CITY OF BUCKEYE
PARKS & RECREATION DEPARTMENT

BUCKEYE, AZ

EARL EDGAR PARK

RESTROOM REPLACEMENT

PROJECT NO. 2016-020-031 TASK ORDER #3

Technical Specifications

20 December 2017

Michael Wilson Kelly-Architects, Ltd.
331 N. First Avenue
Suite 108
Phoenix, Arizona 85003

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SECTION 00100 – **GENERAL CONDITIONS OF THE CONTRACT**

The General Conditions forming a part of the Contract Documents consist of the "General Conditions of the Contract for Construction," Document No. A-201, latest Edition, as published by the American Institute of Architects; and, the Job Order Contract between the City of Buckeye and the Contractor.

Work shall conform with all applicable codes, standards, laws, ordinances, rules and regulations of authorities having jurisdiction over construction of the project.

Comply with all provisions of Arizona State sales excise tax law and compensation use tax law, including all amendments thereto, indemnify and save harmless the Owner, of and from claims and demands made against them by virtue of Contractor of their subcontractor to comply with said laws.

Material and equipment specified or otherwise shown or described in contract documents establish standards of quality and performance required and provide a basis for non-restrictive bidding. All material and equipment incorporated into the work must fulfill all requirements of the contract documents, as determined by the Architect.

Within thirty days after Owner's final acceptance of the work, the Owner will make final payment to the Contractor. Final payment will be comprised of the difference between the contract amount and all payments previously made to the Contract, excepting any sums as may lawfully be withheld in accordance with provisions of contract or otherwise provided by law.

Prior to final payment, provide lien waivers for all labor and materials incorporated into the work.

Keep up to day, on a daily basis, at the jobsite a complete set of record contract drawings and documents, on which shall be shown, in **red pencil or pen**, every change and deviation, from that which is shown on the drawings and called for in the specifications, as well as all other pertinent information necessary for maintenance and possible future renovations.

Upon completion of the work, and as a condition for final payment, transfer all changes and information shown on the above mentioned jobsite set to a second set, using permanent red ink. As-built Drawings shall be re-produced on bond paper at 24 x 26 format and scanned to PDF format for transmittal to the Architect. Prints shall be furnished and paid for by the Contractor.

All changes and deviations shown on the drawing shall be to scale and shall be complete, neat and legible.

Both sets shall consist of all drawings and specifications issued for construction, regardless of whether or not any sheets or pages reflect changes or deviations.

MISCELLANEOUS PROCEDURES

General: As a means of promoting the proper interpretation of the Contract documents and to promote proper construction procedures, the Contractor shall himself comply, and require each of the subcontractors and tradesmen to comply, with the following:

a. Make the field measurements necessary for their own work and be responsible for their accuracy. Notify the Contractor, who then shall notify the Architect, of conditions which prevent subcontractors or tradesmen from installing materials properly. Cutting into the walls and floors, if necessary, shall be carefully and neatly performed and then be repaired in an approved manner. The Architect shall be consulted in all cases where cutting into a structural portion of the building is either desirable or necessary. No compensations will be allowed on account of difference between actual measurements and dimensions indicated on the drawings.

b. In instances where the manufacturers of materials or equipment used on this job provide installation or maintenance directions not covered in these specifications or detailed in the drawings, to follow suck directions as though specifically mentioned.

c. Acquaint himself with the work of the other trades whose activities will adjoin or be affected by their work. Consult with these other subcontractors or workmen and study their shop drawings in order to coordinate their efforts toward avoiding mistakes, omissions, disputes or delays.

The starting of work by any subcontractor shall be considered prima facie evidence that they have inspected all conditions involved in their work and finds them satisfactory for the proper execution of his work. Should they determine that conditions are unsatisfactory for obtaining highest quality results on their work, they shall inform the Contractor of same and the latter shall take necessary action to put the work in proper condition.

The Contractor's materials and equipment may be stored on the premises at location's subject to the approval of the Architect. Any damages resulting from storage of materials and equipment shall be remedied at the cost of the Contractor.

Final location of surface features shall be accomplished in the field by the Contractor, **subject to the approval of the Architect**. The location of all switches, fixtures, panels, grilles, registers, vents, sprinkler heads and their proximity and relationship to all visible features of equipment furnished by other trades, shall be made known to the Architect in the company of the Contractor and the representative of these other trades, at the site of work, prior to the commencement of subject work in that area. In case of conflict between trades, the decision of the Architect shall be final and their instructions in these matters shall be followed by all concerned.

MATERIAL AND EQUIPMENT QUALITY STANDARDS

If, prior to submittal or bid proposal, the Contractor wishes to make substitutions, such substitutions will be considered only when written request has been submitted to the Architect, in accordance with Prior Approval Section of these General Conditions. Prior approval must be obtained for items not designated in the Technical Specifications Sections. Prior approval is not required for items indicated by reference to published standards, by detailed descriptive requirements or by performance requirements. These items will, however, be subject to final acceptance as required elsewhere in the Contract Documents.

PRIOR APPROVAL

Prior to submittal of bid proposal, Bidders wishing to propose the use of a particular product, equipment or material, in lieu of those specified herein, may do so by submitting to the Architect, a written request for prior approval.

Requests for prior approval shall be submitted to and received by the Architect, no later than seven (7) calendar days prior to Bid Date. Request for Prior Approval received after this date/time will not be considered.

Each request for Prior Approval must be accompanied by complete descriptive and technical data to enable the Architect to make a direct comparison of essential characteristics of the proposed item to the specified item.

Burden of proof of merit of requested substitution is upon the submitter. It is the sole responsibility of submitter to establish content of submittal data. Vagueness of submittal, inadequate warranty information or insufficient data may be cause for disapproval of request.

Approved substitutions will be subject to and shall conform with full provisions of the Contract Documents including all modifications thereto. As such, substitutions shall match standards of Base Manufacturer Items with respect to materials, workmanship, design, size, capacity, type, function, finish, quality, warranty, etc. **The cost of any all modifications required to accommodate the substitution will be the Contractor's responsibility!**

The Architect's approval of substitutions will be based upon their knowledge, information and trust in submittal data; such approval shall therefore be considered interim in nature and subject to reconsideration, as additional data, material, workmanship and coordination with other work is observed and reviewed. **The Contractor will be responsible for all costs associated with any and all revisions to utilities, modifications of openings, additional supports, additional materials, etc., which may be required, due to incorporating approved substitutions into the work.**

After review of request for Prior Approval, the Architect will issue an Addendum stating which items have been accepted for use in the work as additional Qualified Manufactured Items. This Addendum will be issued no later than five (5) calendar days prior to Bid Date.

TIME OF COMPLETION

The schedule below established the time periods for completion of the work. The time period is measured in calendar days after the commencement date specified in the Notice to Proceed, which will be issued as indicated in the General Conditions.

Work Descriptions	Time for Completion
Total Project	120 Calendar Days

In order for the project to be considered complete, all work must be in place so that the project can be turned over to the Owner.

TAXES

This is not a tax exempt Project.

The Contractor will be responsible for all applicable taxes incurred in the construction of the Project.

JOB SITE RESPONSIBILITIES AND SAFETY

The Contractor is solely responsible for the means, methods, techniques, sequences and procedures, as well as jobsite safety. Weekly Safety Reviews are required with all Sub-Contractors. Notify the City of Buckeye Project Manager immediately of any job safety issues that arise and all injuries that occur, noting time and circumstance.

PERMITS

Contractor shall be responsible for obtaining permits. Owner will pay for each permit except for off-site permits which will be the Contractor's responsibility. **Owner will pay for actual cost of permits only, no mark-ups, taxes, bonds, overhead and profit or fees will be paid.**

PROJECT CLOSE-OUT

Prior to, and as a condition of final acceptance of the project by the Owner, the Contractor will be required to submit and provide the following:

1. Copy of all warranties and guarantees required by the Contract Documents, plus those freely offered by manufacturers of products used.

2. Names, addresses and telephone numbers of parties to contact with reference to all warranties and guarantees submitted.

3. All final lien waivers and releases.

4. Operating and maintenance manuals, including spare parts lists and names, addresses and telephone numbers of all nearest suppliers. Except as otherwise required by Contract Documents, submit three (3) neatly bound copies.

5. Record drawings and data.

6. Training of Owner personnel with reference to equipment and systems installed on the project. See applicable sections of specifications for specific requirements regarding length of training time. Make arrangements with Owner for times of such training.

7. Consent of Surety for Final Payment

END OF SECTION 00100- GENERAL CONDITIONS OF CONTRACT

SECTION 00200 – **SUPPLEMENTARY GENERAL CONDITIONS**

1. Modifications: Included as part of this division are the following extensions which modify the A.I.A. General Conditions, latest edition, as indicated. They have been given article numbers to correspond with those of the printed form, as follows:

   1.2 -Add the following:

   1.2.6 Execute work as per Contract Documents. Make no changes therefrom without having first received written permission. Where detailed information is lacking, before proceeding with work, refer matter to Architect for information.

   1.2.7 If the Contractor observes any errors, discrepancies or omissions in the Contract Documents, they shall promptly notify the Architect, requesting clarification. If the Contractor proceeds with work affected by such errors, discrepancies or omissions without receiving such clarification, they do so at their own risk. Any adjustments involving such circumstances made by the Contractor, prior to approval by the Architect, shall be at the Contractor's risk and the settlement of any complications or disputes arising therefrom shall be at the Contractor's sole expense.

   1.2.8 In general, the Drawings indicate dimensions, positions and details of construction; the Specifications describe qualities of material and methods of workmanship. All work described in the Specifications, shown on the Drawings and all work dependent upon or necessary, shall be executed in a workmanlike manner and shall be of the materials best adapted to the purpose where such work or materials are not specifically mentioned.

   1.2.9 Should conflicts occur in or between the Drawings and Specifications, the Contractor is deemed to have estimated on the more expensive way unless they have asked for and obtained a written decision from the Architect before submission of their Proposal as to which method or materials will be required.

   1.2.10 All work or materials shall be the best of the respective kinds specified and indicated. Should any workmanship or materials be required which are not directly or indirectly called for in the Specifications and/or shown on the Drawings, but which are necessary for proper fulfillment of the obvious intent thereof, said workmanship or materials shall be the same as similar parts that are detailed, indicated or specified, and the Contractor shall understand the same to be implied and provide for it in the Proposal as fully as if it were particularly described or delineated.

   1.3.1 -Add the following:

   The use of the Contract Documents shall be restricted to the original site for which they were prepared and publication thereof is expressly limited

to such use. Reuse, reproduction or publication by any method, in whole or in part, is prohibited. Title to the Contract Documents remains with the Architect without prejudice. Visual contact with the contract Documents shall constitute prima facie evidence of the acceptance of these restrictions.

3.2.5 -Delete in its entirety

3.2 -Add the following:

3.2.4 The Contractor shall also compare all conditions at the site with the Contract Documents. The Contractor shall notify the Architect or Owner, in writing, at or before the time of submitting their Proposal, of any discrepancies between the Contract Documents and the existing conditions at the site, and he shall make their proposal conform to the intent of the Contract Documents, without additional cost to the Owner.

3.2.5 Neither the Owner nor the Architect assume any responsibility for an understanding or representation made by any of their agents or representatives prior to the execution of the Agreement unless (1) such understanding or representations are expressly stated in the Agreement and (2) the Agreement expressly provides that responsibility therefore is assumed by the Owner.

3.2.6 Maps, soil investigation reports and similar reference data made available to the Contractor are given for the Contractor's information only, and neither the Owner nor the Architect assume any responsibility for conclusions the Contractor may draw therefrom.

3.2.7 Failure of the Contractor to acquaint himself with all available information regarding these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work.

3.3.5 -Add the following:

Neither the presence or absence of the Owner or the Architect, nor their authorized representatives, shall relieve the Contractor from any requirements herein.

3.4 -Add the following:

3.4.3 When requested by the Architect, the Contractor shall deliver to the Architect, (prior to final acceptance of the work as a whole) signed certificates from suppliers of materials and manufactured items stating that such items conform to the Contract Documents.

3.4.4 The Contractor, immediately upon award of the Contract (or where Shop Drawings, Product Data or Samples, etc. are required, immediately upon receipt of review thereof) shall place orders for all materials, work,

fabrications and / or equipment to be incorporated into the work. The Contractor shall keep the Architect informed as to the availability of all materials, work, fabrications and / or equipment specified and to advise the Architect promptly in writing, of all orders placed and of such material work, fabrication and / or equipment which may not be available for the purposes of the Contract.

3.4.5 Labor shall be performed in best, most workmanlike manner, by mechanics skilled in their respective trades. Standards for work required throughout shall be of such grade as will result in first-class work.

3.4.6 Mechanics whose work is unsatisfactory to the Owner or the Architect or is considered by the Owner or the Architect to be careless, incompetent, unskilled or otherwise objectionable shall be dismissed from work under the Contract upon written notice from Owner or Architect.

3.7 -Add the following:

3.7.5 The Contractor shall, before commencing work, verify all grades, lines, levels and dimensions shown on the Drawings and shall report any errors or Inconsistencies to the Architect. The Contractor shall not proceed until such errors or inconsistencies are corrected.

3.7.6 The Contractor shall establish and maintain all buildings and construction grades, lines, levels and bench marks and shall be responsible for accuracy and protection of same. This work shall be performed by a licensed civil engineer or surveyor.

3.7.7 The Contractor shall protect all temporary bench marks 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.

3.7.8 The Contractor shall not remove any property line marks or monuments or data established by the Owner. If such are damaged or removed, the Contractor shall bear the cost of replacement.

3.12 -Add the following:

3.12.10 Submittals: The Contractor shall submit four (4) copies (or 1 reproducible original and 3 copies) of Shop Drawings and Product Data. The Architect shall either review the drawings or indicate the corrections desired. If the Architect does not accept the drawings, the Contractor shall make all corrections required and transmit to the Architect four (4) corrected copies.

Samples shall be submitted in Triplicate, including all color charts.

The Contractor shall submit to the Architect four (4) copies of installation drawings (rough-in and hook-up data) for all items to be installed strictly per manufacturer's instructions. Two (2) additional copies shall be

retained by the Contractor and at least one (1) copy shall be available at the job during such installation.

3.12.11 Composite Drawings: The Contractor shall prepare composite drawings and installation layouts when required to solve tight field conditions. Such drawings shall consist of dimensioned plans and elevations, and must give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc.

The composite shop drawings and field installation layouts shall be coordinated in the field by the Contractor and Subcontractors for proper relationship to the work of other trades, based on field conditions, and shall be checked and approved by them before submission to the Architect for their review.

3.12.12 Miscellaneous: The Contractor shall submit to the Architect for the Owner a neatly bound folder containing connection and control diagrams, operating and maintenance instructions, cuts of all mechanical and electrical equipment and fixtures, as installed, including catalogs or parts lists from the prime manufacturer and not based on local dealer's stock number systems. The complete bound folder shall be submitted before final payment will be certified.

3.13.1 -Add the following:

The Contractor shall be liable for any and all damage caused by him to Owner's premises. The Contractor shall hold and save the Owner, their agents and representatives, free and harmless from liability of any nature or any kind arising from any use, trespass or damage occasioned by their operations on premises or third persons.

3.14 -Add the following:

3.14.3 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 shall be held responsible for such voidable or willful damage.

3.14.4 All replacing, patching and repairing of all 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.

4.1.1 -Add the following:

In the Contract Documents, the term Architect or Engineer refers to MICHAEL WILSON KELLY-ARCHITECTS, LTD., 331 N. First Avenue, Suite 108, Phoenix, AZ 85003.

4.2.7 Delete the words “and approve” in the first sentence; Delete the word “approval” where it occurs in the last sentence and substitute the word “review” in lieu thereof, and Delete the sentence which reads “such action shall be taken with reasonable promptness so as to cause no delay” and substitute the following in lieu thereof: “The Architect shall review the Contractor’s submittals and indicate the corrections desired within seven (7) days after receipt thereof, except in instances where the quantity of drawings submitted or type of material covered by such drawing required additional review time. In which case they will be returned to the Contractor as soon after the normal seven (7) days as practicable.

5.2.3 -Add the following:

The provisions of this subparagraph providing for adjustment of price shall not apply if the Contractor has proposed a Subcontractor unqualified under any applicable State law.

8.2.2 -Add the following:

Progress and Completion: No work shall be performed after regular working hours unless the Owner (City of Buckeye) has been notified in writing at least three (3) days prior to the time such work is to be done. Regular working hours shall be eight (8) hours per day, Monday through Friday. Any work performed on Saturdays, Sundays or legal holidays is considered to be after regular working hours. Any additional cost for after hours work shall be the Contractor’s responsibility.

9.3 -Add the following:

9.3.1 Application for payment shall be made on A.I.A. Form G-702 and G-703, latest Edition, entitled “Application for Certificate for Payment.” (4 Originals) utilizing complete provisions provided by the form.

9.3.2 Delete Entirely and Substitute the Following:

Unless otherwise provided in the Contract Documents, payment will be made on account of materials or equipment not incorporated in the Work but delivered and suitably stored at the site. Payment on account of materials stored at some other location will not be made unless approved in advance by the Architect. Off site locations which may receive favorable consideration are, bonded warehouses, precast concrete manufacturers yard, structural steel fabricators yard and the like.

Until the material or equipment is incorporated in the work the amount of payment will be limited to 80% of the net cost of material or equipment excluding handling, storage, transportation and insurance charges.

Regardless of where material or equipment is stored, it shall be properly marked, be easily identified as having been provided for this particular project, and Contractor shall submit the following supporting documentation:

a. Proper bill of sale satisfactory to the Owner to establish the Owner's title to the material or equipment.

b. Itemized invoice establishing net value.

c. Inventory list, which shall be made by a party other than the supplier or the subcontractor.

d. Certificate of insurance issued to responsible subcontractor with Contractor and Owner named thereon as additional insurers. It shall be the Contractor's responsibility to obtain and pay for this insurance.

9.5.1 Subparagraph .1- Change to read:

Defective work not remedied, or failure to begin Remodel action within five (5) days following notification.

9.6.1 -Add the following:

Progress Payments: On or about the 25th day of the month, the Owner shall make a Progress Payment to the Contractor on the basis of a duly certified and approved estimate of the labor and materials incorporated in the Work during the proceeding calendar month under this Contract, but to insure the proper performance of this Contract, the Owner shall retain ten percent (10%) of the amount of each estimate until final completion and acceptance of all Work covered by this Contract.

9.8.1 -Add the following:

Endorsement from the Contractor's Liability Insurance carrier, the Owner's Liability Insurance carrier and the Property Insurance carrier shall be secured permitting use and occupancy of the work prior to Final Completion as a condition of the Certificate of Substantial Completion.

When the work consists of more than one building, and one of the buildings is occupied by the Owner, the Owner will secure permanent Property Insurance for same, including consent of the insurer to complete construction of the unoccupied building or buildings.

9.10.1 -Add the following:

Final payment: Within thirty (30) calendar days after the date of final acceptance of Work by the Owner, the difference between the final Contract amount and all payments theretofore made to the Contractor,

will be due and payable to the Contractor, excepting only such sums as may lawfully be withheld in accordance with the provisions of the Contract, and as otherwise provided by law.

9.10.2 -Add the following:

Waivers of lien: Contractor shall provide a Receipt and Waiver of Lien, and shall, if also required, provide Receipt and Waiver of Lien from all subcontractors or other persons supplying labor and materials to the Project. All forms to be submitted shall be those approved by, and acceptable to, the Owner.

10 -Add the following:

10.2.8 The Contractor shall be responsible for all existing structure and / or improvements, both above and underground, including the finishes thereof (both exterior and interior) within the adjoining work areas, and shall provide adequate protection therefore, either barricades, covering or by temporary removal. Any existing structure and / or improvements damaged during construction shall be repaired and / or replaced with material, workmanship, fixtures or equipment of the same kind, quality and size as required by the Contract Document. Any materials or equipment temporarily removed and damaged shall be re-erected or installed in an approved manner

END OF SECTION 00200- SUPPLEMENTARY GENERAL CONDITIONS

PRIOR APPROVAL REQUEST FORM

The Bidder, in compliance with **INSTRUCTIONS TO BIDDERS,** submits to the following to request approval to substitute materials and / or equipment as indicated below. Complete one form per substitution.

PROJECT: _____

Selection	Specified Item

Proposed Substitution:_____

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

A. Will changes be required to building (architecturally, structurally, mechanically or electronically) in order to properly install proposed substitution? **Yes** _____ **No** ____ **If Yes, explain:** _____

_____

The undersigned agrees to pay for all changes to building design, including engineering and drawing cost, caused by requested substitution.

B. Does the proposed substitute comply in all respects with the specified project? **Yes** ____ **No** ____

If there are differences between proposed substitution and specified item, please list them below.

Specified Item	Specified Item

C. Does substitution affect drawing dimensions? **Yes** ____ **No** ____ **If yes, explain:** _____

_____

D. What effect does substitution have on other trades? _____

E. Does manufacturer's warranty of proposed substitution differ from that specified? **Yes** ____ **No** ____
If yes, explain: _____

_____

F. Will substitution affect the progress schedule? **Yes** ____ **No** ____ **If yes, explain:** _____

_____

G. Will substitution require more license fees or royalties than the specified project? **Yes** ____ **No** ____
If yes, explain: _____

H. Will maintenance and service parts be locally available for substitution? **Yes** ____ **No** ____
If no, explain: _____

Submitted By: _____ **For Architect's Use Only:**

Signature: _____ **Accepted** _____ **Accepted as Noted** _____

Firm: _____ **Not Accepted** _____ **Received Late** _____

Address: _____ **By:** _____

Telephone #: _____ **Date:** _____

Date: _____ **Remarks:** _____

SECTION 01100 – **SUMMARY OF WORK**

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of demolition and removal of the existing portable restroom building, replacement with a new one-story**,** 900s.f**.** (enclosed area) Restroom building, and all associated demolition and improvements as indicated in the Drawings.

Project Location: **EARL EDGAR PARK RESTROOM REPLACEMENT**

500 S. Miller Road, Buckeye, AZ 85326

1. Owner: **City of Buckeye**

B. Architect Identification: The Contract Documents consisting of Drawings & Technical Specifications dated 20 December 2017, 100% Construction Documents, were prepared for this project by:

Michael Wilson Kelly, Architects, Ltd.,
331 N. First Avenue, Suite 108, Phoenix, AZ. 85003
TEL:480.829.7667
EMAIL: mike@mwkarch.com

C. The Work consists of all labor, materials, equipment, services, and transportation necessary to construct the Project.

1**. Demolition and Removal from the Site of the Existing Restroom Bldg. (810 square feet), and all associated work.**

2. **Construct new 1582 square foot (under roof), 900 s.f. (enclosed) Restroom Building, along with all associated work.**

3. **Contractor shall furnish all parts, labor, equipment, fixtures, and materials, and perform all operations in connection with the construction.**

D. Project will be constructed under a Standard City of Buckeye Contract.

E. Related Work Specified Elsewhere: Divisions 1 through 16 as related to the Work of this Section.

F. Specification Format: Specifications are separated into various sections for general convenience only. This shall not be interpreted as establishing work categories. No responsibility will be assumed the Owner or Architect for omissions or duplications by the Contractor in establishing work categories.

G. Coordination: General Contractor shall coordinate Work of all trades and all Subcontractors for the project. It shall be General Contractor's responsibility to see that all aspects of the Work and the interrelationship of all Work be fully understood by all persons performing any part of the Work. It shall also be mandatory upon the Contractors that all Subcontractors are fully aware of all requirements and conditions of the General Conditions and Supplementary Conditions of the contract. No additional cost shall accrue to Owner as a result of any lack of such coordination or understanding.

H. Contractor Responsibilities Shall include the Following:

1. The Contractor shall pay particular attention in carrying out the Work covered by these Contract Documents.

2. The Contractor shall coordinate mechanical and electrical work with architectural trades so that all are accomplished without interferences from each other or any construction related activity.

I. Protection: The Contractor shall furnish, install and set all barricades, protective coverings, screens, all devices, and dust or weatherproof partitions or coverings as required, properly and effectively, to protect public and all persons within the area of construction from harm or damage due to dust, dirt and debris, etc. Upon completion of the project, all such work shall be removed from the site.

J. Access and Egress:

1. In accordance with NFPA 101, International Building Code and all governing jurisdictional agencies, Contractor shall maintain access and egress to site.

2. Contractor shall obtain all necessary barricade permits as required by the City of Buckeye for temporary use of right of way (e.g. sidewalks, streets, etc.) and shall allow a minimum of four (4) feet pedestrian passage.

1.2 PROJECT MEETINGS

A. During the construction period, periodic progress meetings will be held with Owner, Architect / Engineer, Contractor, major Subcontractors or material suppliers whose presence may be deemed necessary or desirable. The purpose of these meetings shall include, without limitation, the expediting of the job progress, coordination of various phases of the Work and the scheduling of Work to accommodate the Owner's operations. The Owner will designate time, date and location of these meetings.

1.3 SITE VISIT

A. An organized site visit will be held on the date to be announced. Representatives of the Owner will be present to answer any questions asked by the Contractors and to point out specific areas of concern, such as safety, job cleanliness, fire hazards, dust and water hazards, etc.

1.4 PRECONSTRUCTION CONFERENCE

A. The successful Contractor and the major subcontractors may be required to attend a Preconstruction Conference prior to commencement of construction. At this conference, specific time schedules will be established and topics such as Contractors' reports, submittals, Contractors' personnel, access to existing building, inspections, etc. will be discussed and policies will be established governing these items.

1.5 MISCELLANEOUS REQUIREMENTS

A. Rough-in: All rough in for all items of work and materials indicated on the drawings or in the specifications, except as may be specifically excluded, shall be furnished and installed, complete, by the Contractor.

B. Matching of New Work to Existing: Shall be accomplished in such a manner as to harmonize and match adjacent existing work, both interior and exterior.

C. Restrictions of Areas of Operations: Contractor shall limit activities strictly to the construction area. He shall not encroach onto adjoining property with construction, building materials, implements, scaffolds or debris unless authorized by the Owner to do so.

D. Preservation and Restoration of Property:

1. Contractor shall be responsible for the preservation of all public and private property on the surface or underground, along and adjacent to the work, and shall conduct operations in a manner that will insure against injury or damage thereto.

2. Where any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work, or because of non-execution thereof, on the part of the Contractor, such property shall be restored by the Contractor, at the Contractor's expense, to a condition equal to that existing before such damage was done, by repairing, rebuilding or otherwise restoring same in a manner acceptable to the Owner.

3. All work performed under this contract shall proceed with due care and safety for all personnel and pedestrians. All work shall be planned so that the buildings can be secured against unauthorized entry at the end of each working day. Also, the entire structure shall be secured against the harmful actions of the elements during the entire course of the project.

1.6 ODOR CONTROL

A. Contractor shall control odor and fumes to the best of their ability in order to avoid disturbance of Park users and personnel. Provide necessary means to dissipate as quickly as possible harmful and malodorous fumes.

1.7 POTENTIAL ASBESTOS HEALTH HAZARDS

A. The Contractor, while performing renovation / remodeling / demolition work on this project, shall at all times be on the alert for products or materials in the existing structure which may contain asbestos and, if encountered, shall immediately notify the Owner of their findings. No further work shall be done in the immediate area in question.

1.8 RUBBISH COLLECTION AND DISPOSAL

A. Scrap lumber, paper cement sacks, cardboard, rags, and other construction debris must be removed daily from the site. This will serve a dual purpose of removing the hazard and having orderly work conditions.

1.9 WELDING OR CUTTING

A. All oxygen and acetylene cylinders must be secured to a cart or fastening to prevent accidental damage or dislocation.

B. Each individual welding or cutting unit must be provided with 2A10BC rated multi-purpose fire extinguisher.

C. When welding or cutting operations are performed above or within 35 feet of combustible construction or material exposed to the operation, or within 35 feet of floor, ceiling or wall openings so exposed, a fire watcher shall be provided to watch for fire, make such of portable fire extinguishers or fire hoses, and perform similar fire prevention and protection duties.

1.10 FLAMMABLE LIQUIDS

A. Gasoline, acetone, or any other Class One flammable liquids are not permitted inside the building (except with permit).

1.11 FIRE PROTECTION

A. EXTINGUISHERS: Approved extinguishers (minimum 2A10BC) shall be available within 75 feet of travel from all portions of the building mounted on portable stands. The stands must be five (5) feet tall and painted red.

B. ACCESS: All areas of buildings containing combustible storage, combustible finishes, concrete forms, etc. shall be maintained in an accessible condition for Fire Department access.

1.12 COMBUSTIBLE STORAGE

A. The storage of combustibles will not be allowed within 25 feet of building including construction enclosures, tool bins, and trash containers.

1.13 WORK NOT IN CONTRACT (N.I.C.)

A. All items and work indicated on the drawings or in the specifications as N.I.C., will be furnished and installed by the Owner. However, where such items or work require built-in blocking, rough-in plumbing or electrical work such as blocking or rough-ins shall be provided by the Contractor.

1.14 GENERAL REQUIREMENTS

A. The General Contractor shall thoroughly familiarize himself with the drawings and specifications to insure against misunderstandings between trades during entire construction of the project.

B. To avoid interference with normal routine, all existing services shall be maintained while performing work involving alterations or additions to existing buildings, except as necessary at the time of final hook-up of the new services and equipment. Contractor shall notify the Owner one week in advance of final hook-up.

END OF SECTION 01100- SUMMARY OF WORK

SECTION 01125 – **MEASUREMENT AND PAYMENT**

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Measurement and payment criteria applicable to Work performed under payment method as defined.

1.02 COSTS INCLUDED

A. Prices included on the Bid Form shall include full compensation for all labor, products, tools, equipment, plant, transportation, services and incidentals: erection, application or installation of an item of Work including Contractor's overhead, profit and sales tax.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only.

1.04 SUMMARY OF WORK REQUIREMENTS

A. Summary of the Scope of Work Description: Replace restroom building as specified in the Plans and Specifications. Measurement and payment for all pay items in the proposal shall be as specified in the applicable section of the Maricopa Association of Governments Uniform Standard specifications for Public Works Construction (MAG Specifications) latest edition, and supplements, and any applicable City specifications or Standards as specified in these Technical Specifications. In the event of a conflict between these Specifications and the requirements of the plans, detail drawings, or City Standard Details and the MAG Specifications, these Specifications shall prevail.

1.05 PAYMENT

A. Payment of the contract items shall be compensation in full for furnishing all overhead, labor, material, tools, equipment, and appurtenances necessary to complete the work in a good, neat, and satisfactory manner as indicated on the plans, or as specified, with all necessary connections and appurtenances for the satisfactory use of fully functional, up to current Codes, and safe operation of said item. No additional payment will be made for work related to each item unless specifically noted or specified. Measurement will be in place for the completed work with no allowances for waste.

1.06 PAYMENT ITEMS

A. Item 1 – Mobilization & Temporary Facilities

1. Description: The work under this section shall consist of preparatory work and operations, including, but not limited to, the movement of personnel, equipment, supplies, and incidentals to the project site; the establishment of mobile storage units, and other facilities necessary for work on the project; for all other work and operations that must be performed and costs incurred prior to beginning work on the project site. Mobilization shall include Temporary Facilities as described in Section 01500. This pay item also includes all work associated with demobilizing from the project site.
2. Method of Measurement: Mobilization & Temporary Facilities shall be measured as a lump sum including all work required to complete the item.
3. Basis of Payment: Mobilization & Temporary Facilities shall be paid as a percentage of the total work performed less the mobilization item. Payment for this item shall be based on the following Schedule:

Percentage of Construction Completed	Percent Payment
10%	25%
25%	50%
50%	100%

B. Item No. 2 – Selected Demolition & Removal
1. Description: The work under this item shall conform to the Project Plans, to MAG Section 350, and to the Technical Specifications. The Contractor shall carefully remove, salvage and return designated items identified for salvage to the City for their use. The Contractor shall take necessary measures to protect all existing Utilities, trees, site lighting, signage and other elements intended to remain on site. Demolition shall include removal of all materials and items noted on Site Demolition Plan, including, but not limited to: existing building consisting of concrete masonry walls, wood roof framing, roofing/ceiling systems, concrete foundations, concrete slabs, and walkways, decorative steel work, steel gates and frames, doors, stucco, plumbing and electrical, fixtures, equipment and trash.
2. Method of Measurement: Selected Demolition & Removal shall be measured as a lump sum including all work required to complete the item.
3. Basis of Payment: Selected Demolition & Removal shall be paid for as the contract lump sum price. This price shall be full compensation for the disassembling, removing, storing, and maintaining the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item for the duration of the project.

C. Item No. 3 - Survey Control and Staking
1. Description: The work under this item shall consist of furnishing all materials, labor, and equipment necessary to complete survey, layout, and staking operations as required for the project.
2. Method of Measurement: Survey Control and Staking shall be measured as a lump sum including all work required to complete the item.
3. Basis of Payment: Survey Control and Staking shall be paid for as the contract lump sum price upon completion.

D. Item No. 4 - Earthwork

1. Description: The work under this item shall consist of all materials, equipment, and labor to excavate, backfill, rough and fine grade the site, for placement and compaction of all earthwork, sub-grade preparation for the new building and park improvements, and any other appurtenant work as specified and shown on the Plans. Earthwork shall include all clearing and grubbing operations and removal of deleterious materials. Earthwork shall conform to the plans, to the Specifications, and to MAG Sections 201, 205, 206, 210, 211, 220, 225, & 230.
2. Method of Measurement: Earthwork shall be measured as a lump sum including all work required to complete the items as specified and shown on the Plans.
3. Basis of Payment: Earthwork shall be paid for as the Contract lump sum price upon completion.

E. Item No. 5 – Concrete Foundations and 4 inch Sidewalk Paving

1. Description: The work under this item shall consist of all materials, equipment, and labor to install Concrete Foundations and 4 inch Concrete Sidewalk Paving over 4 inch engineered fill complete in place as specified and as shown on the Plans.
2. Method of Measurement: Concrete Foundations and 4 inch Sidewalk Paving over 4 inch engineered fill shall be measured as a lump sum including all work required to complete in place as specified and shown on Plans.
3. Basis of Payment: Concrete Foundations and 4 inch Sidewalk Paving over 4 inch engineered fill shall be paid for per the Contract lump sum price upon completion.

F. Item No. 6 – Masonry Work

1. Description: The work under this item shall consist of all materials, equipment, and labor to install all Masonry Work, including Concrete Masonry Units (CMU) and Ceramic-faced Masonry Units complete in place as specified and as shown on the Plans.
2. Method of Measurement: all Masonry Work, including Concrete Masonry Units (CMU) and Ceramic-faced Masonry Units shall be measured as a lump sum including all work required to complete in place as specified and shown on Plans.
3. Basis of Payment: Masonry Work, including all Concrete Masonry Units (CMU) and Ceramic-faced Masonry Units shall be paid for per the Contract lump sum price upon completion.

G. Item No. 7 – Steel & Miscellaneous Metals

1. Description: The work under this item shall consist of all materials, equipment, and labor to furnish and install all Steel and Miscellaneous Metals including Steel Imbeds, Steel Tube Framing, Wire Mesh Screens and Framing, 18 gauge Galvanized Steel Roof Decking with metals trims, and other Miscellaneous Metals complete in place as specified and as shown on the Plans.

2. Method of Measurement: all Steel and Miscellaneous Metals shall be measured as a lump sum including all work required to complete in place as specified and shown on plans.
3. Basis of Payment: all Steel and Miscellaneous Metals described above shall be paid for per the Contract lump sum price upon completion.

H. Item No. 9 – FRP Clad Hollow Metal Doors & Hollow Metal Frames

1. Description: The work under this item shall consist of furnishing all materials, labor, and equipment necessary to complete furnish and install FRP clad Hollow Metal Doors and Hollow Metal Frames as required for the project.
2. Method of Measurement: FRP Clad Hollow Metal Doors and Hollow Metal Frames shall be measured as a lump sum including all work required to complete the item.
3. Basis of Payment: FRP Clad Hollow Metal Doors and Hollow Metal Frames shall be paid for as the Contract lump sum price upon completion.

I. Item No. 10 – Caulking & Sealants

1. Description: The work under this item shall consist all materials, equipment, and labor necessary to provide Caulking & Sealants complete in place as specified and shown on the Plans.
2. Method of Measurement: Caulking & Sealants shall be measured as a lump sum including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: Caulking & Sealants shall be paid for per the Contract lump sum price upon completion.

J. Item No. 11– Painting

1. Description: The work under this item shall consist all materials, equipment, and labor necessary to provide Painting complete in place as specified and shown on the Plans.
2. Method of Measurement: Painting shall be measured as a lump sum including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: Painting shall be paid for per the Contract lump sum price upon completion.

K. Item No. 12 – Toilet Room Accessories

1. Description: The work under this item shall consist all materials, equipment, and labor necessary to provide all Toilet Room Accessories (including Grab Bars, Hand Dryers, Stainless Steel recessed Diaper Changing Stations and Soap Dispensers epoxied into the Masonry Wall) complete in place as specified and shown on the Plans.
2. Method of Measurement: Toilet Room Accessories as described above shall be measured as a lump sum including all work required to complete in place as specified and as shown on the Plans.

3. Basis of Payment: Toilet Room Accessories shall be paid for per the Contract lump sum price upon completion.

L. Item No. 13 – Signage

1. Description: The work under this item shall consist all materials, equipment, and labor necessary to provide Signage (including plastic Restroom Signage, ADA Signage and Notices), complete in place as specified and shown on the Plans.
2. Method of Measurement: Signage as described above shall be measured as a lump sum including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: Signage as described above shall be paid for per the Contract lump sum price upon completion.

M. Item No. 14 – Plumbing

1. Description: The work under this item shall consist of all materials, equipment, and labor necessary to provide all Plumbing (including, but not limited to the following: Potholing, Trenching and Backfill, connection to existing 2" Potable Water Line (Copper, Type L), connection to Existing 4" Sanitary Sewer, Sewer Clean-outs per MAG 440-2, vandal proof hi-low Drinking Fountain (chilled) conforming to MAG Standard Sections 601, 605, 610, and 611, all copper water supply piping, waste piping, mop sink, floor drains, vent piping and roof flashing**,** all Stainless Steel prison grade Toilets fixtures, water closets and sinks, faucets, flush valves, hose bibs, wall hydrants, and all miscellaneous connections and bracing) complete in place as specified and as shown on the Plans.
2. Method of Measurement: Plumbing as described above shall be measured as a lump sum including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: Plumbing as described above shall be paid for per the Contract lump sum price upon completion.

N. Item No. 15– Electrical & Lighting

1. Description: The work under this item shall consist of all materials, equipment, and labor to install Electrical & Lighting (including, but not limited to the following: Potholing, Trenching and Backfill, Underground Wire Feed in Existing Conduit, Conductors and Bond Wires, Terminations and Splices, Service Work including New Distribution Panel, Power Wiring and Lighting Wiring in conduit, & Weatherproof GFCI tamperproof receptacles, Time Clock Astro, J-Box for LED Signage and all Lighting Fixtures, Miscellaneous Electrical Connections and Equipment including wire connectors, straps, brackets, splice kits, Unistrut supports, and mounting as required) complete in place as specified and shown on the Plans.
2. Method of Measurement: Electrical & Lighting as described above shall be measured as a lump sum including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: Electrical & Lighting as described above shall be paid for per the Contract lump sum price upon completion.

O. ADD ALTERNATE ITEM NO. 1: New ADA Compliant Unisex Toilet Room

1. Description: The work under this item shall consist all materials, equipment, and labor necessary to provide New ADA Compliant Unisex Toilet Room as specified in SECTION 01230 PART 3- EXECUTION, Item 3.1 SCHEDULE of ALTERNATES, Item A, and complete in place as specified and shown on the Plans.
2. Method of Measurement: New ADA Compliant Unisex Toilet Room and all related Items shall be measured as a lump sum and as itemized per SCHEDULE of ALTERNATES including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: New ADA Compliant Unisex Toilet Room and all related Items shall be paid for per the Contract lump sum price upon completion.

P. ADD ALTERNATE ITEM NO. 2: New Stainless Steel Wainscot including all related items to affect a complete installation.

1. Description: The work under this item shall consist all materials, equipment, and labor necessary to provide New Stainless Steel Wainscot as specified in SECTION 01230 PART 3- EXECUTION, Item 3.1 SCHEDULE of ALTERNATES, Item D, and complete in place as specified and shown on the Plans and as specified.
2. Method of Measurement: New Stainless Steel Wainscot and all related Items shall be measured as a lump sum and as itemized per SCHEDULE of ALTERNATES including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: New Stainless Steel Wainscot and all related Items shall be paid for per the Contract lump sum price upon completion.

Q. ADD ALTERNATE ITEM NO. 3: New Mechanical Exhaust including all related items to affect a complete installation.

1. Description: The work under this item shall consist all materials, equipment, and labor necessary to provide New Mechanical Exhaust as specified in SECTION 01230 PART 3- EXECUTION, Item 3.1 SCHEDULE of ALTERNATES, Item E, and complete in place as specified and shown on the Plans and as specified.
2. Method of Measurement: New Mechanical Exhaust and all related Items shall be measured as a lump sum and as itemized per SCHEDULE of ALTERNATES including all work required to complete in place as specified and as shown on the Plans.
3. Basis of Payment: New Mechanical Exhaust and all related Items shall be paid for per the Contract lump sum price upon completion.

END OF SECTION 01025- MEASUREMENT AND PAYMENT

SECTION 01140 - **WORK RESTRICTIONS**

PART 1 - GENERAL

1.1 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

1. Limits: Confine constructions operations to Limits of Construction as defined in the Drawings.
2. Driveways & Streets: Keep perimeter driveways and streets serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

1.2 OCCUPANCY REQUIREMENTS

A. Partial Owner Occupancy: Owner reserves the right to occupy and to place and install equipment in completed areas of building before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01140

SECTION 01210 - **ALLOWANCES**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements governing the following:
   1. Owner’s Contingency Allowance.

1.2 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.

1.3 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.

1.4 COORDINATION

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

1.5 OWNER’S CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part

of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and overhead and profit margins not to exceed 5%.

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

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; Include $25,000 Owner’s Contingency Allowance as specified in this Section.

END OF SECTION 01210

SECTION 01230 - **ALTERNATES**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

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

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. **<u>ADD Alternate No. 1</u>: ADD (1) A.D.A. COMPLIANT UNISEX TOILET ROOM** State Change to Base Bid to provide all labor, materials, and all related items for Additional Improvements per Plans and itemized Scope of Work below, Drawings and applicable Technical Specifications. **(NOTE: Provide the difference in cost from Base Bid condition per Scope of Work below).**

1. Base Bid Condition: STORAGE ROOM]

ADD per Alternate No. 1 Scope of Work: <u>(Itemized as follows:)</u>

1. Provide ADD ALT 01 Items per Plumbing Plan including WC, Sink and Floor Drain.
2. Provide ADD ALT 01 provisions per Electrical Plan including power for additional hand dryer.
3. Additional Items listed in Section 10801 Toilet Accessories including Recessed Liquid Soap Dispenser, Grab Bars, Semi-Recessed Rear (Chase) mounted Hand Dryer, and Under-lavatory Guard.
4. Slope Concrete Floor to Drain and provide 3-part non-slip sealer as indicated on Finishes Plan.
5. Provide one Custom Toilet Paper Holder per Detail 6 on Sheet A05.00.
6. Provide ADD ALT 02- 6ft high Stainless Steel Wainscot for one additional Toilet Room as shown on Typical Toilet Room Elevations, Sheet A03.01.
7. Provide ADD ALT 03- Mechanical and all related provisions including 8 X 8 inch CMU opening for exhaust duct and secure grill.
8. Provide ADD ALT 01 Door Frame, FRP clad Door, and Hardware.
9. Comply with all ADAAG Guidelines as indicated on Sheet A07.00.

B. **<u>ADD Alternate No. 2</u>: Stainless Steel Wainscot**: Provide Stainless Steel Wainscot per Drawings & Specifications in each of 8 Toilet rooms (PLUS one if ADD ALT 01 accepted, total of 9). Change to Base Bid to provide all labor, materials, and all related items for New Improvements per Plans and itemized Scope of Work below, Drawings and applicable Technical Specifications. **(NOTE: Provide the difference in cost from Base Bid condition per Scopes of Work below).**

1. Base Bid Condition: Anti-Graffiti Coatings on painted Interior CMU walls per Plans & Specifications.

ADD per Alternate No. 2 Scope of Work:

1. Provide and install 6 foot high stainless steel wainscot per Drawings and Specifications.
2. Fabricate and install all stainless steel trims, corners, wall bases and edges per Drawings and details.
3. Provide clear sealants all around edges of stainless steel per details.
4. Clean all stainless steel of oils and dirt following installation.

C. **<u>ADD Alternate No. 3</u>: Mechanical Exhaust**: Provide complete Mechanical Exhaust System and related elements per Plans and Specifications. Change to Base Bid to provide all labor, materials, and all related items for New Improvements per Plans and itemized Scope of Work below, Drawings and applicable Technical Specifications. **(NOTE: Provide the difference in cost from Base Bid condition per Scopes of Work below).**

1. Base Bid Condition: No Mechanical Exhaust and related elements described below.

ADD per Alternate No. 3 Scope of Work:

1. Provide and install Mechanical Exhaust per Drawings and Specifications.
2. Hang Mechanical Exhaust Unit with threaded rods and Unistrut sections from steel structure as required.
3. Provide Electrical Power connections per Electrical Plans.
4. Provide (8) 8 x 8 x 8 holes in the top of the Chase CMU walls corresponding to each of the 8 Toilet Rooms per Drawings. (PLUS one (1) if ADD ALT 01 Bid accepted)
5. Provide all sheet metal ductwork and connect to (8) securely mounted heavy duty self-trimming wall mounted grill registers as specified at each of the 8 CMU wall holes indicated above on the Toilet Room sides (PLUS one (1) if ADD ALT 01 Bid accepted).
6. Furnish and install galvanized metal finish louver as shown on Mechanical Plans. Trim and caulk as required.
7. Field Test and demonstrate operations to City Facilities Maintenance staff.
8. Furnish Warranty documents.

END OF SECTION 01230- ALTERNATES

SECTION 01290 - **PAYMENT PROCEDURES**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment. These requirements are in addition to Owner Pay Application procedures.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Submittals Schedule and Application for Payment forms with Continuation Sheets.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than **seven** days before the date scheduled for submittal of initial Applications for Payment.
3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

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

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

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

a. Related Specification Section or Division.
b. Description of the Work.
c. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that affect value.

g. Dollar value.

1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

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

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: The date for each progress payment is the **15th** day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends **15** days before the date for each progress payment.

D. Payment Application Forms: Use **AIA Document G702 and AIA Document G703 Continuation Sheets**. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Incomplete applications will be returned without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit **5** signed and notarized original copies of each Application for Payment to **Owner** (Anthem Community Council) **& Architect** electronically. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

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

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Submittals Schedule (preliminary if not final).
5. List of Contractor's staff assignments.
6. Copies of building permits.
7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
8. Certificates of insurance and insurance policies.
9. Performance and payment bonds.
10. Data needed to acquire Owner's insurance.

H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens,"
6. AIA Document G707, "Consent of Surety to Final Payment,"
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

END OF SECTION 01290

SECTION 01310 - **PROJECT MANAGEMENT AND COORDINATION**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General Project coordination procedures.
2. Coordination Drawings.
3. Project meetings.

B. See Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate Contractors if coordination of their Work is required.

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

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.

1.3 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Indicate relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.

1.4 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at **Project site, unless otherwise indicated**.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Contractor shall take Meeting Minutes and record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within **3** days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Proposed Construction Schedule.
    b. Phasing.
    c. Critical work sequencing.
    d. Designation of responsible personnel.
    e. Procedures for processing field decisions and change orders.

f. Procedures for processing Applications for Payment.
g. Distribution of the Contract Documents.
h. Submittal procedures.
i. Preparation of Record Documents.
j. Use of the premises.
k. Responsibility for temporary facilities and controls.
l. Parking availability.
m. Office, work, and storage areas.
n. Equipment deliveries and priorities.
o. First aid.
p. Security.
q. Progress cleaning.
r. Working hours.

C. Progress Meetings: Conduct progress meetings as determined by the City of Buckeye. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

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

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.
11) Progress cleaning.
12) Quality and work standards.
13) Change Orders.

14) Documentation of information for payment requests.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

SECTION 01320 - **CONSTRUCTION PROGRESS DOCUMENTATION**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Bi-Weekly construction reports.
4. Field condition reports.
5. Construction photographs.

B. See Division 1 Section "Payment Procedures" for submitting the Schedule of Values.

C. See Division 1 Section "Closeout Procedures" for submitting digital progress photos as Project Record Documents at Project closeout.

1.2 DEFINITIONS

A. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

B. Float: The measure of leeway in starting and completing an activity.

1. Float time belongs to Owner.

C. Fragment: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

D. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

A. Submittals Schedule: Submit **five** printed copies of schedule and provide in electronic PDF format. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.

5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit **five** printed copies of initial schedule large enough to show entire schedule for entire construction period, 11 x 17 landscape format preferred, provide in electronic PDF format.

C. CPM Reports: Concurrent with CPM schedule, submit **five** printed copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Total Float Report: List of all activities sorted in ascending order of total float.
3. Construction Photographs: Provide digital progress photos on CD, tow copies.

D. Bi-Weekly Construction Reports: Submit **three** copies at **14-day** intervals.

E. Field Condition Reports: Submit **five** copies at time of discovery of differing conditions.

1.4 QUALITY ASSURANCE

A. Photographer Qualifications: An individual of established reputation who has been regularly engaged as a professional photographer for not less than three years.

1.5 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

C. Auxiliary Services: Cooperate with photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities including temporary lighting.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2. CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

B. Activities: Treat each separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than **30** days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and re-submittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Work Stages: Indicate important stages of construction for each major portion of the Work.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragments to demonstrate the effect of the proposed change on the overall project schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for Notice of Award of Construction Contract. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following:

    a. Preparation and processing of submittals.
    b. Purchase of materials.
    c. Delivery.
    d. Fabrication.
    e. Installation.

2. Processing: Process data to produce output data or a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
3. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

D. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Principal events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.

9. Average size of workforce.

E. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

2.3 REPORTS

A. Weekly Construction Reports: Prepare a daily construction report recording events at Project site, including the following:

1. List of subcontractors.
2. High and low temperatures and general weather conditions.
3. Accidents.
4. Stoppages, delays, shortages, and losses.
5. Meter readings and similar recordings.
6. Orders and requests of authorities having jurisdiction.
7. Services connected and disconnected.
8. Equipment or system tests and startups.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information **on CSI Form 13.2A** or similar form provided Contractor. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At **monthly** intervals, update schedule to reflect actual construction progress and activities. Issue schedule **one week** before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

C. Periodic Construction Photographs: Take not less 15 color digital photographs monthly, coinciding with cutoff date associated with each Application for Payment. Photographer shall select vantage points to best show status of construction and progress since last photographs were taken.

1. Field Office Prints: Retain one set of prints of periodic photographs in field office at Project site, available at all times for reference. Identify photographs the same as for those submitted to Architect.

END OF SECTION 01320

SECTION 01330 - **SUBMITTAL PROCEDURES**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

B. See Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule See Division 1 Section "Quality Requirements" for submitting test and inspection reports and Delegated-Design Submittals and for erecting mockups.

C. See Division 1 Section "Closeout Procedures" for submitting warranties Project Record Documents and all City of Tempe requirements for Operations and Maintenance manuals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

1.3 QUALITY ASSURANCE

A. Substitutions: Substitution of products or materials will be subject to approval by the Architect and Owner and shall be as follows:

1. Architect’s Approval Required.

a. The Contract is based on the materials, equipment and methods described in the Contract Documents.

b. The Architect will consider proposals for substitution of materials, equipment and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Architect to evaluate the proposed substitution.

c. Inadequate warranty, vagueness of submittal, failure to meet project requirements, or insufficient data may be cause for disapproval or rejection of request. Architect’s decision for rejection of requested substitution is

final, may be based upon the Architect's opinion and does not require documentation or further justification.

d. The Contractor shall not substitute materials, equipment or methods unless such substitution has been specifically approved for this Work by the Architect in wiring and is published in Addenda.

e. All substitutions shall have Architect's approval and sign-off prior to submitting bids / proposals.

2. "Or Equal / Acceptable Substitution":

a. Where the phrase "or equal," "acceptable substitution," or "as approved by the Architect," or phrases of similar intent occur in the Contract Documents, the Contractor shall not assume that materials, products, equipment, or methods will be approved as equal or acceptable by the Architect unless the item has been specifically approved for this Work by the Architect in writing. All acceptable substitutions will be listed in Addenda.

b. The decision of the Architect and Owner shall be final.

B. GENERAL REQUIREMENTS

1. Submittals shall be forwarded for Architect's review in complete package with all items specifically requested within the individual technical provisions sections. Incomplete submittals will not be processed nor reviewed by Architect until full submittal is transmitted. The only exception to this requirement will be specific warranties or guarantees which required completed Work before submittal or guarantee / warranty. Facsimiles of warranty / guarantee shall be submitted for general compliance.

2. Chemical MSDS shall be submitted to the Safety Department for review prior to starting work. Substituted materials cannot be incorporated within the Work without approval of MSDS.

3. Under PART 2- PRODUCTS portion of each technical provision, materials specified within shall be submitted item by item for Architect's review.

4. Submittals shall be submitted for review by the Architect prior to purchase by Contractor.

5. Shop drawings, catalog data, equipment and material lists, elementary diagrams, wiring diagrams, installation instructions, maintenance manuals and instruction, and operation brochures, shall be submitted as specified within each technical provision contained in the Project Manual. If materials or equipment are required and are not specifically listed, the most closely related item listed will govern the type of submittal required.

a. The submittal shall include a typewritten list showing each item and manufacturer for approval by the Contractor and review by the Architect shall be submitted concurrently with all equipment which forms a system or subsystem that must be reviewed simultaneously because of coordination requirements. These submittals shall be corrected by the Contractor to “as-built” conditions prior to the completion of the project and turned over to the Architect.

b. Catalogs for submittal shall have unrelated pages removed, or clearly marked “NOT APPLICABLE,” and shall have capacities and specified parameters relating ot the items or items clearly marked.

c. Maintenance manuals and instructions shall indicate routine-type work defined by step-by-step instructions, that should be performed to insure material / equipment long life and proper operations; the recommended frequency of performance is also to be included. Instructions shall include possible trouble spots with diagnosis and correction of each. These manuals shall be submitted to the Architect when the equipment is delivered to the site.

d. Operating manuals shall describe function of each component or subassembly in block-diagram-type presentation to a degree that a mechanic will understand the product well enough to operate and maintain it. These manuals shall be submitted to the Architect when the equipment is delivered to the site.

6. Record drawings shall be completed in accordance with Section 01700.

1.4 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

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

B. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal.

1. Initial Review: Allow **7 days** for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Allow **5 days** for processing each re-submittal.
4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Unique identifier, including revision number.
    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will **not** be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review received from sources other than Contractor.

1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
2. Transmittal Form: Use **AIA Document G810** or **CSI Form 12.1A sample form at end of Section**.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Number of Copies: Submit **three** copies of each submittal, unless otherwise indicated. Architect will return **one** copy. Mark up and retain one returned copy as a Project Record Document.
2. Electronic Copies: Submit electronic copies of each submittal in PDF format in lieu of printed copies. Architect will return **one** copy. Mark up and retain one returned copy as a Project Record Document.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Wiring diagrams showing factory-installed wiring.
    f. Printed performance curves.
    g. Operational range diagrams.
    h. Compliance with recognized trade association standards.
    i. Compliance with recognized testing agency standards.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.

c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.
e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
f. Shopwork manufacturing instructions.
g. Templates and patterns.
h. Schedules.
i. Notation of coordination requirements.
j. Notation of dimensions established by field measurement.

2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches format.

D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."

E. Samples: Prepare physical units of materials or products, including the following:

1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.
2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Submit **two** full set**s** of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return one set of submittal with options selected.

3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Submit **two** sets of Samples. Architect will retain **one** Sample sets; remainder will be returned.

4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side.
5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.

6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.

G. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."

H. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."

I. Application for Payment: Comply with requirements in Division 1 Section "Payment Procedures."

J. Schedule of Values: Comply with requirements in Division 1 Section "Payment Procedures."

K. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use **CSI Form 1.5A sample form at end of Section**.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit **two** printed copies and a PDF electronic copy of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."

B. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

K. Field Test Reports: Prepare retesting reports written by Owner’s qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."

O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections.

R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

S. Construction Photographs: Comply with requirements in Division 1 Section "Construction Progress Documentation."

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.

C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01330

Advancement of Construction Technology

SUBCONTRACTORS AND MAJOR MATERIAL SUPPLIERS LIST

Project: _____ From (Contractor): _____

_____ Date: _____

To (A/E): _____ A/E Project Number: _____

_____ Contract For: _____

List Subcontractors and Major Material Suppliers proposed for use on this Project as required by the Construction Documents. Attach supplemental sheets if necessary.

Section Number	Section Title	Firm	Address	Phone Number (Fax Number)	Contact

☐ Attachments

Signed by: Date:

Copies: ☐ Owner ☐ Consultants ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ File

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SECTION 01400 - **QUALITY CONTROL REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. The Contactor shall be responsible for maintaining a **Quality Control Program**, which later serves as an **Operations & Maintenance Manual** complete with all Warranty Certificates.

1. The intent of Contractor Quality Control (CQC) is to positively control the quality of Work, including the work of sub-contactors and suppliers, through preparatory, initial and follow-up activities to assure delivery of Work that meets the requirements of the Contract Documents for performance, quality, and timeliness.

2. DEFINITIONS & ABBREVIATIONS:

a. Contractor Quality Control: the Contractors management system to prepare, initiate and verify the quality of Work required by the Contract Documents.

b. CPM: Critical Path Method: Network method of describing the interdependence of tasks in the Work, determining critical tasks incorporating CQC tasks that control the project completion time, and projecting the completion time of the work.

c. Payment:

1). Monthly progress reports by the Contractor are part of the data substantiating the Contractor's right to payment as the Owner or Architect may require.

3. PRODUCTS

a. Critical Path Method Analysis: Contractor shall use a familiar software program for the CPM analysis and output plan, reports and chart. A simple Gantt chart will suffice.

4. EXECUTION

a. General: The Contractor is responsible for the quality control and shall establish and maintain an effective quality control system in compliance with the Contract Documents. The quality control system shall consist of plans, procedures, staff and organization necessary to produce an end product which complies with the Contract Documents. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed Construction Sequence.

b. Construction Plan: The Construction Plan prepared by the Contractor shall include, as a minimum, the following to cover all Construction Operations, both on-site and off-site, including work by the Contractor, Subcontractors, Fabricators, Suppliers, and Purchasing Agents:

1). RFI's Review & Response: Part of Contractor Quality Control includes reviews of all elements of the Work and generating and tracking Requests for Clarification to the Architect sufficiently in advance of the Work in order to allow adequate response time and avoid delays in the Work.

2). Monthly Summary Reports: To be submitted with Application and Certificate for Payment

c. Submittal: Shall be as specified in Section 1330, SUBMITTAL PROCEDURES.

d. Control: Contractor Quality Control is the means by which the Contractor ensures that the Work complies with the Contract Documents. The controls shall cover all the Construction Operations, including both on-site and off-site fabrication, and will be keyed to the proposed Construction Sequence.

1). A check to assure that all materials and/or equipment have been tested, submitted, and approved.

2). Examination of the Work area to assure that all required preliminary Work has been completed and is in compliance with the Contract Documents.

3). A physical examination of required materials, equipment and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

4). A simple review to assure applicable safety requirements are met.

5). Discussion with workers and supervisors of procedures for Construction of the Work including Construction Tolerances and Workmanship Standards for that phase of the Work.

e. Tests

1). The Owner shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to the Contract Documents. Testing includes operation, acceptance and/or performance tests when specified. Provide a list of tests including the test name, frequency, specification paragraph containing the test requirements, and who is responsible for each type of test. The Contractor shall perform the following activities and record and provide the following data:

a). Verify that the testing procedures comply with Contract Documents.

b). Verify that the facilities and testing equipment are available when needed for this Work and comply with testing standards.

c). Results of all tests taken, both passing and failing tests, will be recorded in the monthly report for the date taken.

f. Monthly Reports: Contractor shall issue monthly reports summarizing activity, results. Reports shall cover the following minimum items, and any additional reports or data required by the Owner:

1). Test Approval Log: List all tests conducted during the reporting period and results.

2). Submittal Tracking System Reports: List the status of all submittals required on the project, including original deadline for submittal, each date of submittal or re-submittal, and final action by the Architect or current status.

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

1. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.

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

D. See Divisions 2 through 16 Sections for specific test and inspection requirements

1.2 DEFINITIONS

A. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Mockups establish the standard by which the Work will be judged. Mock-ups can become part of the work is accepted.

B. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.4 SUBMITTALS : Shall be as specified in Section 1330, SUBMITTAL PROCEDURES.

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

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

G. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required by the Specifications to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.

2. Notify Architect **seven** days in advance of dates and times when mockups will be constructed.

3. Demonstrate the proposed range of aesthetic effects and workmanship.

4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

6. Demolish and remove mockups when directed, unless otherwise indicated.

1.6 QUALITY CONTROL

A. Contractor's Responsibilities: All quality-control and testing services are indicated as Contractor's responsibility. Contractor will engage a qualified testing agency to perform these services.

1. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.

2. Where services are indicated as Contractor's responsibility, Contractor will engage a qualified testing agency to perform these quality-control services.

3. Contractor shall notify Owner and all Testing Agencies employed by the Contractor at least **24** hours in advance of time when Work that requires testing or inspecting will be performed.
4. Special Tests and Inspections: Contractor will engage a qualified third party testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Contractor.
5. Testing agency will notify Owner, Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
6. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Owner and Architect with copy to Contractor and to authorities having jurisdiction.
7. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
8. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
9. Testing agency, employed by Contractor, will retest and re-inspect corrected work.

10. Retesting/Re-inspecting: Provide all required retesting and re-inspecting services for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
11. All associated costs for retesting and re-inspecting construction performed that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor as a direct cost expense.

B. Testing Agency Responsibilities (where testing agency is a sub-contractor to the Contractor): Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Owner, Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
5. Do not perform any duties of Contractor.

C. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field-curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

D. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

E. Testