresponding location on the working drawings. Give particular attention to concealed work that would be difficult to measure and record at a later date.

Mark record sets with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work.

Mark-up new information which is known to be important to the Owner, but for some reason was not shown on either contract drawings or shop drawings.

Note related change-order number where applicable.

Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on cover of each set.

Record Project Survey: Submit three copies of the project property survey provided by a licensed surveyor that shows within the project boundaries, the new and existing structures, site improvements, utilities, storm drainage components including basin top, inlet and outlet elevations, and other data a required by the local municipality.

Record Specifications: Maintain one complete copy of the Project Manual, including specifications and addenda, and one copy of other written construction documents such as change orders and similar modifications issued in printed form during construction. Mark these documents to show substantial variations in the actual work performed in comparison with the text of the specifications and modifications as issued. Give particular attention to substitutions, selection of options and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable.

Upon completion of the Work, submit record specifications to the Architect for the Owner's records.

Miscellaneous Record Submittals: Refer to other sections of these specifications for requirements of miscellaneous record-keeping and submittals in connection with the actual performance of the Work. Immediately prior to the date or dates of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.

Maintenance Manuals: (Three copies) Organize operating and maintenance data into suitable sets of manageable size. Bind data into individual binders properly identified and indexed. Bind each set of data in a heavy-duty 2-inch, 3-ring vinyl-covered binder, with pocket folders for folded sheet information. Mark the appropriate identification on both front and spine of each binder.

Include the following types of information in operation and maintenance manuals:

List of Prime Contractor(s) and major subcontractors names, addresses and phone numbers and contact person.
Project Warranties
Subcontractor Warranties
Emergency instructions,
Spare parts listing,
Copies of color schedules, hardware schedules,
Wiring diagrams,
Recommended "turn-around" cycles,
Inspection procedures,
Shop drawings and product data, and
Floor or wall finish cleaning instructions from manufacturers.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

CLOSEOUT PROCEDURES:

General Operating and Maintenance Instructions: Arrange for each installer of operating equipment and other work that requires regular or continuing maintenance, to meet at the site with the Owners personnel to provide necessary basic instruction in the proper operation and maintenance of the entire Work. Where installers are not experienced in the required procedures, include instruction by the manufacturer's representatives.

As part of this instruction provide a detailed review of the following items:

Maintenance manuals,
Record documents,
Spare parts and materials,
Tools,
Lubricants,
Fuels,
Identification systems,
Control sequences,
Hazards,
Cleaning, and
Warranties, bonds, maintenance agreements and similar continuing commitments.

As part of this instruction for operating equipment demonstrate the following procedures:

Start-up,

Shut-down,
Emergency operations,
Noise and vibration adjustments,
Safety procedures,
Economy and efficiency adjustments, and
Effective and energy utilization.

FINAL CLEANING:

General: Special cleaning requirements for specific units of Work are included in the appropriate sections of Divisions 2 through 16. General Cleaning during the regular progress of the Work is required by the General Conditions and is included under section "Temporary Facilities".

Cleaning: Provide final cleaning of the Work at the time indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected from a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for operations.

Complete the following cleaning operations before requesting the Architect's inspection for certification of substantial completion.

Remove labels that are not required as permanent labels.

Clean transparent materials, including mirrors and glass in doors and windows, to a polished condition. Remove putty and other substances that are noticeable as vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

Clean exposed exterior and interim hard-surfaced finishes to a dust-free condition, free of dust, stains, films and similar noticeable distracting substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

Wipe surfaces of mechanical and electrical equipment clean. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

Clean the project site, including landscape development areas, of rubbish, litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved not planted, to a smooth, even-textured surface.

Removal of Protection: Except as otherwise indicated or requested by the Architect, remove temporary protection devices and facilities that were installed during the course of the work to protect previously completed work during the remainder of the construction period.

Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at the site. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

Where extra materials of value remaining after completion of associated work have become the Owner's property, dispose of these to the Owner's best advantage as directed.

End of SECTION 01700

SECTION 01740 - WARRANTIES AND BONDS

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.

The warranty period for this project is one (1) year unless more is indicated in the individual sections of this specification. Nothing implied by this warranty period exempts the Owner from other warranty and legal rights that he may apply to work quality issues.

SUMMARY

This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

Refer to the General Conditions for terms of the Prime Contractor's(s) special warranty of workmanship and materials.

General closeout requirements are included in Section "Project Closeout."

Specific requirements for warranties for the Work and products and installation that are specified to be warranted, are included in the individual Sections of Divisions-2 through -16.

Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Prime Contractor(s) of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Prime Contractor.

Separate Prime Contracts: Each Prime Contractor is responsible for warranties related to its own Contract.

DEFINITIONS

Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

WARRANTY REQUIREMENTS

Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Prime Contractor(s) is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, right and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

SUBMITTALS

Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.

When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Prime Contractor(s) during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.

When a special warranty is required to be executed by the Prime Contractor(s), or the Prime Contractor(s) and a subcontractor(s), supplier(s) or manufacturer(s), prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

Refer to individual Sections of Divisions-2 through -16 for specific content requirements, and particular requirements for submittal of special warranties.

PART 2 - PRODUCTS (not applicable).

PART 3 - EXECUTION

Additional requirements for warranties and bonds on products and installation are found in their applicable sections of the specifications.

End of SECTION 01740

CONTRACTOR'S GENERAL WARRANTY/CERTIFICATION

(Name of Project)

(Address)

(Name of Contract)

The undersigned Contractor hereby warrants, in accordance with the applicable provisions and terms set forth in the Contract Documents, all materials and workmanship incorporated in the (name of contract) contract for (name of project) located in (project address) against any and all defects due to faulty materials or workmanship or negligence for a period of 12 months, or such longer periods as set forth in the Contract Documents, from the effective date of this warranty.

This Warranty shall be binding where defects occur due to normal usage conditions and does not cover willful or malicious damage, damage caused by acts of God or other casualty beyond the control of the Contractor.

This Warranty shall be in addition to other warranties and guarantees set forth in the Contract Documents, and shall not act to constitute a waiver of additional protection of the Owner afforded, where applicable, by consumer protection and product liability provisions of law, and these stipulations shall not constitute waiver of any additional rights or remedies available to the Owner under the law.

The undersigned Contractor also hereby certifies that to the best of his/her knowledge, information and belief, no asbestos, lead or other hazardous materials have been utilized in this project.

Signed: _____

(Corporate Seal)

Name: _____

Title: _____

Date: _____

Subscribed and sworn before me this

_____ day of _____, 20___.

_____

(Notary Public)

SECTION 02110 - SITE CLEARING

PART 1 – GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

DESCRIPTION OF WORK:

Extent of site clearing is shown on drawings.

Site clearing includes, but is not limited to:

- Protection of existing trees and site features not scheduled to be removed or not in the new construction's footprint (plus 10 feet).
- Removal of trees and other vegetation scheduled to be demolished.
- Removal of small mechanical building on site.
- Topsoil (and gravel) stripping.
- Clearing and grubbing.
- Removing above-grade improvements.
- Removing below-grade improvements.

JOB CONDITIONS:

Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.

- Protect improvements on adjoining properties and on Owner's property.

Protection of Existing Trees and Vegetation: Protect existing trees:

- Outside the area 10'-0"± of the new building dimensions.
- 5'-0"± of curb lines around parking areas.
- Where final grade lines is within 6" of the existing grade line (and can be held the same with minor adjustments during construction).
- **Where indicated to remain in place.**

Protect against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

Protection of Existing Site Features: Protect the following with barricades, fences, or other necessary measures to insure that they remain undisturbed:

- Existing street curb and guttering and storm drainage.
- Existing adjacent buildings and structures.

PART 2 - PRODUCTS (Not applicable to work of this section.)

PART 3 - EXECUTION

SITE CLEARING:

General: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated. **Removal includes digging out stumps and roots**.

Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction.

Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectionable material.

Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

Remove heavy growths of grass from areas before stripping.

Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to main root system.

Stockpile topsoil in storage piles in areas shown, or where directed. Construct storage piles to freely drain surface water.

Dispose of unsuitable or excess topsoil same as waste material, herein specified.

Clearing and Grubbing: Clear site of trees, shrubs and other vegetation, except for those indicated to be left standing.

Completely remove stumps, roots, and other debris protruding through ground surface.

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 6" loose depth, and thoroughly compact to a density equal to adjacent original ground.

Removal of Improvements: Remove existing above-grade and below-grade improvements necessary to permit construction, and other work as indicated (See other Division 1 section).

DISPOSAL OF WASTE MATERIALS:

Burning not permitted on Owner's Property:

Removal from Owner's Property: Remove waste materials and unsuitable and excess topsoil from Owner's property and dispose of off site in a legal manner. Follow all NC Department of Environmental Quality - NCDEQ requirements for off-site disposal of soils.

End of SECTION 02110

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

SEE SECTION 01020 – ALLOWANCES.
SEE SECTION 01026 – UNIT PRICES.

SUMMARY

This Section includes the following:

See also specifications on Arch. and Structural drawings for additional requirements.

Providing suitable structural fill form off site or removing excess soil offsite as necessary to create level building pad as indicated on drawings.

Preparing of subgrade for building slabs, walks, and pavements.

Drainage fill course for support of building slabs is included as part of this work.

Excavating and backfilling of trenches within building lines for piping, foundations, footings, etc.

Excavating and Backfilling for Mechanical/Electrical Work: Refer to Divisions 15 and 16 sections for excavation and backfill required in conjunction with underground mechanical and electrical utilities and buried mechanical and electrical appurtenances.

Note that all backfilled utility trenches must be tested for soil compaction under buildings and paving.

Final Grading, together with placement and preparation of topsoil for lawns and planting, is specified in Division 2 Section, "Landscape Work."

Preparing of aggregate base for Concrete Paving is specified in a separate Div 2 section.

Preparing of aggregate base for asphalt paving is work required by Section 02513 "Asphalt Paving" and described in this section work type.

DEFINITIONS

Excavation consists of removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by 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 Architect.

In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect.

Additional Excavation: When excavation has reached required subgrade elevations, notify Geotechnical Engineer, who will make an inspection of conditions. If Geotechnical Engineer determines that bearing materials at required subgrade elevations are unsuitable, continue excavation until suitable bearing

materials are encountered and replace excavated material as directed by Geotechnical Engineer. **Notify the Architect immediately** of any additional excavation subject to additional cost to the Owner. Architect's Construction Administrator must review Geotechnical Engineer's recommendations prior to any excavation occurring. The Contract Sum may be adjusted by an appropriate Contract Modification.

Removal of unsuitable material and its replacement as directed will be paid on basis of Conditions of the Contract relative to changes in work.

Subgrade: The undisturbed earth or the compacted soil layer immediately below granular subbase and/or base, drainage fill, or topsoil materials.

Structure: Buildings, foundations, slabs, tanks, curbs, or other man-made stationary features occurring above or below ground surface.

SUBMITTALS

Test Reports: Submit the following reports directly to Architect from the testing services, with copy to Contractor:

Test reports on borrow material (**included in the contractor's base bid costs and/or fill unit price**).

Verification of suitability of each footing subgrade material, in accordance with specified requirements (**tests scheduled by contractor and paid for by Owner**).

Field reports of in-place soil density tests for fill required by the base bid contract (**tests scheduled by contractor and paid for by Owner**).

Test reports required for the removal of unsuitable material and additional verification of subgrade material below intended excavation lines. **(tests scheduled by contractor and paid for by Owner).**

QUALITY ASSURANCE

Codes and Standards: Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.

Testing and Inspection Service: **The Owner** will employ and pay for a qualified independent geotechnical testing and inspection laboratory to perform soil testing and inspection service during earthwork operations. Contractor will coordinate scheduling of tests.

PROJECT CONDITIONS

Site Information: Data in subsurface investigation reports was used for the basis of the design and are available to the Contractor for information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. The Owner will not be responsible for interpretations or conclusions drawn from this data by Contractor.

No subsurface soil report is available.

Contractor may perform, at his option, additional test borings and other exploratory operations; however, no change in the Contract Sum will be authorized for such additional exploration.

Existing Utilities: Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

Use of Explosives: Do not bring explosives onto site or use in work.

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.

Perform excavation by hand within dripline of large trees to remain. Protect root systems from damage or dryout to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with moistened burlap.

PART 2 - PRODUCTS

SOIL MATERIALS

General: Provide borrow soil materials when sufficient satisfactory soil materials are not available due to quantities required by contour requirements.

Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups that are clean subsoil free from debris, roots, topsoil, frozen material, and rock larger than 1/3 cu. ft. **that can be compacted to the densities herein specified, under the conditions defined.**

Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups that are not capable of being compacted to the densities required or rock material larger than 1/3 cu. Ft. debris or consisting of debris or organic material.

Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at the time of compaction. However, soils with high moisture contents shall be remediated by means determined by the soils engineer to dry them until they attain a satisfactory moisture percentage.

Top soil: Fertile, friable, , natural soil of loamy character, free of clay clumps, stones in excess of 4” in greatest dimension, typical of project vicinity and containing no harmful chemicals or toxins harmful to plant growth.

Base Material: Naturally or artificially graded mixture of natural or crushed granite gravel, crushed stone, crushed slag, and natural or crushed sand.

Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2 inch sieve and not more than 2 percent passing a No. 4 sieve.

Uses: Typical under floor slabs
Typical around foundation drains
Typical Backfill for retaining walls

Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter. See drawing and subsurface investigation report for acceptable fill materials.

PART 3 - EXECUTION

EXCAVATION

Excavation Classifications: The following classifications of excavation will be made when rock is encountered:

Earth Excavation includes excavation of pavements and other obstructions visible on surface; underground structures, utilities, and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

Rock excavation for trenches and pits includes removal and disposal of materials and obstructions encountered that cannot be excavated with a track-mounted power excavator, equivalent to Caterpillar Model No. 215C LC, and rated at not less than 115 HP flywheel power and 32,000-pound drawbar pull and equipped with a short stick and a 42-inch wide, short tip radius rock bucket rated at 0.81 cubic yard (heaped) capacity. Trenches in excess of 10 feet in width and pits in excess of 30 feet in either length or width are classified as open excavation.

Rock excavation in open excavations includes removal and disposal of materials and obstructions encountered that cannot be dislodged and excavated with a modern, track-mounted, heavy-duty excavating equipment without drilling, blasting, or ripping. Rock excavation equipment is defined as Caterpillar Model No. 973 or equivalent track-mounted loader, rated at not less than 210 HP flywheel power and developing minimum of 45,000-pound breakout force (measured in accordance with SAE J732).

Typical of materials classified as rock are boulders 1/2 cu. yd. or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.

Intermittent drilling, blasting, or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

Do not perform rock excavation work until material to be excavated has been cross-sectioned and classified by geotechnical engineer. Such excavation will be paid on basis of Contract Conditions relative to changes in work and based on unit costs and volumes determined by geotechnical engineer and approved architect/owner.

Rock payment lines are limited to the following:

Two feet outside of concrete work for which forms are required, except footing.

One foot outside perimeter of footings.

In pipe trenches, 6 inches below invert elevation of pipe and 2 feet wider than inside diameter of pipe, but not less than 3 feet minimum trench width.

Outside dimensions of concrete work where no forms are required.

Under slabs on grade, 6 inches below bottom of concrete slab.

Additional Excavation: When excavation has reached required subgrade elevations, notify Architect/Engineer 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 Architect/Engineer.

Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

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 away from excavations.

Dispose of excess soil material and waste materials legally off site.

Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room.

Except as otherwise indicated, excavate for exterior water bearing piping (water, steam, condensate, drainage) so top of piping is not less than 2'-6" below finished grade.

Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

STABILITY OF EXCAVATIONS

General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction.

Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies 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. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend 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.

Grade excavation top perimeter to prevent surface water run-off into excavation or to adjacent properties.

Protect sub-grades form softening, undermining, washout and damage by rain or water accumulation.

Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavation as temporary drainage ditches.

Do not use excavated trenches as temporary drainage ditches.

Maintain the water level below the excavation sub-grade during excavation and construction.

Material disturbed below the foundation sub-grade due to improper dewatering shall be removed and replaced with stone bedding material at no expense to the Owner.

Dewatering by trench pumping will not be permitted if migration of fine grained natural material (running sand) from bottom, side walls, or bedding material will occur.

Dispose of water pumped from excavations into ditches or storm drains having the capacity to handle the volume of pumped water.

Contractor is responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the operation.

Prevent flooding of streets, roadways, or private property.

Provide noise attenuated engines when pumps will operate within 500 feet of a residence or commercial establishment.

STORAGE OF EXCAVATED MATERIALS

Stockpile excavated materials acceptable for backfill and fill where directed. Place, grade, and shape stockpiles for proper drainage.

Separate excavated materials in separate piles of suitable and unsuitable soils.

Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

Dispose of excess excavated soil material and materials not acceptable for use as backfill or fill.

EXCAVATION FOR STRUCTURES

Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot.

Excavations for footings and foundations: Do not 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 indicated.

TRENCH EXCAVATION FOR PIPES AND CONDUIT

Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches of clearance on both sides of pipe or conduit.

Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil.

COLD WEATHER PROTECTION

Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

BACKFILL AND FILL

General: Place soil material in layers to required subgrade elevations, for each area classification listed below, using materials specified in Part 2 of this Section.

Under grassed areas, use satisfactory excavated or borrow material.

Under walks and pavements, use base material, satisfactory excavated or borrow material, or a combination.

Under steps, use base material.

Under building slabs, use drainage fill material.

Under piping and conduit and equipment, use base materials where required over rock bearing surface and for correction of unauthorized excavation. Shape excavation bottom to fit bottom 90 degrees of cylinder.

Do not backfill trenches until tests and inspections have been made and Architect authorizes backfilling. Use care in backfilling to avoid damage or displacement of pipe systems.

Provide 4-inch-thick concrete base slab support for piping or conduit less than 2'-6" below surface of roadways. After installation and testing of piping or conduit, provide minimum 4-inch-thick encasement (sides and top) of concrete prior to backfilling or placement of roadway base.

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 have been performed and recorded.

Removal of concrete formwork.

Removal of trash and debris from excavation.

Removal of permanent or temporary horizontal bracing in place on horizontally supported walls.

PLACEMENT AND COMPACTION

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 to 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.

Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches 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 or relative 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, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

Control soil and fill compaction, providing minimum percentage of density specified for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Architect if soil density tests indicate inadequate compaction.

Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of standard proctor maximum dry density, in accordance with ASTM D 698:

Under structures, building slabs and steps, and pavements, compact subgrade and each layer of backfill or fill material at 95 percent maximum density. Compact the upper 24 inches of subgrade to 100 percent maximum dry density.

Under lawn or unpaved areas, compact top 6 inches of subgrade and each layer of backfill or fill material at 92 percent maximum density.

Under walkways, compact top 6 inches of subgrade and each layer of backfill or fill material at 98 percent maximum 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. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

GRADING

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 foot 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 foot above or below required subgrade elevation.

Pavements: Shape surface areas under pavement to line, grade, and cross-section, with finish surface not more than 1/2 inch 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 inch when tested with a 10-foot straightedge.

Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

PAVEMENT BASE COURSE – NOT APPLICABLE

General: Base course consists of placing base material, in layers of specified thickness, over subgrade surface to support a pavement base and/or surface course.

Refer to other Division 2 sections for paving specifications.

Grade Control: During construction, maintain lines and grades including crown and cross-slope of base course.

Shoulders: Place shoulders along edges of base course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each base course layer. Compact and roll at least a 12 inch width of shoulder simultaneous with the compaction and rolling of each layer of base course.

Placing: Place base course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting base material during placement operations.

When a compacted base course in indicated to be 6 inches thick or less, place material in a single layer. When indicated to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

~~Typical paved parking and general driveway area base course thickness shall be as indicated on drawings~~

BUILDING SLAB DRAINAGE COURSE

General: Drainage course consists of placement of drainage fill material, in 4” thick layers of indicated thickness, over subgrade surface to support concrete building and sidewalk slabs.

Placing: Place drainage fill material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting material during placement operations.

When a compacted drainage course is shown to be 6” thick or less, place material in a single layer. When shown to be more than 6’ thick, place material in equal layers, except no single layer more than 6” or less than 3” in thickness when compacted.

FIELD QUALITY CONTROL

Quality Control Testing During Construction: **Contractor** shall coordinate all soil testing necessary to insure that compacted soils and subgrades meets specified standards and in no case shall these tests be less than the following schedule. Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed.

Perform field density tests in accordance with ASTM D 1556 (sand cone method).

Footing Subgrade: **For each strata of soil** on which footings will be placed, **perform at least one test every 200 feet of perimeter but no less than three location tests** 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 Architect/Soils Engineer.

Paved Areas and Building Slab Subgrade: Perform at least one field density test of subgrade for every 5,000 sq. ft. of paved area or every 3,000 sq. ft. of building slab, but in no case fewer that three tests.

In each compacted fill layer, perform one field density test for every 3,000 sq. ft. of overlaying building slab or paved area, but in no case fewer than three tests.

Foundation wall Backfill: Take at least 2 field density tests, at locations and elevations directed.

If in opinion of Architect, based on testing service reports and inspection, subgrade or fills that have been placed are below specified density, perform additional compaction and testing until specified density is obtained, the cost of this retesting shall be paid as part of the contractor's project costs.

EROSION CONTROL

Provide erosion control methods in accordance with requirements of authorities having jurisdiction and requirements indicated in the drawings.

See Site Civil drawings for additional requirements.

