DLR Group

Architecture
Engineering
Planning
Interiors

Gila County
Public Works Administration Building
Globe, Arizona

Project Manual - Volume I
DLR Group Project No. 30-09115-00

November 2, 2009

Office of Gila County Board of Supervisors
1400 East Ash, Globe, Arizona, 85501

Project Manual

Gila County
Public Works Administration Building
Globe, Arizona

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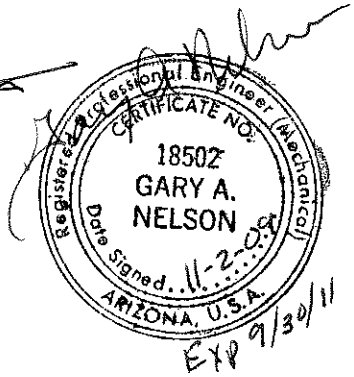
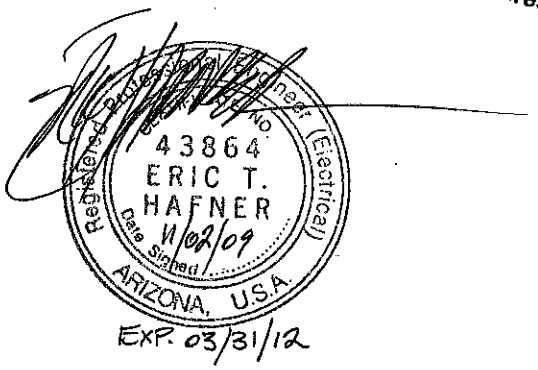
November 02, 2009





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DLR Group
Architecture Engineering Planning Interiors
6225 N. 24th Street, Suite 250
Phoenix, Arizona 85016
Phone: (602) 381-8580

November 25, 2009

INVITATION FOR BIDS
BID CALL NO. 110109-1

Sealed bids will be received by **Gila County Engineering Services, Guerrero Complex, 1400 East Ash Street, Globe, AZ 85501,** until **To Be Determined, 11:00 AM/LOCAL TIME**, for the **GILA COUNTY PUBLIC WORKS ADMINISTRATION, GLOBE, ARIZONA, BID NO. 110109-1,** in strict accordance with the rules and regulations of the Gila County Procurement Policy on file in the office of the Gila County Clerk of the Board, Globe, Arizona. **No bids will be accepted after 11:00 AM/Local Time. The Bids will be publicly opened and read aloud.**

Bids must be on a Lump Sum basis. All Bids shall be made on the Invitation of Bid forms included in the Contract Documents and shall include all applicable taxes.

Bidding Documents, including drawings and specifications, may be examined at the office of the Architect-Engineer, DLR Group, 6225 N. 24th Street, Suite 250, Phoenix, Arizona 85016, and at the following exchanges after November 25, 2009.

Reed Construction Data, 30 Technology Parkway South, Ste 500, Norcross, GA 30092 (770) 209-3730
Dodge/McGraw-Hill, 2226 W. Northern Ave., #C120, Phoenix, AZ 85021 (602) 242-2165
Shirley's Plan Service, 425 South Plumer, Tucson, AZ 85719 (520) 791-7436
IDT Contractors Plan Room, 4633 East Broadway Boulevard, Tucson, AZ 85711 (520) 319-0988
Performance Graphics, 2775 Miracle Mile #5, Bullhead, AZ 86442 (928) 763-6860

Bidders may obtain Bidding Documents at the office of Perkinson Reprographics, Inc. (PRI), 735 E. Brill Street, Phoenix, Arizona 85006; phone (602) 393-3131; fax (602) 393-4242, from 8:00 a.m. until 5:00 p.m., Monday through Friday, in accordance with the Instructions to Bidders, upon depositing the sum of One Hundred Dollars ($100.00) per set to guarantee the return of each set of Documents. The entire deposit will be refunded upon the return of the Documents, in good condition, within 10 days after the Bid opening. Each Prime General Bidder may obtain a maximum of 3 sets of Bidding Documents and a maximum of 1 set of documents will be available to the following major subcontractors: Earthwork, Concrete, Masonry, Mechanical, Plumbing and Electrical. Additional copies of the complete Bidding Documents will be available to Bidders on request at a cost to be paid for by the Bidder; no partial sets will be issued. This reproduction cost is not returnable.

Each Bid submitted, either by hand, United States Postal Service, or other carrier, shall be sealed and plainly marked **"GILA COUNTY PUBLIC WORKS ADMINISTRATION, GLOBE, ARIZONA, BID CALL NO. 110109-1".** All Bids shall be mailed or delivered to the **Gila County Engineering Services Department, Guerrero Complex, 1400 East Ash Street, Globe, AZ 85501**. The Gila County Engineering Services Department and Gila County Board of Supervisors will not be responsible for those Bids submitted that are not marked appropriately and/or sent to the wrong address. The atomic clock in the reception area of the Guerrero Complex is the official time clock.

The Architect will hold a **Pre-Bid Conference** at the site, 5804 South Russell Road, Globe, AZ at **10:00 a.m. local time on To Be Determined**. **Attendance at this Conference by prospective Bidders is mandatory**. The purpose of this conference is to answer any questions related to the Contract Documents. Representatives of the Owner and Architect will be present.

Contractors are invited to be present at the opening of bids but absence will not be considered cause for disqualification.

Contractors shall be responsible for any licenses or permits required by the regulatory agency of the State of Arizona that apply to the performance of this contract.

After the Contractor who is determined to be most Advantageous to the county has been selected through the source selection process, negotiations may be conducted for the purpose of developing a recommended Contract for Award.

The Gila County Board of Supervisors reserves the right to reject any or all bids, or to accept any bids, or to waive any informality in any bid, or to withhold the award if deemed in the best interest of Gila County.

This contract is subject to cancellation pursuant to **A.R.S. § 38-511.**

Dates advertised in Arizona Silver Belt: **To Be Determined.**

Signed:_____ Date: _____/_____/_____
Bryan B. Chambers, Chief Deputy County Attorney
for Daisy Flores, County Attorney

Signed: _____ Date: _____/_____/_____
Steven L. Besich, County Manager/Clerk of the Board

INSTRUCTIONS TO BIDDERS

To be considered, Bids must be made in accordance with these Instructions to Bidders.

IB.1 DEFINITION: Bidding Documents include the Notice to Contractors, Instructions to Bidders, Bid Form, other sample bidding and contract forms, and proposed Bidding Documents including any Addenda issued prior to receipt of Bids.

IB.2 BIDDING DOCUMENTS

IB.2.1 COPIES of Bidding Documents may be obtained from Perkinson Reprographics, Inc. (PRI), 735 E. Brill Street, Phoenix, Arizona 85006; phone (602) 393-3131; fax (602) 393-4242, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday, upon the deposit of One Hundred Dollars ($100.00) per set. Such deposit will be refunded upon the return of each set of Bidding Documents, in good condition, within 10 days after the Bid opening. Each Prime General Bidder may obtain a maximum of 3 sets of Bidding Documents and a maximum of 1 set of documents will be available to the following major subcontractors: Earthwork, Concrete, Masonry, Structural Steel, Mechanical, Plumbing, and Electrical. Additional copies of the complete Bidding Documents will be available to Bidders on request at cost to be paid for by the Bidder; no partial sets will be issued. This reproduction cost is not returnable.

IB.2.2 QUESTIONS AND INTERPRETATIONS: Submit questions about Bidding Documents to the Architect. Replies will be issued to Prime Bidders of record as Addenda to the Bidding Documents. The Architect and the Owner will not be responsible for oral clarification. Questions received less than 72 hours before the bid opening cannot be answered.

IB.2.3 SUBSTITUTIONS: Identification of material or equipment by manufacturer's name or trade name is not meant to give preference to any manufacturer, but merely to establish a standard.

1. To obtain approval to use unspecified products, Bidders shall submit written requests before 2:00 p.m. local time on To Be Determined (two weeks prior to bid). FAX SUBSTITUTION REQUEST FORMS TRANSMISSIONS WILL NOT BE ACCEPTED. Requests received after this time will not be considered. Requests shall clearly describe the product for which approval is asked, including comparative data necessary to demonstrate acceptability. The Architect shall consider and either approve or reject all proposals submitted and shall comply with the following requirements:

    a. If the Architect has approved any alternative product proposals, the Bidding Documents shall be modified to include the alternative products in an addendum issued to Prime Bidders of record at least 5 calendar days prior to the Bid date.

    b. If the Architect rejects an alternative product proposal, he shall give notice of the rejection to the Bidder prior to the deadline for receiving bids. Notice shall include a description of the rejected product.

2. The Bidder's request for approval of any substitution shall include the following:

    a. Complete data substantiating compliance of the proposed substitution with the Contract Documents. Each submittal shall be well marked and identified as to the type and kind of items being submitted for approval.

    b. Product identification, including manufacturer's name, address and phone number.

c. Manufacturer's literature showing complete product description, performance and test data and all reference standards.

(1) It is the sole responsibility of the submitting party to submit complete descriptive and technical information so that the Architect can make proper appraisal. **Lack of proper information will be sufficient cause for rejection.** References to catalogs that the Architect may or may not have will not be acceptable.

(2) Burden of proof of merit of requested substitution is upon submitter.

d. Samples and colors in the case of articles or products.

e. Name and address of similar projects on which the product(s) was used and date of installation.

f. Knowledge and experience of applicator may be integral part of Specification; therefore, data concerning applicator (i.e., experience, organization, references, projects, and dates) may be material.

g. For construction methods, include a detailed description for proposed method.

h. Itemized comparison of proposed substitution with product or method specified.

i. Accurate cost data on proposed substitution in comparison with product or method specified.

3. Substitution requests shall be made on the "Substitution Request Form" included with the Bid Forms.

4. The decision of the Architect regarding the approval of items for which substitution is requested will be final. In the event an approved substitution is later determined by the Architect to be unacceptable for any reason, including the necessity to perform extended redesign or rework of the project in order to accommodate the substitution, or if it becomes apparent to the Architect that the substituted item will not perform or function as well as the specified item, the Bidder will be required to furnish the original specified item or request approval to use another substitution. The Bidder will pay all costs, expenses or damages associated with or related to the unacceptability of a substitution and the resultant utilization of any item. The Bidder further understands and agrees that a time extension will not be granted due to delays associated with or related to the unacceptability of a substitution.

5. If a substitution is approved, no subsequent change in brand or make will be permitted unless satisfactory written evidence is presented to the Architect that the manufacturer cannot make scheduled delivery of the approved substitute item.

6. Substitutions will not be considered for approval by the Architect after 5 days prior to the Bid date or after the award of the Contract if:

a. The proposed substitution is indicated or implied on shop drawings or product data submittals and has not been formally submitted for approval by the Bidder in accordance with the above-stated requirements.

b. Acceptance of the proposed substitution will require substantial design revisions to the Contract Documents or is otherwise not acceptable to the Architect.

7. Refer to Division 01 Specification Section "Substitution Procedures."

IB.2.4 PREBID CONFERENCES: The Architect will hold a Prebid Conference at the site, 5804 S. Russell Road, Globe, Arizona at **10:00 a.m. local time on To Be Determined. Attendance at this Conference by prospective Bidders is mandatory**. The purpose of this conference is to answer any questions related to the Contract Documents. Representatives of the Owner and Architect will be present. Unless followed up in written form, verbal authorizations or acknowledgments by anyone present shall not be binding.

IB.3 CONDITIONS OF WORK

IB.3.1 EXAMINATION. Before submitting a Proposal, Bidders shall carefully examine the Drawings and Specifications and Related Documents, visit the site of work and fully inform themselves as to all existing conditions and limitations, shall include in the Proposal a sum to cover the cost of all items included in the Contract. The Bidder, if awarded the contract, shall not be allowed any extra compensation by reason of any matter or thing, concerning which such bidder might have fully informed himself prior to bidding.

IB.3.2 CONTRACT TIME. The Contractor shall note that the Project must be completed within a specified Contract Time from date of "Notice to Proceed." Contractor, in figuring his bid, shall anticipate required rain days for each month based on National Weather Service statistics for this area, and include them in his bid. Contractor will be given extra Contract Time only for rain days which actually cause delay in the prosecution of the work and are above and beyond statistically estimated number of rain days.

IB.3.3 STATE TAXES. The Bidder shall include all applicable State of Arizona sales, transaction privilege and use taxes in his Bid.

IB.3.4 LOCAL TAXES. The Bidder shall include all applicable County of Gila sales, transaction privilege and use taxes in this Bid. The Project is outside of the City of Globe limits.

IB.3.5 PERMITS & LICENSES. The Contractor will comply with all applicable local, state, and county codes. The Contractor shall secure and pay for all permits and governmental fees (with the exception of the plan review and building permit fee which shall be waived by the Gila County Board of Supervisors; these are the only fees waived), licenses and inspections (with the exception of special inspections and materials testing services which shall be performed by the County of Gila) necessary for the proper execution and completion of the Work which are customarily secured after the execution of the Contract and which are legally required at the time the bids are received. The Contractor shall install all work in strict compliance with all requirements in force at time of execution of Contract, of all civil authorities having jurisdiction, utility companies furnishing service for installation, and other applicable authorities. Charges to the project from gas and electric utility companies shall be paid by the Contractor. The Contractor shall make all contacts, coordinate all work and provide appropriate documentation for payment of such charges. Water and sewer connection charges shall be paid by the Contractor.

IB.3.6 PROTECTION OF PROPERTY. The Contractor shall protect all his property from damage and shall protect the Owner's property from damage or loss arising in connection with this Contract. He shall make good any such damage, injury or loss caused by his operations, or those of his employees, to the satisfaction of the Owner. The Contractor shall confine his apparatus, storage of his materials and the operations of his workmen to the limits indicated by the Owner. Any damage caused to lawns, shrubs, window glass, utility lines, buildings, etc. shall be promptly repaired or replaced at no expense to the Owner.

IB.3.7 WORKMANSHIP. The Contractor agrees that all work shall be done by skilled and experienced mechanics and shall be done in a first-class workmanlike manner.

IB.3.8 FIRE PROTECTION DURING CONSTRUCTION: Provide adequate fire extinguishers on the premises during the course of construction, of the type and sizes recommended by the NFPA to control fires resulting from the particular work being performed. Instruct employees in their use. Place extinguishers in the immediate vicinity of the work being performed, ready for instant use. In the use of especially hazardous types of equipment, such as acetylene torches, welding equipment, etc., no work shall be commenced or equipment used unless fire extinguishers of an approved type and capacity are placed in the working area and available for immediate use by the workmen using the above-mentioned equipment.

IB.3.9 SAFETY

IB.3.9.1 SAFETY REQUIREMENTS: These Construction Documents, and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal Laws, including but not limited to, the latest amendments of the following:

Williams-Steiger Occupational Safety 7 Health Act of 1970.

Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.

Part 1518 - Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.

IB.3.9.2 SAFETY AND LOSS CONTROL: The Gila County Safety and Loss Control booklet must be read and signed by all working at the job site.

During the pre-construction meeting a time will be set for the Gila County QA/QC Safety Compliance Officer for a safety meeting. For every safety meeting the Contractor shall invite the QA/QC Safety Compliance Officer and shall give at least a twenty-four (24) hour notice.

IB.4 BIDDING PROCEDURE

IB.4.1 PREPARATION OF BIDS

1. Bids shall be submitted on unaltered bid forms furnished by the Architect.

2. Each Bid shall include the legal name of the Bidder and shall show whether the Bidder is a corporation, a partnership, or a sole proprietor, or any other legal entity. A Bid of a corporation shall give the state of incorporation, and shall have the seal affixed. A Bid of a partnership shall give the names of all the partners. A Bid of sole proprietor doing business under a trade name shall give the name of the sole proprietor and the trade name under which the individual is doing business.

3. Fill in all blank spaces for bid prices in ink or typewritten words, and submit 1 copy. The Bidder must include all cost items and all Alternates shown on the Bid Form. No segregated or qualified bids will be accepted. Changes or corrections made in the Bid must be initialed in ink by the individual signing the Bid.

4. Bids shall be signed in longhand by the person or persons legally authorized to bind the Bidder to a contract. A Bid submitted by any agent shall have current Power of Attorney attached certifying the agent's authority to bind the Bidder.

5. Bids shall be accompanied by a certification by the secretary (if a corporation), the other partners (if a partnership) authorizing the company/partnership to execute documents relative to this proposal.

6. **Submittal Bid Format:**

It is required that <u>One (1) Original and Two (2) copies (3 TOTAL) with Original Signatures on all three (3)</u> of the following documents shall be submitted on the forms and in the format specified in the Invitation for Bid: Bid Form for Combined Contract, List of Subcontractors, Non-Collusion Statement, Anti-Terrorism Warranty, Legal Arizona Workers Act Compliance, Qualification and Certification Form, Reference List, Intentions Concerning Subcontracting, and Waiver of Liability and Release Form. The County will not be liable for any cost incident to the preparation of Bids, materials, reproductions, presentations, copy-right infringements, etc. It is permissible to copy these forms if required. Facsimiles or mailgrams shall not be considered. **<u>NOTICE: SURETY (BID) BOND Form must accompany Bid submittal.</u>**

IB.4.2 BID SECURITY

1. Provide surety bond on AIA Document A310 Bid Bond; Attorney-in-Fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of his Power of Attorney. Bid Bond shall be in the amount of 10% of the amount of the Bid, payable to the Gila County Board of Supervisors. Bid Bond shall guarantee that the Bidder will enter into a Contract to perform the Work in accordance with the Contract Documents.

2. Bid Security of the 3 lowest Bidders will be retained until a contract is signed and required bonds and insurance are filed, the specified time has elapsed so that Bids may be withdrawn, or all Bids have been rejected.

IB.4.3 QUALIFICATION OF CONTRACTORS

1. It is required by the Owner that bona-fide general contract Bidders submit a summary of previous work experience in the construction category of the proposed project and a statement of financial responsibility. The Owner may also conduct any other investigations it deems necessary to determine the bidder's performance capabilities.

2. The Qualification Statements shall be properly and legibly prepared on AIA Document A305 Contractor's Qualification Statement and sealed in a separate envelope identified on the outside and then placed in the same envelope with the Bid Proposal. The envelope containing the Qualification Statements will not be opened unless this Bidder should be declared the apparent low Bidder.

3. For use by Owner to determine competency and compatibility of those who will work on this project, each Bidder is required to submit with his bid a list naming all Subcontractors who will be used in performing the work. This list shall be filled out and enclosed in a separate opaque sealed envelope marked "LIST OF SUBCONTRACTORS" and showing the bidder's name thereon; this envelope shall then be inserted in the General Bid envelope, with the other forms. The list submitted by the successful Bidder will be retained by the Owner, and the list submitted by other Bidders will be returned unopened. If a General Contractor is listed as a Subcontractor in any category, the General Contractor's qualification to do that work must be attached, i.e. license required and summary of experience. Subcontractors not named in such list may not be employed on the project without express written permission of the Owner. By this requirement the Owner does not establish any contractual relation between the Owner and any subcontractor, the sole purpose and function of such requirement being set forth in the first sentence of this paragraph.

4. Licensing. No bid shall be considered which is not submitted by a Bidder duly licensed as a Contractor in Arizona. Provide a photocopy of license attached to bid form.

IB.4.4 SUBMISSION OF BIDS

1. Bids, together with required enclosures, and documents shall be submitted in opaque, sealed envelopes bearing on the outside the Bidder's name and address and the Project name.

2. Included in the envelope shall be:

    a. Completed Bid Form for Combined Contract.

    b. Bid Security on AIA Document A310 Bid Bond, for 10% of the Bid Amount.

    c. Signed List of Subcontractors.

    d. Notarized Non-Collusion Statement

    e. Signed Anti-Terrorism Warranty

    f. Signed Legal Arizona Workers Act Compliance

    g. Signed Qualification and Certification Form

    h. Signed Reference List

    i. Signed Intentions Concerning Subcontracting

    j. Signed Waiver of Liability and Release Form.

    k. Photocopy of Contractor's License.

3. Bids sent by mail shall be enclosed in a separate mailing envelope with the notation "BID ENCLOSED" on the face, and shall be addressed to the Owner as shown on the Bid Form.

4. Bids shall be deposited at the designated location prior to the time and date of receipt of bids indicated in the Notice to Contractors. Bids received after the time and date for receipt of bids will be returned unopened.

IB.4.5 MODIFICATION OR WITHDRAWAL OF BID

1. A Bid may not be modified, withdrawn, or canceled by the Bidder until thirty (30) calendar days after the time and date for receipt of Bids.

2. Bids submitted may be withdrawn prior to the time designated for receipt of Bids.

3. Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids. Bid Security shall be sufficient for the Bid as modified or resubmitted.

IB.5 CONSIDERATION OF BIDS

IB.5.1 OPENING OF BIDS. Bids will be publicly opened and read aloud and will be available for public inspection after award by the Owner.

IB.5.2 REJECTION OF BIDS, INFORMALITIES AND IRREGULARITIES. The Owner shall have the right to reject any or all Bids and to reject Bids not accompanied by required bid security and other attachments required by the Bidding Documents or data required by the Bidding Documents or in any way incomplete or irregular. The Owner shall have the right to waive any informality or irregularity in any Bid received.

IB.5.3 ACCEPTANCE OF BID

1. The Owner shall have the right to accept Alternates in any order or combination and to determine the low Bidder on the basis of the sum of the Base Bid and the Alternates accepted.

2. The Contract will be awarded, if at all, to the lowest responsible and responsive Bidder whose bid conforms in all material respects to the requirements of the Bid Documents, including the Plans and Specifications. "Responsive Bidder" means the bidder who submits a bid that conforms in all material respects to the Notice to Contractors Inviting Sealed Bids, Instructions to Bidders and Plans and Specifications. "Responsible Bidder" means the bidder who has the capability to perform the contract requirements and the integrity and reliability to assure complete and good faith performance and who submits the lowest bid.

3. A contract may be awarded to the lowest responsible Bidder at any time during the thirty (30) calendar days immediately following the date of the bid opening or at any time thereafter until the bid is withdrawn by notifying the Bidder in writing of the intent of the Owner to make such an award. The written notice may be mailed or hand delivered.

4. The competency and responsibility of Bidders and of their proposed Subcontractors will be considered in making the award.

5. It is the intent of the Owner to award a contract to the lowest responsible Bidder provided the Bid has been submitted in accordance with the requirements of the Bid Documents, is judged reasonable, and does not exceed the funds available.

    a. The County of Gila shall have the authority to negotiate with the lowest bidder to reduce the scope of the Project in the event that all responsive bids exceed the Project budget.

6. Bids shall be made available for public inspection by appointment only after the award has been made by the County of Gila. The County of Gila has sole authority to award bids and any statement by any employee of the County is not binding on the Board.

7. The following criteria will be considered a part of the evaluation process.

    a. Competence and responsibility of Bidder.

    b. Qualifications and experience of Bidder.

    c. Past performance of Bidder.

    d. Conformity with bidding requirements and general considerations.

    e. Record of timely completion of punch lists on past projects.
    f. Responsiveness to warranty requests on past projects.

8. The County of Gila shall be the sole judge in determining the quality of services bid and their decision shall be final.

IB.6 QUALIFICATION OF CONTRACTORS

IB.6.1 The Bidder will be required to establish to the satisfaction of the Architect and the Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bid Documents.

IB.6.2 Prior to the award of the Contract, the Architect will notify the Bidder in writing if the Owner, after due investigation, has reasonable objection to any such proposed person or entity. If the Owner has reasonable objection to any such proposed person or entity, the Bidder may submit an acceptable substitute person or entity with an adjustment in his bid price to cover the difference in cost occasioned by such substitution. The Owner may, at his discretion, accept the adjusted bid price or disqualify the Bidder.

IB.6.3 Persons and entities proposed by the Bidder and to whom the Owner has made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner.

IB.6.4 APPLICABLE LAW. The Contractor shall comply with all applicable provisions of the Arizona Revised Statutes. The Contractor to whom the bid is awarded must also comply with all other applicable legal provisions as set forth in the Arizona Revised Statutes, and such other local and federal laws, ordinances or rules as may be applicable, and these requirements are deemed to be part of any contract awarded to him by the Owner.

IB.7 POST-BID INFORMATION AND SUBMITTALS

IB.7.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND covering the faithful performance of the Contract and the payment of all obligations arising thereunder, each in the amount of 100% of the Contract Sum, shall be submitted in duplicate to the Architect, together with the executed Owner-Contractor Agreement, within 5 days after notification of award of the contract.

1. Bonds shall be executed on AIA Document A312 Performance Bond and Payment Bond. Bond amount shall be increased to include any Change Order added to the Contract to 100% total value amount of each Change Order.

2. Such bonds shall be issued by a Best "A" rated or United States Treasury listed surety company and furnished by the Contractor to the Architect prior to commencement of any work. Such bonds shall be issued by a surety company, acceptable to the Owner and duly authorized and licensed by the Arizona Department of Insurance to do business in the State of Arizona, and shall be payable to the Gila County Board of Supervisors. The Attorney-in-Fact who executes the bonds on behalf of surety shall affix thereto a certified and current copy of his Power of Attorney. The format specified must be used as the format for the Performance and Payment Bonds. Individual sureties shall not be acceptable.

IB.7.2 THE FORM OF AGREEMENT FOR THE WORK will be written between Owner and Contractor where the basis of payment is a Stipulated sum.

IB.7.3 CANCELLATION OF CONTRACTS. Parties are notified that this agreement is subject to cancellation pursuant to A.R.S. 38-511.

IB.7.4 LIEN WAIVERS. Pursuant to A.R.S. 33-1008 standard lien waivers are to be submitted on all construction projects. Copies of lien waiver forms are included.

IB.8 PROTESTS

IB.8.1 A protest of a solicitation must be received at the Gila County Board of Supervisors before the solicitation opening date. Only other Contractors who have submitted a bid proposal have the right to protest.

IB.8.2 A protest of a proposed award or of an award must be filed within ten (10) days after the award by the Board of Supervisors. A protest must be in writing and must include the following:

1. Name, address and telephone number of the protester.
2. Signature of the protester or its representative, and evidence of authority to sign.
3. Identification of the contract and the solicitation or contract number.
4. Detailed statement of the legal and factual grounds of protest including copies of relevant documents.
5. The form of relief requested.

IB.8.3 All protests shall be sent to the attention of the Gila County Board of Supervisors, 1400 East Ash Street, Globe, Arizona 85501.

IB.9 LAWS & ORDINANCES

IB.9.1 This agreement shall be enforced under the laws of the State of Arizona and Gila County. Contractor shall maintain in current status all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor. The Contractor shall comply with the applicable provisions of the Americans with disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and applicable federal regulations under the act.

SUBSTITUTION REQUEST FORM

FAX OR E-MAIL SUBSTITUTION REQUEST WILL NOT BE ACCEPTED

TO: DLR Group

PROJECT: GILA COUNTY PUBLIC WORKS ADMINISTRATION BUILDING

PRIOR TO COMPLETING THIS FORM, REFER TO INSTRUCTIONS TO BIDDERS PARAGRAPH IB.2.3.

We hereby submit for your consideration the following product instead of the specified item for the above project:

Section	Page	Paragraph / Line	Specified Item
_____	_____	_____	_____

Proposed Substitution: _____

_____

Attach complete product description, drawings, photographs, performance and test data, and other information necessary for evaluation. Identify specific model numbers, finishes, option, etc.

A. Will changes be required to building design in order to properly install proposed substitution? Yes____ No____. If Yes, explain

_____

_____

B. Will the undersigned pay for changes to the building design, including engineering and drawing costs, caused by requested substitution?

Yes____ No____

C. List differences between proposed substitution and specified item.

Specified Item	Proposed Substitution
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

D. Does substitution affect Drawing dimensions? Yes____ No____

E. What affect does substitution have on other trades? _____

_____

F. Does manufacturer's warrant of proposed substitution differ from that specified? Yes____ No____. If Yes, explain _____

_____

G. Will substitution affect progress schedule? Yes____ No___. If Yes, explain ___

_____

H. Will substitution require more license fees or royalties than specified product? Yes____ No____. If Yes, explain _____

_____

I. Will maintenance and service parts be locally available from multiple vendors for substitution?
Yes____ No____. If No, explain _____

_____

J. Has the proposed product been approved for use by this office on other projects?
Please list _____

_____

Submitted by:

_____
Signature

_____
Submitted By (Print Name)

_____
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For Architect's Use Only:

___Accepted ___Accepted as Noted

___Not Accepted ___Received Too Late

By: _____
Date: _____
Remarks: _____

SECTION 00 3132 - GEOTECHNICAL DATA (SOILS REPORT)

PART 1 - GENERAL

1.1 SUBSURFACE SOIL DATA

A. Subsurface soil investigations have been made by Ricker Atkinson McBee Morman & Associates, Inc and the results are included in the Specifications. The report is included only to inform the Contractor of the type and character of materials to be encountered.

1. Geotechnical Engineering Report, Industrial Complex, Russell Road and Hope Lane, Globe, Arizona (RAMM Project No. G16952, dated June 12, 2009).

END OF SECTION

Geotechnical Engineering Report
Industrial Complex
Russell Road and Hope Lane
Globe, Arizona
RAMM Project No. G16952

Expired 3/31/2010

For:
Gila County Public Works Administration
1400 East Ash Street
Globe, Arizona 85501

◆◆◆

By:
Ricker-Atkinson-McBee-Morman & Associates, Inc.
2105 South Hardy Drive, Suite 13
Tempe, Arizona 85282

R·A·M·M

RICKER • ATKINSON • McBEE • MORMAN & ASSOCIATES, INC.

Geotechnical Engineering • Construction Materials Testing

Gila County Public Works Administration
1400 East Ash Street
Globe, Arizona 85501

June 12, 2009

Attention: Steve Statton, Director

Subject: Geotechnical Engineering Report
Industrial Complex
Russell Road and Hope Lane
Globe, Arizona

RAMM Project No. G16952

Attached to this letter is the Geotechnical Engineering Report for the proposed Industrial Complex, to be located in Globe, Arizona.

The proposed Industrial Complex will include four, one-story buildings (administration, r/y office, drive thru shop, and storage barn/truck wash), a two-story facilities/sign shop, two fuel areas, paved drives and paved parking areas. The results of our field explorations; laboratory testing; and engineering analysis, evaluation and recommendations are presented in the report.

The following is a brief summary of selected recommendations.

A. Foundations:

- Support on at least 2.0 feet of compacted fill.
- Found at least 1.5 feet or 2.0 feet below finished grade.
- Design for allowable bearing pressure of 2000 psf or 2500 psf, respectively.

B. Site Soil:

- Use as fill and backfill in all areas of the site.

C. Pavement Sections:

- Auto Parking and Drives – 2 inches of asphalt concrete on 5 inches of base material.
- Truck Drives and Fire Lanes – 3 inches of asphalt concrete on 6 inches of base material; or 6 inches of Portland cement concrete.

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www.rammeng.com

The attached report was prepared based on project and site data available at this time and was prepared in a manner and to the standards of local geotechnical engineering practice. Our services did not include evaluations for the presence of hazardous materials, area subsidence resulting from groundwater withdrawal or other geologic hazards.

If you have any questions, please do not hesitate to call.

Respectfully submitted,
RICKER, ATKINSON, MCBEE, MORMAN & ASSOCIATES, INC.

Expires – 3/31/2010

By: Kenneth L. Ricker, P.E.

/dcw
Copies to: Addressee (2) (sstratton@co.gila.az.us)
C.L. Williams Consulting, Inc. (3) Attn: Chuck Williams (chuck@clwilliams.net)

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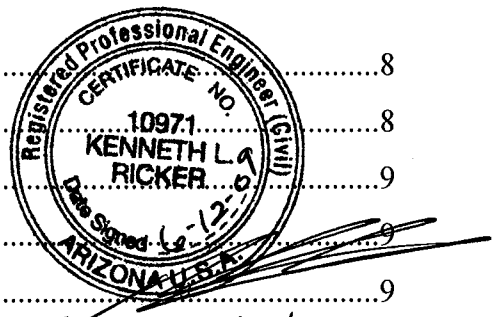

Expires 3/31/2010

APPENDIX A - FIELD EXPLORATION

APPENDIX B - LABORATORY ANALYSIS

REPORT

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INTRODUCTION

This report presents the results of our geotechnical engineering services for the proposed Industrial Complex, to be located in Globe, Arizona. The scope of our services included performing a field exploration program, laboratory analysis and geotechnical engineering evaluation, analysis and recommendations. The geotechnical recommendations presented herein consist of foundation design, site development, material suitability and requirements, pavement thicknesses, and site preparation and grading procedures. We would be pleased to discuss with you any additional recommendations you may require. In addition, we are available to review project specifications and plans for conformance with our recommendations at no charge to you.

This firm should be notified for additional evaluation and recommendations should the building design parameters (location, type, size, structural loads), site use or conditions encountered during construction differ from those presented herein.

PROPOSED CONSTRUCTION

The proposed Industrial Complex will include four, one-story buildings (administrations r/y office, drive thru shop, and storage barn/truck wash), a two-story facilities/sign shop, two fuel areas, paved drives and paved parking areas. It is anticipated that maximum structural loads for the buildings will be on the order of 2 to 10 kips per linear foot for bearing walls and 30 to 120 kips for columns. The floors will be slabs-on-grade and will probably be founded at or slightly above existing site grade.

SITE CONDITIONS

The Industrial Complex site was located on the west side of Russell Road and north and south of Hope Lane in Globe, Arizona. At the time of the field exploration the site was relatively level with a wash on the west side of the site and a contributory wash going east-west thru the center of the site. The site contained dumped piles of rip-rap, large trees, a sparse to moderate growth of weeds, a natural gas line, some debris and several buildings.

FIELD EXPLORATIONS

Subsurface conditions at the site were explored by drilling six test borings to a depth of 15 feet in the proposed building areas, four test borings to a depth of 5 feet in the proposed pavement areas, and

one test boring to a depth of 5 feet in a culvert extension area, as shown on the Site Plan in Appendix A. The test borings were drilled with a CME 55 drill rig using 7-inch diameter, hollow-stem auger. The drilling equipment and crew were provided by D&S Drilling, Inc. The test boring locations were determined in the field by a field technician from our firm. During the field exploration, representative disturbed and undisturbed samples were obtained, the test borings logged and soils field classified by our field technician, who also directed the drill crew. The relatively undisturbed samples were obtained by driving a 3-inch diameter, ring-lined, open-end sampler into the soil with a 140-pound hammer dropping 30 inches. In addition to drilling and sampling, continuous penetration testing using a 2-inch diameter rod and the 140-pound hammer dropping 30 inches was performed and extended to depths of 8 to 15 feet adjacent to the six test boring locations in the building areas. The results of the field explorations are presented on the Test Boring Logs in Appendix A.

LABORATORY ANALYSIS

Representative samples obtained during the field exploration were subjected to the following tests in our laboratory.

Type of Test	Type of Sample	Number of Samples Tested
Compression	Undisturbed	3
Swell	Remolded	4
Percent Passing No. 200 Sieve & Atterberg Limits	Representative	4
Standard Proctor	Representative	1
pH/ Minimum Resistivity	Representative	1
Moisture Content/Dry Density *	Undisturbed	9
Soluble Salts, Sulfate, & Chloride**	Representative	1

* Reported in the Test Boring Logs
** Performed by Motzz Laboratory

The results of the laboratory tests are presented in Appendix B.

SUBSURFACE CONDITIONS

The subsurface conditions encountered at the test boring locations were somewhat variable. The results of each test boring are presented in Appendix A in the Test Boring Logs. In general, the

surface and near surface soils encountered in test borings in the proposed building area, and extending to depths of 5 to 15 feet, consisted of silty sand with some gravel and a trace to some clay. In Test Borings 1, 2 and 3 the silty sand was underlain by silty gravelly clay and sand with gravel. These soils were medium dense, and had no to medium plasticity. Soil moisture contents were described as nearly dry to slightly damp. No groundwater was observed in the test borings during the drilling operations.

DISCUSSIONS OF TEST RESULTS

Remolded samples of the surface soils from the site exhibited low swell potential following wetting when tested in the laboratory. Undisturbed samples from anticipated foundation grade were found to undergo some compression during loading to approximate foundation loads. Upon wetting at approximate foundation loads these soils underwent slight to moderate additional compression.

FOUNDATION DESIGN RECOMMENDATIONS

Spread Footings:

The proposed Industrial Complex buildings can be supported on shallow spread footings. Due to the past site usage and the collapse potential of some of the site soils, footings for the proposed buildings should be founded on at least a 2.0-foot-thick layer of compacted soils as described in the "Site Preparation and Grading Procedures" section of this report. Footings thus founded may be designed using an allowable bearing pressure of 2000 psf or 2500 psf, provided the bottom of the footings are at least 1.5 feet or 2.0 feet, respectively, below finished grade. Finished grade is defined as the lowest adjacent finished grade within 5 feet of the perimeter of the building. Structural loads should not exceed 12 kips per linear foot for walls and 200 kips for columns.

The allowable bearing capacity should be applied to maximum, design dead plus live loads and may be increased by one-third when considering temporary loads such as transient wind or seismic loads. A one-third increase may also be used for toe pressures due to eccentric or lateral loadings, assuming the entire footing bearing surface remains in compression. The weight of the footing concrete below grade may be neglected in dead load computations. The recommended minimum footing widths are 2.0 and 1.33 feet for isolated columns and continuous wall footings, respectively. A site coefficient for soil characteristics (S) of 1.2 is recommended for the project site per UBC 1994 Edition and a

Soil Profile Type S_c per 1997 UBC. A Site Class of C will apply to the site per the 2000, 2003 and 2006 International Building Code (IBC). The soil profile and site class designations are based on a review of available well holes within a one mile radius of the site. This data was available on ADWR's website and indicated that dense material exists to depths over 100 feet in the immediate vicinity of the site.

The estimated total and differential footing settlements for the loading conditions described above are less than 1/2 inch if soils below footing level remain at or below the construction moisture content. Additional post-construction, differential settlement of equal magnitude could occur if bearing soils become wet after construction. Therefore, continuous footings and stem walls should be reinforced and masonry walls constructed with properly designed reinforcement and with frequent expansion/contraction joints. Positive drainage away from the perimeter of the building is essential to minimize the potential for moisture infiltration into bearing soils. Any long-term saturation of the bearing soils could result in damaging differential settlements.

Lateral Earth Pressures:

The following tabulation presents the recommended lateral earth pressures and base friction values which should be used in the lateral design of footings and retaining walls. The lateral pressures are equivalent fluid pressures for average anticipated conditions.

Backfill Pressures:	
Unrestrained walls	32 psf/ft
Restrained walls	50 psf/ft
Passive Pressures:	
Continuous	250 psf/ft
Isolated column footings	350 psf/ft
Coefficient of Base Friction:	
Concrete to soil	0.40
Plastic membrane to soil	0.25

The above equivalent fluid pressures are for vertical walls with horizontal backfills and do not include temporary loads imposed by compaction equipment or permanent loads resulting from backfill swell pressures, hydrostatic pressures or surcharge loads. All retaining walls should contain weep holes to reduce the potential for the buildup of hydrostatic pressures.

SITE DEVELOPMENT RECOMMENDATIONS

Concrete Slab-On-Grade Support:

The near surface soils are non-plastic and, when compacted and wetted, exhibit low swell potentials. The soils, when recompacted, will provide adequate support for concrete slabs-on-grade. Interior slabs should be founded on a minimum 4-inch thickness of base material. Exterior slabs should be founded on a prepared subgrade. All unreinforced slabs-on-grade should be jointed as per ACI (American Concrete Institute) or PCA (Portland Cement Association) guidelines.

Moisture barriers such as plastic membranes are not typically used in Arizona's semi-arid climate and we do not normally recommend the use of such membranes unless moisture-sensitive floor coverings are used. If plastic moisture barriers are used, the barriers should be directly on the aggregate base, be at least 15 mil in thickness and have all seams and penetrations sealed per manufacturer's recommendations.

Surface Drainage:

Most soils will undergo some degree of volume change as the result of wetting. The degree of volume change will depend on the type of soil, swell potential, natural soils structure or degree of compaction (if a fill). These volume changes could result in movements in overlying buildings and non-structure elements including sidewalks, planters, retaining walls, floor slabs, etc. Therefore, good site and surface drainage away from these elements is required. In addition, water should not be allowed to pond within 10 feet of the buildings or other elements which are sensitive to movements. The exterior footing excavation backfill must be well compacted to minimize the possibility of moisture infiltration through this zone. All joints in the concrete floor slabs and at walls of the building must be sealed with flexible waterproof joint sealer.

Excavatability:

The excavatability of site materials is difficult to evaluate based only on the exploration equipment used during this design report. Therefore, we recommend that the contractor evaluate the excavatability of site materials by performing test excavations with the size and type of equipment the contractor plans on using at the site. For design purposes the following paragraph presents our best analysis as to the excavatability of site soils.

The near surface and underlying soils to a depth of 15 feet can probably be removed with conventional excavating equipment. Excavation in the non-plastic soils may be slow and difficult to accomplish due to caving. OSHA requires all excavations over five feet in depth, in which personnel are to enter, be either braced or sloped in accordance with OSHA regulations.

Workability:

Wetting site soils such that moisture contents are at or above optimum could result in some soil pumping under dynamic loadings such as heavy construction equipment driving over the area. In the building area, some pumping is not detrimental to foundation or floor slabs provided the specified percent compaction is achieved. However, in flexible pavement areas where pumping has occurred, and in building areas where severe pumping has damaged subgrade conditions, the area should be allowed to dry until soils are workable without pumping or the wetted areas removed and replaced with drier site soils.

Earthwork Factors:

Earthwork losses due to ground height losses and shrinkage were estimated based on the soil conditions, and the results of the field density testing and laboratory results. The materials encountered at the site were generally medium dense, and based on the results of laboratory testing, the soils were relatively uniform. The estimated ground height losses due to subgrade compaction are as follows for previously ungraded areas:

Ground Height Loss at Given Percent Compaction*	
95%	100%
2.0 ± 0.5"	3.0 ± 0.5"

* Based on estimated laboratory maximum dry density (ASTM D698), dry densities obtained from ring sample densities of in-situ soils from the near surface zone, and achieving a 8-inch deep compacted zone without stripping natural surface zones.

The estimated shrinkage losses from cut to fill zones are as follows for naturally occurring soils.

	Estimated Percent Shrinkage at Given Percent Compaction*		
Depth of Excavation	95%	100%	105%
0 to 5 feet	20 ± 5%	25 ± 5%	30 ± 5%

* Based on estimated laboratory maximum dry density (ASTM D698), dry densities obtained from ring sample densities tests conducted in the in-situ soils from the near surface zone and local experience.

These estimates do not include losses due to wind or wastage, overexcavation, etc.

Corrosion Potential:

As part of this investigation, laboratory pH, Minimum Resistivity, and Soluble Salts, Sulfates and Chlorides testing of site soils was conducted. Based on these results, there appears to be a low potential for corrosion to buried metal structures and pipelines, and a low potential for corrosion to concrete in contact with site soils. The results of the laboratory testing are included in Appendix B, and should be made available to material suppliers and corrosion experts for review.

PAVEMENT DESIGN RECOMMENDATIONS

Asphalt Concrete Pavements:

The following asphalt concrete pavement sections are based on anticipated traffic types and frequencies, site soil conditions and a 20-year design life. Therefore, any material imported to the site and placed in pavement areas should have support characteristics the same as or better than the site soils.

	Pavement Section	
Area of Use	Asphalt Concrete	Base Material
Auto Parking and Drives	2.0 inches	5.0 inches
Truck Drives and Fire Lanes	3.0 inches	6.0 inches

These sections are minimal and will require periodic maintenance (seal coats, overlays or patching) where proper drainage is provided and maintained. Should moisture penetrate to the subgrade soils or ponding occur on or adjacent to the pavement section, a significant reduction in pavement life could occur along with increased maintenance. Therefore, good surface drainage on and adjacent to the pavement is essential to achieving the desired pavement life.

Portland Cement Concrete:

The following Portland cement concrete pavement (PCCP) section is based on anticipated traffic types and frequencies and site soil conditions. Therefore, any material imported to the site and placed in pavement areas should have support characteristics the same as or better than the site soils.

Area of Use	PCCP Section
Truck Drives and Fire Lanes	6.0 inches

Base material is not required below the PCCP section; however, if construction occurs during the summer months the base material would help reduce the potential for slab curling and shrinkage cracking. A maximum joint spacing of 12 to 15 feet should not be exceeded in either direction and all joints should be designed to provide load transfer. Joint detail, joint layout and concrete batching, placing, curing and observation procedures should be in accordance with the recommendations developed by the Portland Cement Association.

MATERIALS SUITABILITY AND REQUIREMENTS

Site Soils:

The near surface soils are non-plastic and exhibit low swell potentials when compacted and wetted. The site soils may be used as fill in all areas of the site. All materials including any existing fills should be free of organics, debris, rubble and material greater than 6 inches in size.

Imported Soils:

Fill required beyond that available from site sources and used to raise the building and exterior slab areas, or for use as retaining wall backfills, should be imported soils meeting the following requirements:

Maximum Particle Size ----------6 inches
Maximum Swell Potential ----------1.5%*

* Based on a sample which is remolded to 95% of the ASTM D698 maximum dry density at a moisture content of 2 percent below optimum, placed under a surcharge load of 100 psf and wetted.

Base Material:

Base material used below concrete slabs and pavements should conform to the requirements of Arizona Department of Transportation (ADOT) Specifications for Class 2Aggregate Base (Section 302).

Asphalt Concrete Pavement:

Asphalt concrete pavement materials should conform to the requirement of MAG Specifications for Asphalt Concrete.

Portland Cement Concrete Pavement:

The PCCP should have a minimum compressive strength of 4000 psi at 28 days and a maximum slump of 4 inches at the time of placement. The PCCP should conform to the requirements of MAG Specifications for Portland Cement Concrete (Section 725, Class AA).

SITE PREPARATION AND GRADING PROCEDURES

Building and Pavement Areas:

Recommendations presented in the previous sections of this report are based upon the following site preparation and grading procedures. Therefore, all earthwork should be accomplished with observation and testing by a qualified technician under the direction of a registered geotechnical/ materials engineer. The following apply to the areas within and extending 5 feet beyond the footprint of the building, and in exterior slab and pavement areas.

1. Clear and grub the site by removing and disposing of all vegetation in areas to be developed, any debris or rubble, and remnants of any former developments.

2. Strip the site of all existing fill zones, debris-laiden fills, fill piles, any backfill zones and unstable soils. During stripping observe the surface for evidence of buried debris, vegetation or disturbed materials which will require additional removal. Areas steeper than 5H to 1V should be benched and any depressions widened to accommodate compaction equipment.

3. Prepare the ground surface in fill areas and in areas cut to grade by scarifying, moisture conditioning and compacting the exposed surface soils to a depth of 8 inches.

4. In footing areas remove (and stockpile for future use) soils from beneath and 2.0 feet beyond all footings to a minimum depth of 2.0 feet below the bottom of footings. The removal should extend through any fill and debris, if encountered. The exposed surface after removal should be moistened and compacted prior to backfilling.

5. Moisture condition and place all fill and backfill materials required to achieve specified grades. Fill materials should be moisture conditioned, placed and compacted in horizontal lifts of thicknesses compatible with the compaction equipment being used.

6. Compact subgrade, fill, backfill, subbase fill or base material to the following minimum percent compaction of the ASTM D698 maximum dry density for each lift.

Material	Minimum Percent Compaction
Soil:	
Below foundations and pavement sections	95
Below concrete floor slabs (above footings)	90
Base Material:	
Below concrete slabs	95
Below pavement sections	100
Backfill: *	90

* Outside of building, exterior slab and pavement areas.

7. The moisture content of soil and base materials at the time of compaction should be:

Type	Area of Use	Moisture Content
On-Site	Building, Exterior Slabs	Optimum plus or minus 3%
On-Site	Pavements	2% below optimum or lower
Imported	Building, Exterior Slabs	Optimum plus or minus 3%
Imported	Pavements	2% below optimum or lower
Base Material	Building and Pavements	Optimum plus or minus 3%

8. Any soils which are disturbed or overexcavated by the contractor outside the limits of the plans or specifications should be replaced with materials compacted as specified above.

APPENDIX A
FIELD EXPLORATIONS

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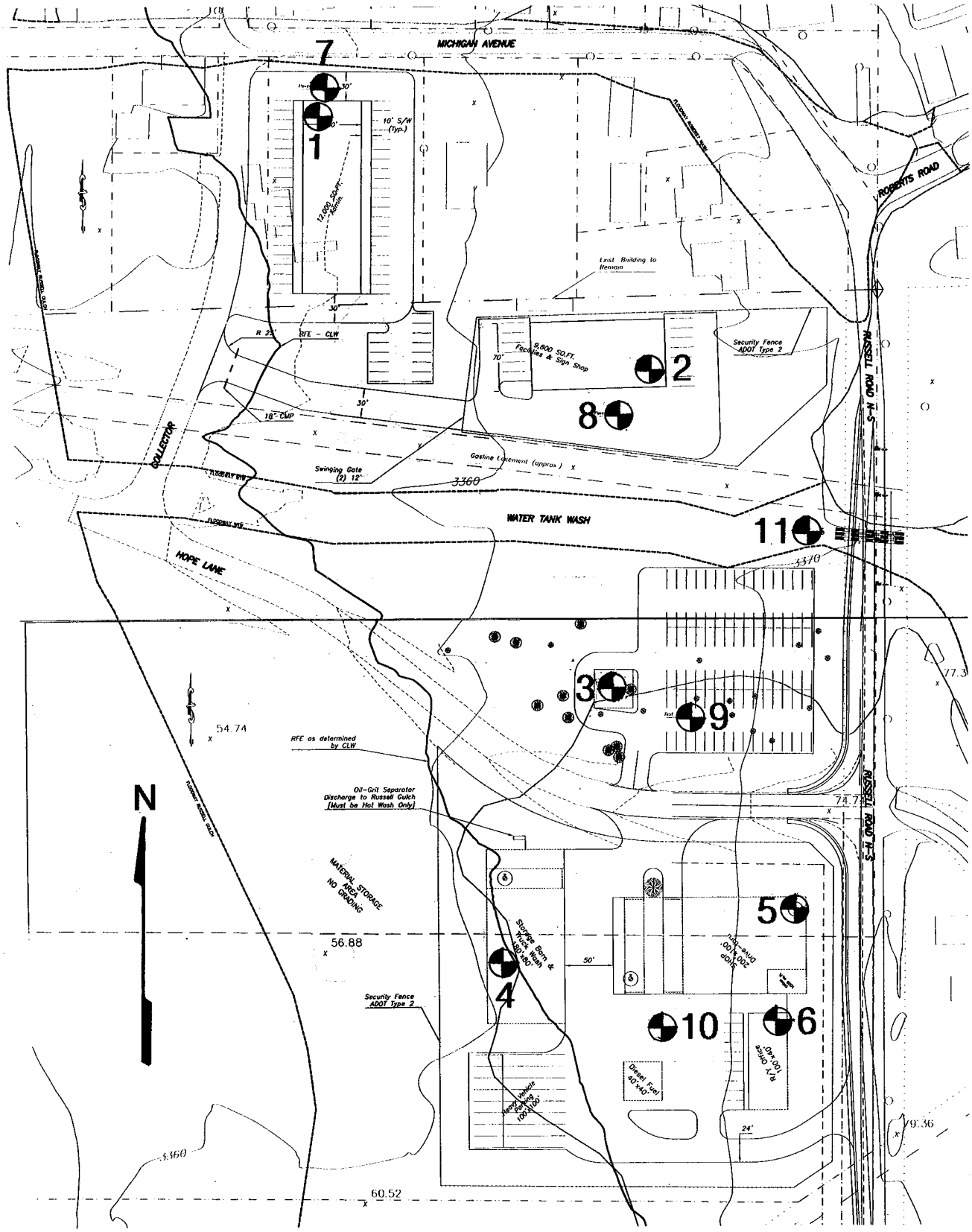


Test Boring Location

Not To Scale

SITE PLAN

RAMM Project No. G16952

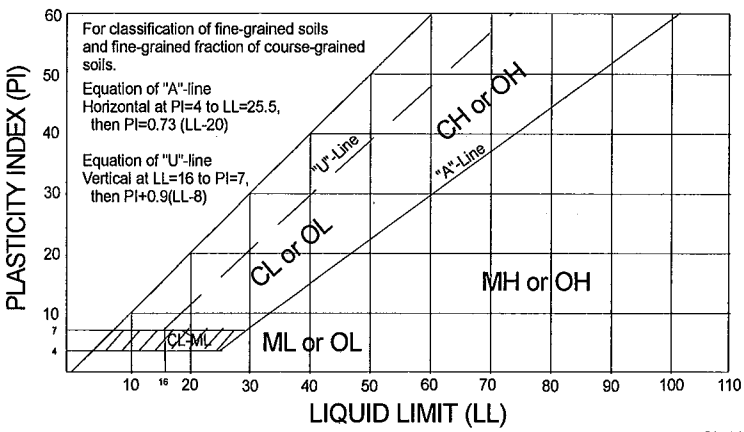
A1

LEGEND

CLASSIFICATION OF SOILS

ASTM Designation: D2487-00
(Based on Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests					Soil Classification: Group Symbol	Soil Classification: Name
COARSE-GRAINED SOILS More than 50% retained on No. 200 Sieve	Gravels More than 50% coarse fraction retained on No. 4 Sieve	Clean Gravels Less than 5% fines	Cu > 4 and 1 <Cc < 3		GW	Well graded gravel
			Cu<4 and/or 1>Cc>3		GP	Poorly graded gravel
		Gravels with Fines More than 12% fines	Fines classify as ML or MH		GM	Silty gravel
			Fines classify as CL or CH		GC	Clayey gravel
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	Cu > 6 and 1 <Cc < 3		SW	Well-graded sand
			Cu<6 and/or 1>Cc>3		SP	Poorly graded sand
		Sands with Fines More than 12% fines	Fines classify as ML or MH		SM	Silty sand
			Fines classify as CL or CH		SC	Clayey sand
FINE-GRAINED SOILS 50% or more passes the No. 200 Sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI>7 and plots on or above "A" line		CL	Lean clay
			PI<4 or plots below "A" line		ML	Silt
		Organic	Liquid Limit - oven dried / Liquid limit - not dried	<0.75	OL	Organic clay / Organic silt
	Silts and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line		CH	Fat clay
			PI plots below "A" line		MH	Elastic silt
		Organic	Liquid limit - oven dried / Liquid limit - not dried	<0.75	OH	Organic clay / Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor				PT	Peat



TEST BORING LOG DEFINITIONS

Blows per foot using 140 pound hammer with 30 inch free-fall.

Depth, feet	Blows/Foot		Sample Type	Dry Density pcf	Water Content, %	Unified Classification	Description
	C	N/R					

C = Continuous Penetration Resistance (2 inch diameter rod)
N = Standard Penetration Resistance (ASTM D1586)
R = Penetration Resistance (3 inch diameter ring line sampler)

GRAIN SIZES

U.S. STANDARD SERIES SIEVE	200	40	10	4	3/4"	3"	12"
	CLEAR SQUARE SIEVE OPENINGS						
SILTS & CLAYS DISTINGUISHED ON BASIS OF PLASTICITY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

MOISTURE CONDITION (INCREASING MOISTURE ⟶)

DRY — SLIGHTLY DAMP — DAMP — MOIST (Plastic Limit) — VERY MOIST — WET (SATURATED) (Liquid Limit)

CONSISTENCY CORRELATION		RELATIVE DENSITY CORRELATION	
CLAYS & SILTS	BLOWS/FOOT*	SANDS & GRAVELS	BLOWS/FOOT*
VERY SOFT	0-2	VERY LOOSE	0-4
SOFT	2-4	LOOSE	4-10
FIRM	4-8	MEDIUM DENSE	10-30
STIFF	8-16	DENSE	30-50
VERY STIFF	16-32	VERY DENSE	OVER 50
HARD	OVER 32		

*Number of blows of 140 lb hammer falling 30" to drive a 2" O.D. (1-3/8" I.D.) split-spoon sampler (ASTM D1586).

TEST BORING LOG

Project: Industrial Complex – Globe, Arizona TEST BORING: 1

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	16					SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
	9	12	R	107	4		
	7						
5	7						
	9	26	R	102	7	CL	Silty Gravelly Clay; brown, slightly damp, firm to stiff, medium plasticity.
	10						
	11						
	9						
10	10						
	11	18	R	91	8		
	11						
	13						
	16						
15	18						
	21						Stopped drilling at 15 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex – Globe, Arizona TEST BORING: 2

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	6					SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
	6	16	R	84	9		
	6						
	7						
5	9	13	R	100	4		
	14						
	12						
	9						
	9						
10	9	19	R	86	9		
	10					CL	Silty Gravelly Clay; brown, slightly damp, firm to stiff, medium plasticity.
	10						
	10						
	11						
15	15						Stopped drilling at 15 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex - Globe, Arizona TEST BORING: 3

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	8					SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
	7						
	6						
	11						
5	10						5
	10					SP/ GP	Sand and Gravel, Trace Silt; brown, nearly dry, medium dense, non-plastic fines.
	19						
	26						
10							10
						SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
15							15
							Stopped drilling at 15 feet. No groundwater observed.
20							20
25							25

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex – Globe, Arizona TEST BORING: 4

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	9					SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
	10						
	10						
5	11						
	10						
	11						
	11						
	11						
10	13						
	15						
	22						
15							
							Stopped drilling at 15 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex - Globe, Arizona TEST BORING: 5

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	5					SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
	6	16	R	101	4		
	9						
5	10						
	11	20	R	112	3		
	13						
	9						
	10						
10	9						
	20	31	R	107	2		
	18						
	17						
	17						
15	19						
	21						Stopped drilling at 15 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex – Globe, Arizona TEST BORING: 6

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
	7					SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
	11						
	15						
5	14						
	15						
	14						
	9						
	11						
10	11						
	10						
	12						Occasional cobbles.
	11						
	13						
15	15						
	19						Stopped drilling at 15 feet. No groundwater observed.
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex - Globe, Arizona TEST BORING: 7

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
						SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
5							Stopped drilling at 5 feet. No groundwater observed.
10							
15							
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex - Globe, Arizona TEST BORING: 8

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
						SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
5							Stopped drilling at 5 feet. No groundwater observed.
10							
15							
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex – Globe, Arizona TEST BORING: 9

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
						SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
5							Stopped drilling at 5 feet. No groundwater observed.
10							
15							
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

Project: Industrial Complex – Globe, Arizona TEST BORING: 10

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
						SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
5							
							Stopped drilling at 5 feet. No groundwater observed.
10							
15							
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

TEST BORING LOG

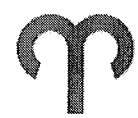
Project: Industrial Complex – Globe, Arizona TEST BORING: 11

Elevation: Not Determined Datum: --- Date: 6-3-09

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
						SM	Silty Sand, Some Gravel, Trace to Some Clay; brown, nearly dry to slightly damp, medium dense, no to low plasticity fines.
5							Stopped drilling at 5 feet. No groundwater observed.
10							
15							
20							
25							

This boring log represents the conditions encountered on the date of drilling at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this boring location.

APPENDIX B
LABORATORY ANALYSIS



R·A·M·M

LABORATORY TEST RESULTS

Date: 9-Jun-09

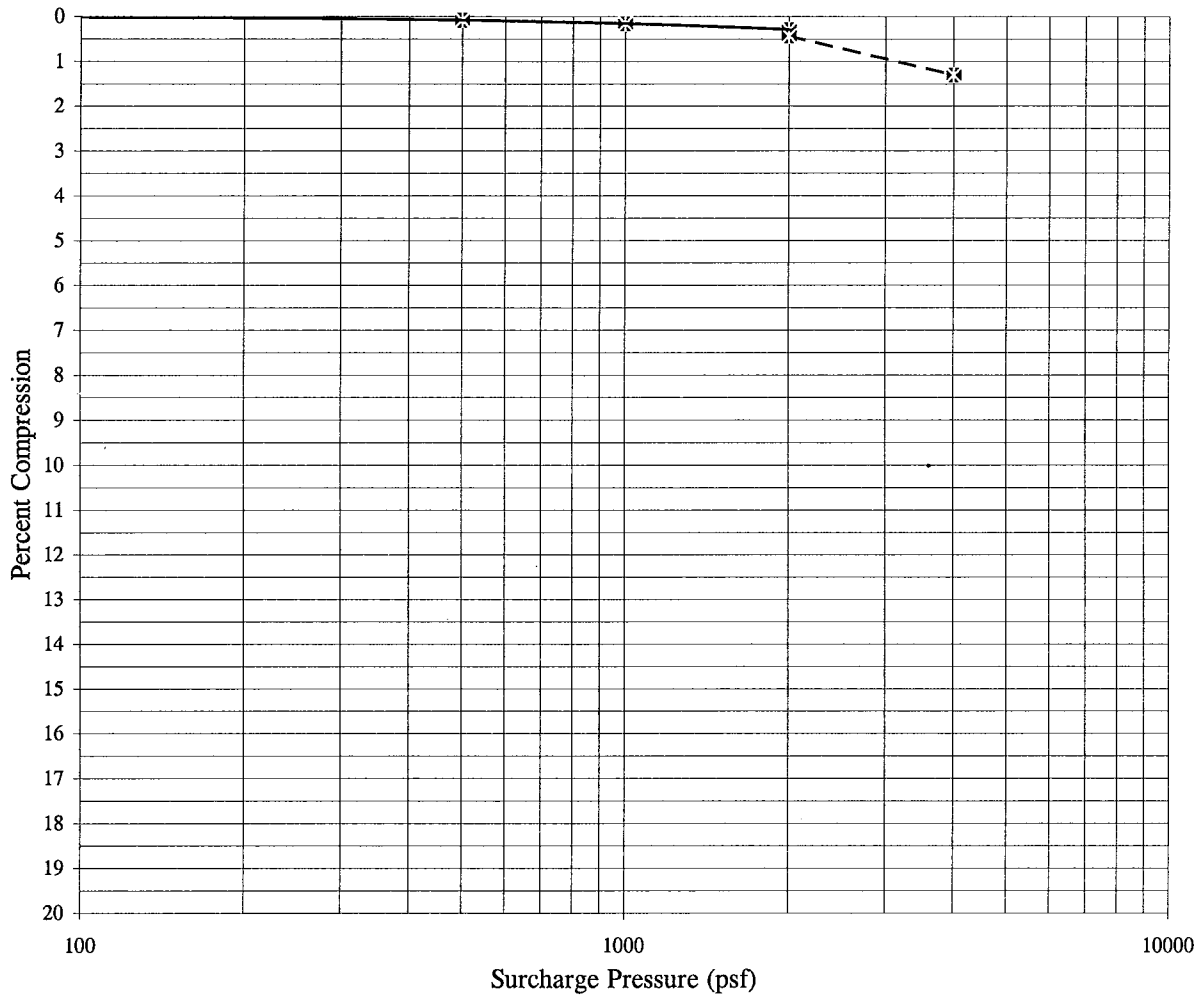
SAMPLE SOURCE: 1 @ 1.5'-2.5'

TESTING PERFORMED: Compression (ASTM D2435) - Driven Ring Sample

SAMPLED BY: RAMM/Miller

RESULTS:

Dry Density (pcf): 107 Moisture Content (%): 4



REMARKS: Sample submerged at 2000 psf.

LABORATORY TEST RESULTS

Date: 9-Jun-09

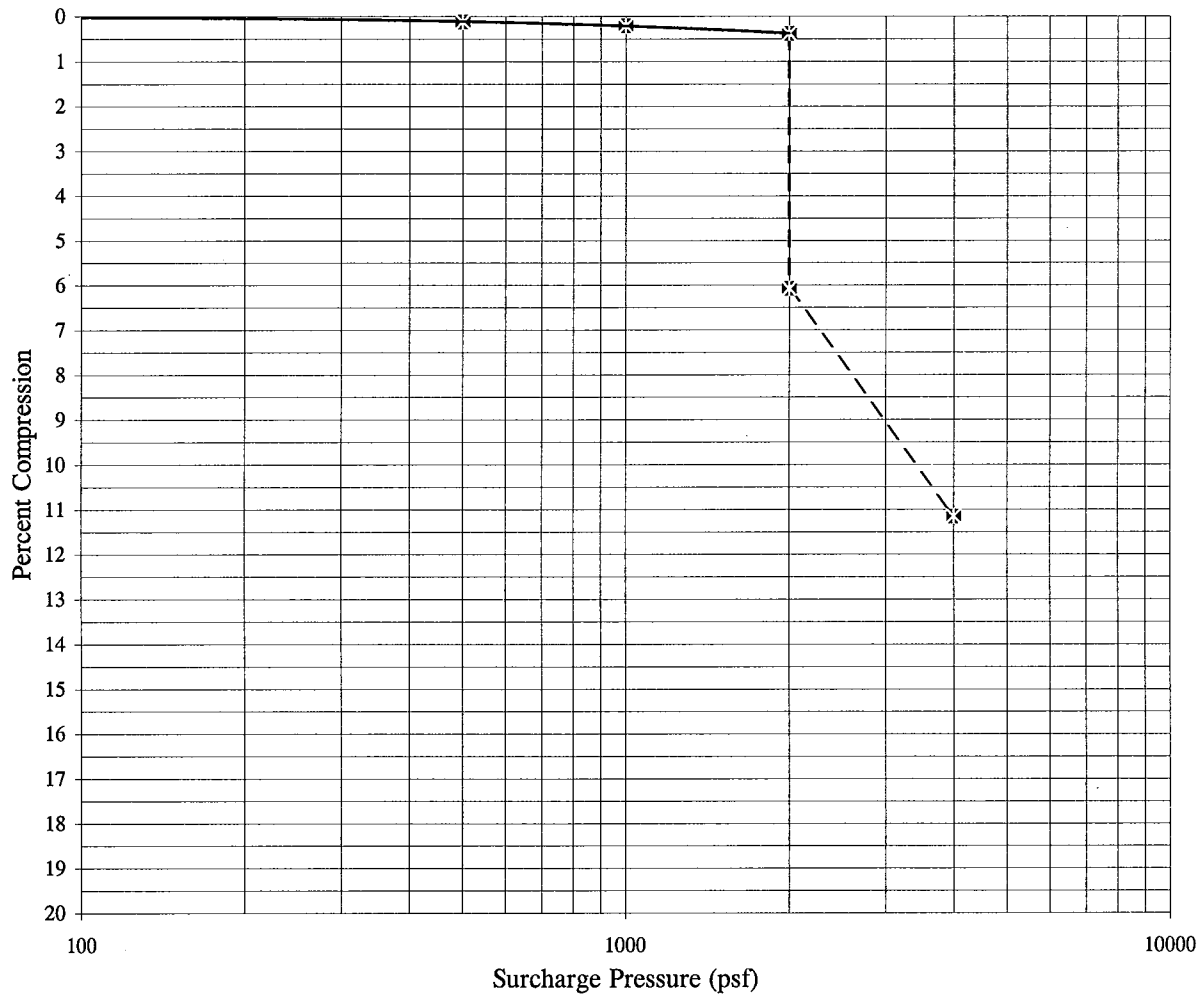
SAMPLE SOURCE: 2 @ 1.5'-2.5'

TESTING PERFORMED: Compression (ASTM D2435) - Driven Ring Sample

SAMPLED BY: RAMM/Miller

RESULTS:

Dry Density (pcf): 84 Moisture Content (%): 9



REMARKS: Sample submerged at 2000 psf.

LABORATORY TEST RESULTS

Date: 9-Jun-09

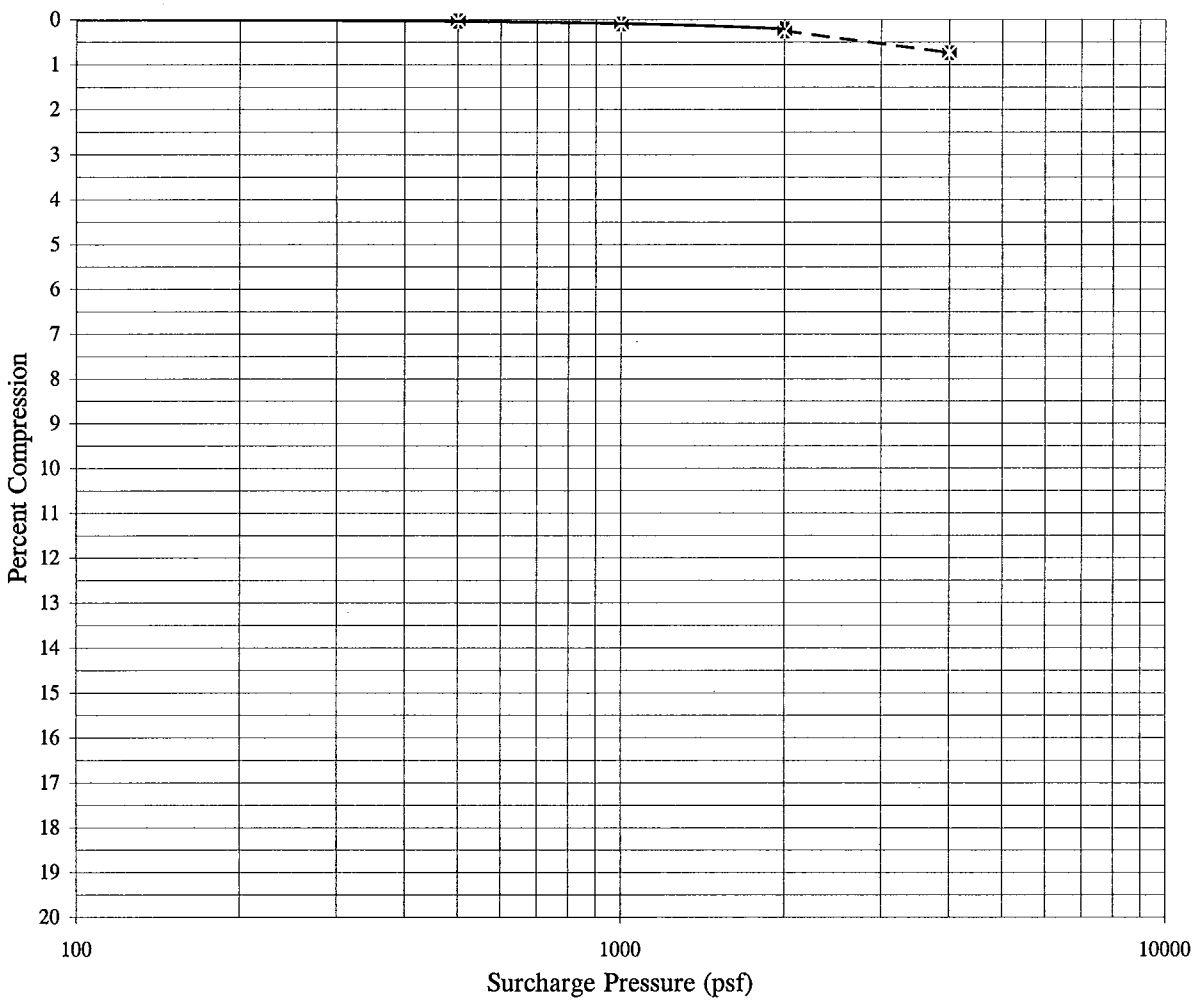
SAMPLE SOURCE: 5 @ 1.5'-2.5'

TESTING PERFORMED: Compression (ASTM D2435) - Driven Ring Sample

SAMPLED BY: RAMM/Miller

RESULTS:

Dry Density (pcf): 101 Moisture Content (%): 4



REMARKS: Sample submerged at 2000 psf.

LABORATORY TEST RESULTS

Date: 9-Jun-09

SAMPLE SOURCE: As noted below

TESTING PERFORMED: Percent Passing No. 200 Sieve, Atterberg Limits, Percent Expansion (ASTM D1140, D4318, D4546)

SAMPLED BY: RAMM/Miller

RESULTS:

Sample Source	Percent Retained No. 4 Sieve	Percent Passing No. 200 Sieve	Liquid Limit	Plasticity Index	Percent Expansion*	Remolded Dry Density (pcf)	Remolded Moisture Content (%)
7 @ 0'-5'	10	23	27	5	1.6	119	8
8 @ 0'-5'	7	26	N/A	NP	1.4	111	11
9 @ 0'-5'	12	12	N/A	NP	1.0	122	7
10 @ 0'-5'	18	12	N/A	NP	0.3	124	6

* Based upon sample remolded to 95% of the estimated maximum dry density at 2% below the estimated optimum moisture content, with a surcharge pressure of 100 psf.

LABORATORY TEST RESULTS

Date: 9-Jun-09

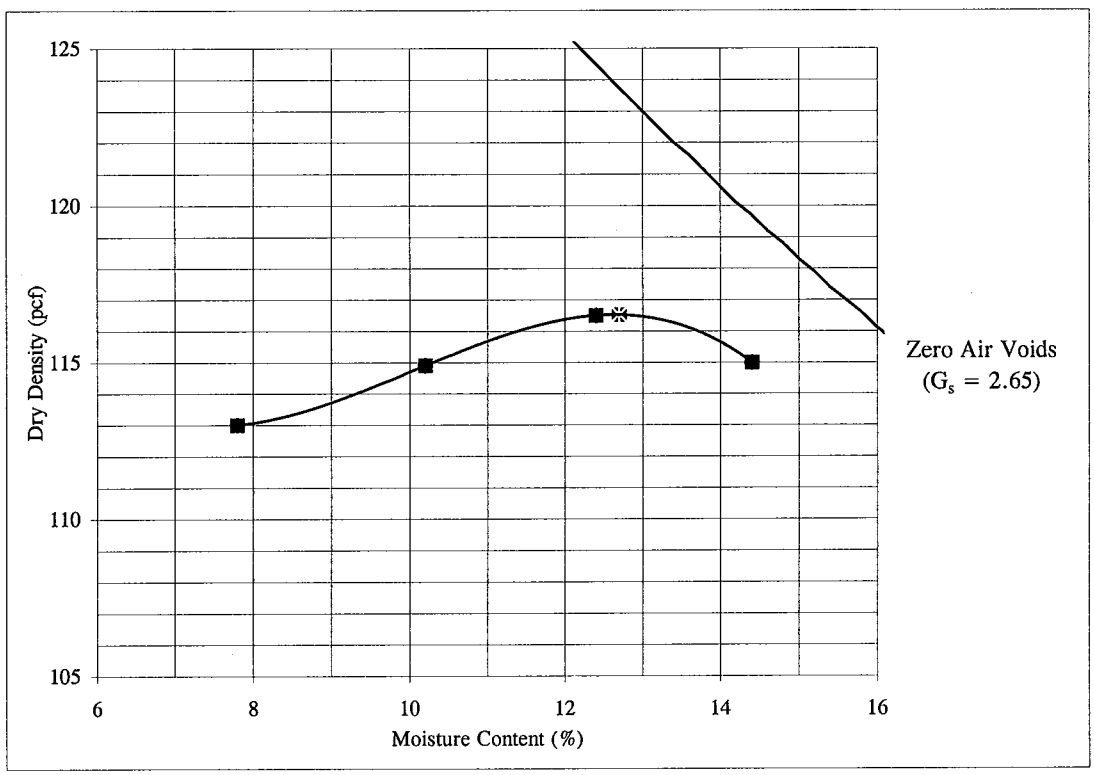
SAMPLE SOURCE: 8 @ 0'-5'

TESTING PERFORMED Maximum Density-Optimum Moisture Determination (ASTM D698 Method A)

SAMPLED BY: RAMM/Schirmer

RESULTS:

Maximum Density (pcf) = 116.5 Optimum Moisture (%) = 12.7



LABORATORY TEST RESULTS

Date: 9-Jun-09

SAMPLE SOURCE: As noted below

TESTING PERFORMED: pH, Minimum Resistivity (ADOT 236a)

SAMPLED BY: RAMM/Miller

RESULTS:

Sample Source	pH	Minimum Resistivity (ohm-cm)
11 @ 0'-5'	7.7	9464

MOTZZ LABORATORY, INC.
2113 S 48th St Suite 109
Tempe, AZ 85282

Soil Analysis Report

Ricker-Atkinson-McBee
Ken Ricker
2105 South Hardy Dr.#13
Tempe , AZ 85282-1921

Project: G16952
Sampler:
Date Received: 6/10/2009
Date Reported: 6/10/2009

PO Number: G16952

Lab Number: 900353-01 11 0-5

Soluble Salts, Sulfate & Chloride	Method	Result	Units	Levels
Soluble Salts	ARIZ 237b SS	0.013	%	
Sulfate, SO4	ARIZ 733	<0.0001	%	
Chloride	ARIZ 736	<0.0003	%	

602-454-2376 (Phone) 602-454-9243 (Fax)

RAMM Project No. G16952

BID FORM

FOR

COMBINED CONTRACT

Gila County Public Works Administration Building
Globe, Arizona
BID CALL NO. 110109-1
DLR Group Project No. 30-09115-00

Bid of _____

□ a corporation organized and existing under the laws of the State of _____

□ a partnership consisting of _____

_____, partners; or

□ a sole proprietor; _____

hereinafter called the Bidder.

To: Gila County Engineering Services
Guerrero Building
1400 E. Ash St.
Globe, Arizona 85501

The undersigned acknowledges that he has received and familiarized himself with the following:

Project Manual (Volumes I and II)

Drawings

Sheet 0.0	Index of Drawings and Project Information
Sheet 0.1	Symbols and Abbreviations
Sheet AS1.1	Overall Architectural Orientation Plan
Sheet CP1.1	Code Plan, Analysis, and UL Details
Sheet A0.1	Room Finish Schedule and General Note
Sheet A1.1	Floor Plan
Sheet A2.1	Large Scale Plans and Mounting Heights
Sheet A3.1	Reflected Ceiling Plan
Sheet A3.2	Ceiling Details
Sheet A5.1	Exterior Elevations
Sheet A6.1	Building Sections
Sheet A9.1	Door and Frame Schedule and Details
Sheet A10.1	GeneralBuilding Details
Sheet S0.1	Structural Notes
Sheet S1.1	Foundation Plan
Sheet S3.1	Structural Details
Sheet M1.1	HVAC Floor Plans
Sheet M2.1	HVAC Piping Floor Plan
Sheet M3.1	Mechanical Details
Sheet M4.1	Mechanical Schedules
Sheet P1.1	Plumbing Floor Plan
Sheet P4.1	Plumbing Details, Schedules, & Risers
Sheet EC.1	Electrical / Special Systems Symbols and Electrical General Notes
Sheet EC.2	Lighting Fixture Schedule
Sheet ES.1	Electrical Site Plans
Sheet E1.1	Lighting Plan
Sheet E2.1	Power Plans
Sheet E3.1	HVAC Power Plan
Sheet E4.1	Special Systems Plan
Sheet E5.1	Electrical Details
Sheet E5.2	Electrical Details
Sheet E6.1	Electrical One-Line Diagram
Sheet E7.1	Panel Schedules
Sheet E7.2	Panel Schedules

Addenda: No. _____ through _____

The undersigned further acknowledges that he has visited the site and familiarized himself with local conditions affecting the cost of the Work at the place where the Work is to be done.

In submitting this Bid, the undersigned agrees:

1. To furnish all material, labor, tools, expendable equipment, and all utility and transportation services necessary to furnish and set in place, in a workmanlike manner, all of the Work required for the Combined Construction, including General Construction, Mechanical Work, and Electrical Work in accord with the Bidding Documents hereinafter set forth.

2. To hold his Bid open for thirty (30) calendar days after the receipt of Bids and to accept the provisions of the Instructions to Bidders.

3. To enter into and execute a Contract if awarded on the basis of this Bid, to furnish a Performance Bond and a Labor and Material Payment Bond in accord with the General Conditions and General Requirements of this Contract, and to deliver executed Owner-Contractor Agreements and Bonds to the Owner's Representative within five (5) days after notification of award. Contractor agrees that the Owner may designate as the Starting Date for construction of the Project a date as early as five (5) days after the Bid Date.

4. To achieve final completion within the time periods stated hereunder taken from the date of Notice to Proceed or the date otherwise established for the commencement of Work.

Begin Construction:	Within 10 days of Notice to Proceed.
Final Completion:	Within 350 calendar days.

5. The undersigned agrees that time is of the essence and the Owner will suffer financial damages due to the Contractor's failure to complete the work within the contract time. The undersigned understands and agrees to the terms and basis of the liquidated damages provision of the Contract and General Conditions between Owner and Contractor. The liquidated damages shall be as follows for each calendar day beyond the Contract time for which the Contractor shall fail to complete the work.

Final Completion:	$ 1000.00 per calendar day

The undersigned hereby proposes and agrees to perform the foregoing in relation to the following Work: (Lump Sum Base Bid amount shall be shown in both words and figures. In case of discrepancy, the amounts shown in words will govern.)

LUMP SUM BASE BID: The undersigned hereby proposes and agrees to perform the foregoing for the Lump Sum of

_____ dollars ($_____).

(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

Contractor's Arizona License Number: _____

Contractor's Arizona Tax Number: _____

The undersigned has attached the items required in the Instructions to Bidders.

In submitting this Bid, it is understood that the right to reject any and all Bids and to waive irregularities in the bidding has been reserved by the Owner.

Dated this _____ day of _____, 20____

_____
Name of Bidder

_____
Address of Bidder

_____
Authorized Officer (Signature)

_____
Area Code/Telephone Number

(I) (We) the undersigned (Partners) (Corporate Secretary) hereby certify that _____ _____ is hereby authorized to execute all documents relative to the award and/or administration of this bid for and on behalf of the company named above.

_____
Corporate Secretary (Signature)

or

_____
Partner (Signature)

_____
Partner (Signature)

_____
Partner (Signature)

_____
Partner (Signature)

SECTION 00 4313 - BID BOND

1. Bid Bond for this Project shall be submitted on AIA Document A310 Bid Bond.

2. Documents are available at the AIA offices at 30 North 3rd Avenue, Suite 200, Phoenix, Arizona. A copy of this document may be viewed at the offices of DLR Group, at 6225 N. 24th Street, Suite 250, Phoenix, Arizona.

END OF SECTION

SECTION 00 4336 - LIST OF SUBCONTRACTORS

This list shall be properly and legibly prepared and sealed in a separate envelope identified on the outside of the envelope and then placed in the same envelope with the bid proposal. The envelope containing the Subcontractor List shall not be opened unless the Bidder has been determined to be the apparent low Bidder.

CONCRETE _____

MASONRY _____

ROOFING _____

DETENTION EQUIPMENT _____

HEATING, VENTILATION & AIR CONDITIONING _____

PLUMBING _____

ELECTRICAL _____

SPECIAL SYSTEMS _____

Date: _____ Signed: _____
Signature of Authorized Representative

Company: _____
Name of Business

END OF SECTION

GILA COUNTY

AFFIDAVIT BY CONTRACTOR
CERTIFYING THAT THERE WAS NO COLLUSION
IN BIDDING FOR CONTRACT

STATE OF ARIZONA)

)ss

COUNTY OF:)

_____
(Name of Individual)

being first duly sworn, deposes and says:

That he is _____
(Title)

of_____ and
(Name of Business)

That he is bidding on **Gila County BID NO. 110109-1 CONSTRUCTION OF GILA COUNTY PUBLIC WORKS ADMINISTRATION BUILDING PROJECT, GLOBE, AZ** and,

That neither he nor anyone associated with the said _____

_____
(Name of Business)

has, directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with the above mentioned project.

_____
Name of Business

_____
By

_____
Title

Subscribed and sworn to before me this _____ day of _____, 20_____.

_____ **My Commission expires:**
Notary Public

_____

GILA COUNTY

ANTI-TERRORISM WARRANTY

Pursuant to A.R.S. §35-397 the Supplier certifies that it does not have scrutinized business operations in Iran or Sudan and that they are in compliance with the Export Administration Act and not on the Excluded Parties List.

_____

Signature of Authorized Representative

_____

Printed Name

_____

Title

GILA COUNTY

LEGAL ARIZONA WORKERS ACT COMPLIANCE

Supplier hereby warrants that it will at all times during the term of this Contract comply with all federal immigration laws applicable to Supplier's employment of its employees, and with the requirements of A.R.S. § 23-214 (A) (together the "State and Federal Immigration Laws"). Supplier shall further ensure that each subcontractor who performs any work for Supplier under this contract likewise complies with the State and Federal Immigration Laws.

County shall have the right at any time to inspect the books and records of Supplier and any subcontractor in order to verify such party's compliance with the State and Federal Immigration Laws.

Any breach of Supplier's or any subcontractor's warranty of compliance with the State and Federal Immigration Laws, or of any other provision of this section, shall be deemed to be a material breach of this Contract subjecting Supplier to penalties up to and including suspension or termination of this Contract. If the breach is by a subcontractor, and the subcontract is suspended or terminated as a result, Supplier shall be required to take such steps as may be necessary to either self-perform the services that would have been provided under the subcontract or retain a replacement subcontractor, (subject to County approval if MWBE preferences apply) as soon as possible so as not to delay project completion.

Supplier shall advise each subcontractor of County's rights, and the subcontractor's obligations, under this Article by including a provision in each subcontract substantially in the following form:

"Subcontractor hereby warrants that it will at all times during the term of this contract comply with all federal immigration laws applicable to Subcontractor's employees, and with the requirements of A.R.S. § 23-214 (A). Subcontractor further agrees that County may inspect the Subcontractor's books and records to insure that Subcontractor is in compliance with these requirements. Any breach of this paragraph by Subcontractor will be deemed to be a material breach of this contract subjecting Subcontractor to penalties up to and including suspension or termination of this contract."

Any additional costs attributable directly or indirectly to remedial action under this Article shall be the responsibility of Supplier. In the event that remedial action under this Article results in delay to one or more tasks on the critical path of Supplier's approved construction or critical milestones schedule, such period of delay shall be deemed excusable delay for which Supplier shall be entitled to an extension of time, but not costs.

_____

Signature of Authorized Representative

_____

Printed Name

_____

Title

GILA COUNTY

QUALIFICATION AND CERTIFICATION FORM

Purpose

This form shall serve as a requirement to enable the evaluation team to assess the qualifications of Contractors under consideration for final award.

The information may or may not be a determining factor in award.

Contract Number 110109-1 Construction of Gila County Public Works Administration Building

The Contractor submitting this Proposal warrants the following:

1 Name, Address, and Telephone Number of Principal Contractor:

_____

_____

_____

2 Has Contractor (under its present or any previous name) ever failed to complete a contract?

_____Yes _____No. If "Yes, give details, including the date, the contracting agency, and the reasons the Contractor failed to perform in the narrative part of this Contract.

3 Has Contractor (under its present or any previous name) ever been disbarred or prohibited from competing for a contract? _____Yes _____No. If "Yes", give details, including the date, the contracting agency, the reasons for the Contractors disqualification, and whether this disqualification remains in effect in the narrative part of this Contract.

4 Has a contracting agency ever terminated a contract for cause with the Contractor (under your Contractor's present or any previous name)? _____Yes _____No. If "Yes", give details including the date, the contracting agency, and the reasons the Contractor was terminated in the narrative part of this Contract.

5 Contractor must also provide at least the following information:

a. A brief history of the Contractor.
b. A Cost Proposal shall be submitted on the Bid Form for Combined Contract, attached hereon and made a full part of this contract by this reference.
c. A list of previous and current customers, which are considered identical or similar to the Scope of Work described herein; shall be submitted on the Reference List, attached hereon and made a full part of this contract by this reference.
d. List the specific qualifications the Contractor has in supplying the specified services i.e., the name of each individual assigned to the project along with their resume.

e. **A list of any subcontractors (if applicable) to be used in performing the service must accompany the Proposal along with their references and qualifications.**

f. Gila County reserves the right to request additional information.

6 **Contractors Experience Modifier (e-mod) Rating: _____**. A method the National Council on Compensation Insurance (NCCI) uses to measure a business' computed loss ratio and determine a factor, which when multiplied by premium, can reward policyholders with lower losses. E-mod rate may be a determining factor in bid award.

7 **Current Arizona Contractor License Number:_____**

_____

Signature of Authorized Representative

_____

Printed Name

_____

Title

GILA COUNTY

REFERENCE LIST

These references are required to enable the evaluation team to assess the qualifications of the Contractor under consideration for final award.

The information may be a determining factor in award.

References

List at least four (4) customers for whom you have provided service of a similar scope as this Request or Proposal during the past twelve (12) months, in or as close to Gila County as possible.

CUSTOMER NAME AND ADDRESS	TELEPHONE	PRIMARY CONTACT

_____

Signature of Authorized Representative

_____

Printed Name

_____

Title

GILA COUNTY

CERTIFICATION: INTENTIONS CONCERNING SUBCONTRACTING

At the time of the submission of **Request for Proposals No. 110109-1 Construction of Gila County Public Works Administration Building**, my intention concerning subcontracting a portion of the work is as indicated below.

In indicating that it is my intention to subcontract a portion of the work, this will acknowledge that such subcontractors will be identified and approved by the County prior to award of contract; and that documentation, such as copies of letters, requests for quotations, etc., substantiating the actions taken and the responses to such actions is on file and available for review.

Yes ☐ it is my intention to subcontract a portion of the work.

No ☐ it is not my intention to subcontract a portion of the work.

_____

Name of Business

_____

Signature of Authorized Representative

_____

Title

_____

Date

SECTION 00 6113 - PAYMENT AND PERFORMANCE BOND

1. Payment/Performance Bond for this Project shall be submitted on AIA Document A312 Performance Bond and Payment Bond.

2. Documents are available at the AIA offices at 30 North 3rd Avenue, Suite 200, Phoenix, Arizona. A copy of this document may be viewed at the offices of DLR Group, at 6225 N. 24th Street, Suite 250, Phoenix, Arizona.

END OF SECTION

CONTRACT PERFORMANCE WARRANTY

I, _____ representing _____ (company name) do hereby warranty the work performed for the:

GILA COUNTY PUBLIC WORKS ADMINISTRATION BUILDING,
GILA COUNTY, ARIZONA, BID NO. 110109-1

for a period of **two (2) years** from the completion of said work.

Said work shall be free from defects which would cause the work not to perform in its' intended manner.

_____

(Officer, Partner, Owner) **Date**

SECTION 00 7213 - GENERAL CONDITIONS-STIPULATED SUM (SINGLE-PRIME CONTRACT)

The General Conditions of the Contract for Construction@ Document A201, issued by the American Institute of Architects, 2007 edition, relates to the work of this Project and is hereby made a part of this Contract.

The Contractor is hereby specifically directed, as a condition of the Contract, to acquaint themselves with the Articles contained therein and to notify and apprise Subcontractors, suppliers and other parties to the contract or individuals or agencies engaged on the Work as to its contents.

No contractual adjustment shall be due or requested as a result of failure on the part of the Contractor to fully acquaint themselves and other parties to the contract with the conditions of Document A201.

END OF SECTION

AIA Contract Document A201 - General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)
Gila County Public Works Administration
Globe, Arizona

THE OWNER:
(Name and address)
Gila County Board of Supervisors
Globe, Arizona

THE ARCHITECT:
(Name and address)
DLR Group
6225 North 24th Street, Suite 250
Phoenix, Arizona

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT
The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS
The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS
The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE
Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER
The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS
§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION
Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION
In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term “Contractor” means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- **.3** whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be

entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE
The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING
§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP
§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK
The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS
The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

§ 3.18.3 The Contractor agrees to indemnify and save harmless the County of Gila, its officers, agents and employees, and any jurisdiction or agency issuing permits for any work included in the project, their officers, agents and employees, hereinafter referred to as indemnitee, from all suits and claims, including attorney's fees and cost of litigation, actions, loss, damage, expense, cost or claims of any character or any nature arising out of the work done in fulfillment of the terms of this Contract or on account of any act, claim or amount arising or recovered under workers' compensation law or arising out of the failure of the Contractor to conform to any statutes, ordinances, regulation, law or court decree. It is agreed that the Contractor will be responsible for primary loss investigation, defense and judgment costs where this contract of indemnity applies. In consideration of the award of this contract, the Contractor agrees to waive all rights of subrogation against the County, its officers, officials, agents and employees for losses arising from the work performed by the Contractor for the County.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate For Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION
Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means,

methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- **.1** assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the

Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- **.1** The change in the Work;
- **.2** The amount of the adjustment, if any, in the Contract Sum; and
- **.3** The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- **.1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- **.2** Unit prices stated in the Contract Documents or subsequently agreed upon;
- **.3** Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- **.4** As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- **.1** Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- **.2** Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- **.3** Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- **.4** Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- **.5** Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in

Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2., for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a separate contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment

suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents; or
- **.3** terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- **.3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY
If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS
§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- **.2** Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- **.4** Claims for damages insured by usual personal injury liability coverage;
- **.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- **.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- **.7** Claims for bodily injury or property damage arising out of completed operations; and
- **.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information

concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of

the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE
The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE
The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION
The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the

Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate

more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- **.1** Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- **.2** Accept assignment of subcontracts pursuant to Section 5.4; and
- **.3** Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term “Claim” also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- **.1** damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- **.2** damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no

supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which,

unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

SECTION 00 7300 - SUPPLEMENTARY CONDITIONS

The following supplements modify, change, delete from, or add to the "General Conditions of the Contract for Construction," AIA Document A201, 2007 edition. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph, or Clause thereof is modified or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause shall remain in effect.

ARTICLE 11

INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

Delete Subparagraph 11.1.2 in its entirety and substitute the following:

11.1.2 Contractor and subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

The insurance requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

The County in no way warrants that the minimum limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, his agents, representatives, employees, or subcontractors. Contractor is free to purchase such additional insurance as may be determined necessary.

Add the following Clauses 11.1.2.1 through 11.1.2.7 to 11.1.2:

11.1.2.1 **MINIMUM SCOPE AND LIMITS OF INSURANCE** - Contractor shall provide coverage with limits of liability not less than those stated below:

1. **Commercial General Liability – Occurrence Form**
   Policy shall include bodily injury, property damage, broad form contractual liability and XCU coverage.
   - General Aggregate $2,000,000
   - Products – Completed Operations Aggregate $1,000,000
   - Personal and Advertising Injury $1,000,000
   - Each Occurrence $1,000,000

   a. The policy shall be endorsed to include the following additional insured language: **"The County of Gila, DLR Group, and DLR Group's Consultants shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor".**

2. **Automobile Liability**
   Bodily injury and property damage for any owned, hired, and non-owned vehicles used in the performance of this Contract.

Combined Single Limit (CSL) $1,000,000

a. The policy shall be endorsed to include the following additional insured language: **"The County of Gila shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, including automobiles owned, leased, hired or borrowed by the Contractor".**

3. **Worker's Compensation and Employers' Liability**

Workers' Compensation	Statutory
Employers' Liability	
Each Accident	$100,000
Disease – Each Employee	$100,000
Disease – Policy Limit	$500,000

a. Policy shall contain a **waiver of subrogation** against the County of Gila.

4. **Builders' Risk Insurance or Installation Floater** $_____

In an amount equal to the initial Contract Amount plus additional coverage equal to Contract Amount for all subsequent change orders.

a. The County of Gila, the Contractor, subcontractors, engineer and engineer's consultant and any others with an insurable interest in the work shall be **Insured's** on the policy**.**

b. Coverage shall be written on an all risk, replacement cost basis and **shall include coverage for soft costs, flood and earth movement**.

c. Policy shall be maintained until whichever of the following shall first occur: (1) final payment has been made; or, (2) until no person or entity, other than the County of Gila, has an insurable interest in the property required to be covered.

d. Policy shall be endorsed such that the insurance shall not be canceled or lapse because of any partial use or occupancy by the County.

e. Policy must provide coverage from the time any covered property becomes the responsibility of the Contractor, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, or awaiting installation, whether on or off site.

f. Policy shall contain a **waiver of subrogation** against the County of Gila.

g. Contractor is responsible for the payment of all policy deductibles.

11.1.2.2 **ADDITIONAL INSURANCE REQUIREMENTS:** The policies shall include, or be endorsed to include, the following provisions:

1. On insurance policies where the County of Gila is named as an additional insured, the County of Gila shall be an additional insured to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract.
2. The Contractor's insurance coverage shall be primary insurance and non-contributory with respect to all other available sources.
3. Coverage provided by the Contractor shall not be limited to the liability assumed under the indemnification provisions of this Contract.

11.1.2.3 **NOTICE OF CANCELLATION:** Each insurance policy required by the insurance provisions of this Contract shall provide the required coverage and shall not be suspended, voided, canceled, reduced in coverage or endorsed to lower limits except after thirty (30) days prior written notice has been given to the County. Such notice shall be sent directly to **Steve Stratton, Gila County Public Works, 1400 E. Ash St., Globe, AZ 85501** and shall be sent by certified mail, return receipt requested.

11.1.2.4 **ACCEPTABILITY OF INSURERS:** Insurance is to be placed with insurers duly licensed or approved unlicensed companies in the state of Arizona and with an "A.M. Best" rating of not less than B+ VI. The County in no way warrants that the above-required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

11.1.2.5 **VERIFICATION OF COVERAGE:** Contractor shall furnish the County with certificates of insurance (ACORD form or equivalent approved by the County) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

All certificates and endorsements are to be received and approved by the County before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of contract.

All certificates required by this Contract shall be sent directly to **Steve Stratton, Gila County Public Works, 1400 E. Ash St., Globe, AZ 85501**. The County project/contract number and project description shall be noted on the certificate of insurance. The County reserves the right to require complete, certified copies of all insurance policies required by this Contract at any time**.**

11.1.2.6 **SUBCONTRACTORS:** Contractors' certificate(s) shall include all subcontractors as additional insured's under its policies **or** Contractor shall furnish to the County separate certificates and endorsements for each subcontractor. All coverage's for subcontractors shall be subject to the minimum requirements identified above.

11.1.2.7 **APPROVAL:** Any modification or variation from the insurance requirements in this Contract shall be made by the County Attorney, whose decision shall be final. Such action will not require a formal Contract amendment, but may be made by administrative action.

CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

(Pursuant to A.R.S. § 33-1008)

Project: _____

Job No.: _____

On receipt by the undersigned of a check from _____
(Maker of Check)

in the sum of $ _____ payable to _____
(Amount of Check) *(Payee or Payees of Check)*

and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any Mechanic's Lien, any state or federal statutory bond right, any private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to claim or payment rights for persons in the undersigned's position that the undersigned has on the job of _____
(Owner)

located at _____
(Job Description)

to the following extent. This release covers a progress payment for all labor, services, equipment or materials furnished to the jobsite or to _____
_____
(Person with whom Undersigned Contracted)

through _____ only and does not cover any retention, pending modifications and
(Date)

changes or items furnished after that date. Before any recipient of this document relies on it, that person should verify evidence of payment to the undersigned.

The undersigned warrants that he either has already paid or will use the monies he receives from this progress payment to promptly pay in full all of his laborers, subcontractors, materialmen and suppliers for all work, materials, equipment or services provided for or to the above referenced project up to the date of this waiver.

DATE: _____ _____
(Company Name)

By: _____
(Signature)

_____
(Title)

CONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

(Pursuant to A.R.S. § 33-1008)

Project: _____

Job No.: _____

On receipt by the undersigned of a check from _____

(Maker of Check)

in the sum of $ _____ payable to _____

(Amount of Check) *(Payee or Payees of Check)*

and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any Mechanic's Lien, any state or federal statutory bond right, any private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to claim or payment rights for persons in the undersigned's position that the undersigned has on the job of _____

(Owner)

located at _____

(Job Description)

This release covers the final payment for all labor, services, equipment or materials furnished to the jobsite oR to _____

_____

(Person with whom Undersigned Contracted)

except for disputed claims in the amount of $ _____. Before any recipient of this document relies on it, that person should verify evidence of payment to the undersigned.

The undersigned warrants that he either has already paid or will use the monies he receives from this final payment to promptly pay in full all of his laborers, subcontractors, materialmen and suppliers for all work, materials, equipment or services provided for or to the above referenced project up to the date of this waiver.

DATE: _____ _____

(Company Name)

By: _____

(Signature)

_____

(Title)

UNCONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

(Pursuant to A.R.S. § 33-1008)

Project: _____

Job No.: _____

The undersigned has been paid and has received a progress payment in the sum of $_____ for all labor, services, equipment or materials furnished to the jobsite or to _____

_____

(Person with whom Undersigned Contracted)

on the job of _____

(Owner)

located at _____

(Job Description)

and does hereby release any Mechanic's Lien, any state or federal statutory bond right, any private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to claim or payment rights for persons in the undersigned's position that the undersigned has on the above referenced project to the following extent. This release covers the progress payment for all labor, services, equipment or materials furnished to the jobsite or to _____

(Person with whom Undersigned Contracted)

through _____ only and does not cover any retention, pending modifications and

(Date)

changes or items furnished after that date.

The undersigned warrants that he either has already paid or will use the monies he receives from this progress payment to promptly pay in full all of his laborers, subcontractors, materialmen and suppliers for all work, materials, equipment or services provided for or to the above referenced project up to the date of this waiver.

DATE: _____ _____

(Company Name)

By: _____

(Signature)

_____

(Title)

NOTE: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

UNCONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

(Pursuant to A.R.S. § 33-1008)

Project: _____

Job No.: _____

The undersigned has been paid in full for all labor, services, equipment or materials furnished to the jobsite or to _____

_____

(Person with whom Undersigned Contracted)

on the job of _____

(Owner)

located at _____

(Job Description)

and does hereby release any Mechanic's Lien, any state or federal statutory bond right, any private bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to claim or payment rights for persons in the undersigned's position, except for disputed claims for extra work in the amount of $_____.

The undersigned warrants that he either has already paid or will use the monies he receives from this final payment to promptly pay in full all of his laborers, subcontractors, materialmen and suppliers for all work, materials, equipment or services provided for or to the above referenced project.

DATE: _____ _____

(Company Name)

By: _____

(Signature)

_____

(Title)

NOTE: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL RELEASE FORM.

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 2100 ALLOWANCES

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain items are 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. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.

C. Related Sections include the following:

1. Divisions 03 through 33 Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

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

1.4 SUBMITTALS

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

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

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner under allowance and shall include taxes, freight, and delivery to Project site.

B. Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner under allowance shall be included as part of the Contract Sum and not part of the allowance.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

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

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Miscellaneous hardware.

B. Allowance No. 2: Access doors and frames.

END OF SECTION

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section describes procedures for submitting, processing, and handling of requests for substitution and product options. Any substitution or option shall be in accordance with provisions of Contract Documents.

B. See Instructions to Bidders and General Conditions for additional information.

1.3 SUBMITTALS

A. Address submittals to Architect.

1.4 PRODUCT SELECTION - GENERAL

A. Base all bids on materials, equipment and procedures specified.

B. Certain types of equipment and kinds of material are described in Specifications by means of trade names, catalog numbers and/or manufacturer's names. This is not intended to exclude from consideration other items which may be capable of accomplishing the purpose indicated.

C. Other types of equipment and kinds of material may be acceptable to Owner and Architect. (Prior approval required; see pages SRF-1 and SRF-2 following the Instructions to Bidders, for format).

D. Listing of a manufacturer implies acceptance of them only as supplier of a product which complies with specified item.

E. Equipment, materials and methods of construction, if not specifically indicated, must be approved in writing by Architect and be agreed upon by Owner prior to letting of Contract.

F. Architect reserves the right to require substitute items to comply color- and pattern-wise with base specified items, if necessary to achieve "design intent."

G. No substitution will be permitted after letting of Contract, except as indicated herein.

H. Conditional bids and voluntary alternates will not be considered.

1.5 CONTRACTOR'S OPTIONS

A. For products specified only by reference standards, any product meeting standards may be used.

B. For products specified by naming several products or manufacturers, use any product or manufacturer named.

C. For products specified by naming one manufacturer and product, and several optional manufacturers or products, select any named product and manufacturer which meets all specification criteria.
   1. Contract Documents are based upon use of primary manufacturer.
   2. By use of optional manufacturer or product, Contractor acknowledges that he will be responsible for all adjustments to fit product to the Work and for providing all additional work, equipment, and services required by use of product, at no additional cost to Owner.

1.6 REQUESTS FOR SUBSTITUTION

A. Refer to Instructions to Bidders, Paragraph IB.2.3.

1.7 SUBMITTAL DATA

A. Complete data substantiating compliance of proposed substitution with Contract Documents. (Note: It is the responsibility of the submitter to supply the Architect with complete description and technical information so that the Architect can properly appraise the submittal. Lack of proper and sufficient information will be sufficient cause for rejection. Burden of proof of merit of requested substitution is on submitter.)

B. For products:
   1. Products identification, including manufacturer's name.
   2. Manufacturer's literature, **marked to indicate specific model, type, size, and options to be considered**:
      a. Product description.
      b. Performance and test data.
      c. Reference standards.
      d. Difference in power demand, air quantities, etc.
      e. Dimensional differences from specified unit.
   3. Full size samples if requested. Architect reserves the right to impound sample until physical units are installed on project for comparison purposes. Requester will pay all costs of furnishing and return of samples. Architect is not responsible for loss of, or damage to, samples.
   4. Name and address of similar projects and name of Owner's Representative who can be contacted to discuss product, installation, and field performance data.
      a. List other DLR Group projects for which the submitted product has been approved for use.

C. For construction methods:
   1. Detailed description of proposed method.
   2. Illustrate on drawings.

D. Itemized comparison of proposed substitute to specified item.

E. Data relating to changes in construction schedule.

F. Relation to separate contracts.

G. Cost of proposed substitution in comparison with product or method specified.

1.8 SUBSTITUTION AFTER BID DATE

A. No substitutions will be considered after bid date except for non-availability of specified item due to strikes, lockouts, bankruptcy, discontinuance of production, proven shortage, or similar occurrences or when the Contractor pays the Owner a credit acceptable to the Owner and compensates the Architect for additional review time.

B. Notify Architect, in writing (with a copy being sent to the Architect with substantiating data) as soon as non-availability becomes apparent, to avoid delay in construction.

C. Forward submittal data as required for substitutions above.

1.9 REJECTION OF SUBSTITUTION OR OPTIONAL ITEMS

A. Substitutions and/or options will not be considered if:
1. They are indicated or implied on shop drawings, or project data submittals, without formal request submitted in accordance with this Section.
2. Acceptance will require substantial revision of Contract Documents or building spaces.
3. Request for substitution does not indicate specific item for which request is submitted. Acceptance of a manufacturer only will not be made.

1.10 PRIOR APPROVALS

A. Prior approval does not automatically mean equipment is approved. Final submittals and shop drawings shall be made as required by the Specifications for final approval of all equipment and materials. Any changes required due to substitution is the Contractor's responsibility.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 2613 - REQUESTS FOR INTERPRETATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes: Administrative requirements for requests for information / interpretation.

1.3 DEFINITIONS

A. Request For Information / Interpretation (RFI):
   1. A document submitted by the Contractor requesting clarification of a portion of the Contract Documents, hereinafter referred to as RFI.
   2. A properly prepared request for information / interpretation shall include a detailed written statement that indicates the specific Drawing(s) or Specification(s) in need of clarification where information is not clearly shown on the Contract Documents and the nature of the clarification requested.
      a. Drawings shall be identified by Drawing number and location on the Drawing sheet.
      b. Specifications shall be identified by Section number, page and paragraph.
      c. Requests for Information: Request made by Contractor concerning information not indicated on Drawings nor contained in Project Manual that is required to properly perform the work.
      d. Requests for Interpretation: Request made by Contractor in accordance with the Contract for construction.

B. Improper RFIs:
   1. RFIs that are not properly prepared.
   2. RFIs which request information that is clearly shown on the Contract Documents.
   3. Improper RFIs will be rejected by the Architect. The Contractor will be notified by the Architect upon rejection of improper RFIs.

C. The Contractor shall fully acquaint himself with the Bid Documents prior to bidding this Project. Neither improper nor frivolous RFIs will be allowed as basis for Change Orders claiming additional costs and/or time extensions.

1.4 CONTRACTOR'S REQUESTS FOR INFORMATION

A. RFIs shall be submitted on Document 01 2613a - Request for Information / Interpretation included at the end of this Section.
   1. Electronic forms shall be completely filled in and electronically distributed to the Architect's Construction Administrator via e-mail.

2. RFIs shall be submitted in numerical order with no breaks in the consecutive numbering.
3. Each page of attachments to RFIs shall bear the RFI number and shall be consecutively numbered in chronological order.
4. Faxed RFIs will not be accepted. The Contractor will be required to scan back-up information into an electronic format acceptable to Architect.
5. RFIs submitted by e-mail are to be followed by a signed "hard copy" at the next weekly job meeting.
    a. Address for e-mail will be distributed at the Pre-Construction Conference.

B. When the Contractor is unable to determine from the Contract Documents the material, process or system to be installed, the Architect shall be requested to make a clarification of the indeterminate item.
1. Wherever possible, such clarification shall be requested at the next appropriate project meeting, with the response entered into the meeting minutes. When clarification at the meeting is not possible, either because of the urgency of the need, or the complexity of the item, Contractor shall prepare and submit an RFI to the Architect.

C. Contractor shall endeavor to keep the number of RFIs to a minimum. In the event that the process becomes unwieldy, in the opinion of the Architect, because of the number and frequency of RFIs submitted, the Architect may require the Contractor to abandon the process and submit future requests as either submittals (within 30 days of Notice to Proceed), substitutions or requests for change.

D. RFIs shall be originated by the Contractor.
1. RFIs from subcontractors or material suppliers shall be submitted through, reviewed by, and signed by the Contractor prior to submittal to the Architect.
2. RFIs from subcontractors or material suppliers sent directly to the Architect or the Architect's consultants shall not be accepted and will be returned unanswered.

E. Contractor shall carefully study the Contract Documents to assure that the requested information is not available therein. RFIs that request information available in the Contract Documents will be deemed either "improper" or "frivolous" as noted above.

F. In the cases where RFIs are issued to request clarification of coordination issues, for example, pipe and duct routing, clearances, specific locations of work shown diagrammatically, and similar items, the Contractor shall fully lay out a suggested solution using drawings or sketches drawn to scale, and submit same with the RFI. RFIs which fail to include a suggested solution will be returned unanswered with a requirement that the Contractor submit a complete request.

G. RFIs shall not be used for the following purposes:
1. To request approval of submittals,
2. To request approval of substitutions,
3. To request changes which are known to entail additional cost or credit. (A Change Order Request form shall be used.)
4. To request different methods of performing work than those drawn and specified.

H. In the event the Contractor believes that a clarification by the Architect results in additional cost or time, Contractor shall not proceed with the work indicated by the RFI until a Change Order (or Construction Change Directive, if applicable to project) is prepared and approved. RFIs shall not automatically justify a cost increase in the work or a change in the project schedule.
   1. Answered RFIs shall not be construed as approval to perform extra work.
   2. Rejected RFIs will be returned with a stamp or notation: Rejected.

I. Contractor shall prepare and maintain a log of RFIs, and at any time requested by the Architect, Contractor shall furnish copies of the log showing outstanding RFIs. Contractor shall note unanswered RFIs in the log.

J. Contractor shall allow a reasonable period of time to review and respond to RFIs. RFI response time is relative to complexity and number of professionals affected.
   1. The Architect will endeavor to respond in a timely fashion to RFIs.
   2. RFI shall state requested date/time for response; however, this requested date/time for response is not a guarantee that the RFI will be answered by that date/time if that date/time is deemed inadequate or insufficient.

1.5 ARCHITECT'S RESPONSE TO RFIs

A. The Architect will respond to RFIs on one of the following forms:
   1. Properly prepared RFIs:
      a. Response directly upon RFI form.
      b. Architect's Supplemental Instruction.
      c. Request for Proposal.
   2. Improper or Frivolous RFIs: Rejected RFIs will be returned with a stamp or notation: Rejected.
   3. Answers to properly prepared RFIs may or may not be made directly upon the RFI form as deemed appropriate by the Architect.

B. The Architect may opt to retain RFIs for discussion during regularly scheduled project meetings for inclusion of responses in meeting minutes in lieu of responding on a written form.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

REQUEST FOR INFORMATION / INTERPRETATION

Project: Gila County Public Works Admin. Building R.F.I. Number: _____

From: _____

To: _____ Date: _____

Fax: _____ A/E Project Number: DLR No. 30-09115-00

Specification Section: Paragraph: Drawing Reference: Detail

Request:

* Requested Date/Time for Response:
(The undersigned acknowledges review of Section 01 2613 in its entirety.)
Signed by:

Response:

□ Attachments

Response From: To: * Date Rec'd: * Date Ret'd:

Signed by:

Copies: □ Owner □ Contractor □ _____ □ _____ □ _____ □ File

* Contractor shall allow a reasonable response time for RFIs. (See Section 01 2613.)

SECTION 01 2973 - SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Work Included: Provide detailed Schedule of Value breakdowns, of the agreed Contract Sum, showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.

B. Related Work
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions and Sections in Division 01 of these specifications.
   2. Schedule of Values is required by the General Conditions.
   3. Schedule of Values is required to be compatible with the "continuation sheet" accompanying applications for payment, as described in Division 01 Section "Progress Payment Procedures."

1.3 QUALITY ASSURANCE

A. Use required means to assure arithmetical accuracy of the sums described.

B. When so required by the Architect, provide copies of the subcontracts or other data acceptable to the Architect, substantiating the sums described.

1.4 SUBMITTALS

A. Prior to first application for payment, submit a proposed Schedule of Values to the Architect.
   1. Meet with the Architect and determine additional data, if any, required to be submitted.
   2. Secure the Architect's approval of the Schedule of Values prior to submitting first application for payment.
   3. Detail shall include, at a minimum, Specification division, by building, by trade, by major activity.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 2976 - PROGRESS PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section describes procedures for submitting Applications for Payment.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL

A. Submit pay application in accordance with General Conditions 9.3.1. Approvals shall be made in accordance with General Conditions 9.6.1.

B. Provide supporting data substantiating the Contractor's right to payment as the Owner and Architect may require. See Paragraph 3.2 Applications for Payment (below) for requirements.

C. Submit estimates of the cost of work to be completed during the current calendar month with the Application for Payment.

D. Submit lien waivers covering the payment that was paid to Contractor for the previous calendar month.

E. Submit updated monthly Schedule.

F. Submit updated Material Status Report.

G. Submit an updated Progress Report.

H. Submit an updated Submittal Schedule.

I. Review as-built drawings with Architect.

J. Updated Construction Status Report.

K. Supplemental Agreement (Stored Materials).

L. Consent of Surety to Supplemental Agreement.

3.2 APPLICATIONS FOR PAYMENT

A. Submit the Application for Payment on AIA Documents G702 and G703, and the Application and Certificate for Payment on a Continuation Sheet.

B. Furnish 1 original Application for Payment.

C. Application for Payment will serve as a certification of the status of project.

D. Signature on Application for Payment to be that of duly authorized agent of the Contractor.

E. Applications for Payment must be accompanied by lien waivers from Contractor, his subcontractors, sub-subcontractors, and suppliers or receipted invoices covering payments paid to Contractor for the previous calendar month.

F. Lien waivers must show amount paid.

G. Itemize Applications for Payment:
   1. Heading completed in full.
   2. Original contract sum.
   3. Change order summary completed.
   4. Net charge by change order.
   5. Contract sum to date.
   6. Total completed and stored to date.
   7. Retainage section completed.
   8. Total earned, less retainage.
   9. Amount of previous payments.
   10. Current payment due.
   11. Balance to finish.
   12. Notarized section completed.
   13. AIA Document G703 completed.

END OF SECTION

SECTION 01 3119 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

A. Project Meetings are held to enable an orderly review of the work as it progresses on a periodic basis. It also provides an opportunity for systematic discussion of cost, schedule, problems and solutions. The Owner will conduct project meetings throughout the construction period.

B. The Contractor's relationship with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and are not a part of project meetings content.

C. Persons designated by the Contractor to attend and participate in the project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the project meetings.

1.3 SUBMITTALS

A. To the maximum extent practicable, advise the Owner at least 3 working days in advance of project meetings regarding all items to be added to the agenda.

B. The Owner will compile minutes of each project meeting and will furnish copies to the Contractor. The Contractor may make and distribute such other copies as he wishes. Distribution of meeting minutes shall be two days prior to the next regularly scheduled meeting.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION

3.1 MEETING SCHEDULE

A. Except as noted below the preconstruction meeting and project meetings will be held on a periodic basis. Meeting dates and times will be coordinated in an effort to allow all parties whose participation is essential.

3.2 MEETING LOCATION

A. To the maximum extent practicable, meetings will be held at the job site.

3.3 PRECONSTRUCTION MEETING

A. The Owner will conduct the preconstruction meeting which shall be scheduled within ten (10) days after the Owner has issued the Notice to Proceed. It will be attended by authorized representatives of the Contractor, all major Subcontractors, the Architect, the Owner, and other interested parties.

B. Minimum Agenda: Distribute data on, and discuss:
   1. Organizational arrangement of Contractor's forces and personnel, personnel of subcontractors, materials suppliers, Architect, and Owner.
   2. Channels and procedures for communications.
   3. Construction schedule, including sequence of critical work. A three week schedule will be prepared and updated for each project meeting and utilized by the Contractor as well as the overall project schedule.
   4. Contract Documents, including distribution of required copies of original Documents and revisions.
   5. Processing of Shop Drawings and other data submitted to the Architect for review.
   6. Processing of field decisions and Change Orders.
   7. Rules and regulations governing performance of the Work.
   8. Procedures and responsibilities regarding Project Record Documents.
   9. Procedures and responsibilities regarding operations and maintenance information and training Owner's personnel.
   10. Procedures for safety and first aid, security, quality control, housekeeping, and other related matters.
   11. Personnel Resumes.
   12. Construction Phasing and Cash Flow.
   13. Placement of Temporary Facilities and Utilities.
   14. Schedule of Major Equipment Suppliers.

3.4 PRE-INSTALLATION MEETINGS

A. The Contractor shall conduct a pre-installation meeting at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Owner of scheduled meeting dates.
   1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
      a. Contract Documents.
      b. Shop Drawings, Product Data and quality control Samples.
      c. Compatibility problems.
      d. Time schedules.
      e. Weather limitations.
      f. Manufacturer's recommendations.
      g. Compatibility of materials.
      h. Acceptability of substrates.
      i. Governing regulations.
      j. Safety.
      k. Inspection and testing requirements.

l. Required performance results.
m. Recording requirements.
n. Protection.

2. Record significant discussions and agreements and disagreements of each meeting, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.
3. Do not proceed if the meeting cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the meeting at the earliest feasible date.

3.5 PROJECT MEETINGS

A. The Owner shall conduct the periodic project meetings. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspects of the Work are involved.

B. Minimum Agenda:
1. Review, revise as necessary, and approve minutes of previous meeting.
2. Review progress of the Work since last meeting, including status of submittals for approval.
3. Present and discuss Contractor's updated three week schedule.
4. Identify problems which impede planned progress.
5. Develop corrective measures and procedures to regain planned schedule.
6. Discuss changes in the work.
7. Complete other current business.
8. Review Progress Report.

END OF SECTION

SECTION 01 3200 - CONSTRUCTION DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Furnish progress reports as indicated, in accordance with provisions of Contract Documents.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL

A. General Contractor shall prepare a comprehensive daily log and maintain it during entire project period.

B. General Contractor shall utilize the daily log entries for compilation into monthly Progress Reports.

3.2 REPORTS

A. Each Progress Report should include the following data for each day of entire project period.
   1. Manpower, by trade.
   2. Work being performed, with location.
   3. Weather.
   4. Situations or circumstances which could delay work or give cause for claims for extension of time or added cost.
   5. List of visitors' names, to include officials, Owner's representative, and other authorities. Record their observation.
   6. Major equipment utilized.
   7. Safety incidents or reported violations.

END OF SECTION

SECTION 01 3216 - CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

A. To assure adequate planning and execution of the Work so that the Work is completed by the date allowed in the Contract, and to assist the Owner or his Representative in appraising the reasonableness of the proposed schedule and in evaluating progress of the Work, prepare and maintain the schedules and reports described in this Section.

B. Contractor should employ a scheduler who is thoroughly trained and experienced in compiling construction schedule data, in analyzing and use of Critical Path Method or PERT, and in preparation and issue of periodic reports as required below.

C. The Contractor and Architect shall mutually agree on the format of the construction schedule documents.

1.3 RELIANCE UPON APPROVED SCHEDULE

A. The ultimate responsibility for timely completion of all contract milestones and the completion of the contract shall be that of the Contractor.

B. Should any activity not be complete within 7 calendar days after the stated scheduled date, (approved and accepted construction delays will be taken into consideration) the Architect shall have the right to order the Contractor to expedite completion of the activity by whatever means the Owner deems appropriate and necessary, without additional compensation to the Contractor.

C. Costs incurred by the Architect in connection with expediting construction activity under this Article shall be reimbursed to the Owner and Architect by the Contractor.

D. It is expressly understood and agreed that failure by the Architect to exercise the option to either order the Contractor to expedite an activity or to expedite the activity by other means shall not be considered precedent-setting for any other activities.

E. The schedule must accommodate Owner planned activities.

1.4 PRELIMINARY AND CONSTRUCTION ANALYSIS

A. Within 5 calendar days after receipt of Notice to Proceed, submit 1 reproducible copy, 1 electronic copy in MS Project, and 2 prints of a final construction schedule, plus 2 prints of proposed format for Material Status Reports, prepared in accordance with this Section.

B. See instructions to complete work within date specified for further clarification. Submit with the monthly payment application 2 prints of the updated construction schedule, accompanied by 2 prints of the updated Material Status Reports prepared in accordance with this Section. An electronic copy of both the Schedule and Material Status Reports shall be attached to the meeting minutes.

PART 2 - REPORT FORMATS

2.1 CONSTRUCTION DIAGRAM

A. The Schedule or Construction Diagram must be a standard and accepted computer generated schedule of activities that shall graphically show the order and interdependence of all activities necessary to complete the Work, and the sequence in which each activity is to be accomplished, as planned by the Contractor and his Project Field Superintendent in coordination with all subcontractors whose work is shown on the diagram. Activities shown on the diagram shall include, but are not necessarily limited to:
1. Project mobilization;
2. Anticipated date of Construction Permit.
3. Submittals and approvals of shop drawings and samples;
4. Procurement of equipment and critical materials;
5. Fabrication of special material and equipment, installation and testing;
6. Final cleanup;
7. Final inspection and testing;
8. All activities determined by the Owner to affect the progress of required dates for completion, for all and for each part of the work.
9. Project milestones.

B. The detail of information shall be such that duration times of activities shall normally range from 1 to 25 calendar days. The selection and number of activities shall be subject to Owner approval.

C. Show on the diagram, as a minimum for each activity, description of each activity, duration in calendar days of each activity, completion of each activity, and how each activity affects each other activity. Submit diagram on a sheet 30" high, or agreed height by the Owner, by the width required.

D. The diagram shall have the capability of being zoned; i.e. group activities by building by trade within a designated zone on the page.

E. The Contractor shall additionally provide a three-week Bar Chart type schedule for review at each weekly project meeting. The information shall be detailed by activity and updated weekly to demonstrate work progress from the previous week and for the next two week period. The three-week schedule should be based upon the information contained within the approved Project Schedule. Each activity schedule to be complete during a previous week that is not accomplished shall be explained during the current weekly meeting with solutions for upgrading the activity and/or statements relative to the delays to explain same.

F. The Critical Path Method or PERT Program shall be capable of producing management reports, such as early start, late finish, total float, etc. These reports, as determined by the Architect, shall be submitted with each update of the schedule.

2.2 MATERIAL STATUS REPORTS

A. The Contractor's standard materials status report form will be acceptable if, in the Architect's judgment, it provides sufficient pertinent data to determine that materials procurement flow is adequate for all needs of the Work.

Content:

1. Item description, listed in accordance with the Specifications Section number in which the item is called for;
2. Purchase Order number and date of issue;
3. Vendor name;
4. Date shipped and shipping means utilized;
5. Estimated date of arrival at job site;
6. Actual date of arrival at project site, and receiving report number.

On a letter of transmittal accompanying periodic reports, or an accompanying summary sheet, or by other means acceptable to the Owner, clearly indicate those items which are critically overdue or otherwise detrimental to the maintenance of the approved schedule.

PART 3 - CONSTRUCTION STATUS REPORT

3.1 CONTENT

A. Report actual progress by updating the mathematical analysis as indicated below.

B. Note on the summary report, or clearly show on a revised issue the affected portions of the detailed diagram, all revisions causing changes in the detailed program.

C. Revise the summary report monthly for continued clarity.

D. Describe activities or portions of activities completed during the reporting period.

E. State the percentage of Work actually completed and schedule as of the report date, and the progress along the critical path in terms of days ahead or days behind the scheduled dates.

F. If the Work is behind schedule, also report progress along other paths with negative slack.

G. Include a narrative report which shows, but is not necessarily limited to:

1. A description of the problem areas, current and anticipated;
2. Delaying factors, and their impact;
3. An explanation of corrective actions taken or proposed.

3.2 REVISIONS

A. Make only those revisions to the approved Construction Schedule and approved Material Status Reports as they are approved in advance by the Architect. This includes adjustments to original durations and original logic.

END OF SECTION

SECTION 01 3323 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Refer to Division 01 Section "Electronic Submittal of Shop Drawings and Product Data" for electronic (Adobe Acrobat file format) submittals of shop drawings and product data.

1.2 SUMMARY

A. Submit items to the Architect for review as indicated below.

B. Scheduling and handling of shop drawings, product data and samples as indicated, in accordance with Contract Documents.

C. See Technical Sections for items for which data and/or samples are required.

D. Types of Submittals:
1. Two types of submittals are required for this project: CONFIRMATION NOTICE SUBMITTALS and REGULAR SUBMITTALS.
2. Confirmation Notice Submittals are described in Paragraph 1.6 below.

1.3 SUBMITTALS - GENERAL

A. Contractor shall be responsible for and make all submissions.
1. Submit items specified herein to Architect.
2. Transmit all items on a shop drawing transmittal form.
3. Identify each transmittal using the 6-digit specification number with a dash and an added number, i.e., metal handrails might be numbered 055000-1. If returned for re-submission, second submission would be 055000-1A. Should submittal be rejected a second time, then the Contractor may be required to reimburse the Owner/Architect for labor to review subsequent submissions.
4. Develop for maintenance by the Architect a schedule of all submittals and their status. Refer to Paragraph 1.4 below. The schedule will be reviewed each week at the project meeting.

B. Transmittals, shop drawings, or samples submitted to Architect shall have the Contractor's stamp on it with his signature and be marked "approved." Contractor's stamp on these items indicates that Contractor has performed the following:
1. Verified field dimensions and quantities.
2. Verified field construction criteria, materials, catalog numbers and similar data.
3. Reviewed and coordinated submittal data with requirements of the Work and the Contract Documents.

C. Indicate any item, component, material or portion of Work which deviates from Contract Documents. Unless such departures are accepted as indicated in paragraph "Review" below, such departures will not be permitted.

D. Make submittals sufficiently in advance of data required to allow Architect or Owner reasonable time for review and additional resubmission and review cycles if necessary.
   1. Items submitted without Contractor's review stamp will be returned, without action, for resubmission.
   2. Items not submitted in accordance with provisions of this Section will be returned, without action, for resubmission.
   3. Submissions on items not approved for use by specifications or addenda will be rejected.
   4. Drawings transmitted to the Architect by other than the General Contractor will be returned to the General Contractor without action of any kind. Drawings will not be returned to subcontractors.

1.4 SCHEDULE

A. Within 10 calendar days after award of Contract, submit an itemized schedule, indicating proposed submittal dates for all items.
   1. Include all shop drawings, data, samples and other items required to be submitted including operations and maintenance data.
   2. This itemized schedule will be Item #1 on the Shop Drawing Log for this Project; it will be reviewed and acknowledged prior to review of any other submittals.
      a. Architect will review itemized submittal schedule, verifying that all requested submittals are included and that only those requested are included.

B. Schedule all items requiring Architect action for submission during first 25 percent of construction period.

C. Submit all items requiring color selections in one package.

1.5 PRODUCT LIST

A. Within 15 calendar days after award of Contract, submit 1 copy of complete list of products, equipment and subcontractors proposed for use.

B. Tabulate by specification section.

C. Only items which have been specified or approved by addenda may be used.

D. No partial payment requests will be processed until this data and other submissions required by Contract Documents are received.

E. For products specified under reference standards, approved equal products, or products of optional manufacturers, include with listing of each product:
   1. Name and address of manufacturer.
   2. Trade name.
   3. Model or catalog designation.

4. Manufacturer's data.
    a. Performance and test data.
    b. Reference standards.

1.6 CONFIRMATION NOTICE SUBMITTAL

A. Contractor shall provide a letter of confirmation (Confirmation Notice Submittal) in lieu of Product Data and Samples when the following criteria are met for products incorporated in the Work:
    1. Contractor provides exact brand, model number, finish and color specified or indicated on the Drawings or Schedules.
    2. Requests for color, finish or texture samples may be required as indicated in individual Specification Sections.

B. Shop Drawings shall be submitted when the following conditions occur:
    1. Fabrication is required.
    2. Installation details and instructions are required in order to achieve proper execution of Work.
    3. Contractor has selected an approved manufacturer whose products have not been specified or shown by exact make or model number.

C. Record relevant information on the Confirmation Notice Submittal. Include Specifications Section article and paragraph number and product manufacturer, name and model number. Include finishes and colors as applicable for products specified.

D. The Architect will not review items submitted by the Contractor (such as Product Data, etc.) which are submitted for confirmation purposes only.

E. Full submittals (Product Data, Samples, Reports, Shop Drawings) are required for specified items which have been discontinued, or which have been materially changed by the manufacturer, since the Contractor's bid was received or contract awarded. This includes, but is not limited to, discontinued finishes or colors.

F. At the request of the Architect, full submittal may be required for items with critical dimensions or tolerances requiring coordination with other pieces of the Work.

1.7 SUBMITTALS - SHOP DRAWINGS AND PRODUCT DATA

A. Refer to Division 01 Section "Electronic Submittal of Shop Drawings and Product Data".

1.8 SUBMITTALS - SAMPLES

A. Identify samples with manufacturer's name, item, use, type, project designation, specification section or drawing detail reference, color, range, texture, finish and other pertinent data.

B. Submit 2 samples to address indicated with transmittal letters, or construction site if required.
    1. Include brochures, shop drawings, and installation instructions with transmittal.
    2. Submit transmittal for site-built samples to address indicated.

C. Architect may, at his option, retain samples for comparison purposes until completion of Work.
   1. Samples will be returned or may be used in the Work unless the technical section specifically indicates otherwise.
   2. Remove samples when directed.
   3. Pay all costs of furnishing or constructing, and removing samples.

D. Resubmit samples of rejected items.

1.9 ARCHITECT REVIEW

A. Reproduce and distribute submittals that the Architect reviews and stamps as follows, to indicate the action taken:
   1. Reviewed: Where submittal is marked "Reviewed," 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.
   2. Reviewed -- Additional Information Required: Where submittal is marked "Reviewed -- Additional Information Required," the information submitted has been reviewed and approved as noted. However, additional information as noted and/or required by Contract Documents needs to be submitted.
   3. Furnish As Corrected: When submittal is marked "Furnish As Corrected," 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.
   4. Revise and Resubmit: When submittal is marked "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.
      a. Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
   5. Rejected: When submittal is marked "Rejected," information submitted is not in compliance with Contract Documents. Resubmit submittal as required by Contract Documents.

B. Contractor shall retain 1 copy of each "Reviewed," "Reviewed -- Additional Information Required" or "Furnish as Corrected" submittal: one on file at the job site, and one copy to be returned to the respective Subcontractor, supplier, or vendor.

C. Architect shall retain 1 copy of each "Reviewed," "Reviewed -- Additional Information Required" or "Furnish as Corrected" submittal in the project file.

D. Contractor shall resubmit items stamped "Revise and Resubmit" or "Rejected" by Architect.
   1. Provide a print of previous drawing with resubmission for comparison.
   2. Add letter suffix to previous transmittal number, to indicate resubmission.
   3. It shall be the Contractor's responsibility to assure that previously approved documents are destroyed when they are superseded by a resubmittal.

E. Architect review is general and does not:
   1. Permit departure from Contract Documents.
   2. Relieve Contractor from responsibility for errors in detail, in dimensions or related items.
   3. Approve departure from previous instructions or details.

4. Relieve Contractor of the responsibility to provide all components, wiring, etc., required to make item operable or usable.
5. Imply acceptance of items for which no data is submitted.

F. For items constituting a departure from Contract Documents see Division 01 Section "Substitution Procedures."

G. Reviewed samples submitted or constructed and approved by Architect constitute criterion for judging completed work. Finish work or items not equal to samples will be rejected.

H. Start of work which requires submittals, prior to return of submittals with Architect or Owner's stamp indicating review and approval is at Contractor's risk.

1.10 DISTRIBUTION

A. Contractor shall copy and distribute all "Reviewed," "Reviewed -- Additional Information Required" or "Furnish as Corrected" submittals, including one copy to the Owner.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 3324 - ELECTRONIC SUBMITTAL OF SHOP DRAWINGS AND PRODUCT DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Refer to Division 01 Section "Shop Drawings, Product Data and Samples" for typical submittals of shop drawings and product data.

1.2 DESCRIPTION

A. General:
1. Furnish labor, materials, tools, equipment and services for furnishing, processing, delivery, reproduction and other functions for scheduling and handling of shop drawings and product data as indicated, in accordance with Contract Documents.
2. See General Conditions for additional requirements.

B. Types of Submittals:

1. Two types of submittals are required for this project: Confirmation Notice Submittal and Regular Submittals.
2. Confirmation Notice Submittals are described in Paragraph 1.6 below.

C. See Technical Sections for items for which data are required. Specific requirements for work-related submittals (work of this Section) are specified in applicable sections for each unit of work.

D. Related Work:

1. Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work, and not processed as shop drawings, product data, or samples.

1.3 ADDRESS FOR SUBMISSION

A. Submit all items to the Architect for review distribution indicated within these documents.

1.4 SUBMITTAL - GENERAL

A. Intent: The Contract Documents define materials, products, fabrications and installations required; no departure from requirements of Contract Documents is permitted. The Architect's review of certain submittals is intended to be a preview of Contractor's proposed solution to work, which is specified by performance, rather than prescriptive terms, for which Contractor is

allowed a choice of solutions among available options. The Architect will review and take appropriate action on shop drawings, product data, samples, and other submittals required by the Contract Documents. Such review shall be only for general conformance with the design concept and general compliance with the information given in the Contract Documents. It shall not include review of quantities, dimensions, weights or gauges, fabrication processes, construction methods, coordination with the work of other trades, or construction safety precautions, all of which are the sole responsibility of the Contractor. The Architect's review shall be conducted with reasonable promptness, consistent with sound professional practice. Review of a specific item shall not indicate acceptance of an assembly of which the item is a component. The Architect shall not be required to review and shall not be responsible for any deviations from the Contract Documents not clearly noted by the Contractor, nor shall the Architect be required to review partial submissions of those for which submissions for correlated items have not been received.

B. Contractor shall be responsible for and make all submissions.

1. Transmit all submittals to Architect in accordance with Contractor's Schedule of Submittals. **All submittals, except samples and color selection submittals, shall be in electronic Adobe Acrobat file format with commenting enabled for Acrobat Reader 7.0.**
2. Transmit all items on a shop drawing transmittal form with copies to the Owner. (See Contractor's manual for approved content form.) Transmittal shall identify the Project, Contractor, subcontractor, fabricator or manufacturer, date submitted, and date of preparation. **Shop drawing transmittal form shall be first page of electronic file.**
3. Identify each transmittal using the 6-digit specification number with a dash and an added number, i.e., metal handrails might be numbered 055000-1. If returned for re-submission, second submission would be 055000-1A or 055000-1.1. Should submittal be rejected a second time, then the Contractor may be required to reimburse the Owner / Architect for labor to review subsequent submissions.
4. All submittals for all equipment in a given system, such as an air handling system, shall be submitted at one time, and each a complete set in a **single electronic file**.
5. Submittals shall indicate types, gauges, style, finishes, etc., of all materials. Sufficient data shall be included to permit a detailed study of the product or system submitted. All submittals shall include installation instructions and ICBO/**ICC** reports where applicable.
6. Each submittal shall be marked to clearly indicate the use for which product, material, or procedure is being submitted for consideration. Each item submitted shall be marked for identification with the applicable page and paragraph number of the Specifications and/or the detail and sheet number of the Contract Drawings.
7. Piping, conduit, equipment, etc., submittals shall be accompanied with support / suspension information intended to be used for installation.
8. Develop for maintenance by the Architect a register of all submittals and their status. The register will be reviewed each week at the project meeting.

C. Review all items prior to submissions to Architect and stamp indicating Contractor's:

1. Verification of all field dimensions and quantities.
2. Verification of field construction criteria, materials, catalog numbers and similar data.
3. Review and coordination of submittal data with requirements of the Work and the Contract Documents.

D. Indicate any item, component, material or portion of Work which deviates from Contract Documents. Unless such departures are accepted as indicated in paragraph "Review," such departures will not be permitted.

E. Make submittals sufficiently in advance of data required to allow Architect, or Owner reasonable time for review and additional resubmission and review cycles if necessary.

1. Items submitted without Contractor's review stamp will be returned, without action, for resubmission.
2. Items not submitted in accordance with provisions of this section will be returned, without action, for resubmission.
3. Submissions on items not approved for use by specifications or addenda will be rejected.
4. Drawings transmitted to the Architect by other than the Contractor will be returned to the Contractor without action of any kind. Drawings will not be returned to subcontractors.
5. A maximum of 10 full working days shall be allowed for submittals to be in Architect's office for Architects review, except attempt will be made to expedite submittals marked as "rush," provided all submittals are not marked "rush." Transmittals / submittals marked "rush" and sent by regular mail will not be given preferential attention. Contractor / suppliers letters will not be considered or acted on in lieu of manufacturer's printed information and/or instructions.

1.5 SUBMITTAL SCHEDULE

A. Following Notice of Award, and prior to signing Owner / Contractor Agreement, submit to the Architect an itemized schedule, indicating proposed initial submittal dates for all items.

1. Include all shop drawings, data, samples and other items required to be submitted by Contract Documents including operations and maintenance data.
2. Utilize and maintain this schedule to coordinate submittal requirements and record Architect's action markings as defined herein.

B. Schedule all items requiring Architect action for submission during first 25 percent of overall construction period, starting with the Notice to Proceed.

C. The Contractor will prepare the submittal log on a computerized spread sheet and submit to the Architect a copy of the **electronic file**. Coordinate with the Architect prior to actual entry. The Architect will maintain the data during the project.

D. Form: Prepare submittal schedule in same sequence as Specification Table of Contents; cross reference each item to corresponding Specification Section. List generic work element, followed by exact product reference intended, for incorporation into the work and identify fabrication / manufacturer, and submittal dates in successive column format. Provide blank columns for action markings and resubmittal records.

1. Correlate submittal schedule with, and submit in conjunction with, the Product Confirmation List described herein.

E. Product Review: For materials / products where no submittal requirements are identified within individual technical sections of the Project Manual, no additional submittals are required beyond confirmation listing. Comply with detailed requirements of Contract Documents.

1.6 CONFIRMATION NOTICE SUBMITTAL

A. Contractor shall provide a letter of confirmation (Confirmation Notice Submittal) **in Adobe Acrobat file format** in lieu of Product Data and Samples when the following criteria are met for products incorporated in the Work:

1. Contractor provides exact brand, model number, finish and color specified or indicated on the Drawings or Schedules.

B. Shop Drawings shall be submitted when the following conditions occur:

1. Fabrication is required.
2. Installation details and instructions are required in order to achieve proper execution of Work.
3. Contractor has selected an approved manufacturer whose products have not been specified or shown by exact make or model number.

C. Record relevant information on the Confirmation Notice Submittal. Include Specifications Section article and paragraph number and product manufacturer, name and model number. Include finishes and colors as applicable for products specified.

D. The Architect will not review items submitted by the Contractor (such as Product Data, etc.) which are submitted for confirmation purposes only.

E. Full submittal (Product Data, Samples, Reports, Shop Drawings) are required for specified items which have been discontinued, or which have been materially changed by the manufacturer, since the Contractor's bid was received or contract awarded. This includes, but is not limited to, discontinued finishes or colors.

F. At the request of the Architect, full submittal may be required for items with critical dimensions or tolerances requiring coordination with other pieces of the Work.

1.7 PRODUCT CONFIRMATION LIST

A. Following Notice of Award, and prior to signing Owner / Contractor Agreement, submit to the Architect **a** complete list of products, equipment and subcontractors proposed for use **in Adobe Acrobat file format**.

B. Tabulate by specification section, and organize listing in same sequence as Specification Table of Contents.

C. Only items which have been specified or approved by addenda may be used. This listing shall provide the Owner with confirmation of which products and materials, among available options allowed by Contract Requirements, will be utilized in the Work.

D. No partial payment requests will be processed until this data and other submissions required by Contract Documents are received.

E. For products specified under reference standards, approved equal products, or products of optional manufacturers, include with listing of each product:

1. Name and address of manufacturer.
2. Trade name.
3. Model or catalog designation.
4. Manufacturer's data.
   a. Performance and test data.
   b. Reference standards.

F. Correlate Product Confirmation List with, and submit in conjunction with, the Submittal Schedule described herein.

1.8 SUBMITTALS - SHOP DRAWINGS AND PRODUCT DATA

A. Identify drawings with manufacturer, item, use, type, project designation, specification section or drawing detail reference.

1. Provide newly-prepared technical data specifically for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form, for general application to several projects. Do not reproduce Contract Documents as basis of shop drawings.

B. Submit **electronic file in Adobe Acrobat file format** until approval is obtained. **A marked up electronic file** will be returned.

1. **Files shall be submitted on compact disk. Files less than 5 MB in size may be emailed. Disks and emails shall be identified with project name and submittal number.**
2. Marks on **electronic files** by Contractor shall not be in red.

C. Submit standard items like equipment brochures, catalog cuts of fixtures, or standard catalog items in **electronic file format**.

1. Indicate exact item or model and all proposed options.
2. Include scale details, sizes, dimensions, performance characteristics, capacities, wiring diagrams, controls and other pertinent data.
3. Provide standard printed information on materials, products and systems; data may be submitted that is not specially prepared for this project, other than the designation, if selections from among available choices are printed therein. Include manufacturer's standard printed recommendations for application and use, compliance with standards, applications of labels and seals, maintenance information, and special coordination requirements for installation.

D. **Electronic file shall include the shop drawing** transmittal letter to the Architect for each submittal and resubmittal.

E. The Contractor is required to prepare, submit and coordinate in a timely manner all deferred submittals required by the International Building Code, regulatory agencies, or as identified on the Drawings.

1.9 SUBMITTALS - SAMPLES

A. Refer to Division 01 Section "Shop Drawings, Product Data and Samples"

1.10 MISCELLANEOUS SUBMITTALS

A. Inspection and Test Reports: Classify each as either "shop drawing" or "product data," depending upon whether report is uniquely prepared for project, or a standard publication of workmanship control testing at point of production, and process accordingly.

B. Warranties: Refer to Division 01 Section "Warranties" for specific general requirements on warranties, product / workmanship bonds, and maintenance agreements, In addition to copies desired for Contractor's use, furnish 2 executed copies, except furnish 2 additional (conformed) copies where required for maintenance manuals.

C. Standards: Where copy submittal is indicated, submit copies for Architect's and Owner's use. Where workmanship at project site and elsewhere is governed by standard, furnish additional copies to fabricators, installers, and others involved in performance of the Work.

1.11 ARCHITECT REVIEW

A. Reproduce and distribute submittals that the Architect reviews and stamps as follows, to indicate the action taken:

1. Reviewed: Where submittal is marked "Reviewed," 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.
2. Reviewed -- Additional Information Required: Where submittal is marked "Reviewed -- Additional Information Required," the information submitted has been reviewed and approved as noted. However, additional information as noted and/or required by Contract Documents needs to be submitted.
3. Furnish As Corrected: When submittal is marked "Furnish As Corrected," 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.
4. Revise and Resubmit: When submittal is marked "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.
   a. Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
5. Rejected: When submittal is marked "Rejected," information submitted is not in compliance with Contract Documents. Resubmit submittal as required by Contract Documents.

B. Contractor shall retain 1 copy of each "Reviewed," "Reviewed -- Additional Information Required" or "Furnish as Corrected" submittal on file at the job site.

C. Architect shall retain **a copy** of each "Reviewed," "Reviewed -- Additional Information Required" or "Furnish as Corrected" submittal in the project file. Architect shall distribute 1 copy to the Contractor and 1 copy to the Owner.

D. Contractor shall resubmit items stamped "Revise and Resubmit" or "Rejected" by Architect.

1. Provide a **copy of previously submitted information** with resubmission for comparison.
2. Add letter suffix to previous transmittal number, to indicate resubmission.
3. It shall be the Contractor's responsibility to assure that previously approved documents are destroyed when they are superseded by a resubmittal.

E. Architect review is general and does not:

1. Permit departure from Contract Documents.
2. Relieve Contractor from responsibility for errors in detail, in dimensions or related items.
3. Approve departure from previous instructions or details.
4. Relieve Contractor of the responsibility to provide all components, wiring, etc., required to make item operable or usable.
5. Imply acceptance of items for which no data is submitted.

F. For items constituting a departure from Contract Documents see Division 01 Section "Substitution Procedures."

G. Reviewed samples submitted or constructed and approved by Architect constitute criterion for judging completed work. Finish work or items not equal to samples will be rejected.

H. Start of work which requires submittals, prior to return of submittals with Architect stamp indicating review and approval is at Contractor's risk.

I. Distribute final approved copies of submittal.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 3333 - ELECTRONIC DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The Architect, if requested, will provide the Contractor with one electronic copy of the Contract Document Drawings for distribution to subcontractors and suppliers at no cost. The electronic copy will be provided in AutoCAD 2007.

B. For additional copies, the Architect shall be paid a service fee of $250.00, plus $50.00 for each sheet as requested by the Contractor in accordance with the Agreement. Electronic files of these sheets will be released upon receipt of payment.

1.3 REFERENCES

A. A copy of the AIA Document C106-2007 Digital Licensing Agreement is included at the end of the Section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

DRAFT

AIA® Document C106™ – 2007

Digital Data Licensing Agreement

AGREEMENT made as of the _____ day of _____ in the year Two Thousand and _____.
(In words, indicate day, month and year.)

BETWEEN the Party transmitting Digital Data ("Transmitting Party"):
(Name, address and contact information, including electronic addresses)

DLR Group inc., an Arizona corporation
6225 North 24th Street, Suite 250
Phoenix, AZ 85016

and the Party receiving the Digital Data ("Receiving Party"):
(Name, address and contact information, including electronic addresses)

_____

_____

_____

_____

for the following Project:
(Name and location or address)

Gila County Public Works Administration Building
1100 East South Street
Globe, Arizona 85502

DLR Group Project No._30-09114-00

In consideration of the following promises exchanged, the Parties agree as follows:

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

TABLE OF ARTICLES

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 The purpose of this Agreement is to grant a license from the Transmitting Party to the Receiving Party for the Receiving Party's use of Digital Data on the Project, and to set forth the license terms.

§ 1.2 This Agreement is the entire and integrated agreement between the parties. Except as specifically set forth herein, this agreement does not create any other contractual relationship between the parties.

§ 1.3 Digital Data is defined as information, communications, drawings, or designs created or stored for the Project in digital form.

§ 1.3.1 Confidential Information is defined as Digital Data that the Transmitting Party has designated as confidential and clearly marked with an indication such as "Confidential" or "Business Proprietary."

ARTICLE 2 TRANSMISSION OF DIGITAL DATA

§ 2.1 The Transmitting Party grants the Receiving Party a nonexclusive limited license to use the Digital Data solely and exclusively to perform services or construction for the Project in accordance with the conditions set forth in Article 3.

§ 2.2 The transmission of Digital Data constitutes a warranty by the Transmitting Party to the Receiving Party that the Transmitting Party (1) is the copyright owner of the Digital Data, (2) has permission from the copyright owner to transmit the Digital Data and grant a license for its use on the Project, or (3) is authorized to transmit Confidential Information.

§ 2.3 The Transmitting Party retains its rights in the Digital Data. By transmitting the Digital Data, the Transmitting Party does not grant to the Receiving Party an assignment of those rights; nor does the Transmitting Party convey to the Receiving Party any right in the software used to generate the Digital Data.

§ 2.4 To the fullest extent permitted by law, the Receiving Party shall indemnify and defend the Transmitting Party from and against all claims arising from or related to the Receiving Party's modification to, or unlicensed use of, the Digital Data.

§ 2.5 The Receiving Party agrees to keep Confidential Information strictly confidential and not to disclose it to any other person except to (2) those who need to know the content of the Confidential Information in order to perform services or construction solely and exclusively for the Project, or (3) its consultants and contractors whose contracts include similar restrictions on the use of Confidential Information.

ARTICLE 3 LICENSE CONDITIONS

§ 3.1 The parties agree to the following conditions on the limited license granted in Section 2.1:
(State below rights or restrictions applicable to the Receiving Party's use of the Digital Data, requirements for data format, transmission method or other conditions on data to be transmitted.)

Architect-Engineer of Record (AER) makes no representation as to the compatibility of the Computer Aided Drafting (CAD) files with any hardware or software.

AER makes no representation regarding the accuracy, completeness, or permanence of CAD files, nor for their merchantability or fitness for a particular purpose. Addenda information or revisions made after the

date indicated on the CAD files may not have been incorporated. In the event of a conflict between the AER's sealed Contract Drawings and CAD files, the sealed Contract Drawings shall govern. It is the Owner, Contractor, or Third Party's (OCT) responsibility to determine if any conflicts exist. The CAD files shall not be considered to be Contract Documents as defined by the General Conditions of the Contract for Construction.

The use of CAD files prepared by the AER shall not in any way obviate the OCT's responsibility for the proper checking and coordination of dimensions, details, member sizes and gage, and quantities of materials as required to facilitate complete and accurate fabrication and erection.

This Agreement shall be governed by the laws of the principal place of business of the AER.

ARTICLE 4 LICENSING FEE OR OTHER COMPENSATION

§ 4.1 The Receiving Party agrees to pay the Transmitting Party **upon receipt of the Digital Data** the following fee or other compensation for the Receiving Party's use of the Digital Data:
(State the fee, in dollars, or other method by which the Receiving Party will compensate the Transmitting Party for the Receiving Party's use of the Digital Data.)

The Transmitting Party will provide the Digital Data, dated_____, for the following drawings:

_____ _____

_____ _____

_____ _____

_____ _____

Drawings were prepared on the following:

Computer Software:_____ / Version: _____.

The Receiving Party shall pay the Transmitting Party as indicated in Specification Section 013333, Electronic Drawings.

This Agreement is entered into as of the day and year first written above and will terminate upon Substantial Completion of the Project, as that term is defined in AIA Document A201™–2007, General Conditions of the Contract for Construction, unless otherwise agreed by the parties and set forth below.
(Indicate when this Agreement will terminate, if other than the date of Substantial Completion.)

TRANSMITTING PARTY *(Signature)*

(Printed name and title)

RECEIVING PARTY *(Signature)*

(Printed name and title)

SECTION 01 4200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

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

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

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

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216

AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AHRI	Air-Conditioning, Heating, and Refrigeration Institute www.ahrinet.org	(703) 524-8800
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989

APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute (Now AHRI)	
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Safety Engineers www.asse.org	(847) 699-2929
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
ATIS	Alliance for Telecommunications Industry Solutions www.atis.org	(202) 628-6380
AWCI	Association of the Wall and Ceiling Industry www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (Now WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636

AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
BWF	Badminton World Federation (Formerly: IBF - International Badminton Federation) www.internationalbadminton.org	6-03-9283 7155
CCC	Carpet Cushion Council www.carpetcushion.org	(610) 527-3880
CDA	Copper Development Association www.copper.org	(212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700

CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CPA	Composite Panel Association www.pbmdf.com	(703) 724-1128
CPPA	Corrugated Polyethylene Pipe Association www.plasticpipe.org	(800) 510-2772 (202) 462-9607
CRI	Carpet and Rug Institute (The) www.carpet-rug.com	(706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	Canadian Standards Association	(800) 463-6727 (416) 747-4000
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Cast Stone Institute www.caststone.org	(717) 272-3744
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010

ECA	Electronic Components Association www.ec-central.org	(703) 907-8024
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee www.ejdc.org	(703) 295-5000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association) www.esda.org	(315) 339-6937
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA) www.intertek-etlsemko.com	(800) 967-5352
FIBA	Federation Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.org	41 21 345 35 35
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridaroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0

GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Part of GSI)	
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (Now CSA International)	
IBF	International Badminton Federation (Now BWF)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IES	Illuminating Engineering Society www.ies.org	(212) 248-5000

IESNA	Illuminating Engineering Society of North America (Now IES)	
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 981-0100
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
	Available from ANSI www.ansi.org	(202) 293-8020
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (702) 567-8150
ITS	Intertek Testing Service NA (Now ETL SEMCO)	
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(888) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190

MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937 (604) 298-7578
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6623 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAGWS	National Association for Girls and Women in Sport www.aahperd.org/nagws/	(800) 213-7193, ext. 453 (703) 476-3400
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-2300
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110

NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.com	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930

NTRMA	National Tile Roofing Manufacturers Association (Now TRI)	
NWFA	National Wood Flooring Association www.woodfloors.org	(800) 422-4556 (636) 519-9663
NWWDA	National Wood Window and Door Association (Now WDMA)	
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.cee.uiuc.edu	(217) 333-3929
PLANET	Professional Landcare Network www.landcarenetwork.org	(800) 395-2522 (703) 736-9666
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service www.redwoodinspection.com	(925) 935-1499
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SCTE	Society of Cable Telecommunications Engineers www.scte.org	(800) 542-5040 (610) 363-6888
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010

SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(866) 817-8888 (703) 683-2075
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smainfo.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974

TCNA	Tile Council of North America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tileroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WCSC	Window Covering Safety Council www.windowcoverings.org	(800) 506-4636 (212) 297-2109
WDMA	Window & Door Manufacturers Association www.wdma.com	(800) 223-2301 (847) 299-5200

WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WIC	Woodwork Institute of California (Now WI)	
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DIN	Deutsches Institut f?r Normung e.V. www.din.de	49 30 2601-0
IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543
UBC	Uniform Building Code (See ICC)	

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000

DOD	Department of Defense http://.dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Buildings Service (See GSA)	
PHS	Office of Public Health and Science www.hhs.gov/ophs	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934

USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
	Available from Defense Standardization Program www.dps.dla.mil	
	Available from General Services Administration www.gsa.gov	(202) 619-8925
	Available from National Institute of Building Sciences www.wbdg.org/ccb	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	

MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	
MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AZDEQ	State of Arizona Department of Environmental Quality www.azdeq.gov	(602) 771-2300

G. Local Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

FCD	Flood Control District of Maricopa County www.fcd.maricopa.gov	(602) 506-1501
MAG	Maricopa Association of Governments www.mag.maricopa.gov	(602) 254-6300

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 4500 - QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 QUALITY ASSURANCE

A. Testing laboratory for testing hereinafter specified shall be as determined by the Gila County Public Works Department.

B. Codes and Standard: Testing, when and where required, will be in accordance with pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

1.3 SPECIAL INSPECTION

A. The Special Inspector shall be a person qualified to inspect the particular type of construction or operation requiring special inspection. He shall demonstrate his competence to the satisfaction of the Gila County Building Official.

B. Inspection by the Special Inspector shall in no way relieve the Contractor of his obligation to perform the Work in accordance with the requirements of the Contract Documents.

C. Special Inspectors shall observe the work for conformance with the Drawings and Specifications and in accordance with the applicable provisions of International Building Code 2003.

1.4 NOTIFICATION

A. Notification of testing laboratory that materials are ready for sampling shall be made by the Contractor. In the case of soil testing, such notification shall be made at least 24 hours in advance.

B. Notification of Special Inspector shall be made by the Contractor 24 hours prior to the expected time for operations requiring special inspection. The geotechnical engineer shall be notified at least 24 hours in advance.

1.5 SAMPLING

A. Specimens and samples for testing, unless otherwise provided in the Contract Documents, will be taken by the testing personnel. Sampling equipment and personnel will be provided by the testing laboratory. Deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

1.6 REPORTS

A. The testing lab will promptly process and distribute required copies of test reports and related instructions to ensure necessary retesting and replacement of materials with the least possible delay.
   1. Retests of all work shall be specifically indicated by the term "Retest" and shall be sufficiently descriptive to designate the date, location, and original test information indicating why the original was not in compliance with documents.

B. The Laboratory shall send all test reports to the Architect and the Contractor.

C. Special Inspection Reports. Within twenty-four (24) hours after each special inspection, submit one (1) copy of inspection reports to the Contractor, Architect, and building official. Include the following:
   Date Issued
   Project Title and Number
   Name of Inspector
   Date and Time of Inspection
   Identification of Specifications Section
   Location in the Project
   Type of Inspection or Test
   Date of Test
   Results of Tests and conformance with Contract Documents
   1. All Discrepancies shall be noted and brought to the attention of the Contractor for correction. If corrections are not made, notify the Architect and the Gila County Building Official.

D. Final Special Inspection Reports shall be signed and submitted by the special inspector, and shall state whether the work requiring special inspection was, to the best of his knowledge, in conformance with the approved Drawings and Specifications and the applicable workmanship provisions of the International Building Code 2003.

PART 2 - TESTING AND INSPECTION

2.1 TESTS

A. Tests are specified in the following Sections:
   01 4520 Testing, Adjusting and Balancing
   03 3000 Cast-In-Place Concrete

2.2 SPECIAL INSPECTIONS

A. Special inspections are specified in the following Sections, and shall be performed by the indicated party:
   03 3000 Cast-In-Place Concrete, concrete reinforcement
   07 8400 Firestopping
   Sheet S0.1 Structural Notes

2.3 SOILS INSPECTION AND TESTING

A. Soils inspection and testing are specified in the following Sections:
31 2000 Earth Moving

2.4 PATCHING

A. Patching, if required by the taking of samples, shall be made by the Contractor.

PART 3 - PAYMENT FOR TESTING

3.1 INITIAL SERVICES

A. The Owner shall pay for testing and inspection services as directed by DLR Group. The Contractor shall pay for all testing, adjusting, balancing and inspection which is required by Division 01 Section "Testing, Adjusting and Balancing for HVAC."

B. When initial tests indicate noncompliance with the Contract Documents, all subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency and the cost thereof will be the responsibility of the Contractor.

END OF SECTION

SECTION 01 4520 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes TAB to produce design objectives for the following:
   1. Air Systems:
      a. Rooftop package units.
      b. Exhaust systems.
   2. HVAC equipment quantitative-performance settings.
   3. Verifying that automatic control devices are functioning properly.
   4. Reporting results of activities and procedures specified in this Section.

1.3 DEFINITIONS

A. Adjust: To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.

B. Balance: To proportion flows within the distribution system, including submains, branches, and terminals, according to indicated quantities.

C. Barrier or Boundary: Construction, either vertical or horizontal, such as walls, floors, and ceilings that are designed and constructed to restrict the movement of airflow, smoke, odors, and other pollutants.

D. Draft: A current of air, when referring to localized effect caused by one or more factors of high air velocity, low ambient temperature, or direction of airflow, whereby more heat is withdrawn from a person's skin than is normally dissipated.

E. NC: Noise criteria.

F. Procedure: An approach to and execution of a sequence of work operations to yield repeatable results.

G. Report Forms: Test data sheets for recording test data in logical order.

H. Static Head: The pressure due to the weight of the fluid above the point of measurement. In a closed system, static head is equal on both sides of the pump.

I. Suction Head: The height of fluid surface above the centerline of the pump on the suction side.

J. System Effect: A phenomenon that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.

K. System Effect Factors: Allowances used to calculate a reduction of the performance ratings of a fan when installed under conditions different from those presented when the fan was performance tested.

L. TAB: Testing, adjusting, and balancing.

M. Terminal: A point where the controlled medium, such as fluid or energy, enters or leaves the distribution system.

N. Test: A procedure to determine quantitative performance of systems or equipment.

O. Testing, Adjusting, and Balancing (TAB) Firm: The entity responsible for performing and reporting TAB procedures.

1.4 SUBMITTALS

A. Qualification Data: Within 30 days from Contractor's Notice to Proceed, submit 3 copies of evidence that TAB firm and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.

B. Contract Documents Examination Report: Within 30 days from Contractor's Notice to Proceed, submit 3 copies of the Contract Documents review report as specified in Part 3.

C. Strategies and Procedures Plan: Within 90 days from Contractor's Notice to Proceed, submit 3 copies of TAB strategies and step-by-step procedures as specified in Part 3 "Preparation" Article. Include a complete set of report forms intended for use on this Project.

D. Certified TAB Reports: Submit three copies of reports prepared, as specified in this Section, on approved forms certified by TAB firm.

E. Warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. TAB Firm Qualifications: Engage a TAB firm certified by AABC, NEBB, or TABB.

B. Certification of TAB Reports: Certify TAB field data reports. This certification includes the following:
1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
2. Certify that TAB team complied with approved TAB plan and the procedures specified and referenced in this Specification.

C. TAB Report Forms: Use standard forms from AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" or equal NEBB or TABB forms.

D. Instrumentation Type, Quantity, and Accuracy: As described in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems."

E. Instrumentation Calibration: Calibrate instruments at least every six months or more frequently if required by instrument manufacturer.
   1. Keep an updated record of instrument calibration that indicates date of calibration and the name of party performing instrument calibration.

F. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 7.2.2 - "Air Balancing."

G. ASHRAE/IESNA 90.1-2004 Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.7.2.3 - "System Balancing."

1.6 COORDINATION

A. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist TAB activities.

B. Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.

C. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

1.7 WARRANTY

A. National Project Performance Guarantee: Provide a guarantee on AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" forms stating that AABC will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee includes the following provisions:
   1. The certified TAB firm has tested and balanced systems according to the Contract Documents.
   2. Systems are balanced to optimum performance capabilities within design and installation limits.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.
   1. Contract Documents are defined in the General and Supplementary Conditions of Contract.
   2. Verify that balancing devices, such as test ports, flow-control devices, balancing valves and fittings, and manual volume dampers, are required by the Contract Documents. Verify that quantities and locations of these balancing devices are accessible and appropriate for effective balancing and for efficient system and equipment operation.

B. Examine approved submittal data of HVAC systems and equipment.

C. Examine Project Record Documents described in Division 01 Section "Project Record Documents."

D. Examine design data, including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

E. Examine equipment performance data including fan and pump curves. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system. Calculate system effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from those presented when the equipment was performance tested at the factory. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," Sections 7 through 10; or in SMACNA's "HVAC Systems--Duct Design," Sections 5 and 6. Compare this data with the design data and installed conditions.

F. Examine system and equipment installations to verify that they are complete and that testing, cleaning, adjusting, and commissioning specified in individual Sections have been performed.

G. Examine system and equipment test reports.

H. Examine HVAC system and equipment installations to verify that indicated balancing devices, such as test ports, flow-control devices, and manual volume dampers, are properly installed, and that their locations are accessible and appropriate for effective balancing and for efficient system and equipment operation.

I. Examine systems for functional deficiencies that cannot be corrected by adjusting and balancing.

J. Examine HVAC equipment to ensure that clean filters have been installed, bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.

K. Examine strainers for clean screens and proper perforations.

L. Examine heat-transfer coils for correct piping connections and for clean and straight fins.

M. Examine equipment for installation and for properly operating safety interlocks and controls.

N. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

A. Prepare a TAB plan that includes strategies and step-by-step procedures.

B. Complete system readiness checks and prepare system readiness reports. Verify the following:
   1. Permanent electrical power wiring is complete.

2. Automatic temperature-control systems are operational.
3. Equipment and duct access doors are securely closed.
4. Balance, smoke, and fire dampers are open.
5. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
6. Windows and doors can be closed so indicated conditions for system operations can be met.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in ASHRAE 111, AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" and this Section.
   1. Comply with requirements in ASHRAE 62.1-2004, Section 7.2.2 - "Air Balancing."

B. Cut insulation, ducts, and equipment cabinets for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. After testing and balancing, close probe holes and patch insulation with new materials identical to those removed. Restore vapor barrier and finish according to insulation Specifications for this Project.

C. Mark equipment and balancing device settings with paint or other suitable, permanent identification material, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, to show final settings.

D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

B. Prepare schematic diagrams of systems' duct layouts.

C. Determine the best locations in main and branch ducts for accurate duct airflow measurements.

D. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

E. Check dampers for proper position to achieve desired airflow path.

F. Check for airflow blockages.

3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
   1. Measure fan static pressures to determine actual static pressure as follows:
      a. Measure outlet static pressure as far downstream from the fan as practicable and upstream from restrictions in ducts such as elbows and transitions.
      b. Measure static pressure directly at the fan outlet or through the flexible connection.

c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from flexible connection and downstream from duct restrictions.
d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.

2. Compare design data with installed conditions to determine variations in design static pressures versus actual static pressures. Compare actual system effect factors with calculated system effect factors to identify where variations occur. Recommend corrective action to align design and actual conditions.
3. Make required adjustments to pulley sizes, motor sizes, and electrical connections to accommodate fan-speed changes.
4. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full cooling, full heating, economizer, and any other operating modes to determine the maximum required brake horsepower.

B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.
1. Measure static pressure at a point downstream from the balancing damper and adjust volume dampers until the proper static pressure is achieved.
a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
2. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.

C. Measure terminal outlets and inlets without making adjustments.
1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.

D. Adjust terminal outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using volume dampers rather than extractors and the dampers at air terminals.
1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.
2. Adjust patterns of adjustable outlets for proper distribution without drafts.

3.6 PROCEDURES FOR HEAT-TRANSFER COILS

A. Refrigerant Coils: Measure the following data for each coil:
1. Dry-bulb temperature of entering and leaving air.
2. Wet-bulb temperature of entering and leaving air.
3. Airflow.
4. Air pressure drop.
5. Refrigerant suction pressure and temperature.

3.7 PROCEDURES FOR TEMPERATURE MEASUREMENTS

A. During TAB, report the need for adjustment in temperature regulation within the automatic temperature-control system.

B. Measure indoor wet- and dry-bulb temperatures every other hour for a period of two successive eight-hour days, in each separately controlled zone, to prove correctness of final temperature settings. Measure when the building or zone is occupied.

C. Measure outside-air, wet- and dry-bulb temperatures.

3.8 TEMPERATURE-CONTROL VERIFICATION

A. Verify that controllers are calibrated and commissioned.

B. Check transmitter and controller locations and note conditions that would adversely affect control functions.

C. Record controller settings and note variances between set points and actual measurements.

D. Check the operation of limiting controllers (i.e., high- and low-temperature controllers).

E. Check the interaction of interlock systems.

3.9 TOLERANCES

A. Set HVAC system airflow and water flow rates within the following tolerances:
1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus 5 percent.
2. Air Outlets and Inlets: plus to minus 5 percent.

3.10 REPORTING

A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for systems' balancing devices. Recommend changes and additions to systems' balancing devices to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.

3.11 FINAL REPORT

A. General: Typewritten, or computer printout in letter-quality font, on standard bond paper, in three-ring binder, tabulated and divided into sections by tested and balanced systems.

B. Include a certification sheet in front of binder signed and sealed by the certified testing and balancing engineer.
1. Include a list of instruments used for procedures, along with proof of calibration.

C. Final Report Contents: In addition to certified field report data, include the following:
1. Pump curves.

2. Fan curves.
3. Manufacturers' test data.
4. Field test reports prepared by system and equipment installers.
5. Other information relative to equipment performance, but do not include Shop Drawings and Product Data.

D. General Report Data: In addition to form titles and entries, include the following data in the final report, as applicable:
1. Title page.
2. Name and address of TAB firm.
3. Project name.
4. Project location.
5. Architect's or Owner-designated person's name and address.
6. Engineer's name and address.
7. Contractor's name and address.
8. Report date.
9. Signature of TAB firm who certifies the report.
10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
11. Summary of contents including the following:
    a. Indicated versus final performance.
    b. Notable characteristics of systems.
    c. Description of system operation sequence if it varies from the Contract Documents.
12. Nomenclature sheets for each item of equipment.
13. Notes to explain why certain final data in the body of reports varies from indicated values.
14. Test conditions for fans and pump performance forms including the following:
    a. Settings for outside-, return-, and exhaust-air dampers.
    b. Conditions of filters.
    c. Cooling coil, wet- and dry-bulb conditions.
    d. Fan drive settings including settings and percentage of maximum pitch diameter.
    e. Other system operating conditions that affect performance.

E. Air-Handling Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data: Include the following:
    a. Unit identification.
    b. Location.
    c. Make and type.
    d. Model number and unit size.
    e. Sheave make, size in inches (mm), and bore.
    f. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).
2. Motor Data:
    a. Horsepower and rpm.
    b. Volts, phase, and hertz.
    c. Full-load amperage and service factor.
    d. Sheave make, size in inches (mm), and bore.
    e. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).
3. Test Data (Indicated and Actual Values):
    a. Total airflow rate in cfm (L/s).

b. Total system static pressure in inches wg (Pa).
c. Fan rpm.
d. Discharge static pressure in inches wg (Pa).
e. Outside airflow in cfm (L/s).
f. Return airflow in cfm (L/s).

F. Fan Test Reports: For supply, return, and exhaust fans, include the following:
1. Fan Data:
a. System identification.
b. Location.
c. Make and type.
d. Model number and size.
e. Sheave make, size in inches (mm), and bore.
f. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).
2. Motor Data:
a. Horsepower and rpm.
b. Volts, phase, and hertz.
c. Full-load amperage and service factor.
d. Sheave make, size in inches (mm), and bore.
e. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).
3. Test Data (Indicated and Actual Values):
a. Total airflow rate in cfm (L/s).
b. Total system static pressure in inches wg (Pa).
c. Fan rpm.
d. Discharge static pressure in inches wg (Pa).
e. Suction static pressure in inches wg (Pa).

G. Round, and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:
1. Report Data:
a. System and air-handling unit number.
b. Location and zone.
c. Duct static pressure in inches wg (Pa).
d. Duct size in inches (mm).
e. Indicated airflow rate in cfm (L/s).
f. Indicated velocity in fpm (m/s).
g. Actual airflow rate in cfm (L/s).
h. Actual average velocity in fpm (m/s).

H. Air-Terminal-Device Reports:
1. Unit Data:
a. System and air-handling unit identification.
b. Location and zone.
c. Test apparatus used.
d. Area served.
e. Air-terminal-device make.
f. Air-terminal-device number from system diagram.
g. Air-terminal-device size.
2. Test Data (Indicated and Actual Values):
a. Airflow rate in cfm (L/s).

b. Air velocity in fpm (m/s).
c. Preliminary airflow rate as needed in cfm (L/s).
d. Preliminary velocity as needed in fpm (m/s).
e. Final airflow rate in cfm (L/s).
f. Final velocity in fpm (m/s).

I. Compressor and Condenser Reports: For refrigerant side of unitary systems and air-cooled condensing units, include the following:
1. Unit Data:
a. Unit identification.
b. Location.
c. Unit make and model number.
d. Low ambient temperature cutoff in deg F (deg C).
2. Test Data (Indicated and Actual Values):
a. Entering-air, dry-bulb temperature in deg F (deg C).
b. Leaving-air, dry-bulb temperature in deg F (deg C).
c. Low-pressure-cutout set point in psig (kPa).
d. High-pressure-cutout set point in psig (kPa).
e. Suction pressure in psig (kPa).
f. Suction temperature in deg F (deg C).
g. Condenser refrigerant pressure in psig (kPa).
h. Condenser refrigerant temperature in deg F (deg C).
i. Voltage at each connection.
j. Amperage for each phase.

J. Instrument Calibration Reports:
1. Report Data:
a. Instrument type and make.
b. Serial number.
c. Application.
d. Dates of use.
e. Dates of calibration.

3.12 INSPECTIONS

A. Initial Inspection:
1. After testing and balancing are complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the Final Report.
2. Randomly check the following for each system:
a. Measure airflow of at least 10 percent of air outlets.
b. Measure room temperature at each thermostat/temperature sensor. Compare the reading to the set point.
c. Verify that balancing devices are marked with final balance position.
d. Note deviations to the Contract Documents in the Final Report.

B. Final Inspection:
   1. Owner or Architect or person designated by Owner may randomly select measurements documented in the final report to be rechecked. The rechecking shall be limited to either 10 percent of the total measurements recorded, or the extent of measurements that can be accomplished in a normal 8-hour business day.
   2. If the rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."
   3. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.
   4. TAB firm shall recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes and resubmit the final report.
   5. Request a second final inspection. If the second final inspection also fails, Owner shall contract the services of another TAB firm to complete the testing and balancing in accordance with the Contract Documents and deduct the cost of the services from the final payment.

3.13 ADDITIONAL TESTS

A. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional testing, inspecting, and adjusting during near-peak summer and winter conditions.

END OF SECTION

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Work Included: All labor, material, equipment and services necessary to furnish, erect and maintain temporary facilities and controls and perform temporary work required in the performance of the Contract, including those indicated and specified. The Drawings identify storage areas allocated to the Contractor for the Work, and he shall limit his storage and office operations to the defined areas.

B. Maintenance and Removal: Maintain temporary facilities and controls in a clean, proper, safe operating and sanitary condition for the duration of the Contract. Upon completion of the Contract, remove all temporary facilities and controls from the premises.

1.3 UTILITIES

A. Electric power as required for the Contractor's use, shall be provided by the Contractor.
   1. Electrical subcontractor will make arrangements for and install all equipment, poles, meter, wiring, switches, outlets, etc., to provide for all lighting and power requirements for construction purposes.
      a. Remove all temporary electrical equipment, poles, meter, wiring, switches, outlets, etc. when no longer needed.
      b. At completion of Work, remove and replace all parts of permanent systems damaged.
   2. Temporary electrical power used will be paid for by General Contractor.

B. Mechanical subcontractor will make all arrangements; install equipment, piping, and outlets for an adequate supply of clean water for construction purposes.

C. The General Contractor will furnish drinking water for all those connected with the work.
   1. Supply adequate cool, pure drinking water with individual drinking cups or sanitary bubbler fountain for the use of employees on the project. The quality of the drinking water shall meet the standards for public water supplies of the County Health Department.

1.4 TOILET FACILITIES

A. General Contractor will provide temporary toilet facilities for use of all workmen and enforce their use by all personnel.
   1. Provide facilities complying with local and State sanitary laws and OSHA regulations.
   2. Maintain in clean, sanitary condition.
   3. Provide adequate supplies of toilet paper.

1.5 ACCESSIBILITY OF VALVES AND CONTROLS

A. No equipment that has to be operated or maintained, such as valves, traps, controls, unions, motors, etc., shall be placed in an inaccessible location.
   1. Temporary fencing shall have no barbed wire components.
   2. Temporary fencing must have adequate contrast for the safety of the visually impaired – contrast may be achieved through color variation panels, signage or other means as approved by the Owner.

1.6 FIRE PROTECTION

A. Provide adequate fire extinguishers on the premises during the course of construction, of the type and sizes recommended by the NFPA, State Fire Marshal and the 2006 International Fire Code to control fires resulting from the particular work being performed and instruct employees in their use. Place extinguishers in the immediate vicinity of the work being performed, ready for instant use. In the use of especially hazardous types of equipment, such as acetylene torches, welding equipment, etc., no work shall be commenced or equipment used unless fire extinguishers of approved type and capacity are placed in the working area available for immediate use by the workman using the above-mentioned equipment.

1.7 TEMPORARY ENCLOSURES, BARRIERS AND FENCES

A. Provide and maintain all chain link fences, barricades, lights, shoring and other protective structures or devices necessary for the safety of workman, equipment, the public and property as required by State or municipal laws and regulations, local ordinances, laws and other requirements of the Municipal, County, State, and other authorities having jurisdiction with regard to safety precautions, operation and fire hazards.

B. Provide and maintain pumping facilities, including power, for keeping the site, excavations and structure free from accumulations of water at all times, whether from underground seepage, rainfall, drainage or broken line.

C. Provide 8-foot high woven wire temporary fencing around the construction area. The approval of the fence and its exact location will be made by the Owner. Fencing shall be erected and secured in a manner to withstand the forces to which it may be subjected. Locate gates for access to the areas as indicated. Close and lock all gates after normal working hours. A duplicate set of keys to all gate locks shall be furnished by the Contractor to the Owner.

1.8 SCAFFOLDING, STAGING, ETC.

A. The work under each Section of these Specifications shall include providing, installing, and maintaining all scaffolding, staging, trestles, and planking necessary for the work under each Section in strict conformity with applicable laws, ordinances, and maintenance of same so as not to interfere with or obstruct the work of other trades. Additionally, the work under each Section of these Specifications shall include providing all forms of protection necessary to preserve the work of other trades free from damage. These provisions shall be considered as though repeated under each separate Section of these Specifications.

1.9 TREE AND PLANT PROTECTION

A. Existing or newly planted vegetation, shrubs, trees, sidewalks, paving, etc., on the site (including the site areas in the overhead transmission easements), shall, unless directly affected by the Work of this Contract, be protected against damage of any kind. No diesel or gasoline engine shall be left running under trees to remain. No vehicle shall be allowed to pass over the feeder root system within the drip line unless approved by the Owner. Work, storage and traffic areas shall be restricted to those areas immediately adjacent to the construction site as outlined in the contract documents. Damage of any kind caused by the Work of this Contract shall be replaced before final acceptance of the Project. The Contractor shall provide water and protection barricades as required to maintain all trees, plants, shrubs, site improvements, etc., whether new or designated to remain.

1.10 SECURITY

A. Protect both the Contractor and Owner's interest during the progress of construction of the project. The Architect and the Owner do not assume any responsibility, at any time, for the protection of the construction project and construction premises or for the loss of materials, from the time that the Contract operations have commenced until the final acceptance of the Work by the Owner. If a bonded watchman's service is deemed necessary by the Contractor, such protection shall be provided by the Contractor.

1.11 NOISE, DEBRIS AND DUST CONTROL

A. Exercise all possible care to control excessive noise and dust during the construction to keep these problems to a minimum. Traffic or construction areas shall be sprinkled with water or chemicals as required by the Owner and in accordance with applicable City and County requirements.

B. All debris, etc., shall be removed from all pipe, pipe chases or other such remote and hidden spaces prior to closing of said space.

1.12 COLLECTION AND DISPOSAL OF WASTE

A. Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste materials and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F. Handle hazardous, dangerous, or unsanitary waste material separately from other waste by containerizing properly. Dispose of material in a lawful manner.

1.13 FIELD OFFICE, STORAGE ENCLOSURES

A. Provide suitable temporary office facilities for use also by the Owner and Architect complete with two telephones, fax machine (separate phone line), bottled water and furnishings, required for the Contractor's administration of the Work in such locations as approved by the Owner. Office space shall be kept clean by the Contractor.
   1. Temporary office facilities shall include the following: 2 offices and a conference room that seats a minimum of 12 people which may be locked independently from other facilities. Office space shall be minimum 12 ft. x 60 ft. Furnishings shall be approved by the Owner. For the duration of the Construction period, provide the space with:
      a. Heating, air conditioning, toilet, carpet, lighting, 110V electrical service, two private telephone lines, one with handset and telephone recording machine, and one with facsimile machine and standard paper, Contractor shall pay all utility charges, telephone installation and removal, local and long distance phone service calls.
      b. Three desks with locks, 3 adjustable desk chairs with caster and 4 side chairs, and 3 wastebaskets.
      c. Two wall mounted plan racks.
      d. Sample shelves along one wall.
      e. Four 4-drawer legal size file cabinets with locks.
      f. One folding conference table (10'-0" long) with 12 folding chairs.
      g. Bottled water service complete with electric dispenser and paper cups.
      h. Copy machine (facsimile machine is not to be used as copy machine).
      i. Weekly cleaning service.
      j. First Aid Supplies: Comply with governing regulations and recognized recommendations within the construction industry. Provide a sign on office structure to identify "Emergency First Aid."
      k. Protective Headgear: For visitors' use, 4 clean, adjustable band helmets.
      l. Fire Extinguisher: Provide size, number and type of fire extinguisher required by local fire marshal for office and storage areas.
   2. Upon completion of the Project, remove temporary offices and storage facilities, and leave premises in conditions required by the Contract.

B. Contractor shall provide all storage enclosures required for his operations.
   1. General Contractor furnish and install temporary enclosures, doors and transparent plastic windows required to protect building from damage due to vandalism, or the elements, or to maintain suitable temperature during installation or finishing work.

C. Provide all items required to ensure safety of individuals on site.

1.14 TEMPORARY STORAGE AND WORKING AREAS

A. Prior to start of Work, General Contractor shall meet with all other contractors to arrange and prepare a plot plan defining working and storing areas for each subcontractor and traffic areas.
   1. Except as specifically provided, working and storing outside these areas will not be permitted.
   2. Arrange and locate temporary structures and sheds to avoid interfering with construction.

B. Within area designated for his use, each subcontractor shall provide suitable and sufficient enclosed and covered spaces, with raised flooring, to protect materials and equipment from damage by weather or construction work.
   1. Maintain storage and working areas in clean and orderly condition.
   2. Upon completion of work, or sooner if directed by Architect, remove temporary structures and leave area in clean and orderly condition.

1.15 STAGING AREAS

A. If applicable to the Project, the Contractor shall be responsible for meeting and conferring with the local Traffic Engineering Department to determine the areas and limits of all staging areas that will occur outside of the property line of the site.

B. After the staging limit areas have been determined, the Contractor shall prepare and submit to the local authority, Architect and Owner, a detail drawing of the fenced areas including all traffic control devices required by the local Traffic Barricade Manual.

C. The entire construction and staging areas shall be fenced to control the limits of access of personnel, equipment, storage and delivery of materials. Contractor shall obtain Municipal and County permits to construct fences in Municipal and County rights-of-way.

1.16 TEMPORARY SIGNS

A. Signs of Contractors and Subcontractors. Subject to prior approval the Architect as to size, design, type, location, and local regulations, the Contractor and his Subcontractors may erect temporary signs for purpose of identification and controlling traffic. The Contractor shall furnish, erect, and maintain such signs required by safety regulations and necessary to safeguard life and property. All signs shall conform to Gila County, Arizona sign regulations.

B. Project Signs as shown shall be furnished and erected by the Contractor. A shop drawing showing the lettering and layout shall be submitted to the Architect prior to the fabrication of the sign.
   1. Post no other signs on site except as noted, those required by law, and/or those approved by Owner.
   2. Upon completion of the Work, or sooner if directed, remove project signs.

C. Furnish and install 2 double-sided project signs at locations to be determined by Architect. Refer to following Detail for Temporary Project Sign.

END OF SECTION

SECTION 01 6600 - PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 GENERAL REQUIREMENTS

A. Material and equipment shall be of the manufacture, model, and type specified. Substitute material and equipment approved prior to bidding, in accordance with Division 00 Section "Instructions to Bidders," are incorporated into these Specifications as Addenda.

B. Material and equipment of acceptable manufacture: An item of material or equipment may be used in place of an item which is specified by manufacturer and model number or type, provided that all of the following provisions are met:
   1. The item is manufactured by one of the acceptable manufacturers listed in the Specifications or in this Section. Lighting fixtures are exempt from this provision.
   2. The item of material or equipment meets or exceeds the minimum qualities established by the specified item.
   3. The item is used throughout the project so that all items of material or equipment used in place of specified items are of the same make and type.
   4. The entire cost of all modifications which result from the use of items in place of specified items shall be borne by the Contractor who uses such items, at no additional cost to other Contractors or to the Owner.
   5. The Contractor accepts full responsibility for the operability and maintainability of all nonspecified equipment when installed in the available space of the project.

C. Repeated features or materials must be constructed alike, although detailed or indicated only once. Detail and ornament must continue throughout all moldings, bands, etc. Where items, devices, or equipment are specified singular in number, the Specification shall apply to as many items, devices, or pieces of equipment as are shown on the Drawings or required to complete the installation. Repeated items of equipment or materials shall be of the same manufacture, model number and type.

D. When bulky material and equipment are furnished by others, the Contractor shall, upon receipt of notice in ample time, leave proper openings to permit the installation and properly close such openings afterward.

E. When equipment is furnished by others, the Contractor shall use the manufacturer's detail drawings to establish roughing-in dimensions and location of services. In case of conflict, the equipment detail drawings and dimensions shall be used, except where aesthetic or structural considerations make an adjustment necessary.

1.3 DELIVERY, HANDLING, AND STORAGE

A. Furnish all labor, materials, tools, equipment, work, and services for delivery, receiving, handling, storage, and protection of materials and equipment.

B. See Technical Sections for additional requirements.

C. Completely coordinate with Work of other trades.

D. Although such Work is not specifically indicated, furnish all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.4 CODES AND CONSTRUCTION REQUIREMENTS

A. Comply with applicable codes.

B. Accomplish work to avoid damage to property.

C. Provide fire protection.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PRODUCT DELIVERY

A. By manufacturer's normal means.

B. In original labeled containers.

C. Where applicable, with U/L labeling on packages.

D. Contractor responsible for acceptance at site.

E. Schedule deliveries to avoid delaying work.

F. Inspect items for damage upon delivery, reorder as required to avoid delays.

3.2 PRODUCT HANDLING AND STORAGE

A. Use methods to avoid damage to item or structure.

B. Protect weather fragile items from weather damage.

C. Store only in authorized areas on site.

D. When offsite storage is authorized, perform rehandling to move items to site at no added cost.

E. Replace or repair damaged items.

F. Protect installed items are required until acceptance of work.

G. Uncrate, assemble, if required and remove crate.

3.3 CLEAN-UP

A. Remove excess materials from site.

B. Turn over to Owner, excess materials scheduled to remain.

C. Restore site storage areas as directed by Architect.

END OF SECTION

SECTION 01 7123 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section describes requirements for verifying, establishing, and maintaining construction grades, lines, levels, and monuments as indicated within the Contract Documents.

1.3 GENERAL

A. The Contractor shall, before commencing Work, verify all grades, lines, levels, and dimensions indicated and report any errors or inconsistencies to the Architect. The Contractor shall not proceed until such errors or inconsistencies are corrected or meet Architect modified requirements.

B. Provide construction staking and surveying from base lines, grades, and benchmarks shown on the plans. Under no circumstances will the Contractor be granted a time extension to this contract due to the lack of construction survey information. Any discrepancies in design of base lines and grades revealed in construction operations shall be brought to the Architect's attention immediately for correction or clarification.

C. The Contractor shall establish and maintain all construction grades, lines, levels, and benchmarks and shall be responsible for the accuracy and protection of the same. This work shall be accomplished by a licensed civil engineer or land surveyor. Protect all temporary benchmarks and maintain them in place for the duration of the Contract or until such time as their removal does not affect completion of the Project.

D. Do not remove any property line markers or monuments or data established by the Owner. If such are damaged or removed, the Contractor shall bear cost of replacement.

E. The Contractor shall provide the Owner at the end of the Project, a certified survey of all underground utilities as part of this Project.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 7329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Work Included: This Section establishes general requirements pertaining to cutting, fitting, and patching of the Work required to:
   1. Make the several parts fit properly.
   2. Uncover Work to provide for installation, inspection, or both of ill-timed Work.
   3. Remove and replace Work not conforming to requirements of the Contract Documents.
   4. Remove and replace defective Work.

1.3 QUALITY ASSURANCE

A. Perform all cutting and patching in accordance with pertinent requirements of the Specifications and in the event no such requirements are determined, in conformance with the Architect's written direction.

B. In all cases, exercise extreme care in cutting operations and perform such operations under adequate supervision by competent mechanics skilled in the applicable trade. Openings shall be neatly cut and shall be kept as small as possible to avoid unnecessary damage. Careless and/or avoidable cutting damage, etc., will not be tolerated, and the Contractor will be held responsible for such avoidable or willful damage.

C. All replacing, patching, and repairing of materials and surfaces cut or damaged in the execution of the work shall be performed by experienced mechanics of the several trades involved. Such replacing, repairing, and/or patching shall be done with the applicable materials, in such a manner that all surfaces so replaced, etc., will upon completion of the work, match the surrounding similar surfaces.

1.4 SUBMITTALS

A. Request for the Architect's Consent:
   1. Prior to cutting which affects structural safety, submit a written request to the Architect for permission to proceed with cutting.
   2. Should conditions of the work, or schedule, indicate a required change of materials or methods for cutting and patching, notify the Architect and secure his written permission prior to proceeding.

B. Notices to the Architect:
   1. Submit written notice to the Architect designating the time the Work will be uncovered, therefore providing a time for the Architect's observation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. For replacement of Work removed, use materials which comply with the pertinent Section of these Specifications.

PART 3 - EXECUTION

3.1 CONDITIONS

A. Inspect existing conditions, including elements subject to movement or damage during cutting and patching.

B. After uncovering the Work, inspect conditions affecting installation of new Work.

3.2 DISCREPANCIES

A. If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed directions.

B. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

3.3 PREPARATION PRIOR TO CUTTING

A. Provide all required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

3.4 PERFORMANCE

A. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and will provide a proper surface to receive new installation or repair and new Work. Perform fitting and adjustment of products to provide finished installation complying with the specified tolerance and finishes.

END OF SECTION

SECTION 01 7423 - FINAL CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes labor, materials, tools, equipment, and services for final cleaning as required in conjunction with Work performed, in accordance with provisions of Contract Documents.

1.3 FIRE PROTECTION

A. Store volatile waste in covered metal containers.

B. Remove volatile waste from premises daily.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

A. Use materials recommended by manufacturers of surfaces to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer or by the manufacturer of surface to be cleaned.

PART 3 - EXECUTION

3.1 GENERAL

A. Clean all items installed under this Contract.
   1. Leave free of stains, damage, or other defects prior to final acceptance.
   2. Include washing, sweeping, polishing of all finished wall surfaces, floors, windows, hardware, mirrors, lighting fixtures and equipment items.
   3. Replace damaged or defaced items not acceptable to Architect, to his satisfaction at no additional expense to Owner.

B. See Technical Sections for additional cleaning requirements.

3.2 DURING CONSTRUCTION

A. Each Contractor:
   1. Clean up all waste materials, rubbish, and debris resulting from his own operations daily.

2. Place waste materials, rubbish, and debris from operations into approved containers outside of building in an area designated by Owner.
3. Oversee cleaning and ensure that the construction site is maintained free from accumulations of debris.
4. At reasonable intervals, minimum once a week, clean up entire site of excess debris and dispose of debris off-site.
5. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces of fixtures, hardware, and equipment.
6. Repair, patch, and touch-up marred surfaces to match adjacent finishes damaged by his own operations.
7. Comply with additional requirements defined in specifications.
8. Vacuum interior areas when ready for painting.
9. Schedule cleaning operations so that contaminants resulting from cleaning do not fall on wet painted surfaces.
10. Should the Contractor fail to clean up debris after written request by the Owner/Architect, then the Owner after 24 hours shall have the authority to provide clean-up services and deduct said services from the Contractor's Contract.
11. Sprinkle dusty debris with water.
12. Handle waste materials in a controlled manner. Do not drop or throw materials.

3.3 FINAL CLEANING

A. Use experienced workmen or professional cleaners for final cleaning.

B. At completion of construction, just prior to acceptance or occupancy, perform final cleaning.

C. Remove dirt, stains, labels, and foreign materials.

D. Repair and touch-up marred areas.

E. Broom clean paved surfaces; rake clean other surfaces of grounds; vacuum, polish, and mop floors.

F. Maintain cleaning until occupied by the Owner.

G. Clear ducts, blowers and coils if air conditioning units were operated without filters during construction.

H. Clean strainers and replace all filters.

END OF SECTION

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section describes procedures for project closeout as indicated in accordance with the provisions of the Contract Documents.

1.3 SUBSTANTIAL COMPLETION AND FINAL INSPECTION

A. When the Contractor is of the opinion that the Project is Substantially Complete, in accordance with the amendments to the General Conditions, he shall send to the Architect a written statement that the Work is complete and shall request a Substantial Completion inspection by the Architect. Such notice shall be given at least 3 working days before the requested inspection date. If the Architect finds the Work not to be Substantially Complete, the Architect shall advise Contractor in writing as to the reasons for such determination. After satisfying the Architect on either the first or subsequent inspection(s) that Substantial Completion has been achieved, the Architect shall so notify the Owner and establish a date and time for a Substantial Completion inspection to be attended by the Contractor, the Architect, and the Owner.

B. Once the Architect and Owner agree that Substantial Completion has been achieved, Architect shall prepare a Certificate of Substantial Completion, AIA Document G704, for the approval and acceptance of the Contractor and Owner, attaching thereto a "punch list" of items to be completed and corrected. This list will be as complete as possible, based on the Architect's observations, but shall not relieve or otherwise waive the Contractor's responsibility to complete or correct subsequently discovered items.

C. Final Application for Payment will not be accepted and processed until the Owner is satisfied that the Work is satisfactorily completed, including "punch list" items; and that all manuals, documents, guarantees, as-builts, and as-built drawings, as required by the Specifications, have been received and accepted by the Architect. Final Application for Payment shall be accompanied by the executed AIA Document G706 entitled "Contractor's Affidavit of Payment of Debts and Claims" and Document G707 entitled "Consent of Surety Company to Final Payment."

1.4 FINAL ADJUSTMENT, TESTS AND DEMONSTRATIONS

A. Tests: For the purpose of trial acceptance, the Contractor shall arrange, pay and perform a demonstration and test of all mechanical and electrical equipment furnished hereunder for operating efficiency and for conformance to all requirements herein specified and to all applicable regulations of any governing agency. Equipment shall be tested under operating conditions; where possible, all safety devices shall be tested under simulated emergency

conditions. All tests shall be scheduled through the Architect. The Architect shall notify the Owner of any scheduled tests at least 48 hours in advance so that the Owner may attend if desired. Where test results indicate a need for final adjustments, Contractor shall make such adjustments and retest until test results indicate compliance.

B. All tests shall be scheduled through the Architect and shall be witnessed by the Owner's representative for (but not necessarily limited to) the following tests:
1. Sterilization of Potable Water Systems: Divisions 22 and 33.
2. Waste Systems Hydrostatics Pressure: Division 22.
3. Water Systems Pressure Testing: 22 1000.
4. Air System Balancing: 01 4520.
5. Overload Protection Certification: Division 26.
6. Ground Fault Equipment: Division 26.
7. Fire Protection Systems: Division 21.

C. Demonstration: When the Contractor is satisfied that all systems and equipment meet performance and operational requirements directed by applicable codes, safety standards and these Specifications, he shall arrange for a basic demonstration and test in the presence of the Owner and/or Owner's representative. Testing shall be in accordance with written procedures as described or developed by Architect and included in the Contract Documents. Tests include (but are not necessarily limited to) the following:
1. HVAC Systems: Division 23.
2. Plumbing Systems: Division 22.
3. Controls and Instrumentation: Division 23.
4. Fire Alarm and Detection Systems: Division 28.

D. Certificate of Occupancy: All required certificates of inspection, tests, or approvals shall be secured by the Contractor from the governing authority. Promptly deliver the Certificate of Occupancy to the Architect.

1.5 WARRANTIES AND BONDS

A. See Section 01 7836.

1.6 EXTRA MATERIAL INVENTORY

A. See Section 01 7845.

1.7 MAINTENANCE AND OPERATION MANUALS

A. See Section 01 7823.

1.8 RECORD DRAWINGS

A. See Section 01 7839.

1.9 PROJECT DIRECTORY

A. Provide a typed list of all known major material/equipment suppliers and subcontractors, identified by name, address, telephone number, and contact person.

1.10 PROJECT CLOSE-OUT SUBMITTALS

A. At the time of Substantial Completion and prior to final payment, the Contractor shall deliver to the Owner via the Architect, the following items as described previously in this Section:
   1. Project Directory.
   2. Record Drawings.
   3. Maintenance and Operation Manuals.
   4. Extra Material Inventory.
   5. Warranties and Bonds.
   6. Certificate of Occupancy.
   7. Test Certificates.
   8. Annotated record photographs.
   9. Other records or information as may be required in other Sections of the Contract Documents.

1.11 POST-CONSTRUCTION INSPECTION

A. Architect will make visual inspections of Project in company of Owner and Contractor to determine whether correction of Work is required in accordance with provisions of the General Conditions.

B. The Architect will promptly notify Contractor of any observed deficiencies.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 7823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract. Prepare operating and maintenance data as specified in this section and as referenced in other pertinent sections of specifications.
   1. Contractor may submit digitally recorded instruction for selected procedures in lieu of written/pictorial instruction specified herein. Consult with Architect to determine applicable procedure prior to beginning digital recording.

B. Submit clear, clean and concise information as specified in this section and as referenced in other sections of specifications to the Architect for incorporation in an operating and maintenance manual.

C. Related Work Specified Elsewhere:
   1. Shop Drawings, Product Data and Samples: Section 01 3323.
   2. Closeout Procedures: Section 01 7700.
   3. Project Record Documents: Section 01 7839.
   4. Demonstration and Training: Section 01 7900.
   5. Warranties: Section 01 7836.

1.3 QUALITY ASSURANCE

A. Operation and maintenance manuals will be for training of and use by the Owner's personnel in the operation and maintenance of the systems and related equipment, if applicable, as specified below. The manuals shall consist of instructions on systems and equipment. A separate manual or chapter shall be prepared for each class of equipment or system listed:
   1. Domestic hot water systems
   2. Exhaust systems
   3. Temperature control systems
   4. Plumbing systems
   5. Sprinkler systems
   6. Electrical systems
   7. Self-contained emergency systems
   8. Miscellaneous building equipment and systems
   9. Controls and sequence of operations
   10. Motor starters
   11. Panel boards
   12. Switchboards
   13. Transformers

14. Lighting
15. Motors and motor control centers
16. Variable frequency drives
17. Condensing units
18. Wall hydrants
19. Pumps
20. Terminal units

B. Verify with all technical specifications the requirements for systems/products for O&M manuals.

1.4 INDEX

A. Information shall be complete and specific to this Project application. All material must be neat and legible.

B. Information shall be submitted on sheets measuring 8-1/2 inches by 11 inches except drawings which should not exceed 30 inches by 42 inches and electronic format (pdf) on CD-ROM.

C. Text information shall be manufacturers' printed data or neatly typewritten.

D. Clearly label each submittal for each piece of equipment or product separately called for in the Specifications with the Section number of the Specifications and the applicable drawing sheet number.

E. Each submittal shall include the following basic information for each piece of equipment, product or system:
1. Introduction
2. Table of Contents
3. Description of system (including design intent and considerations)
4. Operating sequence and procedures
5. Maintenance instructions and requirements
6. Diagrams
7. Parts list
8. Manufacturer
9. Subcontractor or installer
10. Maintenance contractor, if applicable
11. Local source of supply for parts and replacement

F. Product data to be provided by Contractor:
1. Include only information that is applicable to the specific product.
2. Annotate each sheet to:
    a. Clearly identify the specific product or part installed.
    b. Clearly identify the data applicable to the installation.
    c. Delete references to inapplicable information.
    d. Provide parts breakdown.
    e. Provide assembly drawings

G. Provide a copy of each warranty, bond or service contract issued. Submit with the foregoing an information sheet for Owner's personnel which includes:
   1. Effective dates or period
   2. Proper procedures in the event of failure
   3. Instances which might affect the validity of warranties, bonds or service contracts.

1.5 PREPARATION

A. The following subparagraphs are intended as a general guide in preparing the manuals. The manuals shall be prepared to provide for the optimum operation and maintenance of the various systems. The description of systems and general operation instructions for mechanical and electrical manuals shall cover in detail complicated, customized or unusual parts of these systems. Manufacturer's literature and data shall be that of the actual equipment installed under contract for the particular facility. Further guidance is available in the ASHRAE Handbook, 2003, HVAC Applications Chapter 38 Operations and Maintenance Management.

B. Manuals shall be properly organized and professionally prepared. Literature, instructions, etc., shall all be typed. Drawings shall be professionally drafted. Manuals shall be completely customized to this specific project. Crossed out information and generic diagrams and information is not acceptable. Inapplicable data and reference to inapplicable data shall be deleted.

1.6 MAINTENANCE AND OPERATION MANUALS

A. Thirty days prior to scheduled date of Substantial Completion, provide 3 copies of maintenance and operation instructions relating to all manufactured items of equipment and materials requiring maintenance (i.e., HVAC equipment, sprinkler controls, electrical devices, etc.).

B. The manuals shall be contained in hard back binders properly identified on front cover with project name, subcontractor, and general content. The material shall be suitably tab-indexed for ready reference, include a Table of Contents, and contain, as available from the Manufacturer/Supplier, the following information:
   1. Name of equipment, item and function.
   2. Manufacturer name and address.
   3. Model No. and Serial No., with option equipment identification.
   4. Rating in KW, HP, BTU, GPM, etc.
   5. Description of feature in model provided.
   6. Drawings of part(s) or assembly(ies) - control diagrams, parts lists, etc.
   7. Connection diagrams, mounting details, installation information, etc.
   8. Operation and maintenance information for services by Owner.
   9. Name, address, and telephone number of local supplier or service department.

1.7 SUGGESTED OUTLINE FOR OPERATING AND MAINTENANCE MANUALS

A. This is a suggested outline with general requirements of O&M manuals. The outline is presented to indicate the extent and items required in manuals for major facilities. The outline may be modified to suit specific installations; however, the intent of the manual must be fulfilled. It is not intended to duplicate manufacturer's data, but proper references should be made in the text of the O&M manual to indicate that information is applicable and where it is located.

PART 2 - DESCRIPTION AND DESIGN INTENT

2.1 INTRODUCTION

A. Scope. Brief description of project and purpose of manual. Provide a system description (written and diagrammatic). The following statements shall also be included; operation and maintenance of this equipment shall be performed in accordance with this manual and posted instructions, subject to compliance with applicable technical guides and standards issued by the Owner. It is recognized that minor changes in control points and settings will be required, based on actual operating experience, to correct varying conditions and improve operation. When such changes appear necessary, they shall be submitted to the Chief Operating Engineer for consideration. Upon approval of any changes, the applicable portions of all copies of the manual and proposed instructions shall be revised, reissued and any change in operating procedure brought to the attention of all operating personnel.

B. "This manual is specifically developed to assist the Owner's personnel in charge at the facility to operate and maintain the building systems and equipment. Manufacturers' recommendations set forth for certain components MUST be followed during the complete warranty period for that equipment."

C. Contents of Manual. This portion of the introduction shall contain an explanation that the manual is presented in a number of volumes which contain complete operating, maintenance and safety instructions for all equipment listed any other appropriate references as required to outline an explanation of the manuals and major categories of reference materials required with the manuals.

2.2 TABLE OF CONTENTS

A. The Table of Contents shall list numbers and titles of chapters, selections and main paragraphs with their page numbers. Each volume in a set of manuals shall contain its own Table of Contents. Publications containing ten or more illustrations or tables as applicable. These lists shall show number, title and page number of each illustration and/or table. Following is a typical partial Table of Contents:

Mechanical Systems
1. Space conditioning
2. Heating
3. Air conditioning systems
4. Air distribution and ventilating
5. Temperature control

Plumbing Systems
1. Potable water
2. Domestic hot water
3. Roof and sanitary drains

Fire Protection System
1. Water supply and distribution
2. Fire department connections
3. Fire extinguishers
4. Exit signs
5. See "Electrical for Fire Alarms and Emergency Lighting Units"

Electrical Systems

1. Electrical power distribution
2. Lighting
3. Intercom and paging (provided by Owner's supplier)
4. Fire alarm
5. Telephone system (provided by Owner's supplier)
6. Security and access control

2.3 PART II - OPERATING SEQUENCE AND PROCEDURES

A. Contents: The operating volume(s) shall contain a chapter for each item included in Part I. Each chapter shall describe the procedures necessary for Owner's personnel to operate the system and equipment covered in that chapter.

B. Operating Procedures: The operating procedures shall be divided into four subsections: start-up, operation, emergency operation, and shutdown.

C. Start-up: Give complete instructions for energizing the equipment and making initial settings and adjustments whenever applicable. If equipment if fully automatic, a statement to that effect is all that is required. If a specific sequence of steps must be performed, give step-by-step instructions in the proper sequence. If timing (such as warm-up between power-on and adjustment) is important, clearly state the specific minimum time required at the proper point in the procedure. Refer to controls and indicators by panel; make reference consistent with the nomenclatures used in illustrations and tables of controls and indicators. If preliminary settings differ for different modes of operations, give procedures for each mode.

D. Operation: Give detailed instruction in proper sequence for each mode of operation. Where, for a given action on the part of the operator, alternate equipment responses are possible, give the appropriate reaction to each.

E. Emergency Operation: If some functions of the equipment can be operated while other functions are disabled, give instructions for operations under these conditions. Include here only those alternate methods of operation (from normal) which the operator can follow when there is a partial failure or malfunctioning of components, or other unusual condition.

F. Shutdown Procedure: Include instructions for stopping and securing the equipment after operation. If a particular sequence is required, give step-by-step instructions in that order.

2.4 PART III - MAINTENANCE INSTRUCTIONS AND REQUIREMENTS

A. Contents. The maintenance volume(s) shall contain a chapter for each item included in Part I. Each chapter shall describe the procedures necessary for the Owner's personnel to perform the maintenance of the systems and equipment covered in that chapter. Emphasis should be made on the method of mechanical control of systems and equipment from a maintenance standpoint. Reference shall be made, as appropriate, to Drawings, schematics and sequences of operation included as part of the construction Contract Drawings and Specifications which show piping and equipment arrangements and items of control. Prints of these Drawings shall be reduced to 11 x 17 inches for insertion in the manuals. Drawings shall represent the "as-built" condition.

B. Maintenance Procedures: The maintenance procedures shall be divided into two categories: Preventative maintenance and corrective maintenance.

Preventative Maintenance

1. Provide a schedule for preventative maintenance. State preferably in tabular form the recommended frequency of performance for each preventative maintenance task (cleaning, inspection, and scheduled overhaul).
2. Provide instruction and schedules for all routine cleaning and inspection and lubrication as applicable. List recommended lubricants. Provide diagrams clearly showing location of lubrication points. Provide detailed blowups as necessary.
3. If periodic inspection of equipment is required for operation, cleaning or other reasons, indicate the items to be inspected and give the inspection criteria for, but not limited to, the following:
    a. Motors
    b. DDC/EMS Controls
    c. Filters
    d. Water Heaters
    e. Rooftop Heat Pumps
    f. Make-up Air Units
    g. Vehicle maintenance equipment
    h. Duct Smoke Detectors
    i. Exhaust Fans
    j. Plumbing Fittings and Specialties
    k. Plumbing Fixtures
    l. Heat Trace
4. Provide instructions for minor repairs or adjustments required for preventative maintenance routines. Minor repair and adjustment shall be limited to repairs and adjustments which may be performed without special tools or test equipment and which require no special training or skills. Identify test points and give values for each.

Corrective Maintenance

1. Corrective maintenance instructions shall be predicated upon a logical effect-to-cause troubleshooting philosophy and a rapid replacement procedure to minimize equipment downtime. Instructions and data shall appear in the normal sequence of corrective maintenance, i.e., troubleshooting first, repair and replacement of parts, then the parts list.
2. Troubleshooting: This information shall describe the general procedure for locating malfunctions and shall give, in detail, any specific remedial procedures or techniques. The data shown are intended to isolate only the most common equipment deficiencies. Troubleshooting tables, charts or diagrams may be used to present specific procedures. A guide to this type shall be a three column chart. The columns shall be entitled: Malfunction; Probable Cause; and Recommended Action. The information shall be alphabetically arranged as to type of component, and each component shall, in turn, list deficiencies that may be expected. Each deficiency shall contain one or more problems with a recommended correction.
3. Repair and Replacement: Indicate repair and replacement procedures most likely to be required in the maintenance of the equipment. Information included here shall consist of, in step-by-step fashion the instructions for repair and replacement of defective items. Include all information required to accomplish the repair or replacement, including such information as torque values and identifying all tools, special equipment and materials which might be required. Identify uses for maintenance equipment. The paragraphs shall contain headings to identify the topics covered.

4. Safety Precautions: This subsection shall comprise a listing for safety precautions and instructions to be followed before, during and after making repairs, adjustments or routine maintenance.

2.5 PART IV - DIAGRAMS

A. Providing wiring diagrams of equipment. Provide color coded wiring diagrams of installed systems showing all power, control and communication wiring as applicable. All diagrams shall be customized for this project.

B. Provide piping and flow diagrams and risers for applicable systems. Provide color coded piping diagrams of all mechanical and plumbing piping. Diagrams shall show flow direction and pipe sizes and identify all valves. Valves shall be labeled and numbered corresponding to actual valve tag. Valve labels shall be cross-referenced in operation and maintenance portion of the manual.

C. For electrical equipment, provide circuit directories or zoning of the systems as applicable.

2.6 PARTS LIST

A. Provide original manufacturer's parts list, current prices, illustrations, assembly drawings and diagrams required for maintenance.

B. Provide a schedule of predicted life of parts subject to wear.

C. Provide a schedule of items and quantity recommended to be stocked as spare parts. List spare parts initially supplied by manufacturer or provided under this contract.

D. List names, addresses, phone numbers and contact person for supplier, alternative parts suppliers and factory parts department.

E. Include copies of each warranty, bond or service agreement. Include name, address, telephone number of responsible organization and contact individual. List proper procedures to follow in the event of failure. List what actions by the Owner might affect validity of warranties, bonds, or service agreements.

2.7 POSTED OPERATING INSTRUCTIONS

A. General. Operating instructions and diagrams shall be prepared for posting near the equipment. Posted operating instructions shall be photographic or equal nonfading reproductions framed under glass or encased in nondiscoloring plastic and shall be mounted in locations near the appropriate piece of equipment. Instructions and diagrams shall also be used with the operating and maintenance manuals as a basis in training Owners personnel in the operation and maintenance of systems and related equipment installed under Contract at the facility.

B. Contents. Posted operating instructions shall consist of simplified, consolidated equipment, control and power diagrams graphically representing the entire system and actual equipment installed, including concise written instructions on how to start and stop systems, what settings and conditions are to be observed and what control adjustments are to be made or maintained by the operator.

2.8 SUBMITTALS

A. Preliminary submittal. Two draft copies and one CD-ROM of the complete manuscript for items as outlined herein and training programs in outline form shall be submitted to the Architect for Architect review 60 calendar days after approval of equipment. One copy will be returned to the Contractor within 30 days after submittal, and, if required, will be revised and resubmitted within 30 calendar days.

B. Second submittal. Submit two draft copies and one CD-ROM of the final draft manual with all revision incorporated along with an agenda of the training programs to the Architect for Architect review at least 120 days prior to the Contractor reaching Substantial Completion. One copy will be returned to the Contractor with comments.

C. Third submittal. Submit two copies and one CD-ROM of the final draft manual to the Architect for Architect review at least 30 calendar days prior to substantial completion. Final review comments will be returned within 8 calendar days following final inspection or acceptance.

D. Final submittal. Submit 4 complete sets of manuals and four complete sets of CD-ROMS's to the Architect within 6 calendar days of receipt of the final comments.

E. Make necessary corrections and/or additions to the manuals and CD-ROM's after conducting training for the Owner's personal and throughout the warranty period should conditions so warrant.

F. All submittals bound in 3-ring notebooks, shall have adequate room for material and be adequately labeled.
   1. Binders shall be D-ring type, same size and color for entire set.
   2. Each binder shall have an index for the entire set.
   3. Each binder shall contain the following information on binder cover and spine:
      a. Owner's name,
      b. Facility project name,
      c. Facility project address and cross streets.

G. All submittals on CD-ROM's shall have adequate room for material and be adequately labeled.
   1. Each CD-ROM shall have an index for the entire set.
   2. Each CD-ROM shall contain the following information on protective cover and label:
      a. Owner's name,
      b. Facility project name,
      c. Facility project address and cross streets.

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 7836 - WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

A. Provide written warranties, guarantees, bonds or service contracts for all products and installations.

B. Provide warranties, guarantees, bonds or service contracts for period(s) indicated.

C. Provide manufacturer's warranties or guarantees for products.
   1. Where manufacturer's standard warranties or guarantees expire before expiration date required by Contract Documents, obtain and pay for warranty or guarantee extensions, at no additional cost to Owner.

D. Provide all warranties, guarantees, bonds or service contracts prior to final acceptance.

E. Provide Architect a copy of each warranty, guarantee, bond or service contract issued. Submit with each of the foregoing an information sheet for Owner's personnel which includes:
   1. Effective dates or period.
   2. Proper procedures in the event of failure.
   3. Instances which might affect the validity of warranties, bonds or service contracts.

F. Submit all warranties, guarantees, bonds or service contracts identified by Specification Section and equipment identification used in operating and maintenance data.

G. Submit a schedule of all warranties, guarantees, bonds, or service contracts at least 60 calendar days prior to Substantial Completion.

H. Related Work Specified Elsewhere:
   1. Technical Specifications: Divisions 02 through 33
   2. Closeout Procedures: Section 01 7700
   3. Project Record Documents: Section 01 7839

1.3 WARRANTIES AND BONDS

A. Contractor shall provide written warranties and bonds in favor of the Owner, as required by respective Sections of these Specifications, and arrange to commence at the date of Substantial Completion of the Project or date of installation of warranted item(s), whichever is later.

B. Provisions of contract concerning Work provided or corrected after date of completion under provisions of the Contract (or any other provisions of the Contract except maintenance requirements) and all affected work are extended for period equal to original period of corrective or otherwise provided Work. Time coverage extension provisions of the Paragraph are not applicable to items of Work or equipment when so stipulated in the particular Specification Section for that time.

C. During the period of any guarantee, the Contractor shall provide services within a reasonable time following a request by the Owner to do so. When the complete breakdown of a piece of equipment occurs, the service shall be performed within 24 hours. The service shall be provided during normal working hours, unless otherwise specified herein. Should the listed service agency fail to perform the service in a reasonable amount of time, the Contractor shall provide the service through any other agency that will comply.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION - (Not Applicable)

END OF SECTION

SECTION 01 7839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

A. Work Included:
   1. Throughout progress of the Work of this Contract, the Contractor shall maintain an accurate record of all changes in the Contract Documents, as described in Paragraph 3.1 below.
   2. Upon completion of the Work of this Contract, the Contractor shall transfer the recorded changes to portable documents files (PDFs).

B. Related Work Described Elsewhere:
   1. Shop Drawings, Product Data, and Samples: Section 01 3323.
   2. Project Closeout: Section 01 7700.

1.3 QUALITY ASSURANCE

A. General: Maintenance of Record Documents shall be the responsibility of one person on the Contractor's staff as approved in advance by the Architect.

B. Accuracy of Records: Thoroughly coordinate all changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to properly show the change. Accuracy of records shall be such that future searcher for items shown in the Contract Documents may reasonably rely on information obtained from the approved Record Documents.

C. Timing of Entries: Make all entries within 24 hours after receipt of information.

D. The Architect and the Owner shall examine the Contract Documents at selected intervals to assure Contractor compliance for updating entries. Should the Contractor fail to satisfy the requirements of this Section the Owner shall withhold the Contractor's monthly payment request until said requirements are satisfied.

1.4 SUBMITTALS

A. General: The Architect's approval of the current status of Record Documents will be a prerequisite to the Architect's approval of requests for progress payment and request for final payment under the Contract.

B. Final Submittal: Prior to submitting final Application for Payment, submit the final Record Documents required by Contract to the Architect and secure his approval.

1.5 CONSTRUCTION RECORD PHOTOGRAPHS

A. General: General Contractor shall be required to provide construction photographs of commercial quality. The Contractor shall be required to submit the electronic version for each photograph submitted and the Contract Documents shall specify that all photographs submitted by Contractor shall become the property of the Owner. The Contractor shall not use such photographs without the written permission of the Owner.

B. Record Photographs:
1. The Owner's intent is to have the Contractor photographically record significant buried, or otherwise inaccessible details such as major utility ties, utility service entrance details, complex routing of utilities in areas of congestion, etc.
2. Each photo shall be annotated to describe the subject matter, the date taken, location in relation to a suitable reference point, and the direction in which the photographer was facing.
3. The Contractor will provide not only the record photographs as determined at the preconstruction conference, but also any additional photographs as required by the Owner or Architect during construction. Additional record photographs shall be properly annotated by the Contractor on the set of plans being marked up for record drawings.

1.6 PRODUCT HANDLING

A. Use all means necessary to maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of the recorded data to the final Record Documents. In the event of loss of recorded data, use all means necessary to secure the data to the Architect's approval; such means shall include, if necessary in the opinion of the Architect, removal and replacement of concealing materials and, in such case, all replacements shall be to the standards originally specified in the Contract Documents.

PART 2 - PRODUCTS

2.1 RECORD DOCUMENTS

A. Job Set: Promptly following award of Contract, secure from the Architect, at no charge to the Contractor, one complete set of prints and specifications, all Documents comprising the Contract Documents.

B. The Contractor shall provide a complete set of prints of Contract drawings, clearly delineating all changes in the Work and dimensioned final locations of all schematically shown underground utility lines. These Record Drawings shall also reflect all changes due to Addenda issued at bidding time and change order items during construction, whether added or deleted. The change order and Addendum items shall be properly referenced by number.

C. The set of record prints shall be maintained at the job site and be readily available for inspection by the Architect. All changes shall be legibly marked on prints and kept current.

D. In showing changes in the Work, or added work, use the same legends as were used on the Contract Drawings. Indicate exact locations by dimensions, and exact elevations, given by job datum. Given dimensions from a permanent point of reference. Given elevations to sewer and drainage lines to the invert elevation.

E. Mechanical and electrical Record Drawings shall indicate exact routing of electrical feeders, main piping and ductwork and all concealed piping and conduit systems not easily located through the accesses provided.

F. Upon Substantial Completion of the project, Contractor shall produce a complete set of Record Drawings on bond paper. After Review of this set by the Architect, the documents will be returned to the Contractor to be scanned and converted to portable documents files (PDFs).
   1. Deliver scanned bond copy of printed drawings, along with complete PDFs, to the Owner.

PART 3 - EXECUTION

3.1 MAINTENANCE OF JOB SET

A. Identification: Immediately upon receipt of the job set described in Subparagraph 2.1.A above, identify each of the Documents with the title "RECORD DOCUMENTS - JOB SET."

B. Preservation:
   1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Architect.
   2. Do not use the job set for any purpose except entry of new data and review by the Architect, until start of transfer of data to final Record Documents.
   3. Maintain the job set at the site of Work as designated by the Architect.

C. Making Entries on Drawings: Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by note and by graphic lines, as required. Date all entries and incorporate entry from Subcontractor within 48 hours following completion of change. Call attention to the entry by a "cloud" around the area or areas affected. In the event of overlapping changes, different colors may be used for each of the changes.

D. Accuracy of Entries: Use all means necessary, including the proper tools and necessary labor for measurement, to determine actual locations of the installed items.

END OF SECTION

SECTION 01 7845 - SPARE PARTS AND MAINTENANCE MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section describes methods for documenting spare parts and maintenance materials as indicated, in accordance with the provisions of the Contract Documents.

B. See Specification Sections for items required.

1.3 SUBMITTALS (SEE SECTION 01 3323)

A. Spare parts and tools.

B. Maintenance.

C. Extra materials (attic stock).

D. Inventory of parts, tools, and materials.

PART 2 - PRODUCTS

2.1 SPARE PARTS AND TOOLS

A. Package in clearly identified boxes.
   1. Indicate manufacturer's name, part name and stock number.
   2. Indicate what the piece of equipment part or tool is for.
   3. Indicate name, address, and phone number of closest supplier.
   4. Indicate quantity

2.2 MAINTENANCE MATERIALS

A. Package in clearly identified boxes.
   1. Indicate trade name and stock number.
   2. Indicate which item material is to be used with.
   3. Indicate name, address, and phone number of closest supplier.
   4. Indicate quantity.

2.3 EXTRA MATERIAL INVENTORY

A. Upon Substantial Completion of the Contract Work, provide the Owner with extra materials (i.e., spare parts, etc.) as identified in respective sections of the Specifications. Deliver to the Owner when and as directed by the Architect on the basis of a written detailed inventory including a signed receipt from the designated Owner representative.

2.4 EXTRA MATERIALS (ATTIC STOCK)

A. Package in clearly identified container, or install where indicated.
   1. Indicate trade name, stock number, size, color, etc.
   2. Indicate where product is to be used.
   3. Indicate name, address, and phone number of closest supplier.
   4. Indicate quantity.

PART 3 - EXECUTION

3.1 DELIVERY

A. Deliver to County Manager at time of final completion, unless Owner requests earlier delivery.

END OF SECTION

SECTION 01 7900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION

A. Provide demonstrations and instructions for all equipment and systems for which operating and maintenance data is required. See individual sections.

B. Provide demonstration and training videotapes as specified.

1.3 QUALITY ASSURANCE

A. Instructors: Member(s) of installers' staff and authorized representative(s) of component, assembly, or system manufacturer(s). See individual sections for additional requirements.

1.4 SUBMITTALS

A. Schedule of Demonstrations: Submit for approval at least 2 weeks prior to first demonstration.

B. List of instructors and schedule of instruction. Submit for approval at least 2 weeks prior to first instruction period.

1.5 JOB CONDITIONS

A. Complete demonstrations prior to Substantial Completion. Coordinate with procedures for Substantial Completion to provide separate demonstrations.

B. Complete all instruction prior to Final Completion.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Recording: Provide high-quality DVD.

PART 3 - EXECUTION

3.1 PREPARATION

A. Do not begin demonstrations until the component, assembly or system being demonstrated has been tested as specified and is in satisfactory operating condition.

B. Do not begin instruction until demonstration is complete.

C. Assemble instructional aids.
   1. Have operating and maintenance data available for use during instruction (see Section 01 7823).

3.2 DEMONSTRATION

A. Inspect and operate satisfactorily, in presence of Architect and Owner, each system and item of equipment, including accessories.

B. Replace defective work or material.

C. Repeat inspection and demonstration until defects are eliminated.

3.3 INSTRUCTION

A. Instruct Owner's personnel in operation and maintenance of equipment and systems.
   1. Provide all necessary instruction to satisfaction of Owner.

B. Explain use of operating and maintenance manuals.

C. Tour building areas involved and identify:
   1. Maintenance points and access.
   2. Control locations and equipment.

D. Explain operating sequences.
   1. Identify location and show operation of switches, valves, etc., used to start, stop and adjust systems.
   2. Explain use of flow diagrams, operating sequence diagrams.
   3. Demonstrate operation through complete control cycle and full range of operation in all modes, including testing and adjusting relevant to operation.

E. Explain use of control equipment, including temperature settings, switch modes, available adjustments, ring of gages and functions that must be serviced only by authorized factory representatives.

F. Explain troubleshooting procedures.
   1. Demonstrate commonly occurring problems.
   2. Note procedures which must be performed by factory personnel.

G. Explain maintenance procedures and requirements.
   1. Point out items requiring periodic maintenance.
   2. Demonstrate typical preventive maintenance procedures and recommended typical maintenance intervals.
   3. Demonstrate other commonly occurring maintenance procedures not part of preventive maintenance program.
   4. Identify maintenance materials to be used.

H. Furnish all tools required.

3.4 DEMONSTRATION AND TRAINING DVD's

A. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
   1. At beginning of each training module, record each chart containing learning objective and lesson outline.
   2. Training modules shall correspond with list of items (HVAC, Electrical System, Piping and Plumbing, Miscellaneous) at end of this Section 01 7900.

B. Record instruction of Owner's personnel in the operation and maintenance of equipment and systems. Edit DVD to remove non-instructional conversation. Photographer shall select vantage points to best show equipment, systems, and procedures demonstrated.

3.5 TRAINING

A. The Contractor shall train Owner's designated representatives in the operation and maintenance of architectural, mechanical and electrical equipment. Coordination shall be maintained with systems designers for development of hours of instruction and scope of material to be covered. Training of Owner's designated representatives shall not commence until the Owner has received from the Contractor the final submittal copy of the operation and maintenance manual.
   1. Instruct Owner's personnel in operation and maintenance of all products, equipment and systems. Explain use of operating and maintenance manuals.
   2. Tour building areas involved and identify maintenance points and access and control locations and equipment.
   3. Explain operating sequences. Identify location and show operation of switches, valves, etc., used to start stop and adjust systems. Explain use of flow diagrams, operating sequence diagrams, etc. Demonstrate cooperation through complete control cycle and full range of operation in all modes, including testing, calibration and adjustment relevant to operation.
   4. Explain use of control equipment, including temperature setting, switch modes, available adjustments, reading gauges, and functions that must be serviced only by authorized factory representative.
   5. Explain troubleshooting procedures. Demonstrate commonly occurring problems. Note procedures which must be performed by factory personnel.
   6. Explain maintenance procedures and requirements. Point out items requiring periodic maintenance. Demonstrate typical preventive maintenance procedures and recommend typical maintenance intervals. Demonstrate other commonly occurring maintenance procedures not part of preventive maintenance program. Identify maintenance materials to be used.
   7. Emphasize safety procedures to be observed in operating and maintaining products, equipment and systems.
   8. Furnish all tools and equipment required.

B. Schedule Submittal: The proposed scope of training and materials and instruction schedule shall be submitted for review and approval approximately 30 calendar days before the scheduled completion of the building. Mutually agreeable dates for training shall be arranged with the Owner, but the training must be completed prior to final acceptance of the facility.

C. Scope of Training: Training shall include classroom and on-the-job instructions by qualified installation and maintenance personnel, having the necessary knowledge, experience and teaching skills. The use of factory personnel for training on major equipment items will be required. The qualifications of the training personnel shall be reviewed by the Architect prior to the training session. Any training session which is not acceptable to the Architect and the Owner shall be redone at the Contractor's expense. The General Contractor shall professionally videotape/audio complete instruction period as required. Tapes labeled and indexed shall be turned over to Owner after training has been completed. Contractor shall videotape with audio all of the training programs and shall deliver completed videotapes to the Owner.

D. Time Period of Training: The minimum specific hours of training time required for each category of major equipment and systems shall be as stated below. Where additional time is required to completely cover material, provide at no additional cost. Past experience indicates a workable ratio in the vicinity of approximately 25 percent classroom and 75 percent application, except that the ratio may be reversed for control systems. The Owner shall have the option of reversed for control systems. The Owner shall have the total time specified. Training will be presented on an 8-hour per day, 5-day per week schedule, with all reading assignments and review to be within this period.

ITEM		TIME (HRS)
1.	HVAC: Heating, ventilating and air conditioning (HVAC) equipment together with their respective operation and safety controls.	2
2.	Electrical System: Covers all building services, lighting and intercommunications.	1
3.	Piping and Plumbing: Includes, but not limited to, domestic water supply, storm and sanitary drainage systems, cold water supply system, etc.	1
4.	Miscellaneous: Includes, but not limited to, fire protection and alarm equipment, door operators, and all other equipment not specifically covered above.	4

END OF SECTION

DIVISION 03 - CONCRETE

Pages

SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.
   1. Footings.
   2. Slabs-on-grade.

B. This Specification Section is intended to specify concrete shown and detailed on the structural drawings. This Section includes foundations, building slab-on-grades.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.4 SUBMITTALS

A. Product Data: For each type of manufactured material and product indicated, if requested.

B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
   1. Indicate amounts of mix water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Shop drawings are required. Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement.

D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials.

E. Material Certificates: **Certificates only required if requested**. Signed by manufacturers certifying that each of the following items complies with requirements:
   1. Cementitious materials and aggregates.
   2. Steel reinforcement and reinforcement accessories.
   3. Admixtures.
   4. Curing materials.

5. Vapor retarders.
6. Joint-filler strips.
7. Repair materials.

F. Floor surface flatness and levelness measurements to determine compliance with specified tolerances. Measurement is only required if Owner or Architect deem the tolerances are not being met.

G. Pre-construction meeting minutes, if meeting is held.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
1. Manufacturer must be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.

C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

E. Welding: Qualify procedures and personnel according to AWS D1.4, "Structural Welding Code--Reinforcing Steel."

F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
   1. Plywood, metal, or other approved panel materials.
   2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      a. B-B (Concrete Form), Class 1, or better, mill oiled and edge sealed.

B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.

C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
   1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
   1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
   2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

E. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

2.3 REINFORCEMENT ACCESSORIES

A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
   1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.

B. Dowel Plate Assembly: Diamond Shaped Load Plate:
   1. 1/4-inch and 3/8-inch saw cut from hot rolled steel plate meeting ASTM A 36. 3/4-inch saw cut from cold rolled steel plate for acceptable tolerances meeting ASTM 108-03 Grade 1018.

2. Pocket Former: High density plastic with internal collapsible fins and spacer that hold diamond shaped load plate in correct position and creates a void to its vertical faces. This void, in addition to its tapered shape, shall allow for differential movement and shall prevent horizontal stress accumulation at joint, thus reducing likelihood of random cracking.
3. Manufacturer: PNA Construction Technologies, www.pna-inc.com; 1-800-542-0214.
4. Other manufacturer are acceptable if the construction joint doweling requirements of ACI-360 are met.

2.4 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I/II or II.
1. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, and as follows:
1. Class: 3M.
2. Nominal Maximum Aggregate Size: 1 inch (25 mm).
3. Combined Aggregate Gradation: Well graded from coarsest to finest with not more than 18 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve and on No. 50 (0.3-mm) sieve, and less than 8 percent may be retained on sieves finer than No. 50 (0.3 mm).

C. Water: Potable and complying with ASTM C 94.

2.5 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride. Any of the following mixtures may be used for mix designs.

B. Water-Reducing Admixture: ASTM C 494, Type A.

C. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

D. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

E. Air-Entraining Admixture: ASTM C 260.

2.6 SUBBASE (BELOW SLAB)

A. See Division 07 for vapor retarder requirement.

B. Aggregate Base Course (ABC): Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 8, with 100 percent passing a 1/2-inch (9.5-mm) sieve, 10 to 30 percent passing a No. 100 (0.15-mm) sieve, and at least 5 percent passing No. 200 (0.075-mm) sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

2.7 FLOOR AND SLAB TREATMENTS

A. Penetrating Liquid Floor Treatment: Apply to floors indicated as sealed concrete. Chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; colorless; that penetrates, hardens, and densifies concrete surfaces.

B. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
   1. Penetrating Liquid Floor Treatment:
      a. Ashford Formula; Curecrete Chemical Co., Inc.
      b. Euco Diamond Hard; Euclid Chemical Co.
      c. Seal Hard; L&M Construction Chemicals, Inc.

2.8 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 22 percent solids.

2.9 RELATED MATERIALS

A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Epoxy Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Shore A hardness of 80 per ASTM D 2240.

C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
   1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
   2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
   3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by underlayment manufacturer.

4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXES

A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
2. See Structural Notes for mix requirements.

B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.

C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash: 35 percent.

D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

E. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use corrosion inhibiting admixtures in concrete where indicated.

2.12 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.13 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94 and ASTM C 1116, and furnish batch ticket information.
1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
   1. Class A, 1/8 inch (3 mm), for all exposed to public view concrete surfaces.
   2. Class C, 1/2 inch (13 mm), for all other surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
   1. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Do not chamfer exterior corners and edges of permanently exposed concrete. Chamfer edges where indicated on the Drawings.

H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   1. Install anchor bolts, accurately located, to elevations required. Comply with AISC "Code of Standard Practice for Steel Buildings and Bridges" Section 7.5.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

A. See Division 07 for vapor retarder installation, if vapor retarder is required.

3.5 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
   1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
   1. Shop- or field-weld reinforcement according to AWS D1.4, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
   1. Place joints per details on Drawings. Continue reinforcement across construction joints, unless otherwise indicated. Dowel plates are not required when reinforcing is present.
   2. Provide dowel plates in slab-on-grades for unreinforced concrete.
   3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:
   1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
   2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
   3. Provide contraction joints in slab-on-grade at a maximum spacing on 12'-6" on center each way, unless noted otherwise on plans.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, exterior slab locations, and other locations, as indicated.
   1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
   2. Terminate full-width joint-filler strips not less than 1/2 inch (12 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
   3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Dowel Plate Assembly:
   1. Install at formed construction joints and mark center point for spacing of each Diamond Dowel® pocket former on top form. Use installation template. Insert correct tube, if needed, based on slab depth. Insert Diamond Dowel® pocket former into installation template. Nail Diamond Dowel® pocket former and remove installation template. Place and finish first slab. Use internal vibration to consolidate concrete around diamond shaped load plate pocket former per industry guidelines. Strip forms and bend nails flush with joint face.
   2. Insert Diamond Dowel® load plate into slot created by pocket former. Center corner of plate in middle of label and push straight through label into pocket former. Do not hammer or use excessive force to insert diamond shaped load plate. Insert diamond shaped load plate within two weeks of concrete placement. Place and finish second slab. Use internal vibration to consolidate concrete around Diamond Dowel® plate per industry guidelines

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Before placing concrete, water may be added at Project site, subject to limitations of ACI 301.
   1. Do not add water to concrete after adding high-range water-reducing admixtures to mix.

C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.

D. Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm) and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
   1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
   2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.

E. Deposit and consolidate concrete for floor slab in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
   1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
   2. Maintain reinforcement in position on chairs during concrete placement.
   3. Screed slab surfaces with a straightedge and strike off to correct elevations.
   4. Slope surfaces uniformly to drains where required.
   5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
   1. When air temperature has fallen to or is expected to fall below 40 deg F (4.4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
   2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
   3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.

G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
   1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
   2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
   3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch (3 mm) in height.
   1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with recommendations in ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes.
   1. Apply scratch finish to surfaces indicated and to surfaces to receive concrete floor topping or mortar setting beds for ceramic or quarry tile, portland cement terrazzo, and other bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
   1. Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

D. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
   1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.
   2. Finish surfaces to the following tolerances, according to ASTM E 1155/E 1155M for a randomly trafficked floor surface:
      a. Specified overall values of flatness, F(F) 35; and levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and levelness, F(L) 17; for slabs-on-grade. Values are relative to the surface being measured.

E. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.
   1. Comply with flatness and levelness for trowel finish floors.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
   1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.10 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

B. Equipment Bases and Foundations if applicable: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.11 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the following methods:

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floor slabs, by one or a combination of the following methods:
   1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
      a. Water.
      b. Continuous water-fog spray.
      c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   b. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer recommends for use with floor coverings.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.12 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
   1. Remove curing compounds (if non-dissipating product was used), sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
   2. Do not apply to concrete that is less than seven days old.
   3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner.
   4. Moist cure concrete for 7 days.

3.13 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
   1. Defer joint filling until concrete has aged at least six months. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid epoxy joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.2-mm) sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
   1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
   2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
   3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
   1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
   2. After concrete has cured at least 14 days, correct high areas by grinding.
   3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
   4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
   5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
   6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch (19 mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
   7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

A. Testing and Inspecting: A qualified testing and inspecting agency to perform tests and inspections and to submit reports.

B. Inspections:
1. Steel reinforcement placement.
2. Anchor bolts.
3. Verification of required design mixture.
4. Concrete placement, including conveying and depositing.
5. Curing procedures and maintenance of curing temperature.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
   a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 80 deg F and above, and one test for each composite sample.
4. Compression Test Specimens: ASTM C 31/C 31M.
   a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
5. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
   a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days. Test specimens at 28 days may be removed from testing if 7-day test exceeds 28-day strength.
   b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
6. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
12. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing if requested by Architect to determine adequacy of floor flatness and levelness.

END OF SECTION

DIVISION 06 – WOOD, PLASTICS AND COMPOSITES

SECTION 06 1000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

A. Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

1.3 DELIVERY, STORAGE, AND HANDLING

A. 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.
   1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

A. Lumber Standards: Furnish lumber manufactured 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.

B. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:
   1. WCLIB - West Coast Lumber Inspection Bureau.
   2. WWPA - Western Wood Products Association.

C. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
   1. For exposed lumber furnish pieces with grade stamps applied to ends or back of each piece; or omit grade stamps entirely and provide certificates of grade compliance issued by inspection agency.

D. 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.
   1. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, bucks, nailers, blocking, furring, and similar members.

B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

D. Grade: "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. 2 Boards" per SPIB rules.

2.3 CONSTRUCTION PANELS FOR BACKING

A. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant-treated plywood panels with grade designation, APA C-D PLUGGED EXPOSURE 1, in thickness indicated, or, if not otherwise indicated, not less than 15/32 inch.

2.4 FASTENERS

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

B. Nails, Wire, Brads, and Staples: FS FF-N-105.

C. Power Driven Fasteners: National Evaluation Report NER-272.

D. Wood Screws: ANME B18.6.1.

E. Lag Bolts: ASME B18.32.1

F. Bolts: Steel bolts complying with ASTM A 307 Grade A with ASTM A 563 hex nuts and, where indicated, flat washers.

2.5 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

A. General: Where lumber or plywood is indicated as preservative-treated wood or is specified herein to be treated, comply with applicable requirements of AWPA Standards C2 (Lumber) and C9 (Plywood). Mark each treated item with the AWPB or SPIB Quality Mark Requirements.

B. 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:
   1. Wood nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
   2. Wood furring, stripping, and similar concealed members in contact with masonry or concrete.

C. Pressure-treat wood members in contact with the ground or fresh water with water-borne preservatives to a minimum retention of 0.40 pcf.

D. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWPA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.6 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS

A. General: Where fire-retardant-treated wood is indicated, pressure impregnate lumber and plywood with fire-retardant chemicals to comply with AWPA C20 and C27, respectively, for treatment type indicated; identify "fire-retardant-treated wood" with appropriate classification marking of Underwriters Laboratories, Inc., U.S. Testing, Timber Products Inspection, Inc. or other testing and inspecting agency acceptable to authorities having jurisdiction.

B. Interior: For interior locations use fire-retardant chemical formulation that produces treated lumber and plywood with the following properties under conditions present after installation:
   1. No reduction takes place in bending strength, stiffness, and fastener holding capacities below values published by manufacturer of chemical formulation that are based on tests by a qualified independent testing laboratory of treated wood products identical to those indicated for this Project under elevated temperature and humidity conditions simulating installed conditions.
   2. No other form of degradation occurs due to acid hydrolysis or other causes related to manufacture and treatment.
   3. No corrosion of metal fasteners results from their contact with treated wood.

C. Exterior Type: Use for exterior locations and where indicated.

D. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.

E. Products: Subject to compliance with requirements, provide one of the following:
   1. Interior Type A Fire-Retardant-Treated Wood:
      a. "Dricon," Arch Wood Protection, Inc..
      b. "Pyro-Guard," Hoover Treated Wood Products.
      c. "FirePRO," Osmose, Inc.
   2. Exterior Type Fire-Retardant-Treated Wood:
      a. "FRX," Arch Wood Protection, Inc.
      b. "Exterior Fire-X," Hoover Treated Wood Products.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.

B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.

C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.

E. Countersink nail heads on exposed carpentry work and fill holes.

F. Use common wire nails, unless 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.

G. Building Paper: Apply horizontally with a 2-inch overlap and a 6-inch end lap; fasten on sheathing with galvanized staples or roofing nails.

END OF SECTION

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 07 2600 - UNDER-SLAB VAPOR RETARDER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Refer to Division 03 Section "Cast-In-Place Concrete" for concrete slab.

1.2 SUMMARY

A. Section includes under-slab vapor retarder, seam tape, mastic, pipe boots for installation under concrete slabs.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM E 1745-97 (2004) Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
   2. ASTM E 154-88 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs.
   3. ASTM E 1249-95 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
   4. ASTM E 1643-98 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.

B. American Concrete Institute (ACI):
   1. ACI 302.1R-04 Vapor Barrier Component (plastic membrane) is not less than 10 mils thick.

1.4 SUBMITTALS

A. Product Data: For each type and component of vapor retarder indicated.

B. Qualification Data: For Installer and testing agency.

C. Manufacturer Certificates: Signed by manufacturers certifying that vapor retarder complies with requirements.

D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each vapor retarder.

E. Manufacturer's installation instructions for placement, seaming and pipe boot installation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original, unopened packages with manufacturers' labels intact and clearly identifying products.

B. Store materials inside and under cover; keep them dry and protected from weather, direct sunlight, surface contamination, aging, corrosion, damaging temperatures, construction traffic, and other causes.
   1. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.6 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain materials for system from one source and by a single manufacturer or by manufacturers approved by the system manufacturer as compatible with other system components.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Insulation Solutions, Inc.
   2. Raven Industries.
   3. Stego Industries.
   4. W.R. Meadows, Inc.

2.2 MATERIALS

A. Vapor retarder membrane must have the following properties:

1.	Minimum Permeance	ASTM E 96	0.04 Perms
2.	Water Vapor Barrier	ASTM E 1745	Meets or exceeds Class C.
3.	Thickness of Barrier (plastic)	ACI 302.1 R96	Not less than 15 mils

2.3 ACCESSORIES

A. Seaming Tape: Manufacturer's standard 4-inch seaming tape.

B. Pipe Boot Kits: Manufacturer's standard pipe boot kits.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ensure that subsoil is approved by architect or geotechnical firm.
   1. Level and tamp or roll aggregate, sand or tamped earth base.

3.2 INSTALLATION

A. Install under-slab vapor retarder in accordance with manufacturer's instructions and ASTM E 1643-98.
   1. Unroll Vapor Retarder with the longest dimension parallel with the direction of the pour.
   2. Lap Vapor Retarder over footings and seal to foundation walls.
   3. Overlap joints 6 inches and seal with manufacturer's tape.
   4. Seal all penetrations (including pipes) per manufacturer's instructions.
   5. No penetration of the Vapor Retarder is allowed except for reinforcing steel and permanent utilities.
   6. Repair damaged areas by cutting patches of Vapor Retarder, overlapping damaged area 6 inches and taping all four sides with tape.

END OF SECTION

SECTION 07 8400 - FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Refer to Division 07 Section "Thermal Insulation" for fire safing insulation.

1.2 SUMMARY

A. Section includes:
1. Through-penetration firestopping in fire-rated construction.
2. Construction-gap firestopping at connections of the same or different materials in fire-rated construction.
3. Construction-gap firestopping occurring within fire-rated wall, floor or floor-ceiling assemblies.
4. Construction-gap firestopping occurring at the top of fire-rated walls.

1.3 REFERENCES

A. Underwriters Laboratories
1. U.L. Fire Resistance Directory
a. Through-Penetration Firestop Devices (XHCR)
b. Fire Resistance Ratings (BXUV)
c. Through-Penetration Firestop Systems (XHEZ)
d. Fill, Void, or Cavity Material (XHHW)
e. Forming Material (XHKU)
2. U.L. 1479 Test Method for Fire Tests of Through-Penetration Firestops, including optional air leak test.
3. U.L. 2079 Test for Fire Resistance of Building Joint Systems.
4. U.L. Component Listing Test Criteria
5. Warnock Hersey

B. American Society for Testing and Materials Standards:
1. ASTM E 814-88: Standard Test Method for Fire Tests of Through-Penetration Firestops.
2. ASTM E 1399-91: Standard Test Method for Cyclic Movement and Measuring the Minimum and Maximum Joint Widths of Architectural Joint Systems.

1.4 DEFINITIONS

A. Assembly: Particular arrangement of materials specific to given type of construction described or detailed in referenced documents.

B. Barriers: Time rated fire walls, smoke barrier walls, time rated ceiling/floor assemblies and structural floors.

C. Firestopping: Methods and materials applied in penetrations and unprotected openings to limit spread of heat, fire, gasses and smoke.

D. Penetration: Opening or foreign material passing through or into barrier or structural floor such that full thickness of rated materials is not obtained.

E. Construction gaps: Gaps between adjacent sections of walls, exterior walls, at wall tops between top of wall and ceiling, and structural floors or roof decks; and gaps between adjacent sections of structural floors.

F. System: Specific products and applications, classified and numbered by Underwriters Laboratories, Inc. to close specific barrier penetrations.

G. Sleeve: Metal fabrication or pipe section extending through thickness of barrier and used to permanently guard penetration. Sleeves are described as part of penetrating system in other Sections and may or may not be required.

1.5 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide firestopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gases.

B. F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.

C. T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings, as determined per ASTM E 814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupiable floor areas.

D. Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per ASTM E 119, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.

E. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

F. For firestopping exposed to view, provide products with flame-spread values of less than 25 and smoke-developed values of less than 450, as determined per ASTM E 84.

1.6 SUBMITTALS

A. Product Data: For each type of product specified.
   1. Certification by firestopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs) and are nontoxic to building occupants.

B. Shop Drawings: Detail materials, installation methods, and relationships to adjoining construction for each through-penetration firestop system, and each kind of construction condition penetrated and kind of penetrating item. Include firestop design designation of qualified testing and inspecting agency evidencing compliance with requirements for each condition indicated.
   1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop configuration for construction and penetrating items.

C. Product Certificates: Signed by manufacturers of firestopping products certifying that their products comply with specified requirements.

D. Product Test Reports: From, and based on tests performed by, a qualified testing and inspecting agency evidencing compliance of firestopping with requirements based on comprehensive testing of current products.

E. Qualification Data: For firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.7 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide firestopping that complies with the following requirements and those specified under the "System Performance Requirements" article:
   1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, Warnock Hersey, or another agency performing testing and follow-up inspection services for firestop systems that is acceptable to authorities having jurisdiction.
   2. Through-penetration firestop systems are identical to those tested per ASTM E 814 under conditions where positive furnace pressure differential of at least 0.01 inch of water is maintained at a distance of 0.78 inch below the fill materials surrounding the penetrating items in the test assembly.
   3. Fire-resistive joint sealant systems are identical to those tested for fire-response characteristics per ASTM E 119 under conditions where the positive furnace pressure differential is at least 0.01 inch of water, as measured 0.78 inch from the face exposed to furnace fire. Provide systems complying with the following requirements:
      a. Fire-Resistance Ratings of Joint Sealants: As indicated by reference to design designations listed by UL in their "Fire Resistance Directory" or by another qualified testing and inspecting agency.
      b. Joint sealants, including backing materials, bear classification marking of qualified testing and inspection agency.

B. Information on drawings referring to specific design designations of through-penetration firestop systems is intended to establish requirements for performance based on conditions that are expected to exist during installation. Any changes in conditions and designated systems require the Architect's prior approval. Submit documentation showing that the performance of proposed substitutions equals or exceeds that of the systems they would replace and are acceptable to authorities having jurisdiction.

C. Installer Qualifications: Engage an experienced Installer who is certified, licensed, or otherwise qualified by the firestopping manufacturer as having the necessary experience, staff, and training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.
   1. Prior to installing fire stop assemblies, the installer shall furnish the Architect with written proof of qualification from the manufacturer of the fire stop material, certifying that the installer has satisfactorily completed technical and installation training for the specified products.
   2. The manufacturer of the fire stop material shall, at no cost to the Owner or the Architect, provide sufficient inspections of installed systems to assure that all criteria required by the Project and by code are accomplished to the minimum standards shown in each UL system installed. The requirements of these Paragraphs 1.7.C.1 and 2 are in addition to any requirement and/or field inspection requirements requested by the local authority having jurisdiction.

D. Single-Source Responsibility: Obtain through-penetration firestop systems for each kind of penetration and construction condition indicated from a single manufacturer.

E. Provide firestopping products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light Microscopy."

F. Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through-penetration firestop systems are installed per specified requirements.

G. Owner will employ and pay a qualified inspection agency to check installed firestopping systems for compliance with requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multicomponent materials.

B. Store and handle firestopping materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.9 PROJECT CONDITIONS

A. Environmental Conditions: Do not install firestopping when ambient or substrate temperatures are outside limits permitted by firestopping manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Ventilation: Ventilate firestopping per firestopping manufacturers' instructions by natural means or, where this is inadequate, forced air circulation.

1.10 SEQUENCING AND SCHEDULING

A. Notify Owner's inspection agency at least 1 week in advance of firestopping installations; confirm dates and times on days preceding each series of installations.

B. Do not cover up those firestopping installations that will become concealed behind other construction until Owner's inspection agency and authorities having jurisdiction, if required, have examined each installation.

PART 2 - PRODUCTS

2.1 FIRESTOPPING, GENERAL

A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

B. Accessories: Provide components for each firestopping system that are needed to install fill materials and to comply with "System Performance Requirements" article in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems.

C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

2.2 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

A. Products: Systems or devices listed in the U.L. Fire Resistance Directory under categories XHCR and XHEZ may be used, providing that the system or device conforms to the construction type, penetrant type, annular space requirements and fire rating involved in each separate instance, and that the system be symmetrical for wall applications. Systems or devices must be asbestos-free. Mortar systems must be Warnock Hersey approved.
   1. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system, or by the use of a separate product included as a part of the U.L. system or device, and designed to perform this function.
   2. Acceptable manufacturers and products: Those listed in the U.L. Fire Resistance Directory for the U.L. System involved, or Mortar systems approved by Warnock Hersey, and as shown on Drawings.
   3. All firestopping products must be from a single manufacturer. All trades shall use products from the same manufacturer.

2.3 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that complies with ASTM C 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.

B. Sealant Colors: Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated. Where exposed to view, match color of adjacent surface.

C. Single-Component, Neutral-Curing Silicone Sealant: Type S; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, G, A, and (as applicable to joint substrates indicated) O.

D. Multicomponent, Nonsag, Urethane Sealant: Type M; Grade NS; Class 25; exposure-related Use NT, and joint-substrate-related Uses M, A, and (as applicable to joint substrates indicated) O.

E. Single-Component, Nonsag, Urethane Sealant: Type S; Grade NS; Class 25; and Uses NT, M, A, and (as applicable to joint substrates indicated) O.

F. Acceptable Manufacturers and Products: Those listed in the U.L. Fire Resistance Directory for the U.L. System involved and as shown on Drawings.

2.4 ACCESSORIES

A. Fill, Void or Cavity Materials: As classified under Category XHHW in the U.L. Fire Resistance Directory.

B. Forming Materials: As classified under Category XHKU in the U.L. Fire Resistance Directory.

2.5 MIXING

A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:
   1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form release agents from concrete.

B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

3.3 INSTALLING THROUGH-PENETRATION FIRESTOPS

A. General: Comply with the "System Performance Requirements" article in Part 1 and the through-penetration firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install forming / damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:
1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 INSTALLING FIRE-RESISTIVE JOINT SEALANTS

A. General: Comply with the "System Performance Requirements" article in Part 1, with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.

C. 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 width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

D. Tool nonsag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.5 FIELD QUALITY CONTROL

A. Inspecting agency employed and paid by Owner will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. Inspecting agency will report observations promptly and in writing to Contractor and Architect.

C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.

D. Where deficiencies are found, repair or replace firestopping so that it complies with requirements.

3.6 CLEANING

A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.

B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.

END OF SECTION

SECTION 07 9200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SYSTEM PERFORMANCE REQUIREMENTS

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

B. Provide joint sealants for interior applications that have been produced and installed to establish and maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.

1.3 SUBMITTALS

A. Product Data and Color Chart: From manufacturers for each joint sealant product required.
   1. Certification by joint sealant manufacturer that materials provided for this Section are 100 percent asbestos-free.

B. Samples: For initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.

1.4 QUALITY CONTROL

A. Sealants for Work of this Section shall be obtained from a single manufacturer for each different product required, to ensure that materials which come in contact with one another will be compatible. Installer shall supply a letter from the manufacturer certifying the compatibility of all sealants with one another, and with all construction materials with which they will come in contact on the Project.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer.
   2. When joint substrates are wet.

B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.7 SEQUENCING AND SCHEDULING

A. Sequence installation of joint sealants to occur not less than 21 nor more than 30 days after completion of waterproofing, unless otherwise indicated.

1.8 WARRANTY

A. Provide a 3-year warranty, in writing and signed jointly by the installer and sealant manufacturer, agreeing to replace any or all joints failing within the warranty period at not cost to the Owner, labor and material inclusive.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide color of exposed joint sealants to comply with the following:
   1. Provide selections made by Architect from manufacturer's full range of standard and custom colors for products of type indicated.

2.2 ELASTOMERIC JOINT SEALANTS

A. Materials listed below are manufactured by Tremco, and establish the standard desired for this Project. Similar materials manufactured by the following are also acceptable:
   1. Dow Corning.
   2. Sonneborn
   3. Sika Corp.
   4. Pecora Corp.
   5. Vulkem.
   6. General Electric Company.

B. Polyurethane sealants, multi-component. These sealants shall comply with ASTM C 920:
   1. Sealant #1: Type M, Grade NS, Class 50, Use NT, M, A and O; capable of 50 percent extension and compression movement. (Dymeric 240 FC)
   2. Sealant #2: Type M, Grade P, Class 25, Use T, M, A and O. (THC - 900/901)

C. Silicone Sealants, one-part, complying with ASTM C 920:
   1. Sealant #3: Type S, Grade NS, Class 25, Use NT, M, G, A and O; capable of 50 percent extension and compression movement. (Spectrem 2 or Spectrem 3) (Note: Use Spectrem 4 if tintable sealant is desired).
   2. Sealant #4: Type S, Grade NS, Class 25, Use NT, M, G, A and O; capable of 100 percent extension and 50 percent compression movement. (Spectrem 1)
   3. Sealant #5: Mildew-resistant, formulated with fungicide, Type S, Grade NS, Class 25, Use NT, A and O. (Tremsil 200) Color: White.

D. Sealant #6: Acrylic latex sealant, one-part, complying with ASTM C 834. (Acrylic Latex 834 Caulk)

E. Sealant #7: Acoustical sealant (ASTM D 217). (Tremco Acoustical Sealant)

2.3 JOINT SEALANT BACKING

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

B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   1. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state.
      a. Horizontal Application: ITP "HBR" or approved equal.
      b. Vertical Application: ITP closed-cell or soft-type backer rod or approved equal.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

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

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

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

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
   2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
   3. Remove laitance and form release agents from concrete.
   4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

D. Remove sealant and prepare joints in existing exterior locations as directed by representative of sealant manufacturer specified in this work.

3.3 INSTALLATION OF TYPICAL JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
   1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
      a. Do not leave gaps between ends of joint fillers.
      b. Do not stretch, twist, puncture, or tear joint fillers.
      c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
   2. Install bond breaker tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.

D. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

E. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
   1. Provide concave joint configuration per Figure 8A in ASTM C 1193, unless otherwise indicated.
   2. Provide flush joint configuration, per Figure 8B in ASTM C 1193, where indicated.
      a. Use masking tape to protect adjacent surfaces of recessed tooled joints.
   3. Provide recessed joint configuration, per Figure 8C in ASTM C 1193, of recess depth and at locations indicated.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

B. Clean excess adhesive from exposed surfaces of neoprene compression seal with solvent cleaner as recommended by manufacturer.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

3.6 SCHEDULES, TYPICAL SEALANTS

A. Exterior Locations:
   1. Joints which are bordered by glass: Sealant #3. (Spectrem 2)
   2. Joints which are bordered by plastic: Sealant #4.
   3. Horizontal joints in sidewalks, decks, concrete floors, and driveways: Sealant #2.
      a. At walk expansion joints.
      b. Where walks abut structural slabs or stoops.
      c. Where walks abut exterior wall of buildings.
      d. Where exposed interior concrete slabs abut vertical surfaces.
      e. Where sealant is shown on the Drawings for concrete slabs.
   4. All other exterior joints: Sealant #1.
      a. Around perimeters of frames where door, window and louver frames abut concrete, masonry or other building materials (interior and exterior).
      b. Sills and thresholds.
      c. At miscellaneous locations where sealant is shown on Drawings.

B. Interior Locations:
   1. Expansion and control joints: Sealant #1.
   2. Interior wet area and around plumbing fixtures: Sealant #5.
   3. Interior static dry joints as required to dress appearance: Sealant #6.
   4. Where required for sound control: Sealant #6 or #7.
   5. Where required for smoke partitions: Sealant #6.

C. General:
   1. Joints in construction between interior and exterior spaces and other designated or required locations to provide effective barrier against passage of elements: Sealant #1.
   2. Specialty perimeters where required for appearance or weather tightness: Sealants #1, #3 or #4.

END OF SECTION

DIVISION 08 - OPENINGS

SECTION 08 1113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Steel doors.
   2. Steel door frames.
   3. Fire-rated door and frame assemblies.

1.3 DEFINITIONS

A. Steel Sheet Thicknesses: Thickness dimensions, including those referenced in ANSI A250.8, are minimums as defined in referenced ASTM standards for both uncoated steel sheet and the uncoated base metal of metallic-coated steel sheets.

1.4 SUBMITTALS

A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details, label compliance, sound and fire-resistance ratings, and finishes.

B. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

C. Oversize Construction Certificates: For door assemblies required to be fire-protection rated and exceeding size limitations of labeled assemblies.

1.5 QUALITY ASSURANCE

A. Steel Door and Frame Standard: Comply with ANSI A 250.8, unless more stringent requirements are indicated.

B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated.
   1. Test Pressure: Test at atmospheric (neutral) pressure according to NFPA 252 or UL 10B.

C. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.

B. Inspect doors and frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.

C. Store doors and frames at building site under cover. Place units on minimum 4-inch-wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4-inch between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Hot-Rolled Steel Sheets: ASTM A 569, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

B. Cold-Rolled Steel Sheets: ASTM A 366, Commercial Steel (CS), or ASTM A 620, Drawing Steel (DS), Type B; stretcher-leveled standard of flatness.

C. Metallic-Coated Steel Sheets: ASTM A 653, Commercial Steel (CS), Type B, with an A40 (galvannealed) coating; stretcher-leveled standard of flatness.
1. For exterior installations.

D. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591, Commercial Steel (CS), Class B coating; mill phosphatized; suitable for unexposed applications; stretcher-leveled standard of flatness where used for face sheets.

E. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.2 DOORS

A. General: Provide doors of sizes, thicknesses, and designs indicated.

B. Interior Doors: Provide doors complying with requirements indicated below by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical-endurance level:
1. Refer to Door and Frame Schedule for gage of door face for individual interior doors.
2. Level 3 and Physical Performance Level A (Extra Heavy Duty), Model 2 (Seamless) (0.053-inch / 16 ga. thick).
3. Level 4 and Physical Performance Level A (Maximum Duty), Model 2 (Seamless) (0.067-inch / 14 ga thick).

C. Exterior Doors: Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:
   1. Refer to Door and Frame Schedule for gage of door face for individual exterior doors.
   2. Level 3 and Physical Performance Level A (Extra Heavy Duty), Model 2 (Seamless) (0.053-inch / 16 ga. thick).
   3. Level 4 and Physical Performance Level A (Maximum Duty), Model 2 (Seamless) (0.067-inch / 14 ga thick).

D. Vision Lite Systems: Manufacturer's standard kits consisting of glass lite moldings to accommodate glass thickness and size of vision lite indicated.

2.3 FRAMES

A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.

B. Frames of 0.067-inch- (14 ga.) thick steel sheet for:
   1. Levels 3 and 4 steel doors, unless otherwise indicated.
   2. Wood doors, unless otherwise indicated.

C. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.

D. Plaster Guards: Provide 0.020-inch- (24 ga.) thick, steel sheet plaster guards or mortar boxes to close off interior of openings; place at back of hardware cutouts where mortar or other materials might obstruct hardware operation.

E. Supports and Anchors: Fabricated from not less than 0.042-inch- (18 ga.) thick, electrolytic zinc-coated or metallic-coated steel sheet.
   1. Wall Anchors in Masonry Construction: 0.177-inch-diameter, steel wire complying with ASTM A 510 may be used in place of steel sheet.

F. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153, Class C or D as applicable.

2.4 FABRICATION

A. General: Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.

B. Exterior Door Construction: For exterior locations and elsewhere as indicated, fabricate doors, and frames from metallic-coated steel sheet. Close top and bottom edges of doors flush as an integral part of door construction or by addition of 0.053-inch- (16 ga.) thick, metallic-coated steel channels with channel webs placed even with top and bottom edges.

C. Interior Door Faces: Fabricate exposed faces of doors from the following material:
   1. Cold-rolled steel sheet, unless otherwise indicated.

D. Core Construction: Manufacturer's standard core construction that produces a door complying with SDI standards.

E. Clearances for Non-Fire-Rated Doors: Not more than 1/8 inch at jambs and heads, except not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.

F. Clearances for Fire-Rated Doors: As required by NFPA 80.

G. Single-Acting, Door-Edge Profile: Square edge, unless beveled edge is indicated.

H. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

I. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

J. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.

K. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements in ANSI A250.6 and ANSI A115 Series specifications for door and frame preparation for hardware.

L. Frame Construction: Fabricate frames to shape shown.
   1. Fabricate frames with mitered and continuously welded corners and seamless face joints (knock-down frames not acceptable).

M. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.

N. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

O. Glazing Stops: Manufacturer's standard, formed from 0.032-inch-thick (20 ga.) steel sheet.
   1. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
   2. Provide screw-applied, removable, glazing stops on inside of glass, louvers, and other panels in doors, using vandal-resistant screws.

2.5 FINISHES

A. Prime Finish: Manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install steel doors, frames, and accessories according to ANSI A250.8, manufacturer's data, and as specified.

B. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
   1. Place frames before construction of enclosing walls and ceilings.
   2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.
   3. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
   4. Install fire-rated frames according to NFPA 80.
   5. Apply bituminous coating to backs of frames that are filled with mortar, grout, and sound-deadening material.

C. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.
   1. Fire-Rated Doors: Install within clearances specified in NFPA 80.

3.2 ADJUSTING AND CLEANING

A. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 08 1416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Solid-core doors with wood-veneer faces.
2. Factory finishing flush wood doors.
3. Factory fitting flush wood doors to frames and factory machining for hardware.
4. Factory glazing of wood doors.

B. Related Sections:
1. Division 06 Section "Interior Architectural Woodwork" for requirements for veneers from the same flitches for both flush wood doors and wood paneling.
2. Division 08 Section "Glazing" for glass view panels in flush wood doors.

1.3 SUBMITTALS

A. Product Data: For each type of door indicated. Include details of core and edge construction and trim for openings and factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
1. Indicate dimensions and locations of mortises and holes for hardware.
2. Indicate dimensions and locations of cutouts.
3. Indicate requirements for veneer matching.
4. Indicate doors to be factory finished and finish requirements.
5. Indicate fire-protection ratings for fire-rated doors.

C. Samples for Verification:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish
2. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
a. Finish veneer-faced door samples with same materials proposed for factory-finished doors.
3. Frames for light openings, 6 inches long, for each material, type, and finish required.

D. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors from single manufacturer.

B. Quality Standard: In addition to requirements specified, comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
   1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.

C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Mark each door with opening number used on Shop Drawings, using temporary, removable, or concealed markings.

1.6 PROJECT CONDITIONS

A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with the following requirements applicable to Project's geographical location:
   1. AWI Quality Standard Section 100-S-11 "Relative Humidity and Moisture Content."

1.7 WARRANTY

A. General Warranty: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under requirements of the Contract Documents.

B. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span, or do not conform to tolerance limitations of referenced quality standards.
   1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
   2. Warranty shall be in effect during the following period of time after date of Substantial Completion.
      a. Warranty Period for Solid-Core Interior Doors: Life of installation.
   3. Contractor's Responsibilities: Replace and refinish doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide doors by one of the following:
   1. Algoma Hardwoods, Inc.
   2. Eggers Industries.
   3. Marshfield Door Systems, Inc.
   4. Mohawk Flush Doors, Inc.; a Masonite company.
   5. Vancouver Door Company.
   6. VT Industries Inc.

2.2 INTERIOR FLUSH WOOD DOORS

A. Solid Core Doors for Transparent Finish: Comply with the following requirements:
   1. Faces: Select White Birch veneers, rotary sliced.
   2. Grade: Custom (Veneer Face: Grade A).
   3. Construction: PC-5.
   4. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

B. Fire-Rated Solid Core Doors: Comply with the following requirements:
   1. Faces and Grade: Provide faces and grade to match non-fire-rated doors in same area of building, unless otherwise indicated.
   2. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated (PC core at 20-minute doors, mineral core at 60- and 90-minute doors).
   3. Blocking: Required for all surface-applied hardware.
   4. Edge Construction: Provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.
   5. Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals.

2.3 VENEER MATCHING

A. Within Door Faces: Provide doors with the following veneer matching:

      a. Book match.

B. Pairs and Sets: Provide pair matching and set matching for pairs of doors and for doors hung in adjacent sets.

2.4 LIGHT FRAMES

A. Wood-Veneered Beads for Light Openings in Fire Doors: Manufacturer's standard wood-veneered steel beads matching veneer species of door faces and approved for use in doors of fire-rating indicated.

2.5 FABRICATION

A. Fabricate flush wood doors to comply with following requirements:
   1. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels:
      a. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-resistance-rated doors.
   2. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, DHI A115-W series standards, and hardware templates.
      a. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory machining.

B. Openings: Cut and trim and factory glaze openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) and glass required.
   1. Light Openings: Trim openings with moldings of material and profile indicated.
      a. Where glazing is required at rated doors, factory glaze using fire-rated glazing specified in Division 08 Section "Glazing."

2.6 FACTORY FINISH

A. General: Comply with referenced AWI quality standard's requirements for factory finishing.

B. Finish wood doors at factory.

C. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.
   1. Grade: Custom.
   2. Finish: AWI Conversion Varnish System as standard with manufacturer.
   3. Effect: Closed-grain finish.
   4. Sheen: Satin.

2.7 GLAZING OF FLUSH WOOD DOORS

A. Glazing shall be by wood door manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine installed door frames prior to hanging door:
   1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
   2. Reject doors with defects.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Hardware: For installation see Division 08 Section "Door Hardware."

B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and referenced AWI quality standard and as indicated.
   1. Install fire-rated doors in corresponding fire-rated frames according to requirements of NFPA 80.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Refinish or replace doors damaged during installation.

C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 08 3113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Wall and ceiling access doors and frames.
   2. Fire-rated wall and ceiling access doors and frames.

1.3 SUBMITTALS

A. Product Data: In the form of manufacturer's technical data and installation instructions for each type of access door assembly, including setting drawings, templates, instructions, and directions for installation of anchorage, devices.
   1. Include complete schedule, including types, general locations, sizes, wall and ceiling construction details, finishes, latching or locking provisions, and other data pertinent to installation.

B. Shop Drawings: Show fabrication and installation of customized access doors and frames, including details of each frame type, elevations of door design types, anchorage and accessory items.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain access doors for entire project from one source from a single manufacturer.

B. Fire-Resistance Ratings: Wherever a fire-resistance classification is indicated, provide access door assembly with panel door, frame, hinge, and latch from manufacturer listed in Underwriters Laboratories, Inc.'s "Building Materials Directory" for rating shown.
   1. Provide UL label on each fire-rated access door.

C. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units, which may vary slightly from sizes indicated.

D. Coordination: Furnish inserts and anchoring devices that must be built into other work for installation of access doors. Coordinate delivery with other work to avoid delay.

1.5 PROJECT CONDITIONS

A. Verification: Obtain specific locations and sizes for required access doors from trades requiring access to concealed equipment, and indicate on submittal schedule.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide access doors by one of the following:
   1. Dur-Red Products
   2. J.L. Industries
   3. Karp Associates, Inc.
   4. Milcor, Inc.
   5. Nystrom, Inc.
   6. The Williams Brothers Corp.

2.2 MATERIALS AND FABRICATION, TYPICAL DOORS

A. General: Furnish each access door assembly manufactured as an integral unit, complete with all parts, and ready for installation.

B. Steel Access Doors and Frames: Fabricate units of continuous welded steel construction unless otherwise indicated. Grind welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of support shown.
   1. Units at Toilet Rooms shall be #304 stainless steel with #4 satin finish (frame and panel).

C. Frames: Fabricate from 16-gage steel.
   1. Fabricate frame with exposed flange nominal 1-inch wide around perimeter of frame for units installed in the following construction: Drywall finish.
   2. For gypsum drywall, furnish perforated frames with drywall bead.

D. Flush Panel Doors: Fabricate from not less than 14-gage sheet steel, with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees. Finish with manufacturer's factory-applied prime paint.
   1. For fire-rated units, provide manufacturer's standard insulated flush panel/doors, with continuous piano hinge and self-closing mechanism.
   2. Provide unit similar to Williams Brothers Model WB-FR Premium Fire-Rated Access Door.

E. Locking Devices: Furnish number required to hold door in flush, smooth plane when closed.
   1. Provide cylinder lock at rated doors, furnishing 2 keys per lock. Key all locks alike, unless otherwise scheduled.
   2. Screwdriver-operated cam lock on regular (non-rated) drywall doors.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's instructions for installation of access doors.

B. Coordinate installation with work of other trades.

C. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.

D. In addition to access panels located on Drawings, provide access panels no further than 12 inches from any valve.

3.2 ADJUST AND CLEAN

A. Adjust hardware and panels after installation for proper operation.

B. Remove and replace panels or frames that are warped, bowed, or otherwise damaged.

END OF SECTION

SECTION 08 7100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. See Paragraph 1.2.C "Related Sections" below.

1.2 SUMMARY

A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

B. This Section includes the following:
1. Hinges.
2. Key control system.
3. Lock cylinders and keys.
4. Lock and latch sets.
5. Bolts.
6. Closers.
7. Miscellaneous door control devices.
8. Door trim units.
9. Protection plates.
10. Weatherstripping for exterior doors.
11. Automatic drop seals (door bottoms).
12. Thresholds.

C. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 07 Section "Joint Sealants" for coordination with sealants used for Thresholds.
2. Division 08 Section "Hollow Metal Doors and Frames" for hollow metal frame profiles affecting hardware applications and factory prefitting and premachining of doors for door hardware.
3. Division 8 Section “Flush Wood Doors” for factory prefitting and factory premachining of doors for door hardware.
4. Division 26 for coordination of all electrified hardware items. Power, Wires, Wiring, Conduit, Interface, Electrical Boxes, Connectors and Final Connections are by Division 26.
5. Division 28 Section “Access Control Systems” for keycard access system.
6. Division 28 Section “Intrusion Detection” for door position switches.

D. Products furnished but not installed under this Section include:
1. Final replacement cores and keys to be installed by Owner.

1.3 HARDWARE RESPONSIBILITIES

A. Door hardware supplier's responsibilities shall be as follows:
   1. Submittals: Submit through Contractor required product data, final hardware schedule, separate keying schedule, and samples as specified in this Section, unless otherwise indicated.
   2. Construction Schedule: Inform Contractor promptly of estimated times and dates that will be required to process submittals, to furnish templates, to deliver hardware, and to perform other work associated with furnishing door hardware for purposes of including this data in construction schedule. Comply with this schedule.
   3. Coordination and Templates: Assist Contractor as required to coordinate hardware with other work in respect to both fabrication and installation. Furnish Contractor with templates and deliver hardware to proper locations.
   4. Product Handling: Package, identify, deliver, and inventory door hardware specified in this Section.
   5. Discrepancies: Based on requirements indicated in Contract Documents in effect at time of door hardware selection, furnish types, finishes, and quantities of door hardware, including fasteners, and Owner's maintenance tools required to comply with specified requirements and as needed to install and maintain hardware. Furnish or replace any items of door hardware resulting from shortages and incorrect items at no cost to the Owner or Contractor. Obtain signed receipts from Contractor for all delivered materials.

B. Contractor's responsibilities shall be as follows:
   1. Submittals: Coordinate and process submittals for door hardware in same manner as submittals for other work.
   2. Construction Schedule: Cooperate with door hardware supplier in establishing scheduled dates for submittals and delivery of templates and door hardware. Incorporate in construction schedule the times and dates related to furnishing hardware by door hardware supplier.
   3. Coordination: Coordinate door hardware with other Work. Furnish hardware supplier or manufacturer with shop drawings of other work where required or requested. Verify completeness and suitability of hardware with supplier.
   4. Product Handling: Provide secure lock-up for hardware delivered to the site. Inventory hardware jointly with representative of hardware supplier and issue signed receipts for all delivered materials.
   5. Installation Information: The general types and approximate quantities of hardware required for this Project are indicated at the end of this Section in order to establish Contractor's costs for installation and other work not included in allowance.
   6. No adjustments in Contract sum will be made for costs other than those covered by the allowances for subsequent increases or decreases in quantity of one or more hardware types that do not exceed 5 percent.

1.4 SUBMITTALS

A. Product Data: Include manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

B. Final Hardware Schedule: Coordinate with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations or every item required for each door or opening. Include the following information:
      a. Type, style, function, size, and finish of each hardware item.
      b. Name and manufacturer of each item.
      c. Fastenings and other pertinent information.
      d. Location of each hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.
      e. Explanation of all abbreviations, symbols, and codes contained in schedule.
      f. Mounting locations for hardware.
      g. Door and frame sizes and materials.
      h. Keying information.
   2. Submittal Sequence: Submit the schedule in a DHI vertical format where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
   3. Submittal Sequence: Submit final schedule along with essential product data in order to facilitate the fabrication of other work that is critical in the Project construction schedule. Submit final schedule after samples, product data, coordination with shop drawings of other work, delivery schedules, and similar information has been completed and accepted.
   4. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled

C. Templates: For doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.5 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc,) from a single manufacturer.

B. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for the Project and that employs an experienced architectural hardware consultant (AHC) who is available to Contracting Officer and Contractor, at reasonable times during the course of the Work, for consultation.
   1. Require supplier to meet with Contracting Officer to finalize keying requirements and to obtain final instructions in writing.

C. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey, FM, or other testing and inspecting organization acceptable to authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

C. Inventory door hardware jointly with representatives of hardware supplier and hardware installed until each is satisfied that count is correct.

D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).

E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.7 MAINTENANCE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
   1. Butts and Hinges:
      a. Stanley Hardware, Div. Stanley Works (ST)
      b. Hager Hinge Co.
      c. Bommer
   2. Key Control System:
      a. Key Control Systems, Inc.
      b. Telkee Inc.

3. Locksets:
   a. BEST Access (BE)
   b. No Substitution
4. Electric Strikes
   a. Securitron (SE)
5. Cylinders and Locks:
   a. BEST Access (BE)
   b. No Substitution
6. Power Supply
   a. Dynalock
   b. SDC
7. Overhead Closers:
   a. Stanley (ST)
   b. Sargent
   c. LCN
8. Door Trim Units:
   a. Trimco/BBW (TR)
   b. Rockwood
   c. Hager
9. Kick, Mop, and Armor Plates:
   a. Trimco/BBW (TR)
   b. Rockwood
   c. Hager
10. Card Reader: Refer to Division 28 Section “Access Control Systems”.
11. Door Stripping and Seals:
   a. Pemko Manufacturing Co., Inc. (PE)
   b. National Guard Products, Inc.
   c. Reese
12. Thresholds:
   a. Pemko Manufacturing Co., Inc. (PE)
   b. National Guard Products, Inc.
   c. Reese
13. Automatic Drop Seals:
   a. Pemko Manufacturing Co., Inc. (PE)
   b. National Guard Products, Inc.
   c. Reese

2.2 SCHEDULED HARDWARE

A. Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of finish hardware are indicated in the "Hardware Schedule" and the end of this Section. Products are identified by using hardware designation numbers of the following:
   1. Manufacturer's Product Designations: The product designation and name of one manufacturer are listed for each hardware type required for the purpose of establishing minimum requirements. Provide either the product designated or, where more than one manufacturer is specified under the Article "Manufacturers" in Part 2 for each hardware type, the comparable product of one of the other manufacturers that complies with requirements.

2. BHMA designations used elsewhere in this Section or in schedules to describe hardware items or to define quality or function are derived from the following standards. Provide products complying with these standards and requirements specified elsewhere in this Section.
   a. Butts and Hinges: BHMA A156.1.
   b. Bored and Preassembled Locks and Latches: BHMA A156.2.
   c. Door Controls - Closers: BHMA A156.4.
   d. Architectural Door Trim: BHMA A156.6.
   e. Template Hinge Dimensions: BHMA A156.7.
   f. Mortise Locks and Latches: BHMA A156.13.
   g. Closer Holder Release Devices: BHMA A156.15.
   h. Auxiliary Hardware: BHMA A156.16.
   i. Materials and Finishes: BHMA A156.18.

2.3 MATERIALS AND FABRICATION

A. 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 applicable hardware units for finish designations indicated.

B. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.

C. 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 this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.

D. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Where thru-bolts are use as a mean of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.4 HINGES, BUTTS, AND PIVOTS

A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

B. Screws: Provide Torx screws complying with the following requirements:
   1. For metal doors and frames install machine screws into drilled and tapped holes.
   2. For wood doors and frames install wood screws.
   3. For fire-rated wood doors install #12 x 1-1/4-inch (32-mm), threaded-to-the-head steel wood screws.

4. Finish screw heads to match surface of hinges or pivots.

C. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
1. Out-Swing Exterior Doors: Nonremovable pins.
2. Out-Swing Corridor Doors with Locks: Nonrising pins.
3. Interior Doors: Nonrising pins.
4. Tips: Flat button and matching plug, finished to match leaves.

D. Number of Hinges: Provide number of hinges indicated but not less than 3 hinges per door leaf for doors 90 inches (2250 mm) or less in height and one additional hinge for each 30 inches (750 mm) of additional height.
1. Fire-Rated Doors: Not less than 3 hinges per door leaf for doors 86 inches (2150 mm) or less in height with same rule for additional hinges.

2.5 LOCK CYLINDERS AND KEYING

A. Existing System: Grandmasterkey the locks to the Owner's existing system, per the Owner's instructions. Final keying will be established by the Owner.

B. Equip all Locksets and cylinders with temporary construction cores.
1. Furnish final Cylinders and keys for installation prior to building occupancy.

C. All permanent keys provided for these locks shall be sent direct to the Owner via certified mail prior to building occupancy for safekeeping.

D. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.

E. Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks. Furnish Best Patented Interchangeable Cores 7 Pin.
1. Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation "DO NOT DUPLICATE."

F. Key Material: Provide keys of nickel silver only.

G. Key Quantity: Furnish 3 change keys for each lock.
1. Furnish one extra blank for each lock.
2. Furnish 2 ea. Control keys
3. Furnish 2 ea. Construction Control Keys
4. Deliver keys to Owner.

2.6 KEY CONTROL SYSTEM
1. Conduct keying meeting prior to fabrication of locksets to coordinate keying system to tie-in with Owner standardized systems and components.

2.7 LOCKS, LATCHES, AND BOLTS

A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set, unless otherwise indicated.
   1. Provide curved lit strikes for locks with 2-piece, antifriction latchbolts as recommended by manufacturer.
   2. Provide extra long lips for locks used on frames where required to avoid damage to frame, wall or trim.
   3. Provide recess type top strikes for bolts locking into head frames, unless otherwise specified.
   4. Provide dust-proof strikes for foot bolts, except where special threshold construction provides nonrecessed strike for bolt.
   5. Provide roller type strikes where recommended by manufacturer or the latch and lock units.
   6. Lever trim shall not be removable when spindle is broken on secure side of door.

B. Lock Throw: Provide 3/4-inch minimum throw of latch. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

C. Tactile Warning: Tactile Levers shall be provided as a warning at all doors where hazards may exist.

D. Rabbetted Doors: Where rabbetted door stiles are indicated, provide special rabbetted front on lock and latch units and bolts.

2.8 CLOSERS AND DOOR CONTROL DEVICES

A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit depending on size of door, exposure to weather, and anticipated frequency of use.
   1. Where parallel arms are indicated for closers, provide closer sized to meet the manufacturer's recommendations.
   2. Provide parallel arms for all overhead closers, except as otherwise indicated.

B. 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 and delayed action closing.

C. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and close door automatically under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fir detectors, provided with normally closed switching contacts.
   1. Provide integral smoke detector device in combination door closers and holders complying with UL 228.

D. Provide grey resilient parts for exposed bumpers.

2.9 DOOR TRIM UNITS

A. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.

B. Fabricate edge trim of stainless steel to fit door thickness in standard lengths or to match height of protection plates.

C. Fabricate protection plates not more than 2 inches (50 mm) less than door width on hinge side and not more than 1 inch (25 mm) less than door width on pull side by height indicated.
   1. Metal Plates: Stainless Steel, .050 inch (U.S. 18 gauge) (1.3 mm).

2.10 WEATHERSTRIPPING, SEALS AND INTUMESCENTS

A. General: Provide continuous weatherstripping on exterior doors and smoke, light, or sound seals on interior doors where indicated or schedule. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

B. Provide intumescent seals as required by the door and frame manufacturers tested assembly requirements for labeled opening assemblies as needed.

C. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.

D. Weatherstripping at Jambs and Heads: Provide bumper-type resilient insert and metal retainer strips, surface applied and of following metal, finish, and resilient bumper material:
   1. Extruded aluminum with natural anodized finish, 0.062-inch (1.6 mm) minimum thickness of main walls and flanges with silicon seal.

E. Weatherstripping at Door Bottoms: Provide threshold consisting of contact-type resilient insert and metal housing of design and size shown and of following metal, finish, and resilient seal strip:
   1. Extruded aluminum with natural anodized finish, 0.062-inch (1.6 mm) minimum thickness of main walls and flanges with neoprene.

2.11 THRESHOLDS

A. General: Except as otherwise indicated, provide standard metal threshold unit of type, size, and provide as shown or scheduled.

B. Exterior Hinged or Pivoted Doors: Provide units not less than 4 inches (100 mm) wide, formed to accommodate change in floor elevation where indicated, fabricated to accommodate door hardware and to fit door frames, and as follows:
   1. For in-swinging doors provide units with silicon seal.
   2. For out-swinging doors provide units with silicon seal.

2.12 HARDWARE FINISHES

A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).

B. Provide finishes that match those established by BHMA or, if none established, match the Architect's sample.

C. 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 by referenced standards for the applicable units of hardware.

D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated. The suffix "NL" is used with standard finish designations to indicate "no lacquer."

E. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

F. The designations used in schedules and elsewhere to indicate hardware finishes are the industry-recognized standard commercial finishes, except as otherwise noted.
   1. Rust-Resistant Finish: For iron and steel base metal required for exterior work and in areas shown as "High Humidity" areas (and also when designed with the suffix-RR), provide 0.2-mil (0.005-mm) thick copper coating on base metal before applying brass, bronze, nickel, or chromium plated finishes.

G. Closer finishes listed in the hardware sets are for the closer covers. Closer bodies and arms are to be painted to match.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Contracting Officer.
   1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
   2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
   3. "Recommended Locations for Builders Hardware for Wood Doors" by the Door and Hardware Institute.

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or applications or surface protection with finishing work specified in the Division 09 painting Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 07 Section "Joint Sealants."

F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
   1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

B. Clean adjacent surfaces by hardware installation.

C. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.

D. Six-Month Adjustment: Approximately six months after the date of Substantial Completion, the Installer, accompanied by representatives of the manufacturers of latchsets and locksets and of door control devices, and of other major hardware suppliers, shall return to the Project to perform the following work:
   1. Examine and re-adjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.
   2. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
   3. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.
   4. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.3 HARDWARE SCHEDULE

A. General: Provide hardware for each door to comply with requirements of Section "Door Hardware," hardware set numbers indicated in door schedule, and in the following schedule of hardware sets.
   1. Hardware sets indicate quantity, item, manufacturer and product designation, size, and finish or color, as applicable.
   2. All Fire Rated Doors shall have Door Closers and Smoke Seals.

HARDWARE SETS

SET #1 - LOBBY (100)

6	Hinges	FBB191 4 1/2 X 4 1/2 NRP x Torx Screws	US26D	ST
1	Lockset	45H-7AB15N PATD SH	626	BE
1	Closer	D-4550 CS MC SEC SN	630	ST
1	Threshold	171A x Torx Screws		PE
1	Weatherstrip	S88GR x Head & Jambs		PE
1	Door Bottom	315 CN x Torx Screws		PE

SET #2 - EXTERIOR (122, 127, 142)

2	Hinges	FBB199 4 1/2 X 4 1/2 NRP	US26D	ST
1	Hinge	C-FBB 199 4 1/2 X 4 1/2 6 Wire Torx Screws	US26D	ST
1	Power Supply	PS160		PR
1	Rim Cylinder	1E-72 PATD	626	BE
1	Mortise Cylinder	1E-74 PATD	626	BE
1	Card Reader			
1	Closer w/Comp Stop	D-4550 CS MC SEC SN	630	ST
1	Kickplate	KO050 10" x 2" LDW B3E CSK Torx Screws	630	TR
1	Door Stop	3001 or 3002 as required	BLK	ST
1	Threshold	171A x Torx Screws		PE
1	Weatherstrip	S88GR x Head & Jambs		PE
1	Door Bottom	315 CN x Torx Screws		PE

SET #3 - LOBBY (104)

2	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Hinge	CE FBB179 4 1/2 X 4 1/2 NRP 6 Wire	US26D	ST
1	Power Supply	PS160		PR
1	Lockset	45H-7TD15N PATD SH	626	BE
1	Closer	D-3550 CS MC	689	ST

SET #4 - RESTROOM (102, 103)

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Push Plate	1001-9	630	TR
1	Pull Plate	1014-3B	630	TR
1	Closer	D-3550 CS MC	689	LC
1	Mop Plate	KO050 10" x 2" LDW B3E CSK	630	ST
1	Wall Bumper	1270CVSV	626	TR
1	Smoke Seal	S88GR x Head & Jambs		PE

SET #5 - OFFICE (TYPICAL)

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	45H-7R15N PATD	626	BE
1	Wall Bumper	1270CVSV	626	TR
3	Door Silencers	1229A		TR

SET #6 - STORAGE (108, 120, 128, 129, 130, 149, 150, 161)

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	45H-7D15N PATD	626	BE
1	Closer	D 3550 Reg	630	ST
1	Kickplate	KO050 10” x 2” LDW B3E CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Smoke Seal	S88GR x Head & Jambs		PE

SET #7 – PRINT / BREAK ROOM (135, 160)

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	45H-7D15N PATD	626	BE
1	Closer	D 3550 CS MC	630	ST
1	Kickplate	KO050 10” x 2” LDW B3E CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
3	Door Silencers	1229A		PE

SET #8 – CONFERENCE ROOM (106A, 106B, 119)

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	P15N PATD	626	BE
1	Wall Bumper	1270CVSV	626	TR
3	Door Silencers	1229A		PE

SET #9 – CONFERENCE ROOM (106C)

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	45H-7ZD15N PATD	626	BE
1	Wall Bumper	1270CVSV	626	TR
3	Door Silencers	1229A		PE

SET #10 – ELEC, IDF, JANITOR (156, 158, 164)

3	Hinges	FBB179 4 1/2 X 4 1/2 NRP	US26D	ST
1	Lockset	45H-7D15N PATD	626	BE
1	Closer	D 3550 CS MC	630	ST
1	Kickplate	KO050 10” x 2” LDW B3E CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Smoke Seal	S88GR x Head & Jambs		PE

SET #11 – EXTERIOR UTILITIES (123, 124, 155)

3	Hinges	FBB191 4 1/2 X 4 1/2 NRP Torx Screws	630	ST
1	Lockset	45H-7D15N PATD SH	626	BE
1	Closer	D 4550 CS MC SEC SN	630	ST
1	Kickplate	KO050 10” x 2” LDW B3E CSK Torx Screws	630	TR
1	Threshold	171A		PE
1	Weatherstrip	S88GR x Head & Jambs		PE
1	Door Bottom	315 CN x Torx Screws		PE

END OF SECTION

SECTION 08 8000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
   1. Primary float glass
   2. Heat-treated (tempered) float glass.

1.3 DEFINITIONS

A. Manufacturer is used in this Section to refer to a firm that produces primary glass or fabricated glass as defined in the referenced glazing standard.

1.4 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials' actual surface temperatures due to both solar heat gain and nighttime sky heat loss.
   1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

1.5 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

B. Samples: For verification purposes of 12-inch square samples of each type of glass indicated except for clear monolithic glass products, and 12-inch long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system

C. Glass fabricator shall submit copy of his glass manufacturer's certification for insulating products.

D. Product certificates signed by glazing materials manufacturers certifying that their products comply with specified requirements.

E. Maintenance Data: For glass and other glazing materials to include in Operating and Maintenance Manual specified in Division 1.

1.6 QUALITY ASSURANCE

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
   1. GANA Publications: "GANA Glazing Manual."

B. Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.
   1. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

C. Glazier Qualifications: Engage an experienced glazier who has completed glazing similar in material, design, and extent to that indicated for Project with a record of successful in-service performance.

D. Single-Source Responsibility for Glass: Obtain glass from one source for each product indicated below:
   1. Primary glass of each (ASTM C 1036) type and class indicated.
   2. Heat-treated glass of each (ASTM C 1048) condition indicated.

E. Single-Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials to comply with manufacturer's directions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.8 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes.
   1. Install liquid sealants at ambient and substrate temperatures above 40 deg F.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products of one of the following manufacturers:
   1. Manufacturers of Clear Float Glass:
      a. Guardian Industries Corp.
      b. LOF Glass, Inc.
      c. PPG Industries, Inc.
      d. AFG Industries, Inc.
   2. Fabricators:
      a. Oldcastle Glass.
      b. Viracon, Inc.

2.2 PRIMARY FLOAT GLASS PRODUCTS

A. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Class as indicated below, and Quality q3 (glazing select).
   1. Class 1 (clear) unless otherwise indicated. (**CG**)

2.3 HEAT-TREATED FLOAT GLASS PRODUCTS, GENERAL

A. Fabrication Process: By horizontal (roller-hearth) process.

2.4 HEAT-TREATED FLOAT GLASS (**CTG**)

A. Uncoated, Clear, Heat-Treated Float Glass: ASTM C 1048, Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), typically 6 mm thick, kind as indicated below.
   1. Kind HS (heat strengthened) where indicated.
   2. Kind FT (fully tempered) where indicated.

B. Manufacturers: Provide heat-treated glass by manufacturer of float glass listed above.

2.5 ELASTOMERIC GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:
   1. Compatibility: Select glazing sealants and tapes of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
   2. Suitability: Comply with sealant and glass manufacturer's recommendations for selecting glazing sealants and tapes that are suitable for applications indicated and conditions existing at time of installation.
   3. Colors: Provide color of exposed joint sealants to comply with the following:
      a. Provide selections made by Architect from manufacturer's full range of standard and custom colors for products of type indicated.

B. Elastomeric Glazing Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with ASTM C 920 requirements indicated below:
   1. Two-Part Polysulfide Glazing Sealant: Type M; Grade NS; Class 25; Uses NT, M, G, A, and, as applicable to uses indicated, O.
   2. One-Part Acid-Curing Silicone Glazing Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to uses indicated, O.
   3. One-Part Non-Acid-Curing Silicone Glazing Sealant: Type S; Grade NS, Class 25; Uses NT, G, A, and, as applicable to uses indicated, O; and complying with the following requirements for modulus and additional joint movement capability.
      a. Medium Modulus: Tensile strength of not less than 45 nor more than 75 psi at 100 percent elongation when tested per ASTM D 412 after 14 days at 77 deg F and 50 percent relative humidity.
      b. Additional capability, when tested per ASTM C 719 for adhesion and cohesion under maximum cyclic movement, to withstand the following percentage increase and decrease of joint width, as measured at time of application, and remain in compliance with other requirements of ASTM C 920: 50 percent.

2.6 GLAZING GASKETS

A. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542, black.

B. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
   1. Neoprene complying with ASTM C 864.
   2. EPDM complying with ASTM C 864.
   3. Silicone complying with ASTM C 1115.

C. Soft Compression Gaskets: Extruded or molded closed-cell, integral-skinned gaskets of material indicated below, complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal:
   1. Neoprene.
   2. EPDM.
   3. Silicone.

D. Manufacturers: Subject to compliance with requirements, provide products by one of the following companies.
   1. Lock-Strip Gaskets:
      a. Stanlock Div., Griffith Rubber Mills.
   2. Preformed Gaskets:
      a. Advanced Elastomer Systems, L.P.
      b. Schnee-Morehead, Inc.
      c. Tremco, Inc.

2.7 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

2.8 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

B. Clean cut or flat grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.

C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine glass framing, with glazier present, for compliance with the following:
1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Minimum required face and edge clearances.
3. Effective sealing between joints of glass-framing members.

B. Do not proceed with glazing until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

3.3 GLAZING, GENERAL

A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.

B. Glazing channel dimensions as indicated on Drawings provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

C. Protect glass from edge damage during handling and installation. Remove damaged glass from Project site and legally dispose of off site. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant substrate testing.

E. Install elastomeric setting blocks in sill rabbets, sized and located to comply with referenced glazing standard, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass sizes larger than 50 united inches (length plus height) as follows:
   1. Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and comply with system performance requirements.
   2. Provide 3-mm (1/8-inch) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking to comply with requirements of referenced glazing publications, unless otherwise required by glass manufacturer.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.4 GASKET GLAZING (DRY)

A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.

B. Secure compression gaskets in place with joints located at corners to compress gaskets producing a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

C. Install gaskets so they protrude past face of glazing stops.

3.5 SEALANT GLAZING (WET)

A. Install continuous spacers between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel weep systems until sealants cure. Secure spacers in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass. Install pressurized gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.

3.6 LOCK-STRIP GASKET GLAZING

A. Comply with ASTM C 716 and gasket manufacturer's written instructions. Provide supplementary wet seal and weep system unless otherwise indicated.

3.7 PROTECTION AND CLEANING

A. Protect exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

C. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.

D. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION

SECTION 08 9100 - LOUVERS AND VENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Fixed, extruded-aluminum louvers.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Structural Performance: Design, engineer, fabricate, and install exterior metal wall louvers to withstand the effects of loads and stresses from wind and normal thermal movement, without evidencing permanent deformation of louver components including blades, frames, and supports; noise or metal fatigue caused by louver blade rattle or flutter; and permanent damage to fasteners and anchors:
   1. Normal thermal movement is defined as that resulting from the following maximum change (range) in ambient temperature. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
      a. Temperature Change (Range): 120 deg F ambient; 180 deg F, material surfaces.

B. Air Performance, Water Penetration, and Air Leakage Ratings: Provide louvers complying with performance requirements indicated as demonstrated by testing manufacturers stock units 48 inches wide by 48 inches high. Test units according to Air Movement and Control Association (AMCA) Standard 500.

1.4 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: For louver units and accessories. Include plans, elevations, sections, and details showing profiles, angles, spacing of louver blades; unit dimensions related to wall openings and construction; free areas for each size indicated; and profiles of frames at jambs, heads and sills.

C. Samples for Verification Purposes: Of each type of metal finish required, prepared on 6 inch square metal samples of same thickness and alloy indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.

1.5 PROJECT CONDITIONS

A. Field Measurements: Check actual louver openings by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the Work.

1. Where field measurements cannot be made without delaying the Work, guarantee opening dimensions and proceed with fabrication of louvers and vents without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to guaranteed dimensions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Louvers:
   a. Airline Products Co. Div., Danzer Metal Works Co.
   b. Airolite Co.
   c. American Warming and Ventilating, Inc.
   d. Arrow United Industries.
   e. Construction Specialties, Inc.
   f. Greenheck.
   g. Industrial Louvers, Inc.
   h. Reliable Products; Hart & Cooley, Inc.
   i. Ruskin Company; Tomkins PLC.

2.2 MATERIALS

A. Aluminum Sheet: ASTM B 209, Alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer to produce required finish.

B. Aluminum Extrusions: ASTM B 221, Alloy 6063-T5 or T-52.

C. Fasteners: Of same basic metal and alloy as fastened metal or 300 Series stainless steel, unless otherwise indicated. Do not use metals which are incompatible with materials joined.

1. Use types, gages, and lengths to suit unit installation conditions.
2. Use Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

D. Anchors and Inserts: Of type, size, and material required for type of loading and installation indicated. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.

1. Bituminous Paint: Cold-applied asphalt emulsion, ASTM D 1187.

2.3 FABRICATION, GENERAL

A. General: Fabricate louvers and vents to comply with requirements indicated for design, dimensions, materials, joinery, and performance.

B. Preassemble louvers in shop to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
1. Continuous Vertical Assemblies: Fabricate units without interrupting blade-spacing pattern.

C. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.

D. Fabricate frames, including integral sills, to fit in openings of size indicated with allowances made for fabrication and installation tolerances of louvers, adjoining construction, and perimeter sealant joints.
1. Frames shall be channel type, unless otherwise shown.

E. Include supports, anchorages, and accessories required for complete assembly.

F. Where required, provide vertical mullions of type and at spacings indicated but not further apart than recommended by manufacturer, or 72 inches o.c., whichever is less. At horizontal joints between louver units provide horizontal mullions except where continuous vertical assemblies are indicated.

G. Provide sill extensions and loose sills made of same material as louvers, where indicated, as required for drainage to exterior and to prevent water penetrating to interior.

H. Join frame members to one another and to fixed louver blades as follows, unless otherwise indicated, or size of louver assembly makes bolted connections between frame members necessary:
1. With fillet welds, concealed from view; or mechanical fasteners; or a combination of these methods; as standard with louver manufacturer.

2.4 FIXED, EXTRUDED-ALUMINUM WALL LOUVERS

A. Horizontal Fixed Blade Louvers: Extruded aluminum frames and louver blades, complying with the following requirements:
1. Standard Fixed Type:

a. Louver Depth: 5-inches.
b. Frame Type: Channel.
c. Frame Thickness: 0.081 inch.
d. Louver Blade Thickness: 0.063 inch.
e. Louver Blade Profile: Double drainable.
f. Performance Requirements: As follows, determined by testing units 48 inches wide by 48 inches high per AMCA Standard 500:
1) Louver Free Area: 40 percent minimum.
g. Product: Subject to compliance with requirements, provide Model EME520DD Wind-Driven Rain Resistant Stationary Louver, manufactured by Ruskin.

2. Louver Performance Ratings:
a. Air Performance: Not more than 0.10-inch wg static pressure drop at 700-fpm free-area velocity.

2.5 LOUVER SCREENS

A. General: Provide each exterior louver with louver screens complying with the following requirements:

1. Screen Location for Fixed Louvers: Interior face, unless otherwise indicated.
2. Screening Type: Bird screening, unless otherwise indicated.

B. Secure screens to louver frames with stainless steel machine screws, spaced at each corner and at 12 inch o.c. between.

C. Louver Screen Frames: Fabricate screen frames with mitered corners to louver sizes indicated and to comply with the following requirements:

1. Metal: Same kind and form of metal as indicated for louver frames to which screens are attached.
a. Reinforce extruded aluminum screen frames at corners with clips.
2. Finish: Same finish as louver frames to which louver screens are attached.
3. Type: Rewireable frames with a driven spline or insert for securing screen mesh.

D. Louver Screening for Aluminum Louvers: Fit aluminum louver screen frames with screening covering louver openings and complying with the following requirements:

1. Bird Screening: 3/4 inch square mesh formed with 0.051 inch diameter aluminum wire.

2.6 FINISHES

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.

B. Finish louvers after assembly.

C. High Performance Organic Coating: Immediately after cleaning and pretreatment, apply organic coating specified below to comply with coating and resin manufacturer's instructions.

1. Fluorocarbon 2-Coat Coating System: Manufacturer's standard 2-coat thermo-cured system, composed of specially formulated inhibitive primer and fluorocarbon color topcoat containing not less than 70 percent polyvinyldene resin by weight.
   a. Color and Gloss: Finish color to be selected by Architect from manufacturer’s full range of colors.

PART 3 - EXECUTION

3.1 PREPARATION

A. 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 project site.

3.2 INSTALLATION

A. Locate and place louver units plumb, level, and in proper alignment with adjacent work.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.

C. Form closely fitted joints with exposed connections accurately located and secured.

D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.

E. Protect galvanized and nonferrous 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.

F. Install concealed gaskets, flashings, joint fillers, and insulation, as louver installation progresses where required to make louver joints weathertight. Comply with Division 7 Section "Joint Sealants" for sealants applied during installation of louver.

3.3 ADJUSTING AND PROTECTION

A. Protect louvers and vents from damage of any kind during construction period including use of temporary protective coverings where needed and approved by louver manufacturer. Remove protective covering at time of Substantial Completion.

B. Restore louvers damaged during installation and construction period, so that no evidence remains of correction work. If results of restoration are unsuccessful, as judged by Contracting Officer, remove damaged units and replace with new units.

1. Clean and touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

3.4 CLEANING

A. Periodically clean exposed surfaces of louvers, which are not protected by temporary covering, to remove fingerprints and soil during construction period; do not let soil accumulate until final cleaning.

B. Before final inspection, clean exposed surfaces with water and with a mild soap or detergent not harmful to finishes. Rinse thoroughly and dry surface.

END OF SECTION

DIVISION 09 - FINISHES

SECTION 09 2116 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Steel framing members to receive gypsum board.
   2. Interior gypsum wallboard.
   3. Gypsum sheathing.

B. NOTE: Refer to ASTM Standards C 645-00 (Standard Specification for Nonstructural Steel Framing Members) and C 754-00 (Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products). See current "Industry Designator" data regarding cold-formed steel framing members (definitions and framing criteria).

1.3 DEFINITIONS

A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 SUBMITTALS

A. Texture samples 12" x 12".

B. Product data, samples, and results of testing for impact-resistant wallboard.

1.5 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Where fire-rated gypsum board assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Fire Resistance Ratings: As indicated by reference to GA File Numbers in GA-600 "Fire Resistance Design Manual" or to design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.

B. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer.

C. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.

D. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

E. Field Samples: On actual gypsum board assemblies, prepare field samples of at least 100 sq. ft. in surface area for the following applications. Simulate finished lighting conditions for review of in-place unit of Work.
   1. Surfaces indicated to receive textured finishes specified in this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.7 PROJECT CONDITIONS

A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.

B. Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F. For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F for 48 hours prior to application and continuously after until dry. Do not exceed 95 deg F when using temporary heat sources.

C. Ventilation: Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Steel Framing and Furring:
      a. Cemco.
      b. Dale Industries, Inc.
      c. Dietrich Industries, Inc.

2. Grid Suspension Assemblies:
   a. Armstrong World Industries
   b. Chicago Metallic Corp.
   c. USG Corporation.
3. Gypsum Board and Related Products:
   a. BPB America, Inc.
   b. G-P Gypsum
   c. National Gypsum Co.
   d. PABCO Gypsum
   e. USG Corporation.

2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

A. General: Comply with ASTM C 754 for conditions indicated.

B. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.

C. Hanger Rods: ASTM A 510 Mild carbon steel and zinc-coated or protected with rust-inhibitive paint.

D. Flat Hangers: Mild steel and zinc-coated or protected with rust-inhibitive paint.

E. Angle-Type Hangers: Angles with legs not less than 7/8-inch wide, formed from 0.0635-inch-thick galvanized steel sheet complying with ASTM A 653 Coating Designation G90, with bolted connections and 5/16-inch-diameter bolts.

F. Channels: Cold-rolled steel, 0.0538-inch-minimum thickness of base (uncoated) metal and 7/16-inch-wide flanges, and as follows:
   1. Carrying Channels: 2 inches deep, 590 lb per 1000 feet, unless otherwise indicated.
   2. Furring Channels: 3/4 inch deep, 300 lb per 1000 feet, unless otherwise indicated.
   3. Finish: G-60 hot-dip galvanized coating per ASTM A 653 for framing for exterior soffits and where indicated.

G. Steel Studs for Furring Channels: ASTM C 645, with flange edges bent back 90 deg and doubled over to form 3/16-inch minimum lip (return), minimum thickness of base (uncoated) metal and minimum depth as follows:
   1. Thickness: 0.0179 inch, unless otherwise indicated.
   2. Depth: 3-5/8 inches, unless otherwise indicated.
   3. Protective Coating: G40 hot-dip galvanized coating per ASTM A 653 for framing for exterior soffits and ceiling suspension members in areas within 10 feet of exterior walls.

H. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth of 7/8 inch, and minimum thickness of base (uncoated) metal as follows:
   1. Thickness: 0.0179 inch, unless otherwise indicated.
   2. Protective Coating: G40 hot-dip galvanized coating per ASTM A 653 for framing for exterior soffits and ceiling suspension members in areas within 10 feet of exterior walls.

I. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross furring members that interlock to form a modular supporting network.

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

A. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 degrees and doubled over to form 3/16-inch-wide minimum lip (return) and complying with the following ASTM C754 requirements for interior, non-load-bearing steel studs in gypsum wallboard walls (5 PSF, L/240, non-composite):

STUD SIZE	**MAXIMUM HEIGHT, FEET** SPACING, INCHES			DESIGN BASED ON SSMA SIZE
	12	**16**	**24**	
3-5/8" x 25 gauge	15'-4"	14'-4"	13'-5"	350S125-18
3-5/8" x 20 gauge	17'-10"	16'-5"	14'-9"	362S137-33
6" x 20 gauge	26'-9"	24'-6"	21'-7"	600S137-33

1. Provide metal floor and ceiling runners designed to accommodate the specified studs.

B. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:
1. Depth: 7/8 inch.
2. Depth: 1-1/2 inch.
3. Minimum Base Metal Thickness: 0.0179 inch, unless otherwise indicated.

C. Furring Brackets: Serrated-arm type, adjustable, fabricated from corrosion-resistant steel sheet complying with ASTM C 645, minimum thickness of base (uncoated) metal of 0.0329 inch, designed for screw attachment to steel studs and steel rigid furring channels used for furring.

D. Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet complying with ASTM A 653 or ASTM A 568 to form 1/2-inch-deep channel of the following configuration:
1. Single-Leg Configuration: Asymmetric-shaped channel with face connected to a single flange by a single slotted leg (web).
2. Double-Leg Configuration: Hat-shaped channel, with 1-1/2-inch-wide face connected to flanges by double-slotted or expanded metal legs (webs).

E. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

F. Stiffener Clips: ASTM A653, Grade 50, angle stiffener clips 1-1/5” x 3”, in minimum thickness of base (uncoated) metal as follows:
1. Thickness: 118 mils (10 gage).
2. Protective Coating: G90-hot dip galvanized coating.

2.4 GYPSUM BOARD PRODUCTS

A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end butt joints.
1. Thickness: Provide gypsum board in 5/8 inch thickness to comply with ASTM C 840 for application system and support spacing indicated.

B. Gypsum Wallboard: ASTM C 36 and as follows:
   1. Type: Type X.
   2. Edges: Tapered.
   3. Thickness: 5/8 inch unless shown otherwise.

C. Water-Resistant Gypsum Backing Board: ASTM C 630 and as follows:
   1. Type: Regular, unless shown otherwise.
   2. Thickness: 5/8 inch, unless shown otherwise.

D. Gypsum Sheathing Board: Gypsum sheathing board 1/2-inch and 5/8-inch thick, consisting of noncombustible gypsum core incorporating a water-resistant material surfaced on face, back and long edges with water-repellent paper bonded to the core. Comply with ASTM C 79. V-shaped tongue and groove long edge, square ends.

2.5 TRIM ACCESSORIES

A. Accessories for Interior Installation: Corner beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
   1. Material: Formed metal, plastic, or metal combined with paper, with metal complying with the following requirement:
      a. Sheet steel zinc-coated by hot-dip process.
      b. Sheet steel coated with zinc by hot-dip or electrolytic processes, or with aluminum or rolled zinc.
   2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
      a. Cornerbead on outside corners, unless otherwise indicated.
      b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim unless otherwise indicated.
      c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
      d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.
      e. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.

B. Accessories for Exterior Installation:
   1. Aluminum molding (vented) in widths shown, similar to Fry Reglet Corp. Vented Soffit Molding.

2.6 JOINT TREATMENT MATERIALS

A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.
   1. Use pressure-sensitive or staple-attached open-weave glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.

C. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
   1. Ready-Mixed Formulation: Factory-mixed product.
   2. Job-Mixed Formulation: Powder product for mixing with water at Project site.
   3. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
   4. Topping compound formulated for fill (second) and finish (third) coats.
   5. All-purpose compound formulated for both taping and topping compounds.

2.7 MISCELLANEOUS MATERIALS

A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.

B. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot grouting hollow metal door frames.

C. Steel drill screws complying with ASTM C 1002 for the following applications:
   1. Fastening gypsum board to steel members less than 0.03 inch thick.
   2. Fastening gypsum board to wood members.
   3. Fastening gypsum board to gypsum board.

D. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick.

2.8 TEXTURE FINISH PRODUCTS

A. Primer: Of type recommended by texture finish manufacturer.

B. Aggregate Finish: Factory-packaged proprietary drying-type powder product formulated with aggregate for mixing with water at Project site for spray application to produce texture indicated below:
   1. Light Orange Peel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

3.3 INSTALLING STEEL FRAMING, GENERAL

A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.

B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.

C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.
   1. Where building structure abuts ceiling perimeter or penetrates ceiling.
   2. Where partition framing and wall furring abut structure except at floor.
      a. Provide slip- or cushioned-type joints as detailed to attain lateral support and avoid axial loading.

D. Do not bridge building expansion and control joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

A. Suspend ceiling hangers from building structural members and as follows:
   1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
   2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
   3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
   4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
   5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
   6. Do not attach hangers to steel deck tabs.
   7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
   8. Do not connect or suspend steel framing from ducts, pipes or conduit.

B. Sway-brace suspended steel framing with hangers used for support.

C. For exterior soffits, install cross-bracing and framing to resist wind uplift.

D. Install suspended steel framing components in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard.
   1. Wire Hangers: 0.1620-inch (8-gage) diameter, 4 feet o.c.
   2. Carrying Channels (Main Runners): 1-1/2 inch, 4 feet o.c.
   3. Rigid Furring Channels (Furring Members): 16 inches o.c. or 24 inches o.c. as indicated.

E. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring members or grid suspension members are level to within 1/8 inch in 12 feet as measured both lengthwise on each member and transversely between parallel members.

F. Wire-tie or clip furring members to main runners and to other structural supports as indicated.

G. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
   1. Where studs are installed directly against exterior walls, install asphalt felt strips between studs and wall.

B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.

C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Cut studs 1/2 inch short of full height. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
   1. For STC-rated and fire-resistive-rated partitions requiring partitions to extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.

D. Install steel studs and furring in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard to comply with maximum deflection and minimum loading requirements specified:
   1. Single-Layer and Double Layer Construction: Space studs at 24 inches o.c. maximum unless noted otherwise.

E. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.

F. Install stiffener clips in partial height walls at jury rail and gallery as indicated in Drawings and per manufacturer’s recommendations.

G. Frame door openings to comply with details indicated, with GA-600, and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
   1. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.

H. Frame openings other than door openings to comply with details indicated or, if none indicated, in same manner as required for door openings. Install framing below sills of openings to match framing required above door heads.

3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.

B. Install sound attenuation blankets where indicated prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

C. Install ceiling board panels across framing to minimize the number of abutting end joints and avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

D. Install wall / partition board panels to minimize the number of abutting end joints or avoid them entirely. Stagger abutting end joints not less than one framing member in alternate courses of board. At stairwells and other high walls, install panels horizontally with end abutting joints over studs and staggered.

E. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

F. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position adjoining panels so that tapered edges abut tapered edges, and field-cut edges abut field-cut edges and ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions. Avoid joints at corners of framed openings where possible.

G. Attach gypsum panels to steel studs so that the leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

H. Attach gypsum panels to framing provided at openings and cutouts.

I. 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 and immediately insert gypsum panels into frames.

J. Form control joints and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.

K. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chase walls that are braced internally.
   1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
   2. Fit gypsum panels around ducts, pipes, and conduits.
   3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4-to-1/2-inch-wide joints to install sealant.

L. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4-inch-to-1/2-inch-wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

M. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.7 GYPSUM BOARD APPLICATION METHODS

A. Single-Layer Application: Install gypsum wallboard panels as follows:
   1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
   2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.
   3. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless parallel application is required for fire-resistive-rated assemblies. Use maximum-length panels to minimize end joints.
   4. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.

B. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
   1. Fasten with screws.

3.8 SHEATHING APPLICATION METHODS

A. Cut boards at penetrations, edges, and other obstructions of the work; fit tightly against abutting construction, except provide a 3/8-inch setback where non-load-bearing construction abuts structural elements.

B. Coordinate sheathing installation with flashing and joint sealant installation so that these combined materials are installed in the sequence and manner that prevents exterior moisture from passing through completed exterior wall assembly.

C. Apply fasteners so that screw heads bear tightly against face of gypsum sheathing boards but do not cut into face paper.

D. Do not bridge building expansion joints with gypsum sheathing; cut and space edges to match spacing of structural support elements.

E. Horizontal Installation: Install 2-foot-wide gypsum sheathing boards horizontal with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent boards without forcing. Abut ends of boards over centers of stud flanges and stagger end joints of adjacent boards not less than one stud spacing, two where possible. Screw-attach boards at perimeter and within field of board to each steel stud with fasteners spaced approximately 8 inches o.c. and set back 3/8 inch minimum from edges and ends of boards.

3.9 INSTALLING TRIM ACCESSORIES

A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.

B. Install corner beads at external corners.

C. Install edge trim where edge of gypsum panels would otherwise be exposed or semiexposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.
   1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
   2. Install L-bead where edge trims can only be installed after gypsum panels are installed.
   3. Install U-bead where indicated.
   4. Install aluminum edge trim and other accessories where indicated.

D. Install control joints at locations indicated, and where not indicated according to ASTM C 840, and in locations approved by Architect for visual effect.

E. Install H-molding in exterior gypsum board assemblies where control joints are indicated. Install on cut or ends of gypsum panels, not on tapered edges.

3.10 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.

B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.

C. Apply joint tape over gypsum board joints except those with trim accessories having concealed face flanges not requiring taping to prevent cracks from developing in joint treatment at flange edges.

D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
   1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
   2. Level 2 where water-resistant gypsum backing board panels form substrates for tile, and where indicated.
   3. Level 4 for gypsum board surfaces unless otherwise indicated.

E. For level 4 gypsum board finish, embed tape in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration. Use the following joint compound combination:
   1. Embedding and First Coat: Ready-mixed, drying-type, all-purpose or taping compound.
   2. Fill (Second) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
   3. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.

F. Where level 2 gypsum board finish is indicated, apply joint compound specified for first coat in addition to embedding coat.

G. Where level 1 gypsum board finish is indicated, apply joint compound specified for embedding coat.

3.11 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes according to texture finish manufacturer's instructions. Apply primer only to surfaces that are clean, dry, and smooth.

B. Texture Finish Application: Mix and apply finish to gypsum panels and other surfaces indicated to receive texture finish according to texture finish manufacturer's directions. Using powered spray equipment acceptable to texture finish manufacturer, produce a uniform texture matching approved field samples and free of starved spots or other evidence of thin application or of application patterns.

C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray as recommended by texture finish manufacturer to prevent damage.

3.12 CLEANING AND PROTECTION

A. Promptly remove any residual joint compound from adjacent surfaces.

B. Provide final protection and maintain conditions, in a manner suitable to Installer, that ensures gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 09 3000 - TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Ceramic floor tile and wall tile.
   2. Stone thresholds installed as part of tile installations.
   3. Waterproofing membrane.

1.3 SUBMITTALS

A. Samples for Verification: Of each item listed below, prepared on Samples of size and construction indicated, products involving color and texture variations, in sets showing full range of variations expected.
   1. Submit for Architect's verification one sample of each different color of porcelain pavers and grout specified herein.

B. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

C. Product Data: For each type of tile, mortar, grout and other products specified.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.

B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

1.5 PROJECT CONDITIONS

A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

C. Maintain temperatures at 50 deg F or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Ceramic Tile:
      a. Caesar Ceramic.
      b. Crossville Ceramics.
   * c. Dal-Tile Corporation.
      d. Interceramic.
   2. Mortars and Grouts:
      a. American Olean Tile Co., Inc.
      b. Custom Building Products.
      c. C-Cure Chemical Co.
   * d. Laticrete International Inc.
      e. Mapei Corp.

B. NOTE: Items marked above with asterisk (*) are specified manufacturers for this Project. Products by other manufacturers listed in 2.1.A above are acceptable provided they match specified colors.

2.2 PRODUCTS, GENERAL

A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.
   1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.

B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.

C. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.

D. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.

2.3 TILE PRODUCTS

A. Ceramic Tile at Toilet Room Floors and Walls: Provide ceramic tile complying with the following requirements:
   1. Nominal Facial Dimensions:
      a. Floor: 12 inches by 12 inches, square edges.
      b. Wall: 6 inches by 6 inches, square edges.
   2. Nominal Thickness: 5/16 inch.
   3. Daltile Pattern: Salerno.
   4. Daltile Colors:
      a. **CT-1** Marrone Chiaro SL83

b. **CT-2** Nebi Bianche SL81

B. Trim Units: Provide trim units to match characteristics of adjoining flat tile and to comply with the following requirements:
1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
2. Shapes: As follows, selected from manufacturer's standard shapes:
a. Base: Straight or coved, as required to type of installation.
1) Coved base at Toilet rooms shall have 3/8-inch radius cove to comply with applicable Health Department codes.
b. Internal Corners: Field-butted square corners.
c. Other trim as required to achieve patterns shown.
3. Provide coved base S-36C9TB (6" x 12") in Marrone Chiaro color to match CT-1.

2.4 STONE THRESHOLDS

A. General: Provide stone (marble) that is uniform in color and finish, fabricated to sizes and profiles indicated or required to provide transition between tile surfaces and adjoining finished floor surfaces. Transition shall comply with ADA requirements.

B. Marble Thresholds: Provide marble thresholds complying with ASTM C 503 requirements for exterior use and for abrasion resistance where exposed to foot traffic, a minimum hardness of 10 per ASTM C 241.
1. Provide white, honed marble complying with MIA Group "A" requirements for soundness.
2. Provide threshold 3/8-inch thick, double bevel, unless shown otherwise.

2.5 WATERPROOF MEMBRANE

A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

B. Chlorinated Polyethylene Sheet: Nonplasticized, chlorinated polyethylene faced on both sides with nonwoven polyester fabric; 0.030-inch nominal thickness.
1. Products: Subject to compliance with requirements, provide the following:
a. Noble Company (The); Nobleseal TS.

2.6 SETTING MATERIALS

A. Portland Cement Mortar Installation Materials: Provide materials complying with ANSI A108.1 and as specified below.
1. Latex additive (water emulsion) described below, of type specifically recommended by latex additive manufacturer for use with job-mixed portland cement and aggregate mortar bed.
a. Latex Additive: Manufacturer's standard.

B. Latex-Portland Cement Mortar: ANSI A118.4, composition as follows:
   1. Latex additive (water emulsion) of type described below, combined at job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer.
      a. Latex Type: Manufacturer's standard.
      b. Latex-Portland Cement Mortar shall be quality similar to Mapei Kerabond with Keralastic.

2.7 GROUTING MATERIALS

A. Chemical-Resistant Epoxy Grout: ANSI A118.3. Custom Grout Colors:
   1. Toilet Room Floors and Walls: #39 Mushroom.

B. Manufacturers: Refer to Paragraph 2.1.A.2 above. Quality of epoxy grout used on this Project shall be similar to Mapei Kerapoxy.

2.8 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with requirements of Division 07 Section "Joint Sealants," including ASTM C 920 as referenced by Type, Grade, Class, and Uses.

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.

C. 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 fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.

D. Products: Subject to compliance with requirements, provide one of the following:
   1. One-Part Mildew-Resistant Silicone Sealant:
      a. "Dow Corning 786"; Dow Corning Corp.
      b. "Sanitary 1700"; GE Silicones.
      c. "898 Sanitary Silicone Sealant"; Pecora Corp.
      d. "Rhodorsil 6B White"; Rhone-Poulenc Inc.
      e. "Tremsil 600 White"; Tremco Corp.

2.9 CEMENTITIOUS BACKER UNITS

A. Cementitious Backer Units (glass mesh mortar units):
   1. Manufacturer: U.S.G. Durock; Modulars, Inc. Wonder-Board. Minimum 1/2-inch thick.
   2. Provide units in maximum lengths to eliminate joints.
   3. Tape: U.S.G. Imperial open weave, Type P tape, 2-inch wide. Tape all joints.

2.10 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
   1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds and are within flatness tolerances required by ANSI A108.
   2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

A. ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.
   1. Tolerances: Install cementitious backer units with surface plane to within 1/8 inch in 8 feet. Glue unit to metal framing prior to screwing. Tape joints.

B. Tile Council of America, Inc. (TCNA) Installation Guidelines: TCNA "Handbook for Ceramic Tile Installation"; comply with TCNA installation methods indicated.

C. 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.

D. 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.

E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align 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.

F. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.
   1. Locate joints in tile surfaces directly above joints in concrete substrates.

2. Install expansion joints in accordance with TCNA EJ171-05.
3. Prepare joints and apply sealants to comply with requirements of Division 07 Section "Joint Sealants."

G. Grout tile to comply with the requirements of the following installation standards:
1. For chemical-resistant epoxy grouts, comply with ANSI A108.6.

H. Install mildew-resistant silicone sealant at inside corners of wall tile. Sealant color shall match color of grout.

3.4 WATERPROOFING INSTALLATION

A. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness and bonded securely to substrate.

B. Do not install tile or setting materials over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 FLOOR INSTALLATION METHODS

A. Floor Tile: Install tile to comply with requirements indicated below for setting bed methods, TCNA installation methods related to types of subfloor construction, and grout types:
1. Portland Cement Mortar: ANSI A108.1
a. Bond Coat: Latex-portland cement mortar, ANSI A108.1 or ANSI A108.5.
b. Concrete Subfloors, Typical: TCNA F115-05 (with tile installed by Method F112-05 on cured bed).
c. Concrete Subfloors, Thinset: TCNA F115-05 (with tile installed by Method F113-05).
d. Concrete Subfloors, Thinset with Waterproof Membrane: TCNA F122-05, with epoxy grout.
e. Grout: Epoxy.

B. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.

C. Refer to Drawings for tile patterns at floors.

3.6 WALL TILE INSTALLATION METHODS

A. Install types of tile designated for wall application to comply with requirements indicated below for setting-bed methods, TCNA installation methods related to subsurface wall conditions, and grout types:
1. Latex-Portland Cement Mortar: ANSI A108.5.
a. Metal Studs, Interior: TCNA W243-05.
b. Grout: Epoxy.

3.7 CLEANING AND PROTECTION

A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

C. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration at time of Substantial Completion.
   1. 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.
   2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.8 EXTRA MATERIALS

A. Supply extra 2 percent of each tile used in clean, marked carton for Owner's use.

END OF SECTION

SECTION 09 5113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes ceilings consisting of the following:
   1. Acoustical tiles.
   2. Acoustical panels.
   3. Exposed suspension systems.
   4. Perimeter edge moldings and trim.

1.3 SUBMITTALS

A. Product Data: For each type of product specified.

B. Samples: For verification purposes of each type of exposed finish required, prepared on samples of size indicated below and of same thickness and material indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.
   1. 6-inch-square samples of each acoustical panel type, pattern, and color.
   2. Set of 12-inch-long samples of exposed suspension system members, including edge moldings, for each color and system type required.

1.4 QUALITY ASSURANCE

A. Fire-Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
   1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
      a. Flame Spread: 25 or less.
      b. Smoke Developed: 50 or less.

B. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

C. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.6 PROJECT CONDITIONS

A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

1.7 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels.
   1. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2 percent of amount installed.
   2. Exposed Suspension System Components: Furnish quantity of each exposed component equal to 2 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide the following:
   1. Mineral Base Panels - Typical unless noted otherwise on Reflected Ceiling Plans. Water Felted, with Painted Finish and Perforated and Fissured Pattern, Non-Fire-Resistance Rated. Color: White.
      a. "Georgian," Armstrong World Industries, Inc. (#763)
      b. "Pebbled," USG Interiors, Inc. (#4800)

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Non-Fire-Resistance-Rated Double-Web Steel Suspension Systems:
      a. Armstrong World Industries, Inc.
      b. Chicago Metallic Corporation.
      c. USG Interiors, Inc.
   2. Edge Moldings:
      a. Armstrong World Industries, Inc.
      b. Chicago Metallic Corporation.

c. Fry Reglet Corp.
d. USG Interiors, Inc.

2.2 ACOUSTICAL CEILING UNITS, GENERAL

A. Standard for Acoustical Ceiling Units: Provide manufacturers' standard units of configuration indicated that comply with ASTM E 1264 classifications as designated by reference to types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
1. Mounting Method for Measuring NRC: Type E-400 (plenum mounting in which face of test specimen is 15-3/4 inches away from the test surface) per ASTM E 795.

B. Colors and Patterns: Provide products to match appearance characteristics indicated under each product type.

2.3 MINERAL-BASE PANELS - WATER FELTED (**ACT**)

A. Tile Characteristics: Type III, Form 2 units per ASTM E 1264, with pattern designations C and E, with other panel characteristics as follows:
1. Item Number: Armstrong #763.
2. Color/Light Reflectance Coefficient: White/LR 0.86.
3. Noise Reduction Coefficient: NRC 0.55.
4. Edge Detail: Square.
5. Size: 24 inches by 48 inches by 5/8 inch.
6. Manufacturer's "No Sag" warranty
7. Humidity-Resistant HumiGuard Plus performance

2.4 METAL SUSPENSION SYSTEMS, GENERAL

A. Standard for Metal Suspension Systems: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.

B. Finishes and Colors: Provide manufacturer's standard factory-applied finish for type of system indicated.

C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

D. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
1. Gage: Provide wire sized so that stress at 3 times hanger design load (ASTM C 635, Table 1, Direct-Hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12 gage).

E. Retention Clips: Armstrong #414 or similar by other acoustical panel manufacturers.

2.5 NON-FIRE-RESISTANCE-RATED DIRECT-HUNG SUSPENSION SYSTEMS

A. Wide-Face Capped Double-Web Steel Suspension System: Main and cross-runners roll-formed from prepainted or electrolytic zinc-coated cold-rolled steel sheet, with prefinished 15/16-inch-wide metal caps on flanges; other characteristics as follows:
   1. Structural Classification: Intermediate-Duty System.
   2. End Condition of Cross-Runners: Override (stepped) or butt-edge type, as standard with manufacturer.
   3. Cap Material and Finish: Steel sheet painted white.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other Sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other Sections.
   1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-width units at borders, and comply with reflected ceiling plans.

3.3 INSTALLATION

A. General: Install acoustical ceiling systems to comply with installation standard referenced below, per manufacturer's instructions and CISCA "Ceiling Systems Handbook."
   1. Standard for Installation of Ceiling Suspension Systems: Comply with ASTM C 636.

B. Arrange acoustical units in a manner shown by reflected ceiling plans.
   1. Where ACT units are installed, provide retention clips in accordance with ceiling panel manufacturer's recommendations.

C. Suspend ceiling hangers from building structural members and as follows:
   1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices that are secure and appropriate for structure to which hangers are attached as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
5. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.

D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units.
   1. Install perimeter trim where shown.

E. Install acoustical tiles in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

F. Install acoustical ceiling panels directly attached to drywall as provided in written instruction by panel manufacturer.

3.4 CLEANING

A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 6513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section contains Specifications for the following:
   1. Rubber wall base (Type TS-Rubber, Vulcanized Thermoset).

1.3 SUBMITTALS

A. Product Data: For each type of product specified.

B. Samples for Verification Purposes: In manufacturer's standard sample sets, but not less than 12 inches long, of each different color and pattern of product specified.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility for Products: Obtain each type and color of product specified from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

B. Fire Performance Characteristics: Provide products with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
   2. Smoke Density: Less than 450 per ASTM E 662.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to Project site in original manufacturer's unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

B. Store products in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F and 90 deg F.

C. Move products into spaces where they will be installed at least 48 hours in advance of installation.

1.6 PROJECT CONDITIONS

A. Maintain a minimum temperature of 70 deg F in spaces to receive products specified in this Section for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F.

B. Do not install products until they are at the same temperature as that of the space where they are to be installed.

C. Close spaces to traffic during installation of products specified in this Section.

1.7 SEQUENCING AND SCHEDULING

A. Sequence installing products specified in this Section with other construction to minimize possibility of damage and soiling during remainder of construction period.

1.8 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels clearly describing contents.
   1. Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof of each different type and color of resilient wall base installed.
   2. Deliver extra materials to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products specified in each Product Data Sheet at end of this Section.

2.2 RESILIENT WALL BASE

A. Rubber Wall Base: Products complying with ASTM F 1861, Type TS, Group I, and requirements specified in the Rubber Wall Base Product Data Sheet at end of this Section.

2.3 INSTALLATION ACCESSORIES

A. Concrete Slab Primer: Nonstaining type as recommended by flooring manufacturer.

B. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by flooring manufacturer for applications indicated.

C. Adhesives: Water-resistant type recommended by manufacturer to suit resilient flooring product and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas where installation of products specified in this Section will occur, with Installer present, to verify that substrates and conditions are satisfactory for installation and comply with manufacturer's requirements and those specified in this Section.

3.2 PREPARATION

A. General: Comply with manufacturer's installation specifications for preparing substrates indicated to receive products indicated.

B. Use trowelable leveling and patching compounds per manufacturer's directions to fill cracks, holes, and depressions in substrates.

C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.

D. Broom or vacuum clean substrates to be covered immediately before installing products specified in this Section. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.

E. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

3.3 INSTALLATION

A. General: Install products specified in this Section using methods indicated according to manufacturer's installation directions.

B. Apply resilient wall base to walls, columns, pilasters, casework, and other permanent fixtures in rooms and areas where base is required. Install wall base in lengths as long as practicable. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
   1. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
   2. Install exterior corners before installing straight pieces.

C. Place resilient accessories so they are butted to adjacent materials of type indicated and bond to substrates with adhesive. Install reducer strips at edges of flooring that otherwise would be exposed.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing installation:
   1. Remove visible adhesive and other surface blemishes using cleaner recommended by manufacturers of resilient product involved.
   2. Sweep or vacuum floor thoroughly.

3. Do not wash floor until after time period recommended by manufacturer.
4. Damp-mop resilient accessories to remove black marks and soil.

B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by manufacturer of resilient product involved.
   1. Apply protective floor polish to resilient accessories that are free from soil, visible adhesive, and surface blemishes.
      a. Use commercially available metal, cross-linked, acrylic product acceptable to resilient accessory manufacturer.
      b. Coordinate selection of floor polish with Owner's maintenance service.
   2. Cover resilient accessories on floors and stairs with undyed, untreated building paper until inspection for Substantial Completion.

C. Clean products specified in this Section not more than 4 days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products using method recommended by manufacturer.
   1. Strip protective floor polish that was applied after completing installation, prior to cleaning.
   2. Reapply floor polish after cleaning.

RUBBER WALL BASE PRODUCT DATA SHEET

Rubber Wall Base Designation: **RB**

Style: Cove with top-set toe.

Minimum Nominal Thickness: 1/8 inch.

Height: 4 inches typical; and 6 inches tall at restrooms and wet locations.

Lengths: Coils in lengths standard with manufacturer but not less than 100 feet.

Exterior Corners: Premolded.

Interior Corners: Mitered.

Acceptable Products: Roppe
Flexco TS
Nora

Color: Roppe Type TS Premium Rubber Wall Base, P-100, Black.

END OF SECTION

SECTION 09 6519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Vinyl composition floor tile.

1.3 SUBMITTALS

A. Product Data: For each type of product specified.
   1. Certification by tile manufacturer that products supplied for tile installation comply with local regulations controlling use of volatile organic compounds (VOC's).

B. Samples: For verification purposes in full-size tiles of each different color and pattern of resilient floor tile specified.

C. Maintenance Data: For resilient floor tile, to include in Operating and Maintenance Manual specified in Division 01.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility for Floor Tile: Obtain each type, color, and pattern of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

B. Fire Performance Characteristics: Provide resilient floor tile with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
   2. Smoke Density: Less than 450 per ASTM E 662.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver tiles and installation accessories to Project site in original manufacturer's unopened cartons and containers each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

B. Store flooring materials in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F and 90 deg F.

C. Store tiles on flat surfaces. Move tiles and installation accessories into spaces where they will be installed at least 48 hours in advance of installation.

1.6 PROJECT CONDITIONS

A. Maintain a minimum temperature of 70 deg F in spaces to receive tiles for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F.

B. Do not install tiles until they are at the same temperature as the space where they are to be installed.

C. Close spaces to traffic during tile installation.

1.7 SEQUENCING AND SCHEDULING

A. Install tiles and accessories after other finishing operations, including painting, have been completed.

B. Do not install tiles over concrete slabs until the slabs have cured and are sufficiently dry to bond with adhesive as determined by tile manufacturer's recommended bond and moisture test.

1.8 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
   1. Furnish not less than one box for each 50 boxes or fraction thereof, of each type, color, pattern, class, wearing surface, and size of resilient tile flooring installed.
   2. Deliver extra materials to Owner.

PART 2 - PRODUCTS

2.1 RESILIENT TILE

A. Vinyl Composition Floor Tile: Products complying with ASTM F 1066, Composition 1 (nonasbestos formulated), Class 2, and with requirements specified in Vinyl Composition Floor Tile Product Data Sheet at end of this Section.

2.2 INSTALLATION ACCESSORIES

A. Concrete Slab Primer: Nonstaining type as recommended by flooring manufacturer.

B. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by tile manufacturer for applications indicated.

C. Adhesives (Cements): Water-resistant type recommended by tile manufacturer to suit resilient floor tile products and substrate conditions indicated.

D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General: Examine areas where installation of tiles will occur, with Installer present, to verify that substrates and conditions are satisfactory for tile installation and comply with tile manufacturer's requirements and those specified in this Section.

B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
   1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by tile manufacturer.
      a. Moisture vapor from floor is not to exceed three lbs/1,000 SF per 24 hours.
   2. Finishes of subfloors comply with tolerances and other requirements specified in Division 03 Section "Cast-In-Place Concrete" for slabs receiving resilient flooring.
   3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.

C. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with manufacturer's installation specifications to prepare substrates indicated to receive tile.

B. Use trowelable leveling and patching compounds per tile manufacturer's directions to fill cracks, holes, and depressions in substrates.

C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.

D. Broom or vacuum clean substrates to be covered by tiles immediately before tile installation. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.

E. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

3.3 INSTALLATION

A. General: Comply with tile manufacturer's installation directions and other requirements indicated that are applicable to each type of tile installation included in Project.

B. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths at perimeter that equal less than one-half of a tile. Install tiles square with room axis, unless otherwise indicated.
   1. Lay tiles in basketweave pattern with grain direction reversed in adjacent tiles.
   2. Refer to Drawings for floor tile patterns.

C. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged, if so numbered. Cut tiles neatly around all fixtures. Discard broken, cracked, chipped, or deformed tiles.

D. Scribe, cut, and fit tiles to butt tightly to vertical surfaces, permanent fixtures, built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.

E. Extend tiles into toe spaces, door reveals, closets, and similar openings.

F. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent marking device.

G. Adhere tiles to flooring substrates without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed tile installation.

H. Use full spread of adhesive applied to substrate in compliance with tile manufacturer's directions including those for trowel notching, adhesive mixing, and adhesive open and working times.

I. Hand roll tiles where required by tile manufacturer.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing tile installation:
   1. Remove visible adhesive and other surface blemishes using cleaner recommended by tile manufacturers.
   2. Sweep or vacuum floor thoroughly.
   3. Do not wash floor until after time period recommended by resilient floor tile manufacturer.
   4. Damp-mop tile to remove black marks and soil.

B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by tile manufacturer.
   1. Apply protective floor polish to tile surfaces that are free from soil, visible adhesive, and surface blemishes.
      a. Use commercially available, metal, cross-linked acrylic product acceptable to tile manufacturer.
      b. Coordinate selection of floor polish with Owner's maintenance service.
   2. Cover tiles with undyed, untreated building paper until inspection for Substantial Completion.
   3. Do not move heavy and sharp objects directly over tiles. Place plywood or hardboard panels over tiles and under objects while they are being moved. Slide or roll objects over panels without moving panels.

C. Clean tiles not more than 4 days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean tiles using method recommended by manufacturer.
   1. Strip protective floor polish that was applied after completing installation prior to cleaning.
   2. Final floor polish shall be by Owner.

VINYL COMPOSITION FLOOR TILE PRODUCT DATA SHEET

Vinyl Composition Floor Tile Designation: **VCT**

Wearing Surface: Smooth.

Thickness: 1/8 inch.

Size: 12-by-12 inches.

Acceptable Manufacturers: Armstrong or Mannington

Color and Pattern: Armstrong, in the following colors:

Standard Excelon

VCT Mint Maswuerade #52521

END OF SECTION

SECTION 09 6816 - SHEET CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Tufted carpet.

B. Related Requirements:
   1. Division 09 Section "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet.

1.3 SUBMITTALS

A. Product Data: For the following, including installation recommendations for each type of substrate:
   1. Carpet: For each type indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance.

B. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
   1. Carpet: 12-inch-square Sample.
   2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch-long Samples.

C. Indoor Air Quality (IAQ) certification number.

D. Qualification Data: For qualified Installer.

E. Sample Warranties: For special warranties.

F. Maintenance Data: For carpet to include in maintenance manuals. Include the following:
   1. Methods for maintaining carpet, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
   2. Precautions for cleaning materials and methods that could be detrimental to carpet.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Carpet: Full-width rolls equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with CRI 104.
   1. Deliver materials to project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
   2. Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat, blocked off ground. Maintain minimum temperature of 68 deg F at least three days prior to and during installation in area where materials are stored.

1.7 FIELD CONDITIONS

A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.

B. Environmental Limitations: Do not deliver or install carpet until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.

C. Do not install carpet over concrete slabs until slabs have cured, are sufficiently dry to bond with adhesive, and have pH range recommended by carpet manufacturer.

D. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet before installing these items.

1.8 WARRANTY

A. 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.

B. Special Carpet Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period.

Warranty does not include deterioration or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.

1. Warranty Period: Refer to Carpet Schedule, Paragraph 3.5 below.

PART 2 - PRODUCTS

2.1 TUFTED CARPET

A. Specified product is Lees with Unibond® to establish the appearance, performance and quality required for this Project. Products listed below by the following manufacturers are also acceptable.
   1. Mohawk Commercial Groups, STATI-TUFT UPS **Basic**.
   2. ShawTek with Ultraloc MP.
   3. Patcraft with ActionLock.
   4. Mannington 'Basics'.

B. Product: Refer to Carpet Schedule at end of this Section (Paragraph 3.5 below).

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet manufacturer.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended or provided by carpet manufacturer.

C. Seam Adhesive: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for sealing and taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.

D. Carpet Edge Guard: Extruded or molded heavy-duty vinyl or rubber of size and profile indicated; minimum 2-inch-wide anchorage flange; manufacturer's standard colors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Examine carpet for type, color, pattern, and potential defects.

B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:

1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet manufacturer.
2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpet.
3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with CRI 104, Section 7.3, "Site Conditions; Floor Preparation," and with carpet manufacturer's written installation instructions for preparing substrates.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.

C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet manufacturer.

D. Broom and vacuum clean substrates to be covered immediately before installing carpet. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Comply with CRI 104 and carpet manufacturer's written installation instructions for the following:
1. Direct-Glue-Down Installation: Comply with CRI 104, Section 9, "Direct Glue-Down Installation."

-OR-

2. Double-Glue-Down Installation: Comply with CRI 104, Section 10, "Double-Glue-Down Installation."

B. Comply with carpet manufacturer's written recommendations and Shop Drawings for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under the door in closed position.

C. Do not bridge building expansion joints with carpet.

D. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.

E. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.

3.4 CLEANING AND PROTECTING

A. Perform the following operations immediately after installing carpet:
   1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
   2. Remove yarns that protrude from carpet surface.
   3. Vacuum carpet using commercial machine with face-beater element.

B. Protect installed carpet to comply with CRI 104, Section 16, "Protecting Indoor Installations."

C. Protect carpet against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet manufacturer.

3.5 CARPET SCHEDULE

A. Provide carpet materials indicated on the following Product Data Sheet.

CARPET PRODUCT DATA SHEET (CPT)

Manufacturer / Color:	Lees Carpets / 434 “Earth Tones”
Style:	GL054 “Buildingworks II”
Construction:	Tufted
Face Fiber:	Fortis 6,6 Nylon
Dye Method:	Yarn Dyed
Gauge:	1/10
Stitches Per Inch:	9
Pile Thickness:	0.09 inches
Tufted Yarn Weight:	17 ounces per square yard
Backing (12 Ft):	Unibond
Available Width:	12 Ft

Specifications are subject to normal manufacturing tolerances.

Flammability:

Methenamine Pill Test (DOC FF-1-70):	Passes
Flooring Radiant Panel (ASTM E-648):	Class I
Smoke Density (ASTM E-662):	Less Than 450

Warranties:

Wear:	Lifetime
Static	Lifetime
Edge Ravel:	Lifetime

Electrostatic Propensity Test (AATCC 134): < 3.0 KV

END OF SECTION

SECTION 09 7700 - SANITARY WALL AND CEILING PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes fiberglass reinforced flat plastic panels.

1.3 SUBMITTALS

A. Shop Drawings: Show location and dimension of joints and fastener attachments.

B. Product Data: Manufacturer's Specifications and installation instructions for each material and accessory.

C. Certification: Submit certification of the following:
   1. Product meets USDA / FSIS requirements.
   2. Product conforms to major model building codes for Class C interior wall and ceiling finishes.

D. Submit specified color and texture sample of wall panel and trim pieces for verification.

E. Submit cleaning and maintenance instructions in accordance with Division 01.

1.4 QUALITY ASSURANCE

A. Provide panels and accessories by one manufacturer to ensure warranty and color match.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials clearly labeled to identify manufacturer, brand name, quality or grade and fire hazard classification.

B. Store materials indoors, horizontally in original undamaged packages.

C. Remove foreign matter from face of panel with soft bristle brush, avoiding abrasive action.

1.6 PROJECT / SITE CONDITIONS

A. Environmental Requirements: Install materials when temperature and humidity conditions approximate conditions that will exist when building is occupied.

B. Provide ventilation to disperse fumes during application of adhesive as recommended by adhesive manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Panels and Accessories: LascoBoard Class C fiberglass reinforced panels as manufactured by Kemlite Company, Inc., Florence, KY are specified. Similar products by Nudo Products, Inc. and Kemlite (Glasbord-P with Surfaseal and Sequentia StructoGlas) are also approved. Provide the following:

1. Fiberglass reinforced plastic, 0.09 inches thick. Product shall meet or exceed the following:

Property	ASTM Test Method	Units
Flexural Strength	D 790	psi 14×10^3
Flexural Modulus	D 790	psi 0.4×10^6
Tensile Strength	D 638	psi 7×10^3
Coefficient of Lineal Thermal Expansion	D 696	in/lbs 2×10^{-5}
Water Absorption (%)	D 570	in/in^{o}F 0.16%
Flamespread	E 84	- <200*
Smoke Developed	E 84	- <450*

2. Color / Texture: White panel with smooth texture.

B. Adhesive: Manufacturer's recommended type for use with selected materials, waterproof, mildew resistant nonstaining type.

C. Sealant: Latex type as approved by adhesive and wall paneling manufacturer.

D. Moldings: Extruded aluminum trim pieces, clear anodized finish. Use where end caps, division bars, inside / outside corners and coves are required or shown.

E. Miscellaneous Items: Furnish and install supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation, whether or not specified or indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Examine substrate and conditions under which the material is to be installed.
2. Verify that surfaces, when tested with moisture meter, have proper moisture content.
3. Verify that nails and screws are recessed, with joints and depressions taped, finish and sealed.
4. Remove contaminants from areas to be covered.
5. Do not proceed with Work until work of other trades which passes through wall covering has been completed and unsatisfactory conditions have been corrected.
6. Start of Work indicates acceptance of responsibility for performance and any required remedial Work.

3.2 INSTALLATION

A. Install panels in accordance with manufacturer's printed instructions using full sheet mastic coverage method with no exposed fasteners or "buttons."

B. Make joints with 1/8 inch space for expansion and use moldings designed for each condition for the Project.

C. Bevel edges of panels with block plane to permit proper fit into moldings.

D. If one end of panel must be nailed, do not nail the other end.

E. Remove plumbing escutcheons, switchplates, wall plates, and surface-mounted fixtures, and cut wall paneling evenly to fit. Replace items after completion of Work.

F. Where applicable, install paneling before installation of plumbing, casings, bases, cabinets and other items to be applied over paneling.

3.3 CLEANING

A. Remove excess adhesive and smudges with soft cloth and mineral spirits, or with product recommended by wall panel manufacturer.

END OF SECTION

SECTION 09 8100 - ACOUSTIC INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Unfaced sound attenuation batts in walls.

1.3 SUBMITTALS

A. Product Data: For each type of insulation product specified.

B. Product Test Reports: From and based on tests performed by qualified independent testing laboratory evidencing compliance of fire performance characteristics, and other properties, based on comprehensive testing of current products.

1.4 QUALITY ASSURANCE

A. Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.
   1. Surface Burning Characteristic: ASTM E 84.
   2. Fire Resistance Ratings: ASTM E 119.
   3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's recommendations for handling, storage, and protection during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide insulation products of one of the following:

1. Manufacturers of Glass Fiber Wall Insulation:
   a. Johns Manville Insulations (Sound-Shield Batts, 4" thick).
   b. Owens/Corning Fiberglas Corp. (Sound Attenuation Batts, 3-1/2" thick).
   c. CertainTeed Corp. (CertaSound Attenuation Batts, 3-1/2" thick).

2.2 MATERIALS

A. Sound Attenuation Batts: Fiberglass, unfaced, with a Fire Hazard Classification of 250-50 or less when tested in accordance with ASTM E-84, Standard Test Method for Surface Burning Characteristics of Building Materials; ASTM C-665 Standard Specification for Mineral Fiber Blanket Thermal Insulation, Type 1, Class B, and Federal Specification HH-I-521F, Type I.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.

B. Extend insulation full thickness as indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.
   1. Install acoustical insulation batts in stud partition walls where shown. Install batts prior to installing gypsum panels unless batts are readily installed after panels have been installed on one side.

END OF SECTION

SECTION 09 9100 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes surface preparation and field painting of the following:
   1. Exposed interior items and surfaces, not covered in Division 09 Section "High-Performance Coatings."
   2. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.
   1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
   1. Prefinished items include the following factory-finished components:
      a. Acoustical wall panels.
      b. Finished mechanical and electrical equipment.
      c. Light fixtures.
      d. Distribution cabinets.
   2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
      a. Foundation spaces.
      b. Furred areas.
      c. Ceiling plenums.
      d. Utility tunnels.
      e. Pipe spaces.
      f. Duct shafts.
   3. Finished metal surfaces include the following:
      a. Anodized aluminum.
      b. Stainless steel.
      c. Chromium plate.
      d. Copper.
      e. Bronze and brass.

4. Operating parts include moving parts of operating equipment and the following:
   a. Valve and damper operators.
   b. Linkages.
   c. Sensing devices.
   d. Motor and fan shafts.
5. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1.4 SUBMITTALS

A. Product Data: For each paint system specified. Include block fillers and primers.
   1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
   2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
   3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

B. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
   1. Provide Samples of each color defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
   2. Submit two draw-downs (8-1/2" x 11") of each color and finish gloss.

C. At completion of Work of this Section, submit manufacturer's or distributor's numbered invoices showing type and quantity of products used on this Project.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
   1. Notify Architect of problems anticipated using the materials specified.

C. Field Samples, Interior: Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.
   1. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted. Apply coatings in this room or surface in accordance with the schedule or as specified. After finishes are accepted, this room or surface will be used for evaluation of coating systems of a similar nature.

D. Material Quality: Provide the manufacturer's best quality, top of the line paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
   1. Manufacturer's name.
   2. Product name.
   3. Product number.
   4. Color.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
   1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.7 PROJECT CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F.

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F.

C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
   1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.8 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner.
   1. Quantity: Furnish the Owner with 10 gallons of each color or type applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products manufactured by one of the following:
   1. Pittsburgh Paint; PPG Industries, Inc.
   2. ICI Dulux Paint.
   3. Frazee Industries.
   4. Dunn-Edwards.
   5. Sherwin Williams.
   6. Benjamin Moore.

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   1. Products specified are manufactured by Pittsburgh Paint and establish standards for kind, quality, sheen and function desired for this Project.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
   1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
   2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
   1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
   1. Provide barrier coats over incompatible primers or remove and reprime.

2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
   a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
   b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.
3. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
   a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
   b. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
4. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the Schedules following.
2. Provide finish coats that are compatible with primers used.
3. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.
4. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.

6. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
7. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
9. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

C. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

D. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and in occupied spaces.

E. Mechanical items to be painted include, but are not limited to, the following:
1. Piping, pipe hangers, and supports.
2. Heat exchangers.
3. Tanks.
4. Ductwork.
5. Insulation.
6. Motors and mechanical equipment.
7. Accessory items.

F. Electrical items to be painted include, but are not limited to, the following:
1. Conduit and fittings.
2. Switchgear.
3. Panelboards.
4. Public announcement system speaker grilles (provided by separate Technology Systems and Equipment Contractor).

G. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

H. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

3.4 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
   1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.5 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
   1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA Standard P1-92 "Touch-Up Painting and Damage Repair - Financial Responsibility."

3.6 INTERIOR LOCATIONS

A. Gypsum Board:

1 Coat	Speedhide 6-4	High-Build Sealer
2 Coats	Speedhide 6-411	Interior Eggshell Latex

B. Interior Metals:

1 Coat	Pitt-Tech 90-712 Series	100% acrylic DTM primer
2 Coats	Pitt-Tech 90-474 Series	100% acrylic DTM (satin sheen) semi-gloss

3.7 COLOR SCHEDULE

A. Interior Paint Schedule:
   1. P-1: DEW346 Swan White by Dunn Edwards.
   2. P-2: DE6075 Wood Lake by Dunn Edwards.

B. Interior Sheen and Location Schedule
   1. Primary Field - Walls: P-1; semi-gloss.
   2. Primary Field - Ceilings: P-1; eggshell.
   3. Hollow Metal Doors and Frames: P-2; semi-gloss.
   4. Mechanical and Electrical Items (e.g. Registers, grilles, mechanical heating and cooling equipment, water pipes, electrical conduits, outlet boxes, panelboard) exposed in finished rooms: P-1; eggshell.
   5. Inside of Ductwork Exposed to View Through Registers and Grilles: P-1; flat.
   6. Exposed Structure (unless noted otherwise on Room Finish Schedule and Reflected Ceiling Plans): P-1; flat.
   7. Fire Extinguisher Cabinets: P-1; eggshell.

END OF SECTION

SECTION 09 9600 - HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes surface preparation and application of high-performance coating systems on the following substrates:
   1. Exposed interior surfaces where epoxy paint (EP) is shown on Room Finish Schedule.

B. Paint exposed surfaces, except where Schedules indicate that a surface material is not to be painted or is to remain natural. Refer to Division 09 Section "Painting," Paragraphs 1.2.A, 1.2.B, and 1.2C for related specification of types of items to be painted.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include block fillers and primers.
   1. Materials List: An inclusive list of required coating materials. Indicate each material and cross-reference the specific coating, finish system, and application. Identify each material by manufacturer's catalogue number and general classification.
   2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each material specified.

B. Certification by manufacturer that products supplied comply with requirements indicated that limit the amount of VOCs in coating products.

C. Samples for Verification: For each type of coating system and in each color and gloss of finish coat indicated.
   1. Ferrous and Non-ferrous Metal: Provide two 4-inch-square samples of flat metal and two 8-inch-long samples of solid metal for each color and finish.
   2. Step coats on Samples to show each coat required for system.
   3. Label each coat of each Sample.
   4. Label each Sample for location and application area.

D. At completion of Work of this Section, submit manufacturer's or distributor's numbered invoices showing type and quantity of products used on this Project.

1.4 QUALITY ASSURANCE

A. Master Painters Institute (MPI) Standards:
   1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."

2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and coating systems indicated.

B. Source Limitations: Obtain primers and undercoat materials for each coating system from the same manufacturer as the finish coats.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.

B. 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.
1. Maintain containers in clean condition, free of foreign materials and residue.
2. Protect materials from freezing.
3. Remove rags and waste from storage areas daily.
4. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and applying coatings.

1.6 PROJECT CONDITIONS

A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F.

B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
1. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before proceeding with or continuing coating operation.

1.7 EXTRA MATERIALS

A. 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.
1. Quantity: Furnish an additional 10 gallons, as appropriate, of each material and color applied. Contractor shall furnish two copies of the mixing formula to the Architect in addition to the instructions attached to paint containers.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide products of one of the following:
1. Frazee Industries
2. ICI Dulux Paints; Devoe Coatings (ICI).
3. Rust-Oleum Industrial Brands; distributed by Dunn-Edwards Paints.
4. Pittsburgh Paint; PPG Industries, Inc.
5. Sherwin Williams.
6. Benjamin Moore.

2.2 COATINGS MATERIALS, GENERAL

A. Material Compatibility: Provide primers, undercoats, and finish-coat materials 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.

B. Material Quality: Provide manufacturer's highest grade of the various high-performance coatings specified. Materials not displaying manufacturer's product identification are not acceptable.
   1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. VOC Classification: Provide high-performance coating materials, including primers, undercoats, and finish-coat materials, that have a VOC classification of 450g/L or less.

2.3 COLORS

A. Colors: Refer to Division 09 Section "Painting," Paragraphs 3.9.A, 3.9.B, 3.9C, and 3.9D for colors and locations.

2.4 INTERIOR HIGH-PERFORMANCE COATING SYSTEMS

A. Gypsum Board (EP Finish):

2 coat	Aquapon WB 98-1	Waterborne epoxy

B. Where "EP" finish is shown on Room Finish Schedule, provide products specified above in this Paragraph 2.5.

PART 3 - EXECUTION

3.1 EXAMINATION

A. With Applicator present, examine substrates and conditions under which high-performance coatings will be applied, for compliance with coating application requirements.
   1. Apply coatings only after unsatisfactory conditions have been corrected and surfaces to receive coatings are thoroughly dry
   2. Start of application is construed as Applicator's acceptance of surfaces within that particular area.

B. Coordination of Work: Review other Sections in which primers or other coatings are provided to ensure compatibility of total systems for various substrates. On request, furnish information on characteristics of specified finish materials to ensure compatible primers

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. General: Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.
   1. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.

C. Cleaning: Before applying high-performance coatings, clean substrates of substances that could impair bond of coatings. Remove oil and grease before cleaning.
   1. Remove incompatible primers and reprime substrate with compatible primers as required to produce coating systems indicated.
   2. Schedule cleaning and coating application so dust and other contaminates from cleaning process will not fall on wet, newly coated surfaces

D. Surface Preparation: Clean and prepare surfaces to be coated according to manufacturer's written instructions for each substrate condition and as specified.
   1. Ferrous-Metal Substrates: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC recommendations.
   2. Nonferrous-Metal Substrates: Clean non-ferrous and galvanized surfaces according to manufacturer's written instructions for the type of service, metal substrate, and application required.

E. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
   1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
   2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.
   3. Use only the type of thinners approved by manufacturer and only within recommended limits.

F. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

A. General: Apply high-performance coatings according to manufacturer's written instructions.
   1. Use applicators and techniques suited for coating and substrate indicated.
   2. Do not apply high-performance coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
   3. Apply second coat only after the first coat is thoroughly dry.
   4. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
   5. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

3.4 CLEANING AND PROTECTION

A. Cleanup: At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
   1. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

3.5 PROTECTION

A. Protect work of other trades, whether being coated or not, against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
   1. Provide "Wet Paint" signs to protect newly coated finishes. After completing coating operations, remove temporary protective wrappings provided by others to protect their work.
   2. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION

DIVISION 10 - SPECIALTIES

SECTION 10 1400 - SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Cast aluminum letters for building identification (exterior).
   2. Interior panel signs (ADA compliant).

B. Related Sections include the following:
   1. Division 01 Section "Temporary Facilities and Controls" for temporary Project identification signs and for temporary information and directional signs.
   2. Division 22 Section "Identification for Plumbing Piping and Equipment" for labels, tags, and nameplates for plumbing systems and equipment.
   3. Division 23 Section "Identification for HVAC Piping and Equipment" for labels, tags, and nameplates for HVAC systems and equipment.

1.3 DEFINITIONS

A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show fabrication and installation details for signs.
   1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
   2. Provide message list, typestyles, graphic elements**,** including tactile characters and Braille, and layout for each sign.

C. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
   1. Dimensional Characters: Full-size Samples of each type of dimensional character (letter, number, and graphic element).
   2. Aluminum: For each form, finish, and color, on 6-inch-long sections of extrusions and squares of sheet at least 4 by 4 inches.
   3. Acrylic Sheet: 8 by 10 inches for each color required.
   4. Panel Signs: Not less than 12 inches square including border.
   5. Accessories: Manufacturer's full-size unit.

D. Sign Schedule: Use same designations indicated on Drawings.

E. Maintenance Data: For signs to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

B. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.

C. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines.

1.6 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when weather conditions permit installation of signs in exterior locations to be performed according to manufacturers' written instructions.

B. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum Castings: ASTM B 26/B 26M, of alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated.

B. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).

2.2 DIMENSIONAL CHARACTERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ACE Sign Systems, Inc.
2. Advance Corporation; Braille-Tac Division.
3. A. R. K. Ramos.
4. ASI-Modulex, Inc.
5. Bunting Graphics, Inc.
6. Gemini Incorporated.
7. Grimco, Inc.
8. Innerface Sign Systems, Inc.
9. Mills Manufacturing Company.
10. Mohawk Sign Systems.

11. Nelson-Harkins Industries.
12. Signature Signs, Incorporated.

B. Cast Characters: Produce characters with smooth flat faces, sharp corners, and precisely formed lines and profiles, free of pits, scale, sand holes, and other defects. Cast lugs into back of characters and tap to receive threaded mounting studs. Letters to be mounted to project 1 inch from face of masonry or plaster, using metal collar spacer. Alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated. Comply with the following requirements.
1. Character Material: Aluminum.
2. Finish: Clear anodized satin.
3. Mounting: Rosettes and fasteners matching character finish, noncorroding for substrates encountered.
4. Letter Height: 12 inches.
5. Letter Style: Helvetica medium.
6. Text: Building identification to be determined by Gila County Public Works Department.

2.3 PANEL SIGNS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ACE Sign Systems, Inc.
2. Advance Corporation; Braille-Tac Division.
3. ASI-Modulex, Inc.
4. Bunting Graphics, Inc.
5. Gemini Incorporated.
6. Grimco, Inc.
7. Innerface Sign Systems, Inc.
8. Mills Manufacturing Company.
9. Mohawk Sign Systems.
10. Nelson-Harkins Industries.
11. Signature Signs, Incorporated.

B. Interior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner, complying with the following requirements:
1. Acrylic Sheet: 0.060 inch thick.
2. Edge Condition: Square cut.
3. Corner Condition: Rounded to radius indicated.
4. Mounting: Unframed.
   a. Wall mounted with two-face tape.
5. Color: As selected by Architect from manufacturer’s full range of colors.
6. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch above surface with contrasting colors.

C. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Text shall be accompanied by Grade 2 Braille. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.

D. Engraved Copy: Machine engrave letters, numbers, symbols, and other graphic devices into panel sign on face indicated to produce precisely formed copy, incised to uniform depth.
   1. Engraved Opaque Acrylic Sheet: Fill engraved copy with enamel.

2.4 ACCESSORIES

A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.5 FABRICATION

A. General: Provide manufacturer's standard signs of configurations indicated.
   1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
   2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
   3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
   4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.6 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 ALUMINUM FINISHES

A. Clear Anodic Finish: Manufacturer's standard Class 1 clear anodic coating, 0.018 mm or thicker, over a satin (directionally textured) mechanical finish, complying with AAMA 611.

2.8 ACRYLIC SHEET FINISHES

A. Colored Coatings for Acrylic Sheet: For copy and background colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum

adherence to acrylic surface and that are UV and water resistant for three years for application intended.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Verify that items, including anchor inserts, are sized and located to accommodate signs.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
   1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
   2. Interior Wall Signs: Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.

B. Dimensional Characters: Mount characters using standard fastening methods to comply with manufacturer's written instructions for character form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish character spacing and to locate holes for fasteners.
   1. Projected Mounting: Mount characters at projection distance of 1 inch from wall surface indicated.

C. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
   1. Two-Face Tape: Mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.

3.3 CLEANING AND PROTECTION

A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION

Gila County
Public Works Administration
Globe, AZ

30-09115-00

SIGNAGE SCHEDULE					
DOOR NO.	**ROOM NAME**	**TYPE**	**SIGN TO READ**	**LOCATION**	**REMARKS**
		DC	(ADDRESS NUMBERS)	CORNER OF BUILDING	1
102	WOMEN'S ROOM	PS	102 - RESTROOM GRAPHIC	ON DOOR - PULL SIDE	
103	MEN'S ROOM	PS	103 - RESTROOM GRAPHIC	ON DOOR - PULL SIDE	
104	LOBBY	PS	104	ON DOOR - PULL SIDE	
105	OFFICE	PS	105	ON DOOR - PUSH SIDE	
106A	CONFERENCE ROOM	PS	106A	ON DOOR - PUSH SIDE	
106B	CONFERENCE ROOM	PS	106B	ON DOOR - PUSH SIDE	
107	OFFICE	PS	107	ON DOOR - PUSH SIDE	
108	FILE STORAGE	PS	108	ON DOOR - PUSH SIDE	
109	OFFICE	PS	109	ON DOOR - PUSH SIDE	
110	WORKROOM	PS	110	ON WALL - HALL SIDE	
111	OFFICE	PS	111	ON DOOR - PUSH SIDE	
112	OFFICE	PS	112	ON DOOR - PUSH SIDE	
114A	OFFICE	PS	114A	ON DOOR - PUSH SIDE	
114B	OFFICE	PS	114B	ON DOOR - BOTH SIDES	
115	OFFICE	PS	115	ON DOOR - PUSH SIDE	
116	OFFICE	PS	116	ON DOOR - PUSH SIDE	
117	OFFICE	PS	117	ON DOOR - PUSH SIDE	
118	OFFICE	PS	118	ON DOOR - PUSH SIDE	
119	CONFERENCE	PS	119	ON DOOR - PUSH SIDE	
120	OFFICE	PS	120	ON DOOR - PUSH SIDE	
123	ELECTRICAL	PS	123	ON DOOR - PULL SIDE	

SIGNAGE SCHEDULE					
DOOR NO.	**ROOM NAME**	**TYPE**	**SIGN TO READ**	**LOCATION**	**REMARKS**
124	MDF	PS	124	ON DOOR - PULL SIDE	
128	STORAGE	PS	128	ON DOOR - PUSH SIDE	
129	FILE STORAGE	PS	129	ON DOOR - PUSH SIDE	
130	STORAGE	PS	130	ON DOOR - PUSH SIDE	
131	OFFICE	PS	131	ON DOOR - PUSH SIDE	
132	OFFICE	PS	132	ON DOOR - PUSH SIDE	
133	OFFICE	PS	133	ON DOOR - PUSH SIDE	
134	OFFICE	PS	134	ON DOOR - PUSH SIDE	
135	BREAKROOM	PS	135	ON DOOR - PUSH SIDE	
138	OFFICE	PS	138	ON DOOR - PUSH SIDE	
139	OFFICE	PS	139	ON DOOR - PUSH SIDE	
140	OFFICE	PS	140	ON DOOR - PUSH SIDE	
141	OFFICE	PS	141	ON DOOR - PUSH SIDE	
145	OFFICE	PS	145	ON DOOR - PUSH SIDE	
146	OFFICE	PS	146	ON DOOR - PUSH SIDE	
147	OFFICE	PS	147	ON DOOR - PUSH SIDE	
148	OFFICE	PS	148	ON DOOR - PUSH SIDE	
149	WORK ROOM	PS	149	ON DOOR - PUSH SIDE	
150	FILE ROOM	PS	150	ON DOOR - PUSH SIDE	
151	OFFICE	PS	151	ON DOOR - PUSH SIDE	
152	OFFICE	PS	152	ON DOOR - PUSH SIDE	
153	OFFICE	PS	153	ON DOOR - PUSH SIDE	
155	FIRE RISER	PS	155	ON DOOR - PULL SIDE	
156	ELECTRICAL	PS	156	ON DOOR - PUSH SIDE	
157	OFFICE	PS	157	ON DOOR - PUSH SIDE	

SIGNAGE SCHEDULE					
DOOR NO.	**ROOM NAME**	**TYPE**	**SIGN TO READ**	**LOCATION**	**REMARKS**
158	IDF	PS	158	ON DOOR - PUSH SIDE	
160	PRINT ROOM	PS	160	ON DOOR - PUSH SIDE	
161	PLAN ROOM	PS	161	ON DOOR - PUSH SIDE	
162	WORKROOM	PS	162	ON WALL - HALL SIDE	
163	OFFICE	PS	163	ON DOOR - PUSH SIDE	
164	JANITOR	PS	164	ON DOOR - PUSH SIDE	

SECTION 10 2113 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Phenolic-core toilet compartments configured as toilet enclosures and urinal screens.

B. Related Sections:
   1. Division 10 Section "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachments to other work.
   1. Show locations of cutouts for compartment-mounted toilet accessories.
   2. Show locations of centerlines of toilet fixtures.
   3. Show overhead support or bracing locations.

C. Samples for Initial Selection: For each type of unit indicated. Include Samples of hardware and accessories involving material and color selection.

D. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
   1. Each type of material, color, and finish required for units, prepared on 6-inch-square Samples of same thickness and material indicated for Work.
   2. Each type of hardware and accessory.

E. Product Certificates: For each type of toilet compartment, from manufacturer.

F. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84, or another standard acceptable to authorities having jurisdiction, by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Flame-Spread Index: 75 or less.

2. Smoke-Developed Index: 450 or less.

B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" for toilet compartments designated as accessible.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aluminum Castings: ASTM B 26/B 26M.

B. Aluminum Extrusions: ASTM B 221.

C. Brass Castings: ASTM B 584.

D. Brass Extrusions: ASTM B 455.

E. Steel Sheet: Commercial steel sheet for exposed applications; mill phosphatized and selected for smoothness.

F. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.

G. Stainless-Steel Castings: ASTM A 743/A 743M.

2.2 PHENOLIC-CORE UNITS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Bradley Corporation; Mills Partitions.
2. Comtec Industries/Capitol Partitions.
3. Global Steel Products Corp.
4. Metpar Corp.
5. Santana Products, Inc.

B. Toilet-Enclosure Style**:** Overhead braced.

C. Urinal-Screen Style: Wall hung.

D. Door, Panel, Screen, and Pilaster Construction: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately

laminated), and with eased and polished edges. Provide minimum 3/4-inch-thick doors and pilasters and minimum 1/2-inch-thick panels.

E. Pilaster Shoes: Fabricated from stainless-steel sheet, not less than 0.031-inch nominal thickness and 3 inches high, finished to match hardware.

F. Brackets (Fittings):
1. Full-Height (Continuous) Type: Manufacturer's standard design; aluminum.

G. Phenolic-Panel Finish:
1. Facing Sheet Finish: One color and pattern in each room.
2. Color and Pattern: As selected by Architect from manufacturer's full range, with manufacturer's standard through-color core matching face sheet.

2.3 ACCESSORIES

A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
1. Material: Clear-anodized aluminum.
2. Hinges: Manufacturer's standard continuous, cam type that swings to a closed or partially open position.
3. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
4. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.
5. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
6. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.

B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.

C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel.

2.4 FABRICATION

A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.

B. Door Size and Swings: Unless otherwise indicated, provide 24-inch-wide, in-swinging doors for standard toilet compartments and 36-inch-wide, out-swinging doors with a minimum 32-inch-wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
   1. Maximum Clearances:
      a. Pilasters and Panels: 1/2 inch.
      b. Panels and Walls: 1 inch.
   2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.
      a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
      b. Align brackets at pilasters with brackets at walls.

B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels, and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION

SECTION 10 2226 - OPERABLE PARTITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Manually operated, accordion folding partitions.

B. Related Sections:
   1. Division 05 Section "Metal Fabrications" for supports that attach supporting tracks to overhead structural system.
   2. Division 08 Section "Folding Doors" for small-size, non-acoustically rated, fire-rated, and non-fire-rated accordion folding doors.

1.3 DEFINITIONS

A. NIC: Noise Isolation Class.

B. NRC: Noise Reduction Coefficient.

C. SAA: Sound Absorption Average.

D. STC: Sound Transmission Class.

1.4 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Accordion folding partitions shall withstand the effects of earthquake motions determined according to **ASCE/SEI 7**.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
   1. Indicate storage and operating clearances. Indicate location and installation requirements for hardware and track, blocking, and direction of travel.
   2. Indicate facing-material seam locations if any.

C. Samples for Verification: For each type of exposed material, facing material, and finish indicated, prepared on Samples of size indicated below:
   1. Facing Material: Manufacturer's standard-size unit, not less than 3 inches square.
   2. Edge Material: Not less than full width by 3 inches long.
   3. Hardware: Manufacturer's standard exposed door-operating device.

D. Setting Drawings: For embedded items and cutouts required in other work, including support-beam, mounting-hole template.

E. Qualification Data: For Installer and testing agency.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each accordion folding partition.

G. Operation and Maintenance Data: For accordion folding partitions to include in maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
   1. Facing materials and finishes for exposed trim and accessories. Include precautions for cleaning materials and methods that could be detrimental to finishes and performance.
   2. Seals, hardware, track, carriers, and other operating components.

H. Warranty: Sample of special warranty.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Fire-Test-Response Characteristics: Provide partitions with finishes meeting the following as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
   1. Surface-Burning Characteristics: As determined by testing per ASTM E 84.
      a. Flame-Spread Index: 26 to 75.
      b. Smoke-Developed Index: 450 or less.
   2. Fire Growth Contribution: Meeting acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of accordion folding partition openings by field measurements before fabrication.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of accordion folding partitions that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Faulty operation of accordion folding partitions.
      b. Deterioration of metals, metal finishes, and other materials beyond normal wear.
   2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ACCORDION FOLDING PARTITION

A. Accordion Folding Partition: Accordion folding frame with hinged sections designed for horizontal extension and retraction, covered with decorative facing material, reinforced for hardware attachment, supported by overhead suspension system, and equipped with manufacturer's standard air-release method to prevent billowing.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Cornell Iron Works, Inc.
      b. Curtition; a division of T&C Industries, Inc.
      c. Holcomb & Hoke Mfg. Co., Inc.
      d. Hufcor, Inc.
      e. KWIK-WALL Company.
      f. Moderco Inc.
      g. Modernfold, Inc.; a DORMA Group company.
      h. Panelfold Inc.
      i. Won-Door Corporation.
      j. Woodfold Mfg., Inc.

B. Partition Type: Single sliding jamb partition with the following hardware:
   1. Lead Post Latching Hardware: Latch on both sides secured to surface jamb striker.
   2. Storage-End Hardware: Refer to Section 08 “Door Hardware”.

C. Dimensions:
   1. Stack Width (Stored): Maximum 12-1/2 inches.
   2. Extended Width: Maximum 8 inches.

2.2 COMPONENTS

A. Posts and Seals: Provide types of posts and seals that produce accordion folding partitions complying with performance requirements.
   1. Posts: Steel or aluminum; formed with deep-nesting and interlocking interfaces and fabricated to ensure rigidity of accordion folding partition.
   2. Perimeter Seals: Manufacturer's standard vinyl, neoprene, or woven silica vertical seals, horizontal top and bottom seals, and closures for lead posts and jambs.

B. Hardware: Manufacturer's standard manually operated pulls, latches, locks, and bolts as required to operate accordion folding partitions; with decorative, protective finish.

C. Trim: Manufacturer's standard with decorative, protective finish.

D. Tiebacks: As required to maintain accordion folding partitions in stacked position; with manufacturer's standard finish.

2.3 SUSPENSION SYSTEMS

A. Suspension Tracks: Steel or aluminum with adjustable steel hanger rods for overhead support, designed for type of operation, size, and weight of accordion folding partition indicated. Size track to support partition operation and storage without damage to suspension system, accordion folding partitions, or adjacent construction. Limit track deflection to no more than 0.10 inch between bracket supports. Provide a continuous system of track sections and accessories to accommodate configuration and layout indicated for partition operation and storage.
   1. Track: Surface mounted.
      a. Head Closure Trim: Integral with track for protecting overhead surfaces; primed for field finish.

B. Carriers: Trolley system as required for size and weight of partition and for easy, quiet operation; with four-wheel ball-bearing carriers at lead post and two-wheel ball-bearing carriers at intermediate panel supports.
   1. Wheels: Manufacturer's standard.

C. Track Switches and Accessories: Manufacturer's standard switches as required for type of operation, storage, track configuration, and layout indicated.

D. Aluminum Finish: Mill finish or manufacturer's standard, factory-applied, decorative finish unless otherwise indicated.

E. Steel Finish: Factory-applied, corrosion-resistant, protective coating unless otherwise indicated.

2.4 FACING MATERIALS

A. General: Provide facing materials with appropriate backing that comply with indicated fire-test-response characteristics, and that are factory attached to accordion folding partitions with concealed fasteners.
   1. Factory-apply facing material free of air bubbles, wrinkles, blisters, and other defects; in one-piece, seamless; and with no gaps or overlaps. Tightly secure and conceal raw and selvage edges of facing material for finished appearance. Horizontal butted edges or seams are not permitted.
   2. Where facing material with directional or repeating pattern, directional weave, or matching grain is indicated, mark facing-material top and attach facing material in same direction.

B. Vinyl-Coated Fabric: Manufacturer's standard mildew-resistant, washable, vinyl-coated fabric wall covering; complying with CFFA-W-101-D for Type II; Class A.
   1. Total Weight: 27 ounces per lineal yard.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of accordion folding partitions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Comply with ASTM E 557 except as otherwise required by accordion folding partition manufacturer's written installation instructions. Install accordion folding partitions level and plumb, with tight joints and uniform appearance, and free of deformation and surface and finish irregularities.

B. Install accordion folding partitions and accessories after other finishing operations, including painting, have been completed.

3.3 ADJUSTING

A. Adjust accordion folding partitions to operate smoothly, without warping or binding. Lubricate hardware and other moving parts.

3.4 CLEANING

A. Clean soiled surfaces of accordion folding partitions, to remove dust, loose fibers, fingerprints, adhesives, and other foreign materials according to manufacturer's written instructions.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain accordion folding partitions.

END OF SECTION

SECTION 10 2800 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Toilet and bath accessories.

1.3 SUBMITTALS

A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.

B. Setting Drawings: For cutouts required in other work; include templates, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.

C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use designations indicated in the Toilet and Bath Accessory Schedule and room designations indicated on Drawings in product schedule.

D. Maintenance Data: For accessories to include in maintenance manuals specified in Division 01. Provide lists of replacement parts and service recommendations.

1.4 QUALITY ASSURANCE

A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise approved by Architect.

B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule.
   1. Products of other manufacturers listed in Part 2 with equal characteristics, as judged solely by Architect, may be provided.
   2. Do not modify aesthetic effects, as judged solely by Architect, except with Architect's approval. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.5 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.6 WARRANTY

A. 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.

B. Manufacturer's Mirror Warranty: Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.
   1. Minimum Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Products scheduled below are manufactured by Bobrick Washroom Equipment, Inc. and World Dryer and establish the appearance, performance and quality desired for this Project. Subject to compliance with requirements of this Section, equivalent accessories by one of the following manufacturers are also acceptable:
   1. Toilet and Bath Accessories:
      a. A & J Washroom Accessories, Inc.
      b. American Specialties, Inc.
      c. Bradley Corporation.
      d. McKinney/Parker Washroom Accessories Corp.

2.2 MATERIALS

A. Stainless Steel: ASTM A 666, Type 304, with No. 4 finish (satin), in 0.0312-inch minimum nominal thickness, unless otherwise indicated.

B. Brass: ASTM B 19, leaded and unleaded flat products; ASTM B 16, rods, shapes, forgings, and flat products with finished edges; ASTM B 30, castings.

C. Sheet Steel: ASTM A 366, cold rolled, commercial quality, 0.0359-inch minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.

D. Galvanized Steel Sheet: ASTM A 653, G60.

E. Mirror Glass: ASTM C 1036, Type I, Class 1, Quality q2, nominal 6.0 mm thick, with silvering, electroplated copper coating, and protective organic coating complying with FS DD-M-411.

F. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.

G. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

2.3 FABRICATION

A. General: Names or labels are not permitted on exposed faces of accessories. On interior surface not exposed to view or on back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.

B. Surface-Mounted Toilet Accessories: Unless otherwise indicated, fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with continuous stainless-steel hinge. Provide concealed anchorage where possible.

C. Recessed Toilet Accessories: Unless otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors and access panels with full-length, stainless-steel hinge. Provide anchorage that is fully concealed when unit is closed.

D. Framed Glass-Mirror Units: Fabricate frames for glass-mirror units to accommodate glass edge protection material. Provide mirror backing and support system that permits rigid, tamper-resistant glass installation and prevents moisture accumulation.
   1. Provide galvanized steel backing sheet, not less than 0.034 inch and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.

E. Mirror-Unit Hangers: Provide mirror-unit mounting system that permits rigid, tamper- and theft-resistant installation, as follows:
   1. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.

F. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

B. Secure mirrors to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer's written instructions for substrate indicated.

C. Install grab bars to withstand a downward load of at least 250 lbf, when tested according to method in ASTM F 446.

D. Comply with Uniform Federal Accessibility Standards guidelines.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

3.3 TOILET AND BATH ACCESSORY SCHEDULE

A. Grab Bar (**GB-1, GB-2,** and **GB-3**): Where this designation is indicated, provide stainless-steel grab bar complying with the following:
   1. Stainless-Steel Nominal Thickness: Minimum 0.05 inch.
   2. Mounting: Concealed with manufacturer's standard flanges and anchors.
   3. Gripping Surfaces: Smooth, satin finish.
   4. Outside Diameter: 1-1/2 inches for heavy-duty applications.

B. Mirror Units (**MR**): Where these designations are indicated, provide mirror units complying with the following:
   1. Stainless-Steel, Angle-Framed Mirror: Fabricate frame from minimum nominal 0.05-inch-thick stainless-steel angles, with square corners mitered, welded, and ground smooth.
   2. Mirror surfaces shall be as follows:
      a. Polished Stainless-Steel Mirror Surface: Minimum nominal 0.0312-inch-thick, Type 430 stainless steel with bright finish; bonded to 1/4-inch-thick, tempered hardboard backing.
      b. Tempered Glass Mirror Surface: No. 1 quality, 1/4-inch-thick, tempered select float glass.

ITEM	DESCRIPTION	BOBRICK # (unless noted otherwise)
GB-1	GRAB BAR	B-6806 x 42
GB-2	GRAB BAR	B-6806 x 36
GB-3	GRAB BAR	B-6806 x 18
MR-1	STAINLESS STEEL MIRROR, FRAMED (60" w X 36" h)	B-2906-6036

END OF SECTION

SECTION 10 4400 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:
   1. Fire extinguishers.
   2. Fire extinguisher cabinets.

1.3 SUBMITTALS

A. Product Data: For each type of product specified. For fire extinguisher cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.

1.4 QUALITY ASSURANCE

A. UL-Listed Products: Fire extinguishers UL-listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher.

B. FM-Listed Products: Fire extinguishers approved by Factory Mutual Research Corporation for type, rating, and classification of extinguisher and carry appropriate FM marking.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. J.L. Industries.
   2. Larsen's Manufacturing Co.
   3. Potter-Roemer, Inc.

2.2 FIRE EXTINGUISHERS

A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard, which comply with requirements of governing authorities.
   1. Fill and service extinguishers to comply with requirements of governing authorities and manufacturer.

2. Abbreviations indicated below identify extinguisher types related to UL classification and rating system and not necessarily to type and amount of extinguishing material contained in extinguisher.

B. Multipurpose Dry Chemical Type:
1. Typical: UL-rated 2A-10B:C, 5-lb. nominal capacity, in enameled steel container (Similar to J.L. Industries Cosmic 5E).

2.3 FIRE EXTINGUISHER CABINETS

A. General: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.
1. Fire-Rated Cabinets: UL listed with UL listing mark with fire-resistance rating of wall where it is installed.

B. Construction: Manufacturer's standard enameled steel box, with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld all joints and grind smooth. Miter and weld perimeter door frames.

C. Cabinet Type: Suitable for mounting conditions indicated, of the following types:
1. Semirecessed: Cabinet box (tub) partially recessed in walls of shallow depth.

D. Trim Style: Fabricate trim in one piece with corners mitered, welded, and ground smooth.
1. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
a. Rolled-Edge Trim with 2-1/2-inch backbend depth.
b. Trim Metal: Of same metal and finish as door.

E. Door Material and Construction: Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.
1. Steel: Manufacturer's standard flush, steel door construction.
2. Door Glazing: Tempered float glass complying with ASTM C 1048, Type I, Quality q3, Class as follows:
a. Clear glass, Class 1 (transparent).

F. Identify fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" applied to door. Provide lettering to comply with requirements indicated for letter style, color, size, spacing, and location or, if not otherwise indicated, as selected by Architect from manufacturer's standard arrangements.

G. Door Style:
1. Similar to J.L. Industries Ambassador 1017W10 (break glass).

H. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide cylinder lock. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

2.4 FINISHES FOR FIRE EXTINGUISHER CABINETS, GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.

B. Protect mechanical finishes on exposed surfaces from damage by application of strippable, temporary protective covering prior to shipment.

2.5 STEEL FIRE EXTINGUISHER CABINET FINISHES

A. Surface Preparation: Solvent-clean surfaces in compliance with SSPS-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel in compliance with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).

B. Factory-Priming for Field-Painted Finish: Apply shop primer specified below immediately following surface preparation and pretreatment.
   1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead-free, "universal" primer, selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field-applied finish paint system indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install items included in this Section in locations with top of cabinet at 5 feet 4 inches above finished floor.
   1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
   2. Securely fasten fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.
   3. Provide both extinguisher and cabinet where shown on plans.

END OF SECTION

DIVISION 12 - FURNISHINGS

SECTION 12 3216 - MANUFACTURED PLASTIC-LAMINATE-CLAD CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes modular (premanufactured) casework and the following specialty items:
   1. Solid surfacing material countertops.

1.3 SCOPE OF WORK

A. Provide all plastic laminate casework and accessory items as specified herein. Refer to plans for specific details and requirements. TMI Systems catalog numbers are shown on Drawings.

B. Utility service outlet accessory fittings, electrical receptacles and switches are furnished and delivered by casework subcontractor, for installation under Division 26.
   1. Refer to Drawings for locations and types of services required.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility: Provide casework with tops, sinks, and service fittings, manufactured or furnished by same casework company for single responsibility.

B. Catalog Standards: Manufacturer's catalog numbers are shown on drawings for convenience in identifying certain casework. Unless modified by notation on drawings or otherwise specified, catalog description for indicated number constitutes requirements for each such cabinet.
   1. The use of catalog numbers and specific requirements set forth in drawings and specifications is not intended to preclude the use of any other acceptable manufacturer's product or procedures which may be equivalent, but are given for purpose of establishing standard of design and quality for materials, construction, and workmanship.

C. Casework manufacturers requesting approval shall submit in accordance with Division 01 Section "Substitution Procedures," listing any and all deviations to the specification. As a means for evaluation, Casework manufacturers shall submit a **full scale base sample cabinet** for approval not less than ten days prior to Bid date. The sample shall be typical of the casework manufacturer's standard production casework. The sample may be impounded by the Owner and retained until completion of the casework installation. Casework manufacturers seeking approval to Bid shall submit evidence that the casework manufacturer has adequate plant, equipment, and manpower to produce the quality of casework specified and deliver on schedule.

D. Experience: Manufacturers shall submit evidence of at least ten years of experience in the manufacturing of casework for specialty areas shown on Drawings and required for this Project.

E. Past installations: The manufacturer shall submit a list of projects to the Architect which includes similar casework installed for a minimum of three years.

F. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 01 Section "Project Meetings."

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver casework only after building is secure and dry.

B. Store completed casework in a ventilated place, protected from the weather, with relative humidity of 60 percent or less at 75 deg F.

C. Protect finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective covering.

1.6 SUBMITTALS

A. Product Data: For each type of casework unit specified.

B. Shop drawings for casework showing plan layout, elevations, ends, cross-sections, service run spaces, and location.
1. Include details and location of anchorages and fitting to floors, walls, and base, including required blocking or back-blocking.
2. Include layout of units with relation to surrounding walls, doors, windows, and other building components.
3. Coordinate shop drawings with other work involved.
4. Include manufacturer's recommendations for blocking and securing of casework units and fittings.

C. Samples: For verification purposes of each type of specified finish, including top material. Provide in minimum 6-inch by 6-inch sizes. Samples will be reviewed by Architect-Engineer for color, texture, and pattern only. Compliance with other specified requirements is exclusive responsibility of Contractor.
1. **One full-size cabinet sample with drawer and door**.
2. One minimum 6-inch by 6-inch (or 6-inch-long, as applicable) sample of each of the following:
   a. Plastic laminate.
   b. Edge banding.
   c. Cabinet liner.
   d. Solid surfacing product.
3. One full-size sample of pull.
   a. Provide color samples for semi-recessed pulls for Architect's verification of color selection.

D. Furnish complete touch-up kit for each type and color of casework provided. Kit to include touch-up paint and other materials necessary to perform permanent spot repairs to damaged casework finish.

1.7 WARRANTY

A. The casework manufacturer shall guarantee casework materials and workmanship for five years from the date of Substantial Completion. Defects reported within the guarantee period will be corrected without charge. Accessories such as sinks, fittings, apparatus, countertops, etc., shall be guaranteed for one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL

A. Casework shall meet or exceed the requirements for Architectural Woodwork Institute Quality Standards Section 400B and 1600B for custom grade flush overlay constructed casework. Specific requirements set forth within this specification shall take precedence over the AWI Standard.

B. Catalog numbers shown on the drawings are those of TMI Systems Design.

C. Manufacturers: Subject to compliance with requirements, provide casework manufactured by one of the following:

* 1. TMI Systems Design.
2. Form-A-Fab.
3. European Techniques.
4. Creative Cabinets.
5. Westmark.

Note: * Indicates Basis-of-Design manufacturer.

2.2 MATERIALS

A. High Pressure Plastic Laminate:
1. Plastic laminate shall meet standard of NEMA LD3-1985, and shall be of the following thickness:
   a. Balancing Sheet: 0.020 inch.
   b. Horizontal Surfaces: 0.050 inch.
   c. Vertical Surfaces: 0.028 inch.
   d. Cabinet Liner: Pressure fused laminate bonded to substrate. Color shall be manufacturer's standard almond, gray or white as selected by Architect.
2. Manufacturers: Products listed below are manufactured by Wilsonart. Other manufacturers listed below are also acceptable, provided that they manufacture products in color and texture to match that which is selected and specified:
   a. Formica.
   b. Wilsonart.
   c. Laminart.
   d. Pionite.
3. Color Selection (Wilsonart Colors):

a.	PL-1	Aloe	7962K-18	(Base Cabinet)
b.	PL-2	Morro Zephyr	4846-60	(Countertops)

B. High Performance Particleboard Core:
   1. Particleboard: Medium density 45-50 pound industrial grade particleboard of fir or pine meeting or exceeding ANSI A 208.1-1993, M-3 requirements. Thicknesses used are 1/4-inch, 1/2-inch, 3/4-inch, and 1 inch.

C. Hardboard: Hardboard shall meet or exceed Commercial Standards CS-251 and Federal Specifications LLL-B-00810. Tempered hardboard 1/4 inch thick, prefinished.

D. Edging: 3 mm thick PVC. Solid, high impact, purified, color-thru, acid-resistant, PVC edging machine-applied with hot melt adhesives, automatically trimmed and inside/outside length-radiused for uniform appearance, buffed and corner-radiused for consistent design. Use for door/drawer edges and countertops.

E. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with material and performance requirements in ANSI Z124.3, for Type 5 or Type 6, without a precoated finish.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Avonite; Avonite, Inc.
      b. Corian; DuPont Polymers.
      c. Surell; Formica Corporation.
      d. Fountainhead; International Paper, Decorative Products Div.
      e. Gibraltar; Wilsonart International.

F. Hardware:
   1. Hinges:
      a. Heavy duty, five knuckle 2-3/4-inch institutional type hinge. Mill ground, hospital tip, tight pin feature with all edges eased. Hinge to be full wrap around type of tempered steel 0.095 inch thick. Each hinge to have minimum nine screws, #7, 5/8 inch FHMS to assure positive door attachment.
      b. One pair per door to 36 inch height. One and one-half pair over 37 inches in height. Two pairs on doors wider than 24 inches or for doors 73 inches or higher. Hinge to accommodate 13/16-inch thick laminated door, and allow 270 degree swing.
      c. Finish to be dull chrome for fixed cabinetry.
   2. Pulls: ABS plastic semi-recessed. Color: As selected. Provide ADA-compliant pulls, minimum overall size of 4-1/2 inches x 2 inches in single piece.
   3. Drawer Slides:
      a. Standard Drawers: Regular use and kneespace drawers are Blum Style No. BS230M and are epoxy powder coated. Slides have a 100-pound load rating at full extension and a built-in, positive stop both directions, with self-closing feature.
      b. File Drawers: Full extension, 3-part progressive opening slide, minimum 100 lb., zinc plated or epoxy coated at manufacturer's option.
      c. File Drawer Accessory: Knape & Vogt No. 476 follower and track assembly, or Pendaflex rack.
      d. Paper Storage Drawers: Full extension, 3-part progressive opening slide, minimum 100 lb., zinc plated or epoxy coated at manufacturer's option.
   4. Catches:
      a. 6 lb. magnetic catch for base and wall cabinets. Provide two 6 lb. pulls at each tall cabinet door. Catch housing to be molded in color to match cabinet interior.

5. Adjustable Shelf Supports: To be twin pin design with anti tip-up shelf restraints for both 3/4-inch and 1-inch shelves. Design to include keel to retard shelf slide-off, and slot for ability to mechanically attach shelf to clip. Load rating to be minimum of 300 lbs. each support without failure. Cabinet interior sides shall be flush, without shelf system permanent projection.

G. Detailed Requirements for Cabinet Construction:
1. Sub-Base:
   a. Cabinet Subbase: All fixed under-counter and tall units shall have an individual factory-applied base, separate and continuous (no cabinet body sides-to-floor), 3/4-inch-thick water resistant exterior grade plywood with concealed fastening to cabinet bottom. Ladder-type construction, of front, back and intermediates, to form a secure and level platform to which cabinets attach. Base is nominal 4 inches high unless shown otherwise. **Panel to the floor or separate particle board base is unacceptable**.
   b. **No levelers are permitted**.
2. Cabinet Top and Bottom:
   a. Base and tall cabinet bottoms to be pressure fused laminated particleboard interior side, 3/4 inch thick with phenolic neutral colored backer sheet on concealed side.
   b. Solid sub-top to be 3/4 inch. Furnish for all base and tall cabinets. **Stretchers are unacceptable**.
   c. Wall cabinet bottoms and tops are 3/4-inch thick.
   d. Exterior exposed wall cabinet bottoms to be pressure fused laminate both sides. Assembly devices to be concealed on bottom side of wall cabinets.
3. Cabinet Ends:
   a. Pressure fused laminated particleboard interior side, 3/4 inch thick with phenolic neutral colored back sheet on concealed side. Holes drilled for adjustable shelves 1-1/4 inch on center.
   b. Exposed exterior cabinet ends to be laminated with plastic laminate.
   c. Exposed edges to be color-matched PVC if available.
4. Fixed and Adjustable Shelves:
   a. Pressure fused laminated particleboard two sides. Leading exposed edge of shelves to be edged with 3 mm PVC in color to match shelves.
   b. Thickness: 3/4-inch standard shelving to be maximum 29 inches wide. One-inch shelving is required for shelves 30 inches wide and over.
   c. Thickness of shelves at all widths of open cabinets: 1 inch.
5. Cabinet Backs:
   a. Standard cabinet back to be 1/4-inch thick, prefinished hardboard. Wall and tall cabinets are provided with a 1" x 1-3/4" PVC mounting strip used to secure the cabinet to the wall. Exposed back on fixed or moveable cabinets is 3/4 inch particleboard with the exterior surface finished in GP28 laminate as selected.
6. Door and Drawer Fronts:
   a. Plastic laminated doors and drawer fronts to be 13/16 inch thick for all hinged and sliding doors. Core material to be 3/4 inch thick, 47 lb. density particleboard bonded on exterior with high pressure plastic laminate and with heavy gauge balancing sheet on interior face. Drawer fronts and hinged doors are to overlay the cabinet body. Maintain a maximum 1/8-inch reveal between pairs of doors, between door and drawer front, or between multiple drawer fronts within the cabinet.

b. Exposed edges to be 3mm thick PVC. Corners to be machine-radiused and buffed to a consistent 3mm radius. Both outer and inner edges of edging to be machine-radiused and buffed for consistent profile.

7. Drawers:
   a. Drawer fronts shall be applied to separate drawer body component sub-front. Secure drawer fronts to drawer body sub-front utilizing both glued and mechanical means of attachment.
   b. Sides and back of drawers to be 1/2-inch thick pressure fused laminated fiberboard; sub-front same, to be 1/2-inch thick.
   c. Exposed top edge to be 1 mm PVC, in color selected from manufacturer's standards.
   d. Drawer bottom is particleboard, 1/2-inch thick, laminated with thermally fused melamine, screwed directly to the bottom edges of the drawer box, to provide a rigid platform. **Drawer bottom less than 1/2-inch thick will not be permitted**.
   e. The same 1/2-inch-thick particleboard and platform construction detail is used for paper storage drawers and also include an angle retaining bar at the rear of each drawer.
   f. All drawers shall have roller guides as specified.
8. Vertical and Horizontal Dividers: Tempered hardboard 1/4-inch thick, smooth both faces. Secure in cabinet with molded plastic clips.
9. ADA-Americans with Disabilities Act Requirements: The following special requirements shall be met, where specifically indicated on architectural plans as "ADA", or by General Note. To be in compliance with Federal Register Volume 56, No. 144, Rules and Regulations:
   a. Countertop Height: With or without cabinet below, not to exceed a height of 34 inches A.F.F., (Above Finished Floor), at a surface depth of 24 inches.
   b. Kneespace Clearance: Minimum 27 inches A.F.F., and 30 inches clear span width.
   c. 12 inch Deep Shelving, Adjustable or Fixed: Not to exceed a range from 9 inches A.F.F. to 54 inches A.F.F.
   d. Sink Cabinet Clearances: In addition to 10.a., b. above, upper kneespace frontal depth to be no less than 11 inches, at a point 9 inches A.F.F., and as further described in Volume 56, Section 4.19.

H. Countertops:
1. High pressure plastic laminate bonded to 1-inch-thick particleboard core. Underside to be properly balanced with heavy gauge backing sheet. Unless noted otherwise, edges to be 3 mm PVC. Provide continuous tops for counter type cabinets fixed in a line. No joints closer than 24 inches either side of sink cutout. Countertops with sinks shall have post formed tops.
2. Countertop at lavatories in Women’s Room 102 and Men’s Room 103 shall be solid surfacing material.
   a. Quality Standard: Comply with AWI Section 400 requirements for countertops.
   b. Grade: Custom.
   c. Solid-Surfacing-Material Thickness: 1/2 inch.
   d. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
      1) Color: Cotta Spex 934 as manufactured by Corian.
   e. Fabricate tops in one piece with shop-applied backsplashes and edges, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.

f. Drill holes in countertops for plumbing fittings and trash receptacle in shop.

I. Workmanship:
1. All exposed exterior cabinet surfaces to be high pressure plastic laminate, color as selected from casework manufacturer's standards. Laminate surface/backer to core under controlled conditions, by approved and regulated laminating methods to assure a premium lamination. Natural-setting adhesives that cure thru chemical reaction are required. Methods requiring heat are not allowed; "contact" methods of laminating are not allowed.
2. Cabinet parts shall be accurately machined and bored for premium grade quality joinery construction utilizing automatic machinery to insure consistent sizing of modular components.
3. End panels shall be doweled to receive bottom and top.
4. All cases shall be square, plumb and true.
5. Provide removable back panels and closure panels for plumbing access.

PART 3 - EXECUTION

3.1 COORDINATION

A. Coordinate work of this Section with related work of other Sections as necessary to obtain proper installation of all items.

B. Verify site dimensions of cabinet locations in building prior to fabrication.

3.2 CASEWORK INSTALLATION

A. Install plumb, level, true and aligned with no distortions. Shim as required, using concealed shims. Where casework abuts other finished work, scribe and apply filler strips for accurate fit with fasteners concealed where practicable.

B. Base Cabinets: Set cabinets straight, plumb, and level. Adjust sub-tops within 1/16 inch of a single plane. Fasten each individual cabinet to floor at toe space with fasteners spaced 24 inches on center. Bolt continuous cabinets together. Secure individual cabinets with not less than 2 fasteners into floor where they do not adjoin other cabinets.
1. Where required, assemble units into one integral unit with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16 inch.

C. Wall Cabinets: Securely fasten to solid supporting material and not to lath or wallboard. Anchor, adjust, and align wall cabinets as specified for base cabinets.
1. Reinforcement of stud walls to support wall mounted cabinets will be accomplished during wall erection by trade involved; however, indicated accurate location and sizing of reinforcement is responsibility of casework installer.

D. Install hardware uniformly and precisely after final finishing is complete. Set hinges snug and flat in mortises unless otherwise indicated. Turn screws to flat in mortises unless otherwise indicated. Turn screws to flat seat. Adjust and align hardware so that moving parts operate freely and contact points meet accurately. Allow for final field adjustment after installation.

E. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

3.3 INSTALLATION OF TOPS

A. Field Jointing: Where practicable, make in same manner as factory jointing using dowels, splines, adhesives, and fasteners recommended by manufacturer. Locate field joints as shown on accepted shop drawings, factory prepared so there is no job site processing of top and edge surfaces.

B. Fastenings: Use concealed clamping devices for field joints located within 6 inches of front, at back edges, and at intervals not exceeding 24 inches. Tighten in accordance with manufacturer's instructions to exert a constant, heavy clamping pressure at joints.
1. Secure tops to cabinets with "Z" type fasteners or equivalent, using 2 or more fasteners at each front, end, and back.

C. Abut top and edge surfaces in one true plane, with internal supports placed to prevent any deflection. Provide flush hairline joints in top units using clamping devices.
1. Where necessary to penetrate top with fasteners, countersink heads approximately 1/8 inch and plug hole flush with material equal in chemical resistance, color, hardness, and texture to top surface.

D. Provide holes and cutouts as required for mechanical and electrical service fittings.

E. Carefully dress joints smooth, remove any surface scratches, clean and polish entire surface.

F. Provide scribe moldings for closures at junctures of top, curb, and splash with walls as recommended by manufacturer for materials involved. Use chemical resistant, permanently elastic sealing compound where recommended by manufacturer.

G. Provide locks at drawers and doors where shown or noted.

3.4 INSTALLATION OF SINKS

A. Set top edge of sink unit in manufacturer's recommended chemical resistant sealing compound and firmly secure to produce a tight and fully leakproof joint. Adjust sink and securely support to prevent movement.

3.5 INSTALLATION OF ACCESSORIES

A. Install accessories in accordance with approved location drawings and manufacturer's installation recommendations. Turn screws to a flat seat; do not drive. Adjust moving parts to operate freely and smoothly without binding.

3.6 ADJUSTING

A. Repair or remove and replace defective work, as directed by Architect upon completion of installation.

B. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly.

3.7 CLEANING AND PROTECTION

A. Repair or remove and replace defective work as directed upon completion of installation.

B. Clean factory and shop finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as acceptable to Architect.

C. Protection: Provide 6-mil plastic or other suitable water resistant covering over countertop surfaces. Tape to underside of countertop at minimum of 4 feet on center. Protect installed casework and fittings from damage by work of other trades.

3.8 SCHEDULE AND DETAILS

A. Refer to Drawings for details, elevations and locations.

END OF SECTION