MAINTENANCE

Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

Repair and reestablish 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, reshape, and compact to required density prior to further construction.

Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

DISPOSAL OF EXCESS AND WASTE MATERIALS

Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash, and debris, and dispose of it off Owner's property. **Follow all NCDEQ requirements for off-site disposal of soils.**

End of SECTION 02200

SECTION 02361 - TERMITE CONTROL

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

SUMMARY

This Section includes the following for termite control:

Soil treatment.

DEFINITIONS

EPA: Environmental Protection Agency.
PCO: Pest control operator.

SUBMITTALS

Product Data: Treatments and application instructions, including EPA-Registered Label.

Product Certificates: Signed by manufacturers of termite control products certifying that treatments furnished comply with requirements.

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.

Warranties: Special warranties specified in this Section.

QUALITY ASSURANCE

Applicator Qualifications: A PCO who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment in jurisdiction where Project is located and who is experienced and has completed termite control treatment similar to that indicated for this Project and whose work has a record of successful in-service performance.

Regulatory Requirements: Formulate and apply termiticides, and label with a Federal registration number, to comply with EPA regulations and authorities having jurisdiction.

PROJECT CONDITIONS

Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with EPA-Registered Label requirements and requirements of authorities having jurisdiction.

COORDINATION

Coordinate soil treatment application with excavating, filling, and grading and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs, before construction.

WARRANTY

General Warranty: Special warranty 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 Warranty: Written warranty (5 Years), signed by applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

PART 2 - PRODUCTS

SOIL TREATMENT

Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in a soluble or emulsible, concentrated formulation that dilutes with water or foaming agent, and formulated to prevent termite infestation. Use only soil treatment solutions that are not harmful to plants. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to the product's EPA-Registered Label.

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:

AgrEvo Environmental Health, Inc.; a Company of Hoechst and Schering, Berlin.
American Cyanamid Co.; Agricultural Products Group; Specialty Products Department.
Bayer Corp.; Garden & Professional Care.
DowElanco.
FMC Corp.; Pest Control Specialties.
Zeneca Professional Products.

PART 3 - EXECUTION

EXAMINATION

Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of the soil, interfaces with earthwork, slab and foundation work, landscaping, and other conditions affecting performance of termite control. Proceed with application only after unsatisfactory conditions have been corrected.

PREPARATION

General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparing substrate. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil and around foundations.

Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended by termiticide manufacturer.

Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

APPLICATION, GENERAL

General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

APPLYING SOIL TREATMENT

Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute the treatment evenly.

Slabs-on-Grade and Basement Slabs: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.

Masonry: Treat voids.

Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

Building perimeter: Treat entire perimeter upon building completion.

Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

Post warning signs in areas of application.

Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

End of SECTION 02361

SECTION 02514 - PORTLAND CEMENT CONCRETE PAVING

PART 1 - GENERAL

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.

DESCRIPTION OF WORK:

Extent of portland cement concrete paving is shown on drawings, including concrete sidewalks, aprons, steps and ramps.

Prepared subbase is specified in "Earthwork" section.

Concrete and related materials are specified in Division 3.

Joint fillers and sealers are specified in Division 7.

QUALITY ASSURANCE:

Codes and Standards: Comply with local governing regulations if more stringent than herein specified.

JOB CONDITIONS:

Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

Utilize flagmen, barricades, warning signs and warning lights as required.

PART 2 - PRODUCTS

MATERIALS:

Forms - General: Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.

Curbs: Steel of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. (Note: wood forms for curbs are not allowed.)

Use flexible spring steel forms to form radius bends as required.

Shape: ~~See Civil Dwgs for Curbing Details.~~ Not applicable

Sidewalks: Steel or wood of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

Truncated Dome Detectable Warning Pavers: Provide ADA compliant embedded tiles of 80 % recycled glass aggregate content with cast-in color. Product shall be equal to ECG Paver Tiles of Elizabeth City, NC.

Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A 185.

Reinforcing Bars: Deformed steel bars, ASTM A 615, Grade 40.

Cast Iron Sidewalk flumes: Provide 4" deep by top width required to cover storm pipe. Provide textured (checkered plate) exposed surface. See sidewalk storm drainage from canopy walkway covers.

Concrete Materials: Comply with requirements of applicable Division 3 sections for concrete materials, admixtures, bonding materials, curing materials, and others as required.

Expansion Joint Materials: Comply with requirements of applicable Division 7 sections for preformed expansion joint fillers and sealers.

Low VOC Liquid-Membrane Forming Curing Compound: Complying with ASTM C 309, Type I, Class A unless other type acceptable to Architect. Moisture loss not more than 0.55 gr./sq. cm. when applied at 200 sq. ft./gal.

Available Products: Subject to compliance with requirements, products, which may be incorporated in the work, include, but are not limited to, the following:

"Masterseal"; Master Builders.
"Ecocure"; Euclid Chemical Co.
"Clear Seal"; A.C. Horn.
"Sure Cure"; Kaufman Products Inc.
"Kure-N-Seal"; Sonneborn-Contech.
"Klearseal"; Seton Industries.

CONCRETE MIX, DESIGN AND TESTING:

Comply with requirements of applicable Division 3 sections for concrete mix design, sampling and testing, and quality control, and as herein specified.

Design mix to produce standard-weight concrete consisting of portland cement, aggregate, water-reducing or high-range water-reducing admixture (super-plasticizer), air-entraining admixture and water to produce the following properties:

Compressive Strength: 4000 psi for drive ways, 3000 for sidewalks ,minimum at 28 days, unless otherwise indicated.

Slump Range: 8" for concrete containing HRWR admixture (super-plasticizer); 3"-5" for other concrete.

Air Content: 5% to 8%. Unless noted otherwise.

PART 3 - EXECUTION

SURFACE PREPARATION:

Remove loose material from compacted subbase surface immediately before placing concrete.

FORM CONSTRUCTION:

Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

REINFORCEMENT:

Locate, place and support reinforcement as specified in Division 3 sections, unless otherwise indicated.

CONCRETE PLACEMENT:

General: Comply with requirements of ACI 330R for mixing and placing concrete, and as herein specified.

Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

Place concrete using methods, which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.

Use bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surface.

Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2-hour, place a construction joint.

Curbs: Automatic machine may be used for curb placement at Contractor's option. If machine placement is to be used, submit revised mix design and laboratory test results, which meet or exceed minimums specified. Machine placement must produce curbs and gutters to require cross-section, lines, grades, finish, and jointing as specified for formed concrete.

JOINTS:

General: Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.

See Drawings for Saw Joint Pattern – if not indicated, as per ACI 330.

See Drawings for Contraction Joint Detail & Construction Joint Details.

Weakened-Plane (Contraction) Joints: Provide weakened- plane (contraction) joints, sectioning concrete into areas as shown on drawings. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, as follows:

Tooled Joints: Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.

Construction Joints: Place construction joints at end of placements and at locations where placement operations are stopped for a period of more than 1/2-hour, except where such pours terminate at expansion joints.

Construct joints as shown or, if not shown, use standard metal keyway-section forms.

Expansion Joints: Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects, unless otherwise indicated.

Locate expansion joints at 40' maximum for each walk and curb run, unless otherwise indicated.

Extend joint fillers full-width and depth of joint, and not less than 1/2" or more than 1" below finished surface. Fill within 1/8" of finish surface with joint sealer.

Fillers and Sealants: Comply with the requirements of applicable Division 7 sections for preparation of joints, materials, installation, and performance.

CONCRETE FINISHING:

After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.

After floating, test surface for trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2" radius, unless otherwise indicated. Eliminate tool marks on concrete surface.

After completion of floating and troweling when excess moisture or surface sheen has disappeared, complete surface finishing, as follows:

Broom finish, by drawing a fine-hair broom across concrete surface, perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to Architect.

On inclined slab surfaces, provide a coarse, non-slip finish by scoring surface with a stiff-bristled broom, perpendicular to line of traffic.

Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed by Architect.

CURING:

Protect and cure finished concrete paving, complying with applicable requirements of Division 3 sections. Use membrane-forming curing and sealing compound or approved moist-curing methods.

REPAIRS AND PROTECTIONS:

Repair or replace broken or defective concrete, as directed by Architect.

Sweep concrete walks and wash free of stains, discolorations, dirt and other foreign material just prior to final inspection.

END OF SECTION 02514

SECTION 03310 - CONCRETE WORK

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

DESCRIPTION OF WORK:

Extent of concrete work shown on drawings.

Concrete paving and walks are specified in Division 2.

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".

Materials and installed work may require testing and retesting, as directed by Architect, at any time during progress of work. Allow free access to material stockpiles and facilities. Tests, including retesting of rejected materials and installed work, shall be done at Contractor's expense.

SUBMITTALS:

Product Data: Submit data 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 Architect.

Shop Drawings; Reinforcement: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required and openings through concrete structures.

Samples: Submit samples of materials as specified and as otherwise requested by Architect, including names, sources and descriptions.

Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design test as specified.

PART 2 - PRODUCTS

FORM MATERIALS:

Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces 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.

Uses: **Typical for exposed**, unless noted otherwise.

Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

Uses: **Typical for unexposed**, unless noted otherwise.

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.

REINFORCING MATERIALS:

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

Steel Wire: ASTM A 82, plain, cold-drawn, steel.

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.

CONCRETE MATERIALS:

Portland Cement: ASTM C 150, Type I, unless otherwise acceptable to Architect.

Use one brand of cement throughout project, unless otherwise acceptable to Architect. Fly ash and other cement substitutes shall not be used.

Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.

Lightweight Aggregates: ASTM C 330.

Coarse Aggregate Size: Maximum size shall not exceed l/5 of the narrowest dimension between sides of forms, l/3 of the depth of slabs, nor 5/8" minimum clear spacing between individual reinforcing or bundled bars. Maximum size of coarse aggregate shall not exceed 3/4 inch for concrete fill over composite metal deck.

Water: Drinkable.

Air-Entraining Admixture: ANSI/ASTM C 260 and contain no chloride ions.

Products: Subject to compliance with requirements, provide one of the following:

"Darex ARA" - W. R. Grace
"MB-VR or MB-AE" - Master Builders
"Sika Air" - Sika Chelmical Co.

Water-Reducing Admixture: ASTM C 494, Type A, and **contain no chloride ions.**

Products: Subject to compliance with requirements, provide one of the following:

"Eucon WR-75" - Euclid Chemical Co.
"Pozzolith 344" - Master Builders.
"Plastocrete 160" - Sika Chemical Corp.

High-Range Water-Reducing Admixture (Superplasticizer): ASTM C 494, Type F or Type G and **contain no chloride ions.**

Products: Subject to compliance with requirements, provide one of the following:

"WRDA 19" - W.R. Grace.
""Eucon Super 37" - The Euclid Chemical Co.
"Pozzolith 400N" - Master Builders.

Certifications: Written conformance to the above mentioned requirements and the chloride ion content of the admixture will be required from the admixture manufacturer prior to mix design review by the Engineer.

Prohibited Admixtures: Calcium chloride, thiocyanates or admixture containing chloride ions are not permitted.

RELATED MATERIALS:

Waterstops: Provide flat, dumbbell type or centerbulb type waterstops at construction joints and other joints as indicated. Size to suit joints.

Polyvinyl Chloride Waterstops: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include; but are not limited to, the following:

Manufacturer: Subject to compliance with requirements, provide products of one of the following:

The Burke Co.
W.R. Meadows.
Progress Unlimited.
Vinylex Corp.

Vapor Retarder: Provide vapor retarder/moisture barrier over prepared base material where indicated. Use only materials which are resistant to decay when tested in accordance with ASTM E 154, as follows:

Unless otherwise noted, a vapor barrier equivalent to "Vapor Block 15" manufactured by Raven Industries, shall be installed under all interior slabs-on –grade and other locations noted on drawings.

Or equal product by: Reef Industries (Griffolyn 15 mil Green)
Stego Industries (Stego Wrap Vapor Barrier 15 mil)
VIPOR (VaporCheck II 15 mil, ASTM E 1745 Class A)
Barrier-Bac VB-350 (16 mil) Vapor Retarder by Interplast Group

Tape all joints with 2" wide tape that features vapor retarding performance characteristics as required by ASTM E 1745-97.

Non-Shrink Grout: CRD-C 621, factory pre-mixed grout.

Products: Subject to compliance with requirements, provide one of the following:

Non-metallic

"Euco-NS" - Euclid Chemical Co.
"Masterflow 713" - Master Builders.
"Five Star Grout" - U.S. Grout Corp.

Non-slip Aggregate Finish: Provide fused aluminum oxide grits, or crushed emery, as abrasive aggregate for non-slip finish with emery aggregate containing not less than 40% aluminum oxide and not less than

25% ferric oxide. Use material that is factory-graded, packaged, rust-proof and non-glazing, and is unaffected by freezing, moisture and cleaning materials.

Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

Moisture-Retaining Cover: One of the following, complying with ASTM C 171 of milky white color.

Waterproof paper.
Polyethylene film.
Polyethylene-coated burlap.

Curing and Sealing Compound: The compound shall be a clear sytrene acrylate type, 30% solids content minimum, and have test data from an independent testing laboratory indicating a maximum moisture loss of 0.055 grams per sq.cm. when applied at a coverage rate of 200 sq. ft. per gallon. Manufacturer's Certificationrequired.

Products: Subject to compliance with requirements, provide one of the following:

"Ecocure" - Euclid Chemical Co.
"Masterseal" - Master Builders
"Hardtop" - Gifford-Hill

Bonding and Repair Materials:

Bonding Materials: The compound shall be a polyvinyl acetate, rewettable type, "Euco Weld" by The Euclid Chemical Co. or Acrylic Bonocrete by The Burke Co. Use only in areas not subject to moisture.

Epoxy Adhesive: The compound shall be a two (2) component, 100% solids, 100% reactive compound suitable for use on dry or damp surfaces. "Euco Epoxy #463 or #615 by The Euclid Chemical Co. or Patch & Bono Epoxy by The Burke Co.

Patching Mortar: Free-flowing, polymer-modified cementitious coating, "Euco Thin Coat" by The Euclid Chemical Co. or "Sikatop 121" by the Sika Chemical Corp.

Bonding Admixture: The compound shall be a latex, non-rewettable type, "SBR Latex" or "Flex-con" by The Euclid Chemical Co. or "Daraweld C" by W. R. Grace.

Patching Mortar: Free flowing, polymer modified cementitious coating.

Products: Subject to compliance with requirements, provide one of the following:

"Euco Thin Coat" or "Euco Concrete Coat" - The Euclid Chemical Co.
"Sikatop 121 or 122" - Sika Chemical Corp.

Underlayment Compound: Freeflowing, self-leveling, pumpable cementitious base compound.

Products: Subject to compliance with requirements, provide one of the following:

"Flo-Top" by The Euclid Chemical Co. or approved equal.
“K-15” Self Leveling Underlayment Concrete; Ardex, Inc.

Epoxy Joint Filler: The epoxy joint filler shall be a three (3) component, 100% solids compound, with a minimum shore D hardness of 50.

Products: Subject to compliance with requirements, provide the following:

"Euco Epoxy #600 or #700" - The Euclid Chemical Company
"Sikadur Lo-Mod" - Sika Chemical Corp.

Penetrating Anti-spalling Sealer: "Euco-Guard" by The Euclid Chemical Co. or approved equal. The sealer shall be a siloxane-based compound which has a 92% chloride-ion screen and a repellency factor of 92%

when tested in accordance with NCHRP #244, Test Method. In addition, the sealer-treated concrete must exhibit no scaling when exposed to 120 cycles of freezing-and-thawing in accordance with ASTM C 672. The tests must be made by an independent testing laboratory. The manufacturer shall offer a three-year warranty bond issued by an insurance company in the amount agreed upon by the manufacturer and the owner.

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 batches are used, the mix design shall be prepared by an independent testing laboratory and shall achieve a compressive strength 1200 PSI higher than the specified strength. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.

Submit written reports to 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 Architect.

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

4000 psi 28-day compressive strength.
3000 psi 28-day compressive strength. W/C ratio, 0.58 maximum (non-air-entrained), 0.46 maximum (air-entrained).

Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

Admixtures:

Use water-reducing admixture and/or high range water-reducing admixture (superplasticizer) in concrete as required for placement and workability.

All pumped concrete, architectural concrete, parking-structure slabs, concrete required to be watertight and concrete with a water/cement ratio below 0.50 shall contain the specified high-range water-reducing admixture (superplasticizer).

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 total air content with a tolerance of plus-or-minus 1-1/2% within following limits:

Concrete structures and slabs exposed to freezing and thawing deicer chemicals, or subjected to hydraulic pressure:

5.0% (moderate exposure); 6.0% (severe exposure) 3/4" max. aggregate.

Other Concrete: 2% to 4% air.

Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions.

Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (WC) ratios as follows:

Subjected to freezing and thawing; WC 0.50.
Subjected to deicers/watertight; WC 0.45.

Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

Ramps slabs, and sloping surfaces: Not more than 3".

All reinforced foundation systems: Not less than 2" and not more than 4".

All concrete containing the high-range water-reducing admixture (superplasticizer) shall have a maximum slump of 8" unless otherwise approved by the Architect. The concrete shall arrive at the job site at a slump of 2" to 3", verified, then the high-range water-reducing admixture added to increase the slump to the approved level.

All other Concrete shall have a maximum slump of 4".

CONCRETE MIXES:

Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.

During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

When air temperature is between 85 degres F (30 degrees C) and 90 degrees F (32 degrees C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

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. Construct formwork so concrete members and structures are of 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.

Care must be taken to not damage or compromise the vapor retarder.

Construct forms 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 backup 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 wood 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.

Form Ties: Factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.

Unless otherwise indicated, provide ties so portion remaining within concrete after removal is 1" inside concrete and will not leave holes larger than 1" diameter in concrete surface.

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 is required to eliminate mortar leaks and maintain proper alignment.

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.

Installed 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.

JOINTS:

Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.

Provide keyways at least 1-1/2" deep in construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.

Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.

Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.

Isolation 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.

Joint filler and sealant materials are specified in Division 7 sections of these specifications.

Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use saw cuts or inserts 1/8" to 1/4" wide x 1/4 of the slab depth, unless otherwise indicated.

Form contraction joints by inserting premolded plastic strip into fresh concrete until the top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.

Saw Contraction joints in slabs on ground shall be made using saw cuts or approved inserts creating a plane of l/4 slab thickness. Saw cuts shall be made as soon as possible without disloding aggregate.

Joint sealant material is specified in Division-7 sections of these specifications.

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, instructions and directions provided by suppliers of items to be attached thereto.

Care must be taken to not damage or compromise the vapor retarder and openings around and thru vapor retarder must be properly sealed.

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.

PREPARATION OF FORM SURFACES:

Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.

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.

CONCRETE PLACEMENT:

Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other trades 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.

Care must be taken to not damage or compromise the vapor retarder and openings around and thru vapor retarder must be properly sealed.

General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", 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 construction 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 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 water. Use of liquid nitrogen to cool concrete is Contractor's option.

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.

Fog spray forms, reinforcing steel and subgrade just before concrete is placed.

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 projections exceeding 1/4" in height rubbed down or chipped off.

Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

Uses: **Typical** all cast in place concrete vertical walls exposed, unless noted otherwise.

Related Unformed Surfaces: At tops of walls, horizontal offsets and similar unformed 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.

MONOLITHIC SLAB FINISHES:

Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.

After placing slabs, plane surface so that depressions between high spots do not exceed 1/2" in 10' straightedge. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set, with stiff brushes, brooms or rakes.

Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.

After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane so that depressions between high spots do not exceed 5/16" under a 10' straightedge. Cut down high spots and fill low spots. Refloat surface to a uniform, smooth, granular texture.

Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint or other thinfilm finish coating system.

After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a level surface plane so that depressions between high spots do not exceed 1/8" under a 10'-0" straightedge.

Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.

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 perpendicular to main traffic route. Coordinate required final finish with Architect before application.

Chemical-Hardener Finish: Apply chemical-hardener finish to interior concrete floors where indicated. Apply liquid chemical-hardener after complete curing and drying of the concrete surface. Dilute liquid hardener with water, (parts of hardener/water as follows), and apply in 3 coats; first coat, 1/3-strength; second coat, 1/2-strength; third coat, 2/3-strength. Evenly apply each coat, and allow 24 hours for drying between coats.

Apply proprietary chemical hardeners, in accordance with manufacturer's printed instructions.

After final coat of chemical-hardener solution is applied and dried, remove surplus hardener by scrubbing and mopping with water.

Non-slip Aggregate Finish: Apply non-slip aggregate finish to concrete stair treads, platforms, ramps, and elsewhere as indicated.

After completion of float finishing, and before starting trowel finish, uniformly spread 25 lbs. of dampened non-slip aggregate per 100 sq. ft. of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as herein specified.

After curing, lightly work surface with a steel wire brush, or an abrasive stone, and water to expose non-slip aggregate.

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 application of curing compounds, by moist curing, by moisture-retaining cover 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 and sealing compound to interior slabs with resilient flooring, carpet over cushion, or left exposed; and to exterior slabs, walks, and curbs, 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, (such as ceramic or quarry tile, glue-down carpet), painting, and other coatings and finish materials, unless otherwise acceptable to 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.

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 (10 degrees C) 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.

Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

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 Architect.

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 of 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.

Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

Non-Shrink Grout: All column base plates, equipment bases and other locations noted on the structural drawings shall be grouted with the specified non-shrink grout. All exposed grout shall be the specified non-metallic type.

Steel Pan Stairs: Provide concrete fill for steel pan stair treads and landings and associated items. Cast-in safety inserts and accessories as shown on drawings. Screed, tamp, and finish concrete surfaces as scheduled.

Reinforced Masonry: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

CONCRETE SURFACE REPAIRS:

Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to 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 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, include 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 repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to 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 apply bonding compound. 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 apply bonding compound. 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. Place dry-pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours

Structural Repairs: All structural repairs shall be made with prior approval of the Engineer as to method and procedures, using the specified epoxy adhesive and/or epoxy mortar. Where epoxy injection procedures must be used, an approved low viscosity epoxy made by the manufacturers previously specified shall be used.

Underlayment Application: Leveling of floors for subsequent finishes shall be achieved by use of the specified underlayment material.

QUALITY CONTROL TESTING DURING CONSTRUCTION:

The Owner 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 Architect.

Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

Concrete Temperature: Test hourly when air temperature is 40' F (4'C) and below, and when 80' F (27'C) and above; and each time a set of compression test specimens made.

Compression Test Specimen: ASTM C 31; one set of 4 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.

Compresive Strength Tests: ASTM C 39; one set of four cylinders for each day's pour exceeding 5 cu.yds. plus additional sets for each 50 cu.yds. over and above the first 25 cu.yds. of each concrete class placed in any one day; one specimen tested at 7 days for information, two specimens tested at 28 days for acceptance, 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 strength of field-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.

Strength level of concrete will be considered satisfactory if average of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.

Test results will be reported in writing to Architect and Contractor within 24 hours after 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 of 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

Non-destructive Testing: Impact hammer, sonoscope, or other non-destructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strength and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying 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 is verified.

END OF SECTION 03310

SECTION 04200 - UNIT MASONRY

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 the following:

Concrete unit masonry. (standard units).

Clay unit masonry in the form of brick- NOT APPLICABLE

Products installed but not furnished under this Section include the following:

Steel lintels in unit masonry are specified in Division 5 Section "Metal Fabrications."
Wood nailers and blocking built into unit masonry are specified in Division 6 Section "Rough Carpentry."
Reglets in masonry joints for metal flashing are specified in Division 7 Section "Flashing and Sheet Metal."
Rigid Insulation for building perimeter and exterior continuous insulation sheathing are specified in Division 7 Section "Insulation."
Hollow metal frames in unit masonry openings are specified in Division 8 Section "Steel Doors and Frames."

SYSTEM PERFORMANCE REQUIREMENTS

Provide unit masonry that develops the following installed compressive strengths (f'm):

For clay unit masonry: As follows:
f'm = 2500 psi.
As indicated.

SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data for each different masonry unit, accessory, and other manufactured product indicated.

Shop drawings for reinforcing detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcing" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.

Samples for initial selection purposes of the following:

Unit masonry samples in small-scale form showing full extent of colors and textures available.

Cold-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.

Hot-weather construction procedures evidencing compliance with requirements specified in referenced unit masonry standard.

Results from tests and inspections performed by Owner's representatives will be reported promptly and in writing to Architect and Contractor.

QUALITY ASSURANCE

Unit Masonry Standard: Comply with ACI 530.1/ASCE 6 "Specifications for Masonry Structures," except as otherwise indicated.

Fire Performance Characteristics: Where indicated, provide materials and construction identical to those of assemblies whose fire resistance has been determined per ASTM E 119 by a testing and inspecting organization, 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 uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.

Single-Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.

Field-Constructed Mock-Ups: Prior to installation of unit masonry, erect sample wall panels to further verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mock-ups to comply with the following requirements, using materials indicated for final unit of Work:

Locate mock-ups on site in locations indicated or, if not indicated, as directed by Architect.

Build mock-ups for the following types of masonry in sizes of approximately 4 feet long by 4 feet high by full thickness, including face and backup wythes as well as accessories.

Each type of exposed unit masonry construction.
Typical interior unit masonry wall.

Where masonry is to match existing, erect panels parallel to existing surface.

Retain and maintain mock-ups during construction in undisturbed condition as standard for judging completed unit masonry construction.

When directed, demolish and remove mock-ups from Project site.

DELIVERY, STORAGE, AND HANDLING

Deliver masonry materials to project in undamaged condition.

Store and handle masonry units off the ground, 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 place until units are in an air-dried condition.

Store cementitious materials off the ground, under cover, and in 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 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 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. Remove immediately any grout, mortar, and soil that come in contact with such masonry.

Protect base of walls from rain-splashed mud and mortar splatter by means of 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.

COLD WEATHER PROTECTION

Do not lay masonry units which are wet or frozen.

Remove any ice or snow formed on masonry bed by carefully applying heat until top surface is dry to the touch.

Remove masonry damaged by freezing conditions.

Perform the following construction procedures while the work is progressing. Temperature ranges indicated below apply to air temperatures existing at time of installation except for grout. For grout, temperatures ranges apply to anticipated minimum night temperatures. In heating mortar and grout materials, maintain mixing temperature selected within 10 degrees F.

40 degrees F to 34 degrees F:

Mortar: Heat mixing water to produce mortar temperature between 40 degrees F and 120 degrees F.

Grout: Follow normal masonry procedures.

34 degrees F or below:
DISCONTINUE MASONRY WORK.

Protect completed masonry and masonry not being worked on in the following manner. Temperature ranges indicated apply to mean daily air temperatures except for grouted masonry. For grouted masonry temperature ranges apply to anticipated minimum night temperatures.

40 degrees F to 34 degrees F:

Protect masonry from rain or snow for at least 24 hours by covering with weather-resistive membrane.

32 degrees F to 25 degrees F:

Completely cover masonry with weather-resistive membrane for at least 24 hours.

25 degrees F to 20 degrees F:

Completely cover masonry with weather-resistive insulative blankets or similar protection for at least 24 hours, 48 hours for grouted masonry.

Except as otherwise indicated, maintain masonry temperature above 32 degrees F (0 degrees C) for 24 hours using enclosures and supplementary heat, electric heating blankets, infrared lamps or other methods proved to be satisfactory. For grouted masonry maintain heated enclosure to 40 degrees F (4 degrees C) for at least 48 hours.

Hot-Weather Construction: Comply with referenced unit masonry standard.

PART 2 - PRODUCTS

MATERIALS, GENERAL

Comply with referenced unit masonry standard and other requirements specified in this Section applicable to each material indicated.

CONCRETE MASONRY UNITS

General: Comply with requirements indicated below applicable to each form of concrete masonry unit required.

Provide special shapes where indicated and as follows:

For lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.

Size: Provide concrete masonry units complying with requirements indicated below for size that are manufactured to specified face dimensions within tolerances specified in the applicable referenced ASTM specification for concrete masonry units.

Concrete Masonry Units: Manufactured to specified dimensions of 3/8 inch less than nominal widths by nominal heights by nominal lengths indicated on drawings.

Concrete Building Brick: Specified dimensions as follows:

Standard Modular: 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.

Provide Type I, moisture-controlled units.

Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.

Standard aggregate, ground finish.

Hollow Load-Bearing Concrete Masonry Units: ASTM C 90, Grade N and as follows:

Unit Compressive Strength: Provide units with minimum average net area compressive strength indicated below:

2000 psi.

Not less than the unit compressive strengths required to produce concrete unit masonry construction of compressive strength indicated.

Weight Classification: Medium weight with density range 105 to 125 pcf.

Solid Load-Bearing Concrete Masonry Units: ASTM C 145, Grade N and as follows:

Unit Compressive Strength: Provide units with minimum average net area compressive strength indicated below:

75% solid units – if indicated on drawings.

2000 psi.

Weight Classification: Medium weight with density range of 105 to 125 pcf.

Concrete Building Brick: ASTM C 55 and as follows:

Unit Compressive Strength: Provide units with minimum average net area compressive strength indicated below:

3500 psi.

Weight Classification: Lightweight with density range 100 to 105 pcf

MORTAR AND GROUT MATERIALS

Comply with ASTM C 476 for grout for use in construction of reinforced and nonreinforced unit masonry.

Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. **Provide natural color cement.**

Mortar for this project shall be Standard, Type-S mortar. (Colored Mortar is not required)

Sand shell meet the requirements of Standard Specifications for Aggregate for Masonry Mortar (ASTM C-144-81), with the gradation to satisfy paragraph 4, Grading, and with the omission of sub-paragraph 4.4

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.

Hydrated Lime: ASTM C 207, Type S.

Aggregate for Mortar: ASTM C 144, except for joints less than 1/4 inch use aggregate graded with 100 percent passing the No. 16 sieve.

Aggregate for Grout: ASTM C 404.

Water: Clean and potable.

PREPACKAGED MORTAR CEMENTS

Prepackaged mortar cements may be used with the prior approval. The mortar cement shall be in accordance with ASTM C91-83, and meet the following minimum requirements.

Type S Mortar Cement: The masonry mortar made from the mortar cement shall have a compressive strength of 1800 psi minimum at 28 days when tested in accordance with ASTM C-270, with maximum air volume of 16%.

The mortar cement shall contain Portland cement, hydrated lime, plasticized admixtures and/or hydraulic hydrated lime. Mortar cements which contain other materials, including ground limestone, ground slag or other cementitious and non-cementitious materials, are not acceptable.

Instructions for mixing the mortar shall be published and accompany all shipments. The instructions shall be volumetric measurements, and shall be developed to show proper proportions of sand to one (1) bag of the prepackaged mortar cement with volume of water to produce a flow of the proper consistency.

Freeze-thaw resistance: The mortar cement shall comply with the following requirements when subjected to 50 cycles of the freeze-thaw test:

Loss of compressive strength	35.0% maximum
Loss of dry weight	1.0% maximum

The test specimen shall be made in accordance with ASTM C-91, Paragraphs 18, 19, and 20, and be tested in accordance with ASTM C-91, Paragraphs 22.1 and 22.2.1, and ASTM C-67, Paragraphs 8.1, 8.3, and 8.4.

ON-THE-JOB MORTAR CEMENT

Type S Mortar shall have a compressive strength of 1800 psi minimum at 28 days. The mortar shall be proportioned within the following volumetric limits:

1 part Portland Cement
1/2 part Hydrated Lime
Masonry sand measured in a damp loose condition is to be not less than 2-1/4 nor more than 3 times the sum of the volumes of cement plus lime used.
Plasticizer per instructions of the manufacturer, the quantity of which is not to exceed 2% by volume of the cement and lime combination.

MEASUREMENTS AND MIXING

The method of measuring materials shall be by volume, and shall be such that the specified proportions of the mortar materials can be controlled and accurately maintained. A measuring device to make consistent volume measurements shall be used throughout the project. Measurement of sand by shovel shall not be permitted.

Mortar Mixer shall be paddle-type mechanical mixer. It shall be of such design and size to accommodate the mixing of the ingredients.

The mortar mixer shall be charged in this order: add approximately one-half the water required, one-half the sand, the cement and lime (or prepackaged mortar cement), the remaining amount of sand, and then sufficient water to bring the mix to desired consistency. Mortar shall bed mixed for a minimum of five minutes after all materials have been charged into the mixer with all batches being mixed to the same consistency.

Mortars that have stiffened because of evaporation of water from the mortar may be retempered by adding water as frequently as needed to restore the required consistency. Mortars shall be used and placed in their final position within 2 hours after mixing. When the temperature is over 80 degrees F., the mortar shall be used within 1-1/2 hours after mixing. Mortar not used within the stated time periods shall be discarded.

JOINT REINFORCEMENT, TIES AND ANCHORING DEVICES:

Materials: Comply with requirements indicated below for basic materials and with requirements indicated under each form of joint reinforcement, tie and anchor for size and other characteristics:

Zinc-Coated (galvanized) Steel Wire: ASTM A 82 for uncoated wire and with ASTM C 641 for zinc coating of class indicated below:

Class 1 (0.40 oz. per sq. ft. of wire surface).
Application: Use for masonry not exposed to exterior or earth.

Hot-Dip Galvanized Steel Wire: ASTM A 82 for uncoated wire and with ASTM A 153, Class B-3 for zinc coating applied after prefabrication into units.

Application: Use for masonry exposed to exterior and in contact with earth.

Zinc-Coated (Galvanized) Steel Sheet: Carbon steel with zinc coating complying with ASTM A 525, Coating Designation G90.

Application: For dovetail and anchors slots used in masonry and concrete not exposed to exterior or earth.

Hot-Dip Galvanized Carbon Steel Sheet: ASTM A 366, Class 2 or ASTM A 635; hot dip galvanized after fabrication to comply with ASTM A 153; Class B.

Application: For dovetail slots and anchors used in masonry and concrete exposed to exterior or in contact with earth.

Joint Reinforcement: Provide welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10', with prefabricated corner and tee units, and complying with requirements indicated below:

Width: Fabricate joint reinforcement in units with widths of approximately 2" less than nominal width of walls and partitions as required to provide mortar coverage of not less than 5/8" on joint faces exposed to exterior and 1/2" elsewhere.

Wire Size for Side Rods: 0.1483" diameter.
Wire Size for Cross Rods: 0.1483" diameter.

For single-wythe masonry provide type as follows with single pair of side rods:

Ladder type with perpendicular cross rods spaced not more than 16 inches o.c. and 1 side rod for each face shell of hollow masonry units more than 4 inches in width, plus 1 side rod for each wythe of masonry 4 or less in width.

Uses: Typical interior walls.

For multi-wythe masonry provide type as follows:

Adjustable (2-piece) type with single pair of side rods and cross ties spaced not more than 16 inches o.c. and with separate adjustable veneer ties engaging the cross ties. Cross ties are either U-shaped with eyes or rectangular. Space side rods for embedment within each face shell of backup wythe and size adjustable ties to extend at least halfway through outer wythe but with at least 5/8-inch cover on outside face.

Uses: Typical exterior brick veneer walls.

Hardware cloth: See drawings for indicated locations and applications. Hot dip mill-galvanized wire, 16 gauge 2 x 2 (1/2") mesh. Tie is 1" less than nominal width of unit or wall.

D/A WMT Wire Mesh Ties; Dur-O-Wall, Inc.
269 Wire Mesh Ties; Heckman Building Products.

Structural Steel and Masonry Wall Anchors: Tie masonry walls to column flanges parallel to the wall. Anchors are 3/8" diameter mill-galvanized wire. Provide anchor width required for masonry bend to extend 2" into horizontal joint.

Hot dip mill-galvanized wire, 16 gage 2 x 2 (1/2") mesh. Tie is 1" leass then nominal width of unit or wall.

No.216 Wire Type Anchor; Heckmann Building Products
D/A-F/P and D/A-F/RA; Dur-O-Wall, Inc.

Channel Slots and Anchors: Two piece Assemblies which permit vertical or horizontal differential movement between wall and steel framework parallel to, but resist tension and compression forces perpendicular to wall. Consists of wire tie section and extended type metal anchor section.

D/A 902 anchor with ties 912 and 918-921; Dur-O-WALL,Inc.
131 anchor with ties 134 and 129; Heckman building products.

Weld-on Adjustable Anchor Rods and Straps: Two piece assemblies for tying masonry walls to steel columns and beams.

D/A 709-711 anchor and D/A 701/708 tie; Dur-O-Wall, Inc.
No. 315 anchor and No.316 tie; Heckman Building Products.

Unit type Masonry Inserts in Concrete:

Dovetail Slots: Furnish dovetail slots, with filler strips, of slot size indicated and entire height of wall, fabricated from 22 gage sheet metal. Cast into concrete walls backing brick veneer at 24" o.c. horizontally to allow veneer anchors to be spaced not more than 24" o.c. horizontally and 16' o.c. vertically.

Dovetail Anchors:

Wire Size: 0.1483" diameter.
Wire tie Shape: Triangular.
Wire Tie Coating: Hot dipped galvanized.
Wire tie Length: As required to extend within 1" of masonry veneer face.

Products: Subject to compliance with requirements, provide the following or equal products:

"D/A 100 slot and D/A 720-723 anchor"; Dur-O-Wal, Inc.
"100 slot and 103 anchor " Heckman Building Products.

Anchor Bolts: Provide steel bolts with hex nuts and flat washers complying with ASTM A 307, Grade A, hot-dip galvanized to comply with ASTM C 153, Class C, in sizes and configurations indicated.

CONCEALED FLASHING MATERIAL

Vinyl Sheet Flashing: Flexible sheet flashing especially formulated from virgin polyvinyl chloride with plasticizers and other modifiers to remain flexible and waterproof in concealed masonry applications, black in color and thickness indicated below.

Thickness: 30 mils.

Application: Use where flashing is fully concealed in masonry.
Adhesives for Flashings: Of type recommended by manufacturer of flashing material for use indicated.

MISCELLANEOUS MASONRY ACCESSORIES:

Reinforcing Bars: Deformed steel, ASTM A 615, Grade 60 for bars No. 3 to No. 18.

Non-Metallic Expansion Joint Strips: Premolded, flexible filler strips complying with ASTM D 1056, Type 2 (Closed cell), Class A (cellular rubber and rubber-like materials with specific resistance to petroleum base oils), Grade 1 (Compression-deflection range of 2-5 psi), compressible up to 35%, 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 2AA-805.
Polyvinyl Chloride: ASTM D 2287, General Purpose Grade, Type PVC-65406.

Face brick Expansion Joint Bridge: D/A by Dur-O-Wal, Inc.

Bond Breaker Strips: Asphalt-saturated organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

Weepholes: Provide weepholes in masonry construction just above thru-wall flashing and at points indicated on drawing. At the ground level provide "open head joints" in brick at 2'-0" o.c. along the length of the wall For all weep holes required above the ground level install weep ropes at 2'-0" o.c. above windows doors or other miscellaneous thru-wall flashing points

Wicking Material: Material as indicated below in lengths required to produce a 2" exposure on exterior and 18' in cavity between wythes.

Fibrous glass rope.

GROUT FOR UNIT MASONRY

Comply with ASTM C 476 for grout for use in construction of reinforced and nonreinforced unit masonry. Use grout of consistency indicated or if not otherwise indicated, of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout.

The required 28 day compressive strength of the grout shall be 1.5 times f'm of the concrete masonry unit.

Use fine grout in grout spaces less than 2" in horizontal direction, unless otherwise indicated.
Use coarse grout in grout spaces 2" or more in least horizontal dimension, unless otherwise indicated.
Do not use calcium chloride in grout.

MASONRY CLEANERS:

Job-Mixed Detergent Solution: Solution of trisodium phosphate (1/2 cup dry measure) and laundry detergent (1/2 cup dry measure) dissolved in one gallon of water.

PART 3 - EXECUTION

INSTALLATION, GENERAL:

Wetting Clay Brick: Wet brick made from clay or shale that have ASTM C 67 initial rates of absorption (suction) of more than 30 grams per 30 sq. in. per minute. Use wetting methods that ensure each clay masonry unit being nearly saturated but surface dry when laid.

Do not wet concrete masonry units.

Cleaning Reinforcing: Before placing, remove loose rust, ice and other coatings from reinforcing.

Thickness: Build cavity and composite walls, floors and other masonry construction to the full thickness shown. Build single-wythe walls (if any) to the actual thickness of the masonry units, using units of nominal thickness indicated holding dimension to face or unit same as indicated on drawings.

Build chases and recesses as shown or required for the work of other trades. Provide not less than 8" of masonry between chase or recess and jamb of openings, and between adjacent chases and recesses.

Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.

Use dry cutting saws to cut concrete masonry units.

CONSTRUCTION TOLERANCES:

Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4" in 10', or 3/8" in a story height. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4" in any story. For vertical alignment of head joints do not exceed plus or minus 1/4" in 10', 1/2" 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" in any bay or 20' maximum, not 1/2" in 40' or more. For top surface of bearing walls do not exceed 1/8" between adjacent floor elements in 10' or 1/16" within width of a single unit.

Variation of Linear Building Line: For position shown in plain and related portion of columns, walls and partitions, do not exceed 1/2” in any bay or 20’ maximum, or 3/4" in 40' or more.

Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4" nor plus 1/2".

Variation in Mortar Joint Thickness: Do not exceed bed joint thickness indicated by more than plus or minus 1/8", with a maximum thickness limited to 1/2". Do not exceed head joint thickness indicated by more than plus or minus 1/8".

LAYING MASONRY WALLS:

Layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to accurately locate opening, movement-type joints, returns and offsets. Avoid the use of less-than-half-size units at corners, jambs and wherever possible at other locations.

Lay-up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other work.

Pattern Bond: Lay exposed masonry in the bond pattern shown or, if not shown, lay in running bond with vertical joint in each course centered on units in courses above and below. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2". Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4" horizontal face dimensions at corners or jambs.

Stopping and Resuming Work: Rack back 1/2-unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh memory.

Built-in Work: As the work progresses, build-in items specified under this and other sections of these specifications. Fill in solidly with masonry around built-in items.

Fill space between hollow metal frames and masonry solidly with mortar.
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 masonry units with grout 3 courses (24") under bearing plates, beams, lintels, posts and similar items, unless otherwise indicated.

MORTAR BEDDING AND JOINTING:

Lay solid brick-size masonry units with completely filled bed and head joint; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.

Lay hollow concrete masonry units 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 reinforced or filled with concrete or grout. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.

Maintain joint widths shown, except for minor variations required to maintain bond alignment. If not shown, lay walls with 3/8" joints.

Cut joints flush for masonry walls which are to be concealed or to be covered by other materials, unless otherwise indicated.

Tool exposed joints slightly concave using a jointer larger than joint thickness, unless otherwise indicated.

Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners or jambs to shift adjacent stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

Collar Joints: After each course is laid, fill in vertical longitudinal joint between wythes solidly and with mortar for the following masonry work:

Interior walls and partitions.

Exterior walls, except cavity walls.

Nonloadbearing interior walls or partitions where metal ties or horizontal reinforcing are indicated for structural bonding and nominal thickness of wall or partition is required to meet code requirements for height-to-thickness ratio.

STRUCTURAL BONDING OF MULTI-WYTHE MASONRY:

Use continuous horizontal joint reinforcement installed in horizontal mortar joints for bond tie between wythes. Install at not more than 16" o.c. vertically.

For horizontally reinforced masonry, provide continuity at corners with prefabricated "L" units, in addition to masonry bonding.

Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, provide same type of bonding specified for structural bonding between wythes and space as follows:

Provide continuity with horizontal joint reinforcement using prefabricated "T" units.

Non-bearing Interior Partitions: Build full height of story to underside of solid floor or roof structure above, unless otherwise shown. (See Wall Rating Legend on plan drawings to determine which walls are intended to run full height.)

Run non-bearing partitions (indicated to be full height) within 1" of structure above and secure against lateral movement with channel section width of wall x 1'-0" length spaced at 4'-0" o.c. unless detailed otherwise on drawings.

HORIZONTAL JOINT REINFORCEMENT:

General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8" exterior side of walls, 1/2" elsewhere. Lap reinforcing a minimum of 6".

Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

Reinforce walls with continuous horizontal joint reinforcing unless specifically noted to be omitted.

Provide continuity at corners and wall intersections by use of 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.

Space continuous horizontal reinforcement as follows:

For multi-wythe walls (solid or cavity), space reinforcement 16" o.c. vertically.

For single-wythe walls, space reinforcement at 16" o.c. vertically, unless otherwise indicated.

Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcement placed in 2 horizontal joints approximately 8" apart, immediately above the lintel and immediately below the sill. Extend reinforcement a minimum of 2'-0" beyond jambs of the opening except at control joints.

In addition to wall reinforcement, provide additional reinforcement at openings as required to comply with the above.

ANCHORING MASONRY WORK:

General: Provide anchor devices of type indicated.

Anchor Bolts: Steel bolts complying with ASTM A 307, Grade A(ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated and in the following configurations:

Headed Bolts.

Postinstalled Anchors: Anchors as described below, with capability to sustain, without failure, load imposed within factors of safety indicated, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

Type: Expansion Anchors.

Corrosion Protection: Stainless-steel components with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Alloy Group 1 or 4) for bolts and nuts; ASTM A 167 or ASTM A 276, Type 304 or 316, for anchors.

For Postinstalled Anchors in Grouted Concrete Masonry Units: Capability to sustain, without failure, a load equal to 6 times the loads imposed by masonry.

Installation of Anchor Bolts: Position fixture, drill hole. Insert anchor bolt, tap flush with fixture, and tighten.

Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:

Provide an open space not less than 1" in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar or other rigid materials.

Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure.

Space anchors as indicated, but not more than 24" o.c. vertically and 36" o.c. horizontally.

CONTROL AND EXPANSION JOINTS:

General: Provide vertical and horizontal expansion, control and isolation joints in masonry where shown. Build-in related items as the masonry work progresses.

Build-in non-metallic joint filler where indicated.

Build in vertical pressure relieving joints where indicated; construct joints by inserting non-metallic compressible joint filler of width required to permit installation of sealant and backer rod.

LINTELS:

Provide masonry lintels where shown or wherever openings of more than 1'-0" for brick size units and 2'-0" for block size units are shown without structural steel or other supporting lintels. Provide precast or formed-in-place masonry lintels. Cure precast lintels before handling and installation.

For hollow concrete masonry unit walls, use specially formed U-shaped lintel units with reinforcement bars placed as shown filled with coarse grout.

Provide minimum bearing of 8" at each jamb, unless otherwise indicated.

FLASHING OF MASONRY WORK:

General: Provide concealed flashing in masonry work at, or above, shelf angles, lintels, ledges and other obstructions to the downward flow of water in the wall so as to divert such water to the exterior. Prepare masonry surfaces smooth and free from projections which could puncture flashing. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with mastic before covering with mortar. Extend flashings through exterior face of masonry.

Extend flashing the full length of lintels and shelf angles and minimum of 4" into masonry each end. Extend flashing from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 4", and through the inner wythe half the width of the inner wythe unit.

Install flashing to comply with manufacturer's installation.

Provide weep holes in the head joints of the first course of masonry immediately above concealed flashings. Space 2'-0" o.c., unless otherwise indicated. Trim wicking material used in weep holes flush with outside face of wall after mortar is set.

Install reglets and nailers for flashing and other related work where shown to be built into masonry work.

REPAIR, POINTING, AND CLEANING:

Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.

Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints including corners, openings and adjacent work to provide a neat, uniform appearance, prepared for application of sealants.

Final Cleaning: After mortar is thoroughly set and cured, clean masonry as follows:

Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.

Test cleaning methods on sample wall panel; leave 1/2 panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.

Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.

Use bucket and brush hand cleaning method described in BIA "Technical Note No. 20 Revised" to clean brick masonry made from clay or shale, except use masonry cleaner indicated below.

Detergent.

Protection: Provide final protection and maintain conditions in a manner acceptable to Installer, which ensures unit masonry work being without damage and deterioration at time of substantial completion.

End of SECTION 04200

SECTION 05500 - METAL FABRICATIONS:

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

DESCRIPTION OF WORK:

Definition: Metal fabrications include items made from iron and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere.

Extent of metal fabrications is indicated on drawings and schedules.

Types of work in this section include metal fabrications for:

Loose bearing and leveling plates.
Loose steel lintels.
Miscellaneous framing and supports.
Fabricated Decorative Entrance steel support framing and seal plaque base (2). The intention is to duplicate the tubular steel painted arched detail work on the adjacent pavilion building. GC to view this existing building detail prior bidding.

Note to Steel fabricators and Erectors: Miscellaneous steel angles and steel sub framing is utilized as support work throughout the wall sections of the drawings. These miscellaneous steel pieces may or may not show up on the Structural drawings. Estimators must look through both architectural and Structural drawings to see the full extent of the work.

Structural steel is specified in another section within Division 5.

Concrete for Stair Pan Fill is specified in Division 3.

SYSTEM PERFORMANCES:

Structural Performances: Provide assemblies which, when installed, comply with the following minimum requirements for structural performance, unless otherwise indicated.

Treads and Platforms of Steel Stairs: Capable of withstanding a uniform load of 100 lbf per sq. ft. or a concentrated load of 300 lbf so located as to produce maximum stress conditions.

Handrails and Toprails: Capable of withstanding the following loads applied as indicated when tested per ASTM E 935.

Concentrated loads of 250 lbs applied at any point in any direction.

Uniform load of 75 lbf per linear ft. applied simultaneously in both vertical and horizontal directions.

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 lbs/ft applied at any point nonconcurrently, vertically downward or horizontally.

Uniform load of 50 lbs/ft per linear foot applied nonconcurrently, vertically downward or horizontally.

Concentrated and uniform loads above need not be assumed to act concurrently.

Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 200 lbs/ft applied to one sq. ft. at any point in the system including panels, intermediate rails balusters, or other elements composing the infill area.

Above load need not be assumed to act concurrently with uniform horizontal loads on top rails of railing systems in determining stress on guard.

Treads of Steel Stairs: Capable of withstanding a uniform load of 100 lbs per sq. ft. or a concentrated load of 300 lbs on a area of 4 sq. inches located in the center of the tread, whichever produces the greater stress.

Platforms of Steel Stairs: Capable of withstanding a uniform load of 100 lbs per sq. ft.

QUALITY ASSURANCE:

Shop Assembly: Preassemble items in 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.

SUBMITTALS:

Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products and grout.

Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.

PART 2 - PRODUCTS:

MATERIALS:

Ferrous Metals:

Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

Steel Plates, Shapes and Bars: ASTM A 36.

Structural Steel Sheet: Hot-rolled, ASTM A 570; or cold-rolled ASTM A 611, Class 1; of grade required for design loading.

Galvanized Structural Steel Sheet: ASTM A 446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.

Steel Pipe: ASTM A 53; Type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (schedule 40), unless otherwise indicated.

Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153.

Aluminum Pipe: Extruded 6063-T6 1-1/2” schedule 40 pipe and 6064-T4 formed elbows.

Aluminum Pickets: Extruded 6063 T5 aluminum.

Grout:

Non-Shrink Non-Metallic Grout: Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-C621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

Fasteners:

General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.

Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.

Lag Bolts: Square head type, FS FF-B-561.

Machine Screws: Cadmium plated steel, FS FF-S-92.

Wood Screws: Flat head carbon steel, FS FF-S-111.

Plain Washers: Round, carbon steel, FS FF-W-92.

Masonry Anchorage Devices: Expansion shields, FS FF-S-325.

Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.

Lock Washers: Helical spring type carbon steel, FS FF-W-84.

Paint:

Shop Primer for Ferrous Metal: Manufacturer's or Fabricator's standard, fast-curing, lead-free, "universal" primer; selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated and for compatibility to provide a sound foundation for field-applied topcoats despite prolonged exposure.

FABRICATION, GENERAL:

Workmanship: Use materials of size and thickness indicated or, if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of work.

Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent- metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat- head (countersunk) screws or bolts.

Provide for anchorage of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.

Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

Shop Painting:

Apply shop primer to surfaces of metal fabrications except those which are galvanized or as indicated to be embedded in concrete or masonry, unless otherwise indicated, and in compliance with requirements of SSPC-PA1 "paint Application Specification No. 1" for shop painting.

Surface Preparation: Prepare ferrous metal surfaces to comply wit minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

LOOSE BEARING AND LEVELING PLATES:

Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication for exterior and wet conditions.

LOOSE STEEL LINTELS:

Provide loose structural steel lintels for openings and recesses in masonry walls and partitions as shown. Weld adjoining members together to form a single unit where indicated. Provide not less than 8" bearing at each side of openings, unless otherwise indicated. **Galvanize** after fabrication for exterior and wet conditions.

MISCELLANEOUS FRAMING AND SUPPORTS:

Provide miscellaneous steel framing and supports which are not a part of structural steel framework, as required to complete work.

Fabricate miscellaneous units to sizes, shapes and profiles indicated or, if not indicated, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise indicated, fabricate from structural steel shapes, plates and steel bars, of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware and similar items.

Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.

Except as otherwise indicated, space anchors 24" o.c. and provide minimum anchor units of 1-1/4" x 1/4" x 8" steel straps.

Equip units with integrally welded anchors, plates, installation angles, etc. necessary for attaching units to steel structure where required.

MISCELLANEOUS STEEL ANGLES AND TRIM:

Provide structural steel shelf angles of sizes indicated for attachment to concrete framing. Provide slotted holes to receive 3/4" bolts, spaced not more than 6" from ends and not more than 24" o.c., unless otherwise indicated.

Furnish wedge-type concrete inserts, complete with fasteners, for attachment of shelf angles to cast-in-place concrete.

DECORATIVE ENTRANE ARCH AND SEAL:

Fabricate Painted Decorative Arch and Seal (2) to design, dimensions, and details indicated. Provide brackets formed of plate steel and tubes of sizes and attachment hardware indicated, but not less than that required supporting design loading.

STEEL RAILINGS:

Fabricate steel pipe and square picket railings and handrails to design, dimensions, and details indicated. Provide railings and handrails members formed of pipe of sizes and wall thickness indicated, but not less than that required supporting design loading.

Structural Performances: Provide railing and handrail assemblies which, when installed, comply with the following minimum requirements for structural performance, unless otherwise indicated.

Handrails and Toprails: Capable of withstanding the following loads applied as indicated:

Concentrated load of 250 lbf applied at any point in any direction.

Uniform load of 75 lbf per linear ft. applied simultaneously in both vertical and horizontal directions.

Concentrated and uniform loads above need not be assumed to act concurrently.

Number of hand rails shall in all cases be two (one on each side of stairs and ramps whether or not shown in pairs on drawings, unless SPECIFICALLY called out on drawing to be a single rail).

Guards: Intermediate rails, balusters and panel fibers capable of withstanding a uniform load of 250 lbs per sq. ft. of gross area of guard, including any open areas, of which they are a part.

Above load need not be assumed to be acting concurrently with uniform horizontal loads on toprails of railing assembly in determining stress on guard supporting members.

Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated.

At tee and cross intersections provide coped joints.

At elbow bends provide mitered joints.

Close exposed ends of pipe tube by welding 3/16" thick steel plate in place or by use of prefabricated fittings.

Brackets, Flanges, Fittings and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings and anchors for interconnections of pipe and attachment of railings and handrials to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete or masonry work.

Shop prime railings with manufacture's standard rust-prohibitive primer, compatible with finish coat of paint. Do not prime surfaces intended to receive field welded connections.

PIPE BOLLARDS: (if any)

Fabricate pipe bollards from Schedule 80 steel pipe. See plans for bollard details. Provide round top end cap as required for pipe diameter.

FINISHES, GENERAL

Comply with NAAMM “Metal Finishes Manual” for recommendations relative to application and designations of finishes.

Finish metal fabrications after assembly.

STEEL AND IRON FINISHES

Galvanizing: For those items indicated for galvanizing, apply zinc-coating by the hot-dip process compliance with the following requirements:

ASTM A 153 for galvanizing iron and steel hardware.

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 metal fabrications:

Interiors (SSPC Zone 1A): SSPC-SP3 “Power Tool Cleaning.”

Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finish or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA1 “Paint Application Specification No. 1” for shop painting.

PART 3 - EXECUTION

PREPARATION:

Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

INSTALLATION:

General:

Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry or similar construction.

Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat.

Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

Setting Loose Plates: Clean concrete and masonry bearing surfaces of any bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.

Set loose leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use non-metallic non-shrink grout in exposed locations, unless otherwise indicated.

Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

Secure non-removable units to supporting members by welding where both materials are the same, otherwise fasten by bolting as indicated above.

Steel Railings and Handrails: Connect railing to stair assemblies as detailed on drawings. Grind smooth field welds and touch-up shop primer paint.

For concrete and solid masonry anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable. See drawings for wall mounted railing applications.

ADJUST AND CLEAN:

Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting.

Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

Touch-Up Painting: Cleaning and touch-up painting of field welds, bolted connections and abraded areas of the shop paint on miscellaneous metal is specified in Division 9 of these specifications.

End of SECTION 05500

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 grounds, nailers and blocking -
Misc. wood Framing and furring.
Plywood roof sheathing.

Zip System Wall sheathing

See Division 7 – Insulation

DEFINITIONS:

Rough carpentry includes carpentry work not specified as part of other sections and generally not exposed, unless otherwise specified.

SUBMITTALS:

Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling, storing, installation and finishing of treated material.

Preservative Treatment: For each type specified, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained and conformance with applicable standards.

For water-borne treatment, include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project site.

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:

SPIB - Southern Pine Inspection Bureau.

WWPA - Western Wood Products Association.

Grade Stamps: Provide lumber with 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.

FIRE-RETARDANT-TREATED MATERIALS

General: Where fire-retardant-treated materials are indicated, provide materials that comply with performance requirements in **AWPA C20 (lumber) and AWPA C27 (plywood)**. Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.

Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to **ASTM D 5664, for lumber and ASTM D 5516, for plywood**.

Use treatment that does not promote corrosion of metal fasteners.
Use Exterior type for exterior locations and where indicated.
Use Interior Type A High Temperature (HT), unless otherwise indicated.

WOOD TREATMENT BY PRESSURE PROCESS:

Preservative Treatment: Where lumber or plywood is indicated as "Treated," or is specified herein to be treated, comply with applicable requirements of AWPA Standards.
AWPA U1; Use categories as follows:

Use Category UC2 - for interior construction not in contact with the ground.
Use Category UC3b - for exterior construction not in contact with the ground.
Use Category UC4a - for items in contact with the ground.

Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf. For interior uses, 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, 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.

Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Note, Coordinate appropriate type of fastener with type of “chemical pressure treatment”.

For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

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.

DIMENSION LUMBER

For light framing provide "Stud," "No. 3," or "Standard" grade lumber for stud lumber for stud framing (2 to 4 inches thick, 2 to 4 inches wide, 10 feet and shorter) and "Stud" or "No. 3" grade for other light framing (2 to 4 inches thick, 2 to 6 inches wide), any species.

For structural framing (2 to 4 inches thick, 5 inches and wider), provide the following grade and species:

No. 2 grade.
Southern Pine (SPIB).
Fb (minimum extreme fiber stress in bending); 1200 psi
E (minimum modulus of elasticity); 1,600,000.

BOARDS:

Concealed Boards: Where boards will be concealed by other work, provide lumber of 19% maximum moisture content (S-DRY) and of following species and grade:

Southern Pine.
Select Structural
No. 2 grade.

Board Sizes: Provide sizes indicated or, if not indicated (for sheathing, subflooring, trim boards scheduled to be clad - and similar uses), provide 1" x 8" boards.

Board Sizes: Provide sizes indicated or, if not indicated (for furring, blocking and similar uses), provide 1" x 4" boards.

Exposed Boards: Where boards will be exposed in the finished work, provide the following:

Moisture Content: 19 percent maximum, "S-DRY".

Painted finish typical: No. 1 Boards per SPIB rules, Select Merchantable Boards per WCLIB rules, or No. 2 Common Boards & Better per WWPA rules.

MISCELLANEOUS LUMBER:

Provide wood for support or attachment of other work including, 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.

For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

CONSTRUCTION PANELS:

Construction Panel Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood panels and, for products not manufactured under PS 1 provisions, with American Plywood Associates APA PRP-108.

Trademark: Factory-mark each construction panel with APA trademark evidencing compliance with grade requirements.

APA Performance-Rated Panels: Where construction panels will be used for the following types of applications, provide APA Performance-Rated Panels complying with requirements indicated for grade designation, exposure durability classification, edge detail (where applicable) and thickness.

APA RATED PLYWOOD SHEATHING.

Exposure Durability Classification: EXTERIOR, EXP-1

Span Rating: As required to suit roof joist spacing indicated **but no less than thickness shown on drawings.**

Wall Sheathing Product: 5/8" thick Zip Sheathing System by Huber Engineered Woods and associated flashing taped edge and joint tape or equals by others.

Applications: Plywood sheathing on walls and roofs.

Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant treated plywood panels with grade designation, APA C-D PLUGGED INT with exterior glue, in thickness indicated, or, if not otherwise indicated, not less than 15/32".

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).

MDO: Medium Density Overlay, exterior grade plywood refined by adding a resin impregnated fiber overlay to produce a dimensionally stable, **dense**, strong and smooth board product. Material shall conform to requirements of ANSI A208.2-1994 and as specified in this section. **Resin shall be formaldehyde free.**

Building Paper: ASTM D 226, Type I; asphalt saturated felt, non-perforated, 15-lb. type.

FASTENERS

General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.

Coordinate appropriate type of fastener with type (if any) of "chemical preservative-pressure treatment".

If ACQ (Alkaline Copper Quat) or CA-B (Copper Azole) treated wood is used, fastenters must be stainless steel or have electro deposited organic coatings (E-Coat).

Nails, Wire, brads, staples: FS FF-N-105.

Power Driven Fasteners: National Evaluation Report NER-272.

Wood Screws: ANSI B18.6.1.

Lag Bolts: ANSI B18.2.1.

Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

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 to line and cut and fitted.

Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

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.

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.

WOOD FURRING:

Install plumb and level with closure strips at edges and openings. Shim with wood as required for tolerance of finished work.

Firestop furred spaces on walls at each floor level and a ceiling line of top story, with wood blocking or noncombustible materials, accurately fitted to close furred spaces.

Furring to receive gypsum Drywall: Install 1-inch by 2 -inch furring at 16 inches o.c., vertically. (See drawings, furring may be indicated to be metal furring.)

INSTALLATION OF CONSTRUCTION PANELS

General: Comply with applicable recommendations contained in Form No. E30, "APA Design/Construction Guide - Residential & Commercial," for types of construction panels and applications indicated.

Roof Deck Sheathing (exterior grade plywood) spaced a minumum of 1/8” at all edges and ends. Edge clips used to maintain edge spacing as necessary.

Protect installed plywood from damage until system is completed.

Fastening Methods: Fasten panels as indicated below:

Subflooring: SCREW to framing.
Sheathing: SCREW to cold-formed metal framing.
Underlayment: SCREW to framing.

END OF SECTION 06100

SECTION 06200 - FINISH 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.

DESCRIPTION OF WORK

Definition: Finish carpentry includes carpentry work which is exposed to view, is non-structural, and which is not specified as part of other sections.

Types of finish carpentry work in this section include:

Exterior Finish Carpentry – running and standing trim, lap board siding, and Alternate #1 Cupola

Interior Finish Carpentry - running and standing trim at doors and windows, and others indocated on the plans.(painted)
Cupola – See Alternate #1 detailed on the drawings.
Lavatory Counter top – see drawings
Interior millwork not covered by Division-6 section "Architectural Woodwork".

Rough carpentry is specified in another Division-6 section.
Architectural woodwork is specified in another Division-6 sections.
Wood Flooring is specified in another Division-9 section.

QUALITY ASSURANCE:

Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency identification; except omit marking from surfaces to receive transparent finish, and submit mill certificate that material has been inspected and graded in accordance with requirements if it cannot be marked on a concealed surface.

PRODUCT DELIVERY, STORAGE AND HANDLING:

Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

Do not deliver finish carpentry materials, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If, due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

JOB CONDITIONS:

Maintain temperature and humidity in installation area as required to maintain moisture content of installed finish carpentry within a 2.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period. The fabricator of woodwork shall determine optimum moisture content and required temperature and humidity conditions.

PART 2 - PRODUCTS

WOOD PRODUCT QUALITY STANDARDS:

Softwood Lumber Standards: Comply with PS 20 and with applicable grading rules of the respective grading and inspecting agency for the species and product indicated.

Plywood Standard: Comply with PS 1/ANSI A199.

Woodworking Standard: Where indicated for a specific product comply with specified provision of the following:

Architectural Woodwork Institute (AWI) "Quality Standards."

MATERIALS:

General:

Nominal sizes are indicated, except as shown by detailed dimensions. Provide dressed or worked and dressed lumber, as applicable, manufactured to the actual sizes as required by PS 20 or to actual sizes and pattern as shown, unless otherwise indicated.

Moisture Content of Softwood Lumber: Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation not greater than values required by the applicable grading rules of the respective grading and inspecting agency for the species and product indicated.

Moisture Content of Hardwood Lumber: Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation within the ranges required in the referenced woodworking standard.

Lumber for Transparent Finish (Stained or Clear) or Painted Finish: Use pieces made of solid lumber stock.

Exterior Finish clapboard/ Lap Siding Boards: Provide primed Hardie Plank Select Cedar siding for painted finish. Option offered below for lumber siding boards.

Species: Western Cedar.

Grade: Premium. Clear.

Size and Texture: 6” Smooth exposed (Match Existing) .

Finish: Backprimed and painted typical finish unless noted otherwise on drawings.

Plywood for Painted Finish: Any softwood species, Exterior type, Medium Density Overlay (MDO/EXT-APA).

Thickness: 3/4" thick unless noted otherwise on drawings.

INTERIOR FINISH CARPENTRY:

Standing and Running Trim (painted trim): For trim formed of boards and worked products, provide lumber manufactured to sizes and patterns (profile) shown from selected first grade lumber (NHLA); **(finger jointed trim is unacceptable)** complying with following grade requirements of referenced woodworking standard, for quality of materials and manufacture:

Species: Poplar kiln dried.
Grade: premium.
Texture: ¾” thick smooth surfaced.

Finish: Painted unless noted otherwise on drawings.

Wood Moulding Patterns: For stock patterns included in Wood Moulding and Millwork Producers association WM7 and graded under WM4, provide the following grade based on the finish indicated and fabricated from species specified:

Replicated Existing Mouldings: Provide new moulding cut from matching species wood that is identical to the existing one. Contractor shall provide mill with a field sample of the moulding to be replicated for the fabrication of cutting blade required to produce new moulding.

MISCELLANEOUS MATERIALS:

Toilet Countertop: Solid surface 1" thk, Corian with integrated 4" backsplash and 2" apron or preapproved equal approved equal.

Fasteners and Anchorages: Provide nails, screws and other anchoring devices of the type, size, material and finish required for application indicated to provide secure attachment, concealed where possible, and complying with applicable Federal Specifications.

Where finish carpentry is exposed on exterior or in areas of high relative humidity, provide fasteners and anchorages with a hot-dipped zinc coating (ASTM A 153).

Provide mid span and edge brackets to support solid surface countertop.

Inspect each piece of lumber and plywood or each unit of finish carpentry after drying; do not use twisted, warped, bowed or otherwise damaged or defective wood.

PART 3 - EXECUTION

PREPARATION:

Condition wood materials to average prevailing humidity conditions in installation areas prior to installing.

Back prime lumber for painted finish exposed on the exterior or, where indicated, to moisture and high relative humidities on the interior. Comply with requirements of section on painting within Division 9 for primers and their application.

INSTALLATION:

Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacturer with respect to surfaces, sizes or patterns.

Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims.

Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, to produce tight fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints.

Anchor finish carpentry work to anchorage devices or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as

required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nail for exposed nailinqs, countersunk and filled flush with finished surface, and matching final finish where transparent is indicated.

ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:

Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork. Adjust joinery for uniform appearance.

Clean finish carpentry work on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.

Refer to Division 9 sections for final finishing of installed finish carpentry work.

Protection: Installer of finish carpentry work shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 06200

SECTION 07200 - INSULATION

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

DESCRIPTION OF WORK:

Extent of insulation work is shown on drawings and indicated by provisions of this section.

Applications of insulation specified in this section include the following:

Insulation under slabs-on-grade.

Blanket/Batt-type building insulation.

Sound insulation in wall and above ceiling - See drawings for locations.

Sound attenuation blankets installed as part of metal-framed gypsum drywall assemblies are specified in Division-9 section "Gypsum Drywall".

QUALITY ASSURANCE:

Thermal Resistivity: Where thermal resistivity properties of insulation materials are designated by r-values they represent the rate of heat flow through a homogenous material exactly 1" thick, measured by test method included in referenced material standard or otherwise indicated. They are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

Fire Performance Characteristics: Provide insulation materials which are identical to those whose fire performance characteristics, as listed for each material or assembly of which insulation is a part, have been determined by testing, per methods indicated below, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

Surface Burning Characteristics: ASTM E 84.
Fire Resistance Ratings: ASTM E 119.
Combustion Characteristics: ASTM E 136.

SUBMITTALS:

Product Data: Submit manufacturer's product literature and installation instructions for each type of insulation and vapor retarder material required.

DELIVERY, STORAGE, AND HANDLING:

General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

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 ahead of installation time.

Complete installation and concealment of plastic materials as rapidly as possible in each area of work.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

Manufacturers of Extruded Polystyrene Board Insulation:
- Amoco Foam Products Co.
- Dow Chemical U.S.A.
- Minnesota Diversified Products, Inc.
- UC Industries.

Manufacturers of Glass Fiber Insulation:
- CertainTeed Corp.
- Johns Manville
- Knauf Fiber Glass GbmH.
- McCormick Corp.
- Owens-Corning Fiberglas Corp.

INSULATING MATERIALS:

General: Provide insulating materials which comply with requirements indicated for materials, compliance with referenced standards, and other characteristics.

Preformed Units: Sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths and lengths.

EXTRUDED POLYSTYRENE BOARD INSULATION: Rigid, cellular thermal insulation with closed-cells and integral high density skin, formed by the expansion of polystyrene base resin in an extrusion process to comply with ASTM C 578 for Type indicated; with 5-year aged r-values of 5.4 and 5 at 40 and 75 deg. F (4.4 and 23.9 deg.C), respectively; and as follows:

Type IV, 1.6 lb./cu. ft. min. density, unless otherwise indicated.

Surface Burning Characteristics: Maximum flame spread and smoke developed values of 5 and 165, respectively.

Use: Rigid board perimeter insulation.

Size: 2'-0" widths (4 '-0" total width of horizontal and vertical widths if installation requires both direction placement. See details.) **x 3" thickness** x continuous placement around building perimeters at slab-on-grades. Horizontal length may be shortened if distance from bottom of slab to top of footing is less than 2'-0". NC Energy Code Requirement – R-15 for 24 inches.

FACED & UNFACED MINERAL FIBER BLANKET/BATT INSULATION: Thermal insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type II, Class C, Category 1 and ASTM E 84 or UL 723 for Surface Burning Characteristics and as follows:

Use: Exterior stud walls: R-20 with foil/scrim facing(coordinate facing with Insulating Sheathing Product and taped joints)

Attic batt insulation: R=42 with Kraft paper facing.

Combustion Characteristics: Unfaced blanket/batt passes ASTM E 136 test.

Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50, respectively.

AUXILIARY INSULATING MATERIALS:

Adhesive for Bonding Insulation: Type recommended by insulation manufacturer, and complying with requirements for fire performance characteristics.

Mechanical Anchors: Type and size indicated or, if not indicated, as recommended by insulation manufacturer for type of application and condition of substrate.

Mastic Sealer: Type recommended by insulation manufacturer for bonding edge joints between units and filling voids in work.

Polypropelene Netting: Type recommended by insulation manufacturer for suspending insulation between structural members.

Vinyl Tape: Type recommended by insulation manufacturer for sealing plastic vapor barrier seams.

PART 3 - EXECUTION

INSPECTION AND PREPARATION:

Require Installer to examine substrates and conditions under which insulation work is to be performed. A satisfactory substrate is one that complies with requirements of the section in which substrate and related work is specified. Obtain Installer's written report listing conditions detrimental to performance of work in this section. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

Clean substrates of substances harmful to insulations or vapor retarders, including removal of projections which might puncture vapor retarders.

INSTALLATION, GENERAL:

Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with work.

Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

NOTE: FIBERGLASS BATT INSULATION WITH VAPOR BARRIER BACKING MUST BE INSTALLED BY EXTENDING THE EDGES OF THE BACKING NEATLY OVER THE FACE OF THE STUD OR JOIST OR TRUSSES FORMING THE SPACE BEING INSULATED. THESE EDGES SHALL BE NEATLY STRETCHED AND FASTENED TO ALLOW THE INTERIOR FINISH MATERIAL TO "LAY FLAT" OVER THE STUDS AND INSULATION – to be inspected by Architect prior to finishing/covering area.

ATTIC EAVES: PROVIDE INSULATION STOPS TO INSURE OPEN AIR FLOW FROM EAVE VENTS THROUGHOUT.

INSTALLATION OF GENERAL BUILDING INSULATION:

Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.

Set vapor retarder faced units with vapor retarder to warm side of construction, except as otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.

Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure air-tight installation.

Stuff loose glass fiber insulation into miscellaneous voids and cavity spaces around building's exterior walls systems. Compact 40% above normal maximum volume (to a density of approximately 2.5 lbs. per cu. ft.)

PROTECTION:

General: Protect installed insulation and vapor retarders from harmful weather exposures and from possible physical abuses, where possible by nondelayed installation of concealing work or, where that is not possible, by temporary covering or enclosure.

End of SECTION 07200

SECTION 07900 - JOINT SEALERS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

DESCRIPTION OF WORK:

Extent of each form and type of joint sealer is indicated on drawings and described in this section.

Refer to Division-8 Section "Tile" for joint sealers in tile work; not work of this section.

Refer to Division-8 sections for glazing requirements; not work of this section.

SYSTEM PERFORMANCES:

Provide joints sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

QUALITY ASSURANCE:

Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.

SUBMITTALS:

Product Data: Submit manufacturer's technical data for each joint sealer product required, including instructions for joint preparation and joint sealer application and range of manufacturer's standard color selection.

DELIVERY, STORAGE, AND HANDLING:

Deliver materials to project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi-component materials.

Store and handle materials to prevent their deterioration or damage due to moisture, temperature change, contaminants, or other causes.

PROJECT CONDITIONS:

Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:

- When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40 degrees F (4.4 degrees C).
- When joint substrates are wet due to rain, frost, condensation or other causes.

Joint Width Conditions: Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer for application indicated.

PART 2 - PRODUCTS

MATERIALS, GENERAL:

Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

Colors: Provide color of exposed joint sealer indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.

ELASTOMERIC JOINT SEALANTS:

Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.

Multi-Part Nonsag Urethane Sealant: Type M, Grade NS, Class 25, and complying with the following requirements for uses:

Uses NT, M, G, A and, as applicable to joint substrates indicated, O.

Applications: Typical exterior building joints horizontal and vertical between similar and dissimilar materials closing all potential water, air and light leaks.

One-Part Pourable Urethane Sealant: Type S, Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

Applications: Typical all exterior building joints over expansion joints in concrete walkways.

One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with furgicide for sealing interior joints with nonporous substrates around ceramic tile, showers, sinks and plumbing fixtures.

Applications: Typical all caulking in toilets, kitchens, shower rooms, labs and similar wet areas. Apply as required to seal all light and air leaks, between counter backsplashes and walls, around door frames, around perimeter of fixtures at walls, etc. whether or not specifically shown on drawings.

Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

Multi-Part Nonsag Urethane Sealant for Uses NT, M, G, A, and O:
"Chem-Calk 500"; Bostik Construction Products Div.
"Dynatrol II"; Pecora Corp.
"Sikaflex 2c NS"; Sika Corp.
"Sonolastic NP 2"; Sonneborn Building Products Div., Rexnord Chem. Prod. Inc.

One-Part, Pourable, Urethane Sealant:
"Vulkem 45"; Mameco International, Inc.
"NR-201 Urexpan"; Pecora Corp.
"Sonolastic SL-1";Sonneborn B.P.Div., Rexnord Chem Prod. Inc.

One-Part Mildew-Resistant Silicone Sealant:
"Dow-Corning 786"; Dow Corning Corp.
"SCS 1702"; General Electric Co.
"863 #345 White"; Pecora Corp.
"Proglaze White"; Tremco Corp.

LATEX JOINT SEALANTS:

Acrylic-Emulsion Sealant: Manufacturer's standard, one part, nonsag, acrylic, mildew-resistant, acrylic-emulsion sealant complying with ASTM C 834, formulated to be painted and recommended for exposed applications on interior and on protected exterior exposures involving joint movement of not more than ±7.5 percent.

Applications: Typical interior building joints horizontal and vertical between similar and dissimilar materials closing all potential water, air and light leaks.

Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
"Chem-Calk 600"; Bostik Construction Products Div.
"AC-20"; Pecora Corp.
"Sonolac"; Sonneborne Building Products Div.; Rexnord Chem. Prod., Inc.
"Tremco Acrylic Latex Caulk"; Tremco Inc.

JOINT FILLERS FOR CONCRETE PAVING:

General: Provide joint fillers of thickness and widths indicated or if not indicated 1/2" thick.

Bituminous Fiber Joint Filler: Preformed strips of composition below, complying with ASTM D 1751:

Asphalt saturated fiberboard.

JOINT SEALANT BACKING:

General: Provide sealant backings of material and type which are non-staining; 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.

Plastic Foam Joint Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

Elastomeric Tubing Joint-Fillers: Neoprene, butyl or EPDM tubing complying with ASTM D 1056, non_absorbent to water and gas, capable of remaining resilient at temperatures down to -26 degrees F (-15 degrees 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.

Expanding Foam Sealant Backing: (to provide secondary seal at exterior masonry joints) 100 percent acrylic, water-based impregnated expanding foam sealant. Material to be supplied in rolls, precompressed to less than joint size at mean temperature for installation, with pressure-sensitive mounting adhesive on one side of the material.

Product similar to: Backerseal by Emseal Corp. (or approved equal)

Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back (3rd) surface of joint. Provide self-adhesive tape where applicable.

MISCELLANEOUS MATERIALS:

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

Cleaners for Nonporous Surfaces: Provide non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials.

PART 3 - EXECUTION

INSPECTION:

Require installer to inspect joints indicated to receive joint sealers for compliance with requirements for joint configurations, installation tolerances and other conditions affecting joint sealer performance. Obtain Installer's written report listing any conditions detrimental to performance of joint sealer work. Do not allow joint sealer to proceed until unsatisfactory conditions have been corrected.

PREPARATION:

Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:

Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellants; water; surface dirt and frost.

Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, acid washing or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint

sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

Remove laitance and form release agents from concrete.

Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other non-porous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.

Joint Priming: Prime joint substrates where recommended by joint sealer manufacturer based on prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer 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 which 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 SEALERS:

General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.

Latex Sealant Installation Standard: Comply with requirements of ASTM C 790 for use of latex sealants.

Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

Install Joint-fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.

Do not leave gaps between ends of joint-fillers.
Do not stretch, twist, puncture or tear joint fillers.
Remove absorbent joint-fillers which have become wet prior to sealant application and replace with dry material.

Install bond breaker tape between sealants and joint-fillers, compression seals or back of joints where required to prevent third side adhesion of sealant to back of joint.

Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of concave configuration, to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion.

Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

End of SECTION 07900

SECTION 08110 - STEEL DOORS AND FRAMES

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

DESCRIPTION OF WORK:

Extent of standard steel doors and frames is indicated and scheduled on drawings.

Finish hardware is specified elsewhere in Division 8.

Building in of anchors and grouting of frames in masonry construction is specified in Division 4.

QUALITY ASSURANCE:

Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified.

Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E 152 "Standard Methods of Fire Tests of Door Assemblies" by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.

Comply with UL 10C requirements for Positive Pressure Fire Testing.

Provide fixed metal label at each fire assembly component.

SUBMITTALS:

Product Data: Submit manufacturer's technical product data substantiating that products comply with requirements.

Shop Drawings: Submit for 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 finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

Provide 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.

DELIVERY, STORAGE AND HANDLING:

Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory-finished doors.

Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and 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 inches high wood blocking. Avoid use of non-vented plastic or canvas shelters that could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4 inches spaces between stacked doors to promote air circulation.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Manufacturer: Subject to compliance with requirements, provide steel doors and frames by one of the following:

Steel Doors and Frames, (General):

Allied Steel Product, Inc.
Amweld/Div. American Welding & Mfg. Co.
Ceco Corp.
D& D Specialties
Pioneer Bldrs. Products Corp./Div. CORE Industries, Inc.
Steelcraft/Div. American Standard Co.
Republic Builders Products Corp./Subs. Republic Steel.

MATERIALS:

Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.

Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.

Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, or drawing quality, ASTM A 642, hot dipped galvanized in accordance with ASTM A 525, with A60 or G60 coating designation, mill phosphatized.

Supports and Anchors: Fabricate of not less than 18- gage galvanized sheet steel.

Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot-dip galvanized items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.

Shop Applied Paint:

Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

STANDARD STEEL DOORS:

Provide metal doors of types and styles indicated on drawings or schedules.

Interior Doors: ANSI/SDI-100, Grade II, heavy-duty, Model 3 or 4, minimum 18-gage cold-rolled sheet steel faces.

Exterior Doors: ANSI/SDI-100, Grade III, rigid foam insulated, extra heavy-duty, Model 2, minimum 16-gage galvanized steel faces.

STANDARD STEEL FRAMES:

Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 16-gage cold-rolled furniture steel.

Fabricate frames with mitered corners, **WELDED construction for exterior and interior applications typical unless noted otherwise**.

Removable mullions: Provide double rabbet removable mullion assembly (with UL rating same as frame where indicated) complete with fittings as required for field attachment.

Door Silencers: Except on weather-stripped frames, drill stops to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.

Plaster Guards: Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.

FABRICATION, GENERAL:

Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, 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 SDI-100 requirements as follows:

Internal Construction: Manufacturer's standard honeycomb, polyurethane, polystyrene, unitized steel grid, vertical steel stiffeners, or rigid mineral fiber core with internal sound deadener on inside of face sheets where appropriate in accordance with SDI standards.

Clearances: Not more than 1/8 inch at jambs and heads except between non-fire-rated pairs of doors not more than 1/4 inch. Not more than 3/4 inch at bottom.

Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel.

Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).

Fabricate exterior doors, panels, and frames from galvanized sheet in accordance with SDI-112. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gage inverted steel channels.

Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips 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 in accordance with ASTM C 236 or ASTM C 976 on fully operable door assemblies.

Unless otherwise indicated, provide thermal-rated assemblies with U factor of 0.157 Btu/(hr x sq ft x deg F.) or R value of 6.37 or better.

Finish Hardware Preparation: Prepare doors and frames to receive finish hardware in accordance with final Finish Hardware Schedule and templated provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.

Reinforce doors and frames to receive surface-applied hardware.

Locate finish hardware as indicated on final shop drawings or, if not shown, in accordance with "Recommended Locations for Builder's Hardware," published by Door and Hardware Institute.

Shop Painting:

Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.

Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

Glazing Stops: Minimum 20 gage steel .

Provide non-removable 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.

PART 3 - EXECUTION

INSTALLATION:

General: Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.

Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.

Except for frames located at in-place concrete or masonry and at drywall installations, place frames prior to construction at enclosing walls and ceilings. 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.

In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.

At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.

Install fire-rated frames in accordance with NFPA Std. No. 80.

Door Installation:

Fit hollow metal doors accurately in frames, within clearances specified in SDI-100.

Place fire-rated doors with clearances as specified in NFPA Standard No. 80.

ADJUST AND CLEAN:

Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.

Protection Removal: Immediately prior to final inspection, remove protective plastic wrappings from prefinished doors.

Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION 08110

SECTION 08710 - FINISH HARDWARE

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to the work of this section.

See Section "01020 – Allowances" for inclusion of Hardware and hardware delivery costs in General Contractor's Bid. Installation of Hardware on every door shall be included in Contractor's Base Bid).

DESCRIPTION OF WORK:

Definition: "Finish Hardware" includes items known commercially as builder's hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame. Types of items in this section include (but are not necessarily limited to):

Hinges
Lock cylinders and keys
Lock and latch sets
Push/pull units
Closers
Overhead holders
Door trim units
Protection plates
Weatherstripping
Thresholds
Door stops

Note: Hardware supplier to confer with Owner for keying and function preferences prior to keying doors.

QUALITY ASSURANCE:

Manufacturer: Obtain each kind of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.

Supplier: A recognized builders hardware supplier who has been furnishing hardware in the project's vicinity (within 100 miles of site) for a period of not less than 5 years, and who is, or employs an experienced hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.

Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80. Provide only hardware which has been tested and listed by UL for types and sizes of doors required and complies with requirements of door and door frame labels.

All hardware supplied shall meet the requirements of the N.C. Accessibility Code for each unique door situation.

SUBMITTALS:

Product Data: Submit manufacturer's technical information for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish. Transmit copy of applicable data to Installer.

Hardware Schedule: Submit final hardware schedule in manner indicated below. Hardware schedules are intended for coordination of work.

Final Hardware Schedule Content: Based on builders hardware indicated, organize hardware 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 hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.

Explanation of all abbreviations, symbols, codes, etc. contained in schedule.

Mounting locations for hardware.

Door and frame sizes and materials.

Keying information.

Keying Schedule: Submit detailed schedule indicating clearly outlining Owner's instructions on keying of locks. Locks must be Master and Grand Master Keyed in compliance with Owner's instructions.

PRODUCT HANDLING:

Packaging of hardware, on a set by set basis, is the responsibility of the supplier. As material is received by the hardware supplier from the various manufacturers, sort and repackage in containers marked with the hardware set number.

JOB CONDITIONS:

Coordination: Coordinate hardware with other work. Tag each item or package separately, with identification related to the final hardware schedule, and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thicknesses, profile, swing, security and similar requirements indicated, as necessary for proper installation and function. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check the shop drawings of such other work, to confirm that adequate provisions are made for the proper installation of hardware.

PART 2 - PRODUCTS

Submittals: Provide required Product Data, Final Hardware Schedule, Keying Schedule, and samples as specified in Part 1 - General of this section, unless otherwise indicated.

Construction Schedule: Coordinate earliest dates to process submittals, to furnish templates, to deliver hardware, and to perform other work associated with furnishing Finish Hardware for purposes of including in construction progress schedule and then comply with this schedule.

Coordination and Templates: Coordinate hardware with other work in respect to both fabrication and installation. Furnish templates and deliver hardware to proper locations.

Product Handling: Package, identify, deliver, and inventory hardware as specified in Part 1 - General of this section.

Discrepancies: Based on requirements indicated in Contract Documents in effect at time of project bidding: furnish proper types, finishes, and quantities of builder's hardware, including fasteners, and Owner's maintenance tools; and furnish or replace any items of builder's hardware resulting from shortages and incorrect items, at no cost to the Owner.

Installation Information: The types and quantities of hardware required for this project are indicated at the end of this section.

SCHEDULED HARDWARE: **(TO BE PROVIDED BY HARDWARE SUPPLIER determined after the bid) See Hardware Allowance in Section 01020 "Allowances" to be included in General Contractor's Base Bid)**

Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware are indicated in the "Hardware Schedule" at the end of this section. Products are identified by using hardware designation numbers of the following.

Manufacturer's product designations: One or more manufacturers are listed for each hardware type required. An asterisk (*) after a manufacturer's name indicates whose product designation is used in the "Hardware Schedule" for purposes of establishing minimum requirements. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

MATERIALS AND FABRICATION:

General:

Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

Manufacturer's Name Plate: Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.

Manufacturer's identification will be permitted on rim of lock cylinders only.

Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the applicable hardware units.

Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.

Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of the type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.

Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

HINGES

Provide "Stanley" or McKinney - Five knuckle design anti-friction ball bearing hinges as specified, with NRP (non-removable pin) feature at ALL locking reverse bevel doors. Unless otherwise scheduled, the required weight, size and hinge type shall be as follows:

Butt hinges required per door leaf:
Doors up to 5'-0" in height 2 hinges
Doors over 5'-0" to 7'-6"in height 3 hinges

Size and weight requirements
Doors up to and including 36" in width
Exterior FBB191 4½x4½NRP
Interior FBB179 4½x4½NRP

Doors over 36" in width
Exterior FBB191 5" x 4½"
Interior FBB179 5" x 4½"

Finish: Except as otherwise indicated, provide all hinges with the following finish:
Exterior US26D (626 Brass Base) Brushed Aluminum
Interior US26D (652 Steel Base) Brushed Aluminum

Continuous Hinges where scheduled shall be equal to McKinney MCK-12-HD in length sufficient to extend full height of door. Continuous Hinge finish shall match Aluminum Storefront finish.

Approved Equals: Hager and McKinney

LOCK CYLINDERS AND KEYING

All cylinders for locks, exit devices and mullions shall be by the same manufacturer. Exterior cylinders shall meet the requirements of UL 437. Master-keys shall operate interior and exterior cylinders.

Consult with owner to determine keying and master keying requirements after receipt of approved hardware submittal. All cylinders shall be factory keyed.

Provide Construction master keyed cylinders to be voided by use of permanent keys. Furnish six (6) construction master keys for use during construction phase of project.

Construct cylinder parts from brass or bronze, stainless steel, or nickel silver. Cylinder cover shall match the finish of the device into which it is installed.

Provide key material of nickel silver only. Permanent keys shall be turned over directly to the owner at his request.

Key quantity: Provide key blanks in sufficient quantity for providing three (3) change keys per lock, six (6) master keys for each master set, and three (3) grand and/or great grand master keys for each system. Coordinate requirements with owner.

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.

Locksets to be similar in design to Corbin Russwin, **Standard Duty** Cylindrical Lever Locksets with Trim Style Armstrong (typical) and with **Heavy Duty** Cylindrical Lever Locksets on the Entry/Exit Doors Only.

Finish: US26D (626) Brushed Aluminum.

Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt.

Provide roller type strikes where recommended by manufacturer of the latch and lock units.

Lock Throw: Provide 5/8" minimum throw of latch and deadbolt used on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

Provide 1/2" minimum throw on other latch and deadlock bolts.

PUSH/PULL UNITS:

Concealed Fasteners: Provide manufacturer's special concealed fastener system for installation; through-bolted for matched pairs, but not for single units.

CLOSERS AND CONTROL DEVICES:

Closers shall be Norton 8500 series units, parallel mount (UNO) with slimline standard cover. All closers shall be furnished with a pressure relief valve to protect the closer during both opening and closing cycles.

Provide regular or parallel arm type units as required to mount closers out of public view.
Provide closer/stop combination units where indicated in hardware sets.

Access-Free Manual Closers: Where 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.

Finish: Standard powder coated finish, or as scheduled.

Approved Equals: LCN “4010” series; Norton “8500” series.

DOOR TRIM UNITS:

Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units); either machine screws of self-tapping screw.

Fabricate protection plates (armor, kick or mop) not more than 2" less than door width on stop side and not more than 2" less than door width on pull side, x the height indicated.

Metal Plates: Stainless Steel, 0.050" (U.S. l8 ga.).

STOPS

Generally provide a door stop for each door leaf, equal to Ives and Glynn Johnson and Rockwood series as follows, unless otherwise specified:

Doors indicated on plans to strike a wall provide wall stops equal to Ives WS406CCV US26D (626).
Where wall stops are not practical provide overhead stops equal to Glynn Johnson 410S

Provide overhead stops equal to Glynn Johnson series, where called for in hardware sets, as follows:

Exterior Doors: GJ - 704H US26D (626) unless otherwise scheduled.
Interior Doors: GJ - 410S US26D (626) unless otherwise scheduled.

WEATHERSTRIPPING AND SEALS

Generally, unless otherwise scheduled, provide Weatherstripping at ALL exterior doors equal to Pemko S88, or as detailed on the drawings. Furnish Pemko 314_N astragal at each leaf where shown on schedule.

Provide smoke seals at all fire rated openings.

Approved Equals: National Guard, Reese.

THRESHOLDS

Generally, except as otherwise indicated, provide standard metal threshold units of type size, and profile as shown on the drawings or scheduled. Provide, at minimum, Pemko 158A threshold at offset slabs, Pemko 171A threshold at non-offset slabs, with 222AV sweep strip at all exterior doors, unless provided for otherwise.

Approved Equals: National Guard, Zero, Reese.

HARDWARE FINISHES:

Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.

Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.

The designations used in schedules and elsewhere to indicate hardware finishes are those listed by manufacturers including coordination with the traditional U.S. Finishes shown.

Typical Finish: Brushed stainless US 626, 630

PART 3 - EXECUTION

INSTALLATION:

Mount hardware units at heights indicated in "Recommended Locations for Finish Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

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 which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

ADJUST AND CLEAN:

Adjust and check each operating item of hardware and each door, to insure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.Clean adjacent surfaces soiled by hardware installation.

Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

FINISH HARDWARE MANUFACTURER DATA SHEET:

Acceptable Manufacturers:

Butts/Pivots - Hager, McKinney, Rixon-Firemark, Stanley.

Locksets/Latchsets/Dead Bolts/Cylinders - Corbin Russwin, Yale, Schlage

Bolts - Builders Brass Works, Glynn-Johnson, Rockwood.

Push/Pull Units -Baldwin, Brookline, Builders Brass Works, Hager, Ives, Rockwood.

Door Closers - Norton, LCN, Rixon-Firemark, CorbinRusswin, Yale.

~~Exit Devices: - Corbin/Russwin, Von Duprin, Yale, Precision.~~

Silencers and Stops - Glynn-Johnson, Brookline, Hager, Ives, Rockwood, Stanley.

Kickplates/Crashplates - Hager, Baldwin, Brookline, Builders Brass Works, Rockwood.

Provide any and all hardware (in addition to pieces specified here for each door if necessary) that is required to provide full complete functioning doors for the use they were intended.

Door numbers are as marked on Plan Sheets and as listed on the Door Schedule Sheet.

END OF SECTION 08710

Section 090000
Provide Bomanite Thin-set II floor topping finish in the 2 toilet rooms and in the exterior breezeway between the toilets. Install 3/8" thick, stamped "brick" pattern with red dry powder tinted finish with Bomanite protective sealer. Moisture testing is required prior to product installation.

Bomanite®
Your Single Source For Innovative
Architectural Concrete Solutions

Bomanite installed shall be a certified Bomanite Installer. Equal Products must be approved by the architect.

BOMANITE THIN-SET II
Technical Bulletin

Bomanite Thin-Set II is a polymer modified, cementitious topping that can produce a decorative paving finish similar to Bomanite and Bomacron imprinted concrete. Bomanite Thin-Set II can be installed at a 1/4- to 5/8-inch thickness and can be used for interior or exterior residential, commercial, municipal and industrial construction. Bomanite Thin-Set II has a high compressive strength and, with regular maintenance, can be left exposed to both foot and vehicular traffic. The system consists of a wet primer application, pigmented latex modified mortar, Bomanite Liquid Release and Bomanite protective sealers. Bomanite Thin-Set II is compatible with Bomanite Chemical Stain, Bomanite Topical Stain and Bomanite Con-Color. Bomanite Thin-Set II can be installed over Bomanite Waterproof Membrane systems to provide a composition waterproof and crack-resistant decorative floor finish. If needed, Bomanite Thin-Set II allows for the delay of the decorative flooring installation until after the initial heavy construction is complete. This eliminates the need to invest in protection of the surface and greatly reduces damage from construction related traffic. Bomanite Thin-Set II, which is able to be installed quickly, can be planned for installation at roughly the same time that all other floor coverings and finishes are placed in a structure. Bomanite Thin-Set II can be applied over concrete, ceramic tile, terrazzo, quarry tile and almost any other structurally sound, tightly adhered and properly prepared substrate. Keep in mind that a high moisture vapor transmission condition can affect stain coloration, sealer characteristics and long-term bond strength. Testing of moisture drive and assessment of the concrete integrity prior to the installation of Bomanite Thin-Set II is a necessity.

FEATURES AND BENEFITS:

- ***Durable decorative flooring and paving system***
- ***Available in standard and custom colors***
- ***Relatively low maintenance cost***
- ***Interior and exterior applications***
- ***Polymer-modified: self-curing and superior adhesion***
- ***High compressive strength***
- ***Provides for fast-track construction option***

GENERAL INFORMATION:

Colors
White and gray base. Bomanite Thin-Set II can be tinted using a dry powder Bomanite Thin-Set II Tint Pack. Refer to the Bomanite Standard Color Chart for color selections. Custom colors are also available.

Coverage Rates
NOTE: Coverage/thickness data shown are approximate and given for estimating purposes only. Actual job site coverage may vary according to substrate conditions, surface profile, thickness applied and application methods used. One gallon of Bomanite Thin-Set II liquid mixed with one 47-pound bag of Bomanite Thin-Set II powder will yield 22 square feet of coverage at 1/4-inch thick or 16 square feet at 3/8-inch thick.

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Web site: www.bomanite.com • E-mail: info@bomanite.com • June 2009

Product Data

Compressive Strength.....ASTM C-109 (2" x 2" cubes): 4,219 psi
Indention Characteristics.....(Steadily Applied Load) MIL-D-134, Para. 4.7.4.2.1
(2,000 lbs. on 1" steel ram imposed for 30 min.): 2.26%
Adhesion.....MIL-D-3134, Para. 4.7.14
(Shear from steel plate after 96 hours): 305 psi
Water Absorption.....MIL-D-3134 3.41%
Tensile Strength.....ASTM C-190 925 psi
Flexural Strength .....ASTM C-580 2,415 psi
Impact Resistance.....(Gardner Impact Tester)
No chipping, cracking, or delamination and not more than 0.014"

Sealers

For suggested exterior or interior sealers, refer to the Bomanite Sealers/Finishes Cross Reference Guideline.
NOTE: It is recommended to utilize water-based sealers for interior applications due to the hazards associated with solvent fumes.

For suggested high-performance coatings, refer to the Bomanite High-Performance Coatings Cross Reference Guideline
NOTE: It is recommended to utilize water-based or 100% solids sealers and coatings for interior applications due to the hazards associated with solvent fumes.

Maintenance

This will vary depending on a number of factors including volume and intensity of traffic, UV exposure, geographic location and weather conditions. For instance, interior applications will require a different routine maintenance program than exterior products. Residential applications typically require less cleaning and maintenance than commercial and municipal projects. In large interior commercial applications, a qualified floor maintenance contractor is recommended for routine cleaning. Consult the applicable Bomanite Maintenance Schedules for appropriate maintenance procedures.

Limitations

Concrete substrate cracks can reflect through finished application. As such, Thin-Set II cannot be installed over moving cracks, working joints or expansion joints.

Warranty

This product is warranted to be of uniform quality within manufacturing tolerances. Since control is not exercised over its use, no warranty, expressed or implied, is made as to the effects of such use. Seller and manufacturer obligations under this warranty shall be limited to refunding the purchase price of that portion of the material proven to be defective. The user assumes all other risks and liabilities resulting from use of this product.

Additional product information, technical bulletins and specifications are available online at www.bomanite.com or through one of our Bomanite Licensed Contractors. For additional assistance with specifications or technical issues, contact The Bomanite Company.

SECTION 09250 - GYPSUM DRYWALL

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

DESCRIPTION OF WORK:

Types of work include:

Gypsum drywall applied to wood framing and furring.

Moisture Resistant – "No Paper Face" Gypsum drywall. (Ceiling Applications only)

Abuse Resistant "Paperless" 5/8" Type X Gypsum drywall (all vertical wall surfaces)

Tile Backer Board applied to screw type wood support system.

Drywall finishing (joint tape-and-compound treatment).

Sound attenuation blankets.

Steel framing and furring are specified in Division 5.

Other insulation products specified in Division 7.

QUALITY ASSURANCE:

Fire-Resistance Ratings: Where gypsum drywall systems with fire-resistance ratings are indicated, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E ll9 by fire testing laboratories acceptable to authorities having jurisdiction.

Acoustical Ratings: Where sound ratings are indicated, provide materials and application procedures identical to those tested by manufacturer to achieve Sound Transmission (STC) scheduled or indicated in accordance with ASTM E90.

Gypsum Board Terminology Standard: GA-505 by Gypsum Association.

Single-Source Responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

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 in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

PROJECT CONDITIONS:

Environmental Requirements, General: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum board.

Cold Weather Protection: When ambient outdoor temperatures are below 55 deg. F (13 deg. C) maintain continuous, uniform, comfortable building working temperatures of not less than 55 deg. F (l3 deg. C) for

a minimum period of 48 hours prior to, during and following application of gypsum board and joint treatment materials or bonding of adhesives.

Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

Metal Support Materials:
- Allied Structural Industries.
- Dale Industries, Inc.
- Gold Bond Building Products Siv., National Gypsum Co.
- Milcor Division; Inryco, Inc.
- Marino Industries
- United States Gypsum Co.

Direct Suspension Systems:
- Chicago Metallic Corp.
- Donn Corporation.
- National Rolling Mills Co.
- United States Gypsum Co.

Gypsum Board and Related Products:
- American Gypsum Co.
- Certainteed Gypsum Co.
- Georgia-Pacific Corp.
- Gold Bond Building Products Div., National Gypsum Co.
- **United States Gypsum Co.**

GYPSUM BOARD:

Moisture Resistant – Fiberglass-Mat Faced Gypsum WallBoard: ASRM D3273-00, of Types, edge configuration and thickness indicated below; in maximum lengths available to minimize end-to-end butt joints.

Type: Type X (**Typical all Toilet/Janitor & Electrical Storage area CEILING SURFACES**)
Edges: Tapered.
Thickness: 5/8", unless otherwise indicated.

Mold Resistance: ASTM D3273-00; 10 in a test as manufactured.

Acceptable Products: FIBEROCK Brand Aqua-Tough Interior Panel, United States Gypsum. DensArmor Plus High-Performance Interior Panel, Georgia-Pacific Gypsum or equal by American Gypsum Co.

Abuse Resistant – Fiberglass-Mat Faced Gypsum WallBoard: ASTM C 1629, of Types, edge configuration and thickness indicated below; in maximum lengths available to minimize end-to-end butt joints.

Type: Type X **(Typical all wall sheathing)**

Edges: Tapered.

Thickness: 5/8", unless otherwise indicated.

Hardness, Core, Edges and Ends: ASTM C473, ASTM C1396, ASTM C1658; not less than 15.

Mold Resistance: ASTM D3273; 10 in a test as manufactured.

Abuse Resistance: ASTM C1629

Surface Abrasion: Level 1

Surface Indentation: Level 1

Soft-Body Impact: Level 2

Hard-Body Impact: Level 1

Acceptable Products: FIBEROCK Brand Abuse-Resistant Panels, United States Gypsum.
DensArmor Plus Impact-Resistant Interior Panel, Georgia-Pacific Gypsum
or equal by American Gypsum Co.

CEMENTITIOUS BACKER UNITS

Provide cementitious backer units complying with ANSI 118.9, of thickness and width indicated below, and in maximum vertical lengths available to minimize end-to-end butt joints.

Thickness: 5/8", unless otherwise indicated.
Width: 32 inches (813 mm)

Available products: Subject to compliance with requirements, cementitious backer units 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:

Wonderboard Multi+Board; Custom Building Products.
DomCrete Cementitious Tile-Backer Board; Domtar Gypsum.
Util-A-Crete Concrete Backer Board; FinPan, Inc.
DUROCK Cement Board; United States Gypsum Co.

TRIM ACCESSORIES:

General: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and perforated or expanded flanges for nailing or stapling, and beaded for concealment of flanges in joint compound. Provide corner beads, L-type edge trim-beads, U-type edge trim-beads, special L-kerf- type edge trim-beads, and one-piece control joint beads.

JOINT TREATMENT MATERIALS:

General: ASTM C 475; type recommended by the manufacturer for the application indicated, except as otherwise indicated.

Joint Tape: Reinforced tape. (Provide joint tape recommended by the drywall manufacturer for Paperless/Moisture Resistant drywall installation.)

Joint Compound: Ready-mixed vinyl-type for interior use.

Grade: A single multi-purpose grade, for entire application. (Provide compound recommended by the drywall manufacturer for Paperless/Moisture Resistant drywall installation.)

Exterior Joint Compound: Special chemical - hardening - type for exterior application.

Water-Resistant Joint Compound: Special water-resistant type for treatment of joints, fastener heads and cut edges of water-resistant backing board.

Product: Subject to compliance with requirements, provide Sheetrock Brand W/R Compound; United States Gypsum Co.

MISCELLANEOUS MATERIALS:

General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.

Laminating Adhesive: Special adhesive or joint compound specifically recommended for laminating gypsum boards.

Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.

Gypsum Board Screws: Comply with ASTM C 1002.

Sound Attenuation Blankets: See "fiberglass" Sound Insulation specified in Section 07200.

PART 3 - EXECUTION

PREPARATION FOR METAL SUPPORT SYSTEMS:

Ceiling Anchorages: Coordinate work with structural ceiling work to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling hangers.

Furnish concrete inserts, steel deck hanger clips and similar devices to other trades for installation well in advance of time needed for coordination with other work.

INSTALLATION OF WOODMETAL SUPPORT SYSTEMS:

General:

Metal Support Installation Standard: Comply with ASTM C 754.

Do not bridge building expansion joints with support system, frame both sides of joints with furring and other support as indicated.

Screw furring members to metal framing as indicated.

Ceiling Support Suspension Systems:

Secure hangers to structural support by connecting directly to structure where possible, otherwise connect to inserts, clips or other anchorage devices or fasteners as indicated.

Stud/Joists for suspension framing – Gauge of stud/joists to be as required for actual framing span condition. Span may require heavier gauge framing.

Space main runners 4'-0" o.c. and space hangers 4'-0" o.c. along runners, except as otherwise shown.

Level main runners to a tolerance of 1/4" in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.

Wire-tie or clip furring members to main runners and to other structural supports as indicated.

Direct-hung Metal Support System: Attach perimeter wall track or angle wherever support system meets vertical surfaces. Mechanically join support members to each other and butt-cut to fit into wall track.

Space furring member 16" o.c., except as otherwise indicated.

Install auxiliary framing at termination of drywall work, and at openings for light fixtures and similar work, as required for support of both the drywall construction and other work indicated for support thereon.

Wall/Bulkhead/Partition Support Systems:

Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, and similar work to comply with details indicated or if not

otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer, or if not available, of "Gypsum Construction Handbook" published by United States Gypsum Co.

Isolate stud system from transfer of structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading.

Install runner tracks at ceilings and structural walls and columns where gypsum drywall stud system abuts other work, except as otherwise indicated.

Extend partition stud system through acoustical ceilings and elsewhere as indicated to the structural support or substrate above the ceiling.

Terminate partition stud system at ceilings, except where indicated to be extended to structural support or substrate above.

Space studs 16" o.c., unless otherwise indicated.

Resilient Channels manufactured from 20 gage corrosion resistant galvanized steel. Single leg resilient channels with extra-wide 1½" screw flange for added rigidity and a wider surface for easier installation of sheathing materials.

Frame door openings to comply with details indicated or if not otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer, or if not available, of "Gypsum Construction Handbook" published by United States Gypsum Co. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for jack studs) at head and secure to jamb studs.

Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above, unless otherwise indicated.

Frame openings other than door openings to comply with details indicated or if not indicated, in same manner as required for door openings; and install framing below sills of openings to match framing required above door heads.

TILE BACKER BOARD INSTALLATION:

Install Tile Backer board behind all tile wall finishes. See Room Finish Schedule.

GENERAL GYPSUM BOARD INSTALLATION REQUIREMENTS:

Gypsum Board Application and Finishing Standards: ASTM C 840 and GA 2l6.

Install sound attenuation blankets as indicated, prior to gypsum board unless readily installed after board has been installed.

Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 1'-0" in alternate courses of board.

Install ceiling boards in the direction and manner which will minimize the number of end-butt joints, and which will avoid end joints in the central area of each ceiling. Stagger end joints at least 1'-0".

Install wall/bulkhead partition boards vertically to avoid end-butt joints wherever possible.

Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.

Located either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.

Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.

Spot grout hollow metal door frames for solid core wood doors, hollow metal doors and doors over 32 inches wide. Apply spot grout at each jamb anchor clip just before inserting board into frame.

Form control joints and expansion joints with space between edges of boards, prepared to receive trim accessories.

Cover both faces of steel stud bulkhead framing with gypsum board in concealed spaces (above ceilings, etc.).

Except where concealed application is required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. area, and may be limited to not less than 75% of full coverage.

Isolate perimeter of non-load-bearing drywall installations at structural abutments. Provide l/4" to l/2" space and trim edge with J-type semi-finishing edge trim. Seal joints with acoustical sealant.

Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations, except as otherwise indicated.

METHODS OF GYPSUM DRYWALL APPLICATION:

Single-layer Application: Install gypsum wallboard.

On ceilings apply gypsum board prior to wall/bulkhead/partition board application to the greatest extent possible.

On partitions/bulkheads/walls apply gypsum board vertically (parallel), unless otherwise indicated, and provide sheet lengths which will minimize end joints.

On partitions/walls 8'-1" or less in height apply gypsum board horizontally (perpendicular); use maximum length sheets possible to minimize end joints.

On Z-furring members apply gypsum board vertically (parallel to framing) with on end joints. Locate edge joints over furring members.

Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install gypsum backing board.

In "dry" areas install gypsum backing board or wallboard with tapered edges taped and finished to produce a flat surface.

At Janitor’s mop sinks, and similar "wet" areas, install water-resistant gypsum backing board to comply with ASTM C 840 and recommendations of gypsum board manufacturer.

Double-Layer Application: Install gypsum backing board for base layer and exposed gypsum board for face layer.

On ceilings apply base layer prior to application of base layer on walls/partitions; apply face layers in same sequence. Offset joints between layers at least 10 inches. Apply base layers at right angles to supports unless otherwise indicated.

On partition/walls apply base layer and face layers vertically (parallel) with joints of base layer over supports and face layer joints offset at least 10" with base layer joints.

Single-Layer Fastening Methods: Apply gypsum boards to supports as follows:

Fasten with screws.

Fasten with cadmium-plated screws, or with galvanized or aluminum nails where supports are nailable.

INSTALLATION OF DRYWALL TRIM ACCESSORIES:

General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by nailing or stapling in accordance with manufacturer's instructions and recommendations.

Install metal corner beads at external corners of drywall work.

Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound except where semi-finishing type is indicated. Install L-type trim where work is tightly abutted to other work, and install special kerf-type where other work is kerfed to receive long leg of L-type trim. Install U-type trim where edge is exposed, revealed, gasketed, or sealant-filled (including expansion joints).

Install semi-finishing trim where indicated, and where exterior gypsum board edges are not covered by applied moldings or indicated to receive trim with face flanges covered with joint compound.

FINISHING OF DRYWALL:

General: Apply treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects and elsewhere as required to prepare work for decoration. Prefill open joints and rounded or beveled edges, if any, using type of compound recommended by manufacturer.

Apply joint tape at joints between gypsum boards, except where a trim accessory is indicated.

Apply joint compound in 3 coats (not including prefill of openings in base), and sand between last 2 coats and after last coat.

Level 5 Finish in Toilet Rooms. Level 4 finish in Janitor and Electrical Rooms: Where specified as Level 5 finish, in addition to the finish called for above, a skim coat shall be added to the face of the entire wall and sanded to a smooth finish.

Partial Finishing: Omit third coat (if specified) and sanding on concealed drywall work which is indicated for drywall finishing or which requires finishing to achieve fire-resistance rating, sound rating or to act as air or smoke barrier.

Refer to sections on painting, coatings and wall-coverings in Division-9 for decorative finishes to be applied to drywall work.

PROTECTION OF WORK:

Provide final protection and maintain conditions in a manner suitable to Installer, which ensures gypsum drywall work being without damage or deterioration at time of substantial completion.

END OF SECTION 09250

SECTION 09300 - TILE

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

Division 3 Section "Concrete" for monolithic slab finishes specified for tile substrates.

Division 4 Section "Masonry" for CMU finishes specified for tile substrates.

Division 7 Section "Joint Sealers" for sealing of expansion, contraction, control and isolation joints in tile surfaces.

DESCRIPTION OF WORK:

Definitions: Tile includes ceramic surfacing units made from clay or other ceramic materials.

Extent of tile work is indicated on drawings and schedules.

Types of tile work in this section include the following:

Glazed Wall Tile (thin set application) (Back plumbing wall of toilet stalls only – full height)
Ceramic Trim – Tile Cove Base (tile wall base around full toilet room perimeters)
Marble thresholds. (Typical at all toilet door threshholds between the stamped concrete floors on either side of the door..)
Slate Window sills (under each of the two windows)

Sealing expansion and other joints in tile work with elastomeric joint sealers is work of this section.

REFERENCES AND PERFORMANCE REQUIREMENTS:

TCA (HB) - Handbook for Ceramic Tile Installation; Tile Council of America, Inc. – Current Edition

ASTM C1028 - Test method for Determining the Static Coefficient of Friction or Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull meter Method.

ANSI A108 1999 - Specifications for Installation of Ceramic Tile

Static Coefficient of Friction: Tile on walkway surfaces shall be provided with the following values as determined by testing in conformance with ASTM C 1028.

Level Surfaces: Minimum of 0.6 (Wet).
Step Treads: Minimum of 0.6 (Wet).
Ramp Surfaces: Minimum of 0.8 (Wet).

QUALITY ASSURANCE:

Maintain one copy each of all Referenced standards and specifications on site. Include the TCA Handbook, ANSI A108 Series, ANSI A118 Series ANSI A136.1 and ANSI A137.1 and others as specified under paragraph References.

Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.

Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design and extent to that indicated for Project.

SUBMITTALS:

Samples for Initial Selection Purposes: Submit manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures and patterns available for each type of tile indicated. Include samples of grout and accessories involving color selection.

Samples for Verification Purposes: Submit the following:

Samples for each type of tile and for each color and texture required, not less than 12" square, on plywood or hardboard backing and grouted.

Full size samples for each type of trim, accessory and for each color.

PRODUCT HANDLING:

Deliver and store packaged materials and store in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.

PROJECT CONDITIONS:

Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

Tile:

Dal-Tile Corp.
American Olean Tile Co., Inc.
Mannington Tile Co.
United States Ceramic Tile Co.

Latex-Portland Cement Mortar:

American Olean Tile Co., Inc.
Summitville Tiles, Inc.
Dal-Tile Corp.
Laticrete.

Commercial Portland Cement Grout:

Summitville Tiles, Inc.
Dal-Tile Corp.
Laticrete

Tile Cleaners:

Hillyard Chemical Co.
Laticrete
L & M Surco Mfg. Co., Inc.

PRODUCTS, GENERAL:

ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types and grades of tile indicated.

Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.

ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with installation products and materials indicated.

Colors, Textures and Patterns: For tile and other products requiring selection of colors, surface textures or other appearance characteristics, provide products to match characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standards.

Note: Mininum two tile colors per Room.
Or as indicated on drawings.

Provide tile trim and accessories which match color and finish of adjoining flat tile.

Mounting: Where factory-mounted tile is required provide back- or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.

TILE PRODUCTS:

Glazed Wall Tile: ANSI A137.1 and as follows:

Product: Basis of Design : **Daltile, Color Wheel Classic Subway Tile** (or approved equal)
Size and Shape: 3 by 6 inch, nominal.
Edges: Cushioned
Surface Finish: Semi-gloss
Color & Pattern: **two color to be selected from Group 1 & 2**
Trim Units: Matching bullnose - coordinate with field tile.

Application: **Toilet stall back wall, as indicated.**

Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:

Size: As indicated, coordinated with sizes and coursing of adjoining flat tile, where applicable.
6” Cove Base with no butt edge that is unfinshed.

Shapes: As follows, selected from manufacturer's standard shapes:
Base for Thinset Mortar Installations
External Corners for Thinset Installations: Surface bullnose.
Internal Corners: Field-butted square corners, except use internal cove and cap angle pieces designed to member with stretcher shapes.

SLATE WINDOW SILLS:

Slate Window Sills: Provide natural slate sills at all interior windows, vents anywhere described on the drawings. Sills shall be 1" thick natural finish slate. All applications shall use single pieces (to a maximum of 6'-0"). If wider sill is required, provide joint at a logical place with respect to the adjacent window division points. Slate color shall be Gray, Black or Charcoal. Clean and seal slate surface after installation.

THRESHOLDS:

Marble Thresholds: Provide marble thresholds complying with ASTM C 503 requirements for exterior use and abrasion resistance for uses subject to heavy foot traffic, a minimum hardness of 10 per ASTM C 241.

Color/Finish: As selected from the manufacturers standard range.

Size: Fabricate 2 inches (50 mm) wide by full width of wall or frame opening; 1/2 inch (12 mm) thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.

Provide to provide transition between tile surface and adjoining finishes and at doorways where tile terminates.

SETTING MATERIALS:

Portland Cement Mortar Installation Materials: Provide materials complying with ANSI A108-1B and as specified below:

Latex Additive: (water emulsion) described below, serving as replacement for part or all of water, of type specifically recommended by latex additive manufacturer for use with job-mixed Portland cement and aggregate mortar bed.

Latex Additive: Manufacturer's standard.

Latex-Portland Cement Mortar: ANSI A118.4, composed as follows:

Prepackaged Dry-Mortar Mix: Factory-prepared mixture of portland cement; dry, redispersible, ehtylene vinyl acetate additive; and other ingredients to which only water needs to be added at Project site.

Mixture of Dry-Mortar Mix and Latex Additive: Mixture of prepackaged dry-mortar mix and liquid-latex additive complying with the following requirements:

Latex Additive: Manufacturer's standard.

GROUTING MATERIALS:

Commercial Portland-Cement Grout: Proprietary preblended compound composed of portland cement and additives formulated for the type of tile installed.

ELASTOMERIC SEALANTS:

Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.

Compatibility: Provide sealants, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.

Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

Locations: Provide expansion joints, filled with elastomeric sealant, above expansion joint locations in concrete slab subfloor and as recommended for quality tile installations.

One-Part Mildew Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A; formulated with fungicide for sealing interior joints in and around ceramic tile, showers, sinks and plumbing fixtures. USDA approved products required for kitchen area sealants.

MISCELLANEOUS MATERIALS:

Tile Cleaner: Product specifically acceptable to manufacturer of tile and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation, 112 North Alfred St., Alexandria, VA 22134 or Ceramic Tile Institute, 700 N. Virgil Ave., Los Angeles, CA 90029.

PART 3 - EXECUTION

INSPECTION:

Examine surfaces to receive tile work and conditions under which tile will be installed. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standards.

INSTALLATION:

ANSI Tile Installation Standard: Comply with applicable parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile".

TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.

Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.

Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.

Jointing Pattern: Unless otherwise shown, lay tile in “subway tile” grid pattern. Offset center “subway” joints when adjoining tiles on floor, base, walls and trim are same size. Lay out tile work and center tile

fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.

For tile mounted in sheets make joints between sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finish work.

Expansion Joints: Locate expansion joints and other sealant filled, including control, contraction and isolation joints at all inside corners.

Prepare joints and apply sealants to comply with requirements of referenced installation standards and sealant manufacturer.

Grout tile to comply with referenced installation standards, using grout materials indicated.

Mix and install proprietary components to comply with grout manufacturer's directions.

Raised tile or marble thresholds, within standards for persons with disabilities, may be used at the doors.

In all tiled areas expansion joints are required at the intersection of walls, ceilings, inside corners, column points, or every 16 feet of horizontal run. Vertical expansion joints shall extend from floor to ceiling and through the setting bed. Horizontal expansion joints are required when wall height exceeds 12 feet. Form expansion joints by raking out mortar bed as work proceeds, providing a 1/4" slot extending clear through. Maintain a clean slot while installing tile. **Coordinate all expansion joint locations with the Architect in the field prior to installing tile work.**

TILE INSTALLATION METHODS:

Ceramic Tile: Install tile to comply with requirements indicated below for setting bed methods, TCA installation methods related to subsurface floor conditions, and grout types:

Installation Method (toilet stall plumbing walls – **Thin Set**): W243 over wood framing

Tape joints of Tile backer wall board.
Apply commercial mortar bed 3/8” to ¾” thick.
Install ceramic wall tile.
Grout with commercial Portland Cement grout.

Marble Thresholds: Install marble thresholds at locations specified; set in same type of setting bed as abutting field tile unless otherwise indicated.

Set thresholds in thinset mortar for locations, where mortar bed would otherwise be exposed above adjacent non-tile floor finish.

SLATE SILL INSTALLATION:

Install sills carefully scribed to fit within ¼” of walls and under window rail as detailed..All exposed ends, edges, and corners shall be eased to 1/16” radius. Sills shall be set in a full bed of Latex-Portland cement mortar and all joints cleanly finished flush with the face of stone. Clean and seal exposed surfaces.

CLEANING AND PROTECTION

Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.

Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage and wear.

Prohibit foot and wheel traffic from using tiled floors for at least 7 days after grouting is completed.

Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

EXTRA STOCK:

Provide owner with 2 Boxes of Extra Stock and each **type & color** of tile.

End of SECTION 09300

SECTION 09911 - EXTERIOR PAINTING

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

SUMMARY

This Section includes surface preparation and the application of paint systems on the following exterior substrates:

- Steel.
- Wood.

Related Sections include the following:

- Division 5 Sections for shop priming of metal substrates with primers specified in this Section.
- Division 6 Sections for shop priming carpentry with primers specified in this Section.
- Division 9 Section "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

SUBMITTALS

Product Data: For each type of product indicated.

Samples for Initial Selection: For each type of topcoat product indicated.

Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.

- Submit Samples on rigid backing, 8 inches (200 mm) square.
- Step coats on Samples to show each coat required for system.
- Label each coat of each Sample.
- Label each Sample for location and application area.

Product List: For each product indicated, include the following:

- Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
- Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

QUALITY ASSURANCE

MPI Standards:

- Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
- Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

DELIVERY, STORAGE, AND HANDLING

Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

- Maintain containers in clean condition, free of foreign materials and residue.

- Remove rags and waste from storage areas daily.

PROJECT CONDITIONS

Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

Do not apply paints in snow, rain, fog, or mist; when 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.

EXTRA MATERIALS

Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

- Quantity: Furnish an additional 1 unopened gallon of each material and color applied.

PART 2 - PRODUCTS

MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- Benjamin Moore & Co.
- Duron, Inc.
- ICI Paints.
- PPG Architectural Finishes, Inc.
- Sherwin-Williams Company (The).

PAINT, GENERAL

Material Compatibility:

- Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

Colors: As selected by Architect from manufacturer's full range

METAL PRIMERS

Alkyd Anticorrosive Metal Primer: MPI #79.

- VOC Content: E Range of [E1] [**E2**].

Waterborne Galvanized-Metal Primer: MPI #134.

If deleting "Manufacturers" Article, insert manufacturers' names and product designations here. Coordinate with topcoat products.

VOC Content: E Range of [E1] [**E2**] [E3].

WOOD PRIMERS

Exterior Alkyd Wood Primer: MPI #5.
VOC Content: E Range of [E2] [E3].

EXTERIOR LATEX PAINTS

Exterior Latex (Gloss) for Wood substrates: MPI #119 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).

- VOC Content: E Range of [E1] [**E2 or**] [**E3**].

EXTERIOR ALKYD PAINTS

Exterior Alkyd Enamel (Gloss) For metal substrates: MPI #9 (Gloss Level 6).
VOC Content: E Range of [E1] [E2].

PART 3 - EXECUTION

EXAMINATION

Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

- Concrete: 12 percent.
- Masonry (Clay and CMU): 12 percent.
- Wood: 15 percent.
- Plaster: 12 percent.
- Gypsum Board: 12 percent.

Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

PREPARATION

Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

- After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

See MPI Maintenance Repainting Manual for renovation or restoration work.

- Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

Clay Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.

Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

Galvanized-metal substrates should not be chromate passivated (commercially known as "bonderized") if primers are field applied. If galvanized metal is chromate passivated, consult manufacturers for appropriate surface preparation and primers.

Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

Aluminum Substrates: Remove surface oxidation.

Wood Substrates:

- Scrape and clean knots, and apply coat of knot sealer before applying primer.
- Sand surfaces that will be exposed to view, and dust off.
- Prime edges, ends, faces, undersides, and backsides of wood.
- After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.

Exterior Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

APPLICATION

Apply paints according to manufacturer's written instructions.

- Use applicators and techniques suited for paint and substrate indicated.
- Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

FIELD QUALITY CONTROL

Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

CLEANING AND PROTECTION

At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

EXTERIOR PAINTING SCHEDULE

Steel Substrates: (including but not limited to- Decorative Entrance features (2), HM Doors and Frames, Lintels, etc.)

Alkyd System: MPI EXT 5.1D.

Prime Coat: Alkyd anticorrosive metal primer.
Intermediate Coat: Exterior alkyd enamel matching topcoat.
Topcoat: Exterior alkyd enamel **(gloss)**.

Galvanized-Metal Substrates:

Latex System: MPI EXT 5.3A.

Prime Coat: Cementitious galvanized-metal primer.

Topcoat: Exterior latex ~~[(flat)]~~ ~~[(semigloss)]~~ **[(gloss)].**

Dressed Lumber Substrates: Including but not limited to wood or Hardie Board siding and trim.

Latex System: MPI EXT 6.3L.

Prime Coat: Exterior latex wood primer.

Intermediate Coat: Exterior latex matching topcoat.

Topcoat: Exterior latex gloss [(flat)] [**(semigloss)**] [(gloss)].

END OF SECTION 09911

SECTION 09912 - INTERIOR PAINTING

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

SUMMARY

This Section includes surface preparation and the application of paint systems on the following interior substrates:

- Steel.
- Wood.
- Gypsum board.(Abuse resistant dry wall)

Related Sections include the following:

- Division 5 Sections for shop priming of metal substrates with primers specified in this Section.
- Division 8 Sections for factory priming windows and doors with primers specified in this Section.
- Division 9 Section "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

SUBMITTALS

Product Data: For each type of product indicated.

Samples for Initial Selection: For each type of topcoat product indicated.

Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

- Submit Samples on rigid backing, 8 inches (200 mm) square.
- Step coats on Samples to show each coat required for system.
- Label each coat of each Sample.
- Label each Sample for location and application area.

Product List: For each product indicated, include the following:

- Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
- Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

QUALITY ASSURANCE

MPI Standards:

Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."

Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

Mockups: Apply benchmark samples of each paint and stain system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

Wall and Ceiling Surfaces: Provide samples of at least 16 sq. ft. (9 sq. m).

Other Items: Architect will designate items or areas required.

Apply benchmark samples after permanent lighting and other environmental services have been activated.

Final approval of color selections will be based on benchmark samples.

If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

DELIVERY, STORAGE, AND HANDLING

Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

Maintain containers in clean condition, free of foreign materials and residue.
Remove rags and waste from storage areas daily.

PROJECT CONDITIONS

Apply paints/stains only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

Do not apply paints/stains when 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.

EXTRA MATERIALS

Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

Quantity: Furnish an additional 2 unopened gallons of each material and color applied.

PART 2 - PRODUCTS

MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- Benjamin Moore & Co.
- Duron, Inc.
- ICI Paints.
- PPG Architectural Finishes, Inc.
- Sherwin-Williams Company (The).

PAINT, GENERAL

Material Compatibility:

Systems could fail if paints used for individual coats are incompatible. MPI's paint systems match primers and topcoats and take compatibility into consideration.

- Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:

- Flat Paints and Coatings: VOC content of not more than 50 g/L.
- Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
- Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
- Restricted Components: Paints and coatings shall not contain any of the following:

  Acrolein.
  Acrylonitrile.
  Antimony.
  Benzene.
  Butyl benzyl phthalate.
  Cadmium.
  Di (2-ethylhexyl) phthalate.
  Di-n-butyl phthalate.
  Di-n-octyl phthalate.
  1,2-dichlorobenzene.
  Diethyl phthalate.
  Dimethyl phthalate.
  Ethylbenzene.
  Formaldehyde.
  Hexavalent chromium.
  Isophorone.
  Lead.
  Mercury.
  Methyl ethyl ketone.
  Methyl isobutyl ketone.
  Methylene chloride.
  Naphthalene.
  Toluene (methylbenzene).
  1,1,1-trichloroethane.
  Vinyl chloride.

Colors: As selected by Architect from manufacturer's full range

PRIMERS/SEALERS

Interior Latex Primer/Sealer: MPI #50.
VOC Content: E Range of **E2 orE3**.
Environmental Performance Rating: **EPR 2 minimum**.

METAL PRIMERS

Rust-Inhibitive Primer (Water Based): MPI #107.
VOC Content: E Range of **E2 orE3**.
Environmental Performance Rating: **EPR 2 minimum**.

WOOD PRIMERS

Interior Latex-Based Wood Primer: MPI #39.
VOC Content: E Range of **E2**
Environmental Performance Rating: **EPR 2**

LATEX PAINTS

Institutional Low-Odor/VOC Latex (Eggshell): MPI #145 (Gloss Level 3). (Janitor, Electrical room, and toilets)
VOC Content: E Range of E3.
Environmental Performance Rating: EPR 4.5.

PART 3 - EXECUTION

EXAMINATION

Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

- Concrete: 12 percent.
- Masonry (Clay and CMU): 12 percent.
- Wood: 15 percent.
- Gypsum Board: 12 percent.
- Plaster: 12 percent.

Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

- Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

PREPARATION

Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

- After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

Clay Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.

Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer. **(or shop-primed).**

Wood Substrates:

Scrape and clean knots, and apply coat of knot sealer before applying primer.
Sand surfaces that will be exposed to view, and dust off.
Prime edges, ends, faces, undersides, and backsides of wood.
After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth. Repair all surface blemishes, dust dirt, or other foreign material is removed.

APPLICATION

Apply paints according to manufacturer's written instructions.

Use applicators and techniques suited for paint and substrate indicated.
Paint surfaces behind movable equipment and furniture same as similar exposed surfaces.
Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:

Mechanical Work:

- Uninsulated metal piping.
- Uninsulated plastic piping.
- Pipe hangers and supports.
- Tanks that do not have factory-applied final finishes.
- Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
- Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
- Mechanical equipment that is indicated to have a factory-primed finish for field painting.

Electrical Work:

- Electrical equipment that is indicated to have a factory-primed finish for field painting.
- Electrical conduit

FIELD QUALITY CONTROL

Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

CLEANING AND PROTECTION

At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

INTERIOR PAINTING SCHEDULE

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(Toilet/Shower areas to receive 2-Coats of Block Filler)

Steel Substrates:

Institutional Low-Odor/VOC Latex System: MPI INT 5.1S.
Prime Coat: Rust-inhibitive primer (water based).
Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat.
Topcoat: Institutional low-odor/VOC interior latex **(semigloss)**.

Galvanized-Metal Substrates:

Latex Over Waterborne Primer System: MPI INT 5.3J.

Prime Coat: Waterborne galvanized-metal primer.

Topcoat: Interior latex [~~(flat)~~] [~~(low sheen)~~] [~~(eggshell)~~] [~~(satin)~~] [(**semigloss**)] [~~(gloss)~~].

Dressed Lumber Substrates: Including architectural woodwork, doors where indicated to be painted.
Latex System: MPI INT 6.3T.
Prime Coat: Interior latex-based wood primer.
Intermediate Coat: Interior latex matching topcoat.
Topcoat: Interior latex **(semigloss)**.

Gypsum Board Substrates:

Latex System: MPI INT 9.2A.
Prime Coat: Interior latex **primer/sealer** matching topcoat.
Intermediate Coat: Interior latex matching topcoat.
Topcoat: Interior latex **(two coats of flat @ painted ceilings**;

Institutional Low-Odor/VOC Latex System: MPI INT 9.2M. **Use this paint system at all Toilets, Janitor/Maint/Electrical Closets, etc.**

Prime Coat: One Coat - Interior Latex primer/sealer.

Basis of Design: S-W Pro Mar 200 Zero VOC Interior Latex Primer #B28W2600

Finish Coat: Two Coats – Interior pre-catalyzed water based epoxy

Basis of Design: S-W Pre-Catalyzed Waterbased Epoxy #K45-150 Series

END OF SECTION 09912

SECTION 10000 - MISCELLANEOUS ACCESSORIES

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.

DESCRIPTION OF WORK:

Provide and install the specified products as indicated on the plans and described in the specifications.

NOTE: ITEMS LISTED ARE SPECIED AS “BASIS OF DESIGN” or AS SPECIFIC MODEL NUMBERS BY SPECIFIC MANUFACTURERS; HOWEVER, EQUAL PRODUCTS BY OTHER MANUFACTURER'S OF SIMILAR PRODUCTS WILL BE ACCEPTED UPON APPROVAL (either before or after bidding) BY ARCHITECT. FINAL DECISION OF EQUALITY WILL BE BASED ON ALL QUALITIES AND QUANITIES OF THE NAMED PRODUCT.

SUBMITTALS:

Product Data: Submit manufacturer's specifications and installation instructions for each of the listed products. Include any operation and maintenance instructions as applicable.

DELIVERY, STORAGE AND HANDLING:

Deliver materials and products in original packages either assembled or "knocked-down" for field assembly.

Store materials inside, under cover and in a manner acceptable to the manufacturer of each product.

PART 2 - PRODUCTS

ACCESS DOORS:

Contractor shall provide one 24" square ceiling access door in rooms over 75 square feet, for every 75 sq. ft. of ceiling area (maximum of 2 Per Room), having gypsum board or plaster ceilings – or as specified & required for PME access to above ceiling areas. Coordinate exact location with Architect during project construction. All access doors shall be nonrated. Provide all necessary framing for flush installation of ceiling and wall access doors in plaster or drywall sheathed wall/ceiling surface.

Provide Flush Mounted Non Rated prime painted for field paint finish (white) FD Series Access Ceiling Panels by J.L. Industries, Cam Lock Series - or equal by Cesco Products or Karp Associates, Inc.

EXTERIORSIGNAGE: (SELECT SIGN MATERIAL FOR EXTERIOR EXPOSURE)

Furnish and install the following plastic or acrylic signs with 1/32" raised lettering and braille copy meeting ADA and ANSI A117.1 requirements.

Type PME 1000 Series or 850 Series by Andco Industries or approved equal that is exterior rated.
Sign Sizes: 8" x 8" minimum with 1/2" radiused corners and thin line border around perimeter. Typical unless noted otherwise.
Corners: Radius, 1/2".
Color: To be selected by Architect at a later date.

Installation of Door Signage per manufacturer's standard adhesive method. Locate signs as directed by Architect.

Provide the following types and quantities of signage:

2 toilet signs (2 Men, 2 Women) 8" wide x 8" tall, for interior door application

1" high "Men" and "Women"
Braille copy
raised International Men or Women's or Unisex and HC symbol

2 signs for individual doors, 8" wide x 8" tall, for exterior door application

1" high room name text up to 20 characters
braille copy.

PART 3: EXECUTION:

INSTALLATION:

Install units in accordance with manufacturer's instructions. Securely anchor to adjacent walls and/or floors with concealed devices as applicable for product specified.

Coordinate with other trades as necessary for proper and timely installation.

ADJUST AND CLEAN:

Ensure that operating parts work freely and fit neatly. Adjust hardware and moving parts as necessary. Repair or replace damaged parts, dents, buckles, abrasions, or other defect affecting appearance or serviceability. Clean all products prior to time of final inspection.

END OF SECTION 10000

SECTION 10155 – TOILET COMPARTMENTS

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 stock, manufactured toilet, shower and dressing compartments.

Types of toilet compartments include:

Solid Phenolic Core with Face Laminate.

Styles of toilet compartments include:

Floor-anchored, overhead-braced.

Styles of urinal screens include:

Floor-anchored, overhead braced.

Toilet accessories, such as toilet paper holders, grab bars, and purse shelves, are specified in another Division 10 Section.

SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data for materials, fabrication, and installation including catalog cuts of anchors, hardware, fastenings, and accessories.

Shop drawings for fabrication and erection of toilet, shower and dressing compartment assemblies not fully described by product drawings, templates, and instructions for installation of anchorage devices built into other work.

Samples of full range of colors for each type of unit required. Submit 6-inch-square samples of each color and finish on same substrate to be used in work, for color verification after selections have been made.

QUALITY ASSURANCE

Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible, to ensure proper fitting of work. However, allow for adjustments where taking of field measurements before fabrication might delay work.

Coordination: Furnish inserts and anchorages which must be built into other work for installation of toilet and dressing compartments and related items. Coordinate delivery with other work to avoid delay.

PART 2 - PRODUCTS

MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

Solid Phenolic Core (Black Core) with High Pressure Melamine Face on both sides:

Custom Laminate colors: **Provide one custom laminate color selected by the architect for all stall, and screen walls, and one custom laminate color for the stall doors. Colors to be selected by the Architect from Wilsonart or Nevamars full range of standard solid, patterned and wood grain laminates.**American Sanitary Partition Corp.
Bobrick Washroom Equipment, Inc.
Capitol Partitions, Inc.
Columbia Partitions, Inc. (PSISC)
Sanymetal Products Corp.

MATERIALS

General: Provide materials which have been selected for surface flatness and smoothness. Exposed surfaces which exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are not acceptable.

Core Material for Melamine Laminate: Solid phenolic core with face laminate fused to substrate in fabrication with no glue line or seam visible; doors and pilasters minimum 3/4" finished thickness; and divider panels minimum 1/2" finished thickness.

Stirrup Brackets: Manufacturer's standard design for attaching panels to walls and pilasters, either chromium-plated nonferrous cast alloy ("Zamac") or anodized aluminum.

Note: Modify manufacturer's standard wall bracket method to a pair of continuous 2" x 2" x full height of partition stainless steel angle brackets. Bolt each angle to wall at maximum 16" o.c. with screws and expansion shields.

Hardware and Accessories: Manufacturer's standard design, heavy duty operating hardware and accessories of chromium-plated, nonferrous cast alloy ("Zamac").

Overhead Bracing: Continuous extruded aluminum, antigrip profile, with clear anodized finish.

Note overhead bracing of all stall and urinal screens is required.

Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, chromium-plated steel, or brass, finished to match hardware, with theft-resistant-type heads and nuts. For concealed anchors, use hot-dip galvanized, cadmium-plated, or other rust-resistant protective-coated steel.

FABRICATION

General: Furnish standard doors, panels, screens, and pilasters fabricated for compartment system. Furnish units with cutouts, drilled holes, and internal reinforcement to receive partition-mounted hardware, accessories, and grab bars, as indicated.

Door Dimensions: Unless otherwise indicated, furnish 24-inch-wide in-swinging doors for ordinary toilet stalls and 32-inch-wide (clear opening) out-swinging doors for stalls equipped for use by handicapped.

NOTE: Handicapped Stall Doors (marked H.C. but no less than one per toilet with stalls) SHALL SWING OUT AND PROVIDE CLEAR ACCESS OF 36" WIDE.

Hardware: Furnish hardware for each compartment to comply with ANSI A117.1 for handicapped accessibility and as follows:

Hinges: Cutout inset type, adjustable to hold door open at any angle up to 90 degrees. Provide gravity type, spring-action cam type, or concealed torsion rod type to suit manufacturer's standards.

Latch and Keeper: Manufacturer's standard surface-mounted latch unit, designed for handicapped accessibility, with combination rubber-faced door strike and keeper.

Provide ADA compliant lever handle latches at all handicap stalls.

Coat Hook: Manufacturer's standard unit, combination hook and rubber-tipped bumper, sized to prevent door hitting mounted accessories.

Door Pull: Manufacturer's standard unit for out-swinging doors. Provide pulls on both faces of handicapped compartment doors.

FINISHES

Color: Manufacturer's Customcolors as selected by Architect.

PART 3 - EXECUTION

INSTALLATION

General: Comply with manufacturer's recommended procedures and installation sequence. Install compartment units rigid, straight, plumb, and level. Provide clearances of not more than 1/2 inch between pilasters and panels, and not more than 1 inch between panels and walls. Secure panels to walls with not less than two stirrup brackets attached near top and bottom of panel. Locate wall brackets so that holes for wall anchorages occur in masonry or tile joints. Secure panels to pilasters with not less than two stirrup brackets located to align with stirrup brackets at wall. Secure panels in position with manufacturer's recommended anchoring devices.

Overhead-Braced Compartments: Secure pilasters to floor and level, plumb, and tighten installation with devices furnished. Secure overhead brace to each pilaster with not less than two fasteners. Hang doors and adjust so that tops of doors are parallel with overhead brace when doors are in closed position.

Screens: Attach with anchoring devices as recommended by manufacturer to suit supporting structure. Set units to provide support and to resist lateral impact.

ADJUST AND CLEAN

Hardware Adjustment: Adjust and lubricate hardware 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 entrance swing doors) to return to fully closed position.

Clean exposed surfaces of partition systems using materials and methods recommended by manufacturer, and provide protection as necessary to prevent damage during remainder of construction period.

END OF SECTION 10155

SECTION 10200 – LOUVERS AND VENTS

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.

DESCRIPTION OF WORK:

Extent of louvers and vents is indicated on drawings, including indications of sizes, shapes, and locations.

Types of louvers and vents include the following:

Wood Louvers are included in the millwork to create the 4 sided roof Cupula that is shown on the drawings as an option/Alternate #1. Louvers shall include aluminum insect screening on the interior sides on the louver.

Flasing and Sealants including installation are specified in Division 7.

QUALITY ASSURANCE:

Field Measurements: Verify size, location and placement of louver units prior to fabrication, wherever possible.

Shop Assembly: Coordinate field measurements and shop drawings with fabrication and shop assembly to minimize field adjustments, splicing, mechanical joints and field assembly of units. Preassemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

SUBMITTALS:

Product Data: Submit manufacturer's specifications; certified test data, where applicable; and installation instructions for required products, including finishes.

Shop Drawings: Submit shop drawings for fabrication and erection of louver units and accessories. Include plans, elevations, and details of sections and connections to adjoining work. Include materials, finishes, fasteners, joinery and other information to determine compliance with specified requirements.

PART 2 - PRODUCTS

MATERIALS:

Treated wood wood parts and framing: See Finish Carpentry specification in Division 6.

FABRICATION, GENERAL:

Provide louvers and accessories of design, materials, sizes, depth, arrangement, and wood thicknesses indicated, or if not indicated, as required for optimum performance with respect to airflow; water penetration; air leakage, where applicable (for adjustable units, if any); strength; durability; and uniform appearance.

Fabricate frames including integral sills to suit adjacent construction with tolerances for installation, including application of sealants in joints between louvers and adjoining work.

Include supports, anchorages, and accessories required to achieve a complete assembly.

Provide sill extensions and loose sills made of same material as louvers, where indicated, or required for drainage to exterior and to prevent water penetrating to interior.

PART 3 – EXECUTION

PREPARATION:

Coordinate setting drawings, diagrams, templates, instructions and directions for installation of anchorages which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to the project site.

INSTALLATION:

Locate and place louver units plumb, level and in proper alignment with adjacent work.

Use concealed anchorages wherever possible. Provide galvanized fasteners.

Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joints fillers, as indicated.

Repair finishes damaged by cutting, welding, soldering and grinding operations required for fitting and jointing. Restore finishes so there is no evidence of corrective work. Return items which cannot be refinished in the field to shop, make required alterations, and refinish entire unit, or provide new units, at Contractor's option.

Protect galvanized and non-ferrous metal surfaces from corrosion or galvanic action by application of a heavy coating of bituminous paint on surfaces which will be in contact with concrete, masonry or dissimilar metals.

Provide concealed gaskets, flashings, joint fillers, and insulations, and install as work progresses to make the installations weathertight.

Refer to Division 7 sections for sealants in connection with installation of louvers.

END OF SECTION 10200

SECTION 10800 - TOILET ACCESSORIES

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings, General Conditions and Supplementary General Conditions and other Division-1 Specification Sections, apply to this Section.

SUMMARY

This section includes toilet and bath accessory items as scheduled.

SUBMITTALS:

Product data for each toilet accessory item specified, including construction details relative to materials, dimensions, gages, profiles, mounting method, specified options, and finishes.

QUALITY ASSURANCE:

Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Available Manufacturers: Subject to compliance with requirements, manufacturers offering toilet accessories which may be incorporated in the work include, but are not limited to, the following:

Accessory Specialties, Inc.
American Dispenser Co.
Bobrick Washroom Equip., Inc.
Bradley Corp.

MATERIALS, GENERAL:

Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22 gage minimum, unless otherwise indicated.

Sheet Steel: Cold rolled, commercial quality ASTM A 366, 20 gage minimum, unless otherwise indicated. Surface preparation and metal pretreatment as required for applied finish.

Galvanized Steel Sheet: ASTM A 527, G60.

Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.

Mirror Glass: Nominal 6.0-mm (0.23 inch) thick, conforming to ASTM C 1036, Type I, Class 1, Quality q2 and with silvering, electro-plated copper coating, and protective organic coating.

Galvanized Steel Mounting Devices: ASTM A 386, hot-dip galvanized after fabrication.

Fasteners: Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.

TOILET TISSUE DISPENSERS (BY OWNER, INSTALLER BY GC)

Double-Roll Dispenser: Size to accommodate two separate rolls of core type tissue to 5-inch diameter roll.

Fabrication: Spindless, chrome-plated, steel construction with tension-spring delivery control; designed for surface mounting, self-locking device extends through core and prevents core removal until roll is empty.

ELECTRIC HAND DRYERS:

Not applicable

GRAB BARS:

Stainless Steel Type: Provide grab bars with thickness not less than 18 gage and as follows:

Mounting: Concealed, manufacturer's standard flanges and anchorages.
Clearance: 1-1/2 inch clearance between wall surface and inside face of bar.
Gripping Surfaces: Manufacturer's standard non-slip texture.
Heavy-Duty Size: Outside diameter of 1-1/2 inch.

SANITARY NAPKIN DISPOSAL UNITS:

Not applicable

MISCELLANEOUS ACCESSORIES

Coat Hook: Provided by Toilet Stall provider.

MIRROR UNITS:

Standard Stainless Steel Framed Mirror Units: Fabricate frame with channel shapes not less than 0.04 inch (20 gage), with square corners carefully mitered to hairline joints and mechanically interlocked. Provide in Type 430 bright polished finish.

FABRICATION:

General: Stamped names or labels on exposed faces of toilet accessory units are not permitted, except where otherwise indicated; inobtrusive labels on surfaces not exposed to view are acceptable. Where locks are required for a particular type of toilet accessory, provide same keying throughout project. Furnish two keys for each lock.

Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.

Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors or access panels with full-length, stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.

Framed Mirror Units, General: Fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass protection material. Provide mirror backing and support system that will permit rigid, tamperproof glass installation and prevent moisture accumulation, as follows:

Provide galvanized-steel backing sheet, not less than 0.034 inch (22 gage) and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.

Mirror Unit Hangers: Provide system for mounting mirror units that will permit rigid, tamperproof, and theftproof installation, as follows:

One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.

Keys: Provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

INSTALLATION:

Install toilet accessory units in accordance with manufacturers' instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations as directed by Architect.

Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, according to manufacturer's instructions for type of substrate involved.

Install grab bars to withstand a downward load of at least 250 lbf, complying with ASTM F 446.

ADJUST AND CLEAN:

Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.

Clean and polish all exposed surfaces after removing protective coatings.

SCHEDULE OF TOILET ACCESSORIES

Manufacturer: Model numbers of toilet accessories listed below are those of Bobrick Washroom Equipment, Inc., unless otherwise indicated. See drawings for quantity and locations.

symbol	description		model number
A	Double Toilet Tissue Dispenser		By Owner , installed by GC
B	Paper Towel Dispenser		B-262
C	Touchless Soap Dispenser		B2014
D	Toilet Stall Coat Hook		B6727
E	Wall-Mounted Lavatory Mirror	24” x 36”	B165-2436
F	Full Length Mirrors	24” x 60”	B165-2460
G	HC ToiletGrab Bars - vertical	18”	B-6806.99 x 18"
H	HC Toilet Grab Bars - horizontal	36”	B-6806.99 x 36"
J	HC Toilet Grab Bars - horizontal	48”	B-6806.99 x 48"
K	Sanitary Napkin Disp. Surface Mtd		B270
L	Janitorial shelving by Owner		
M	Stainless Steel Jan. Sink Surround		Provided by Plumber 24” x 24” -36” tall
N	Baby Changing Stand		White Koala Changing Stand, White horizontal, rectangular folding unit

Verify mounting height requirements for all mirror units with Architect.

Contractor shall install all toilet accessories described as being “by Owner” indicated in the Accessory Schedule.

Accessory numbers coordinate with those used on the Toilet Fixture and Accessories Schedule on Architectural Enlarged Toilet Plans.

See Plumbing Fixture Schedule on Plumbing Drawings for required Fixtures and Accessories.

END OF SECTION 10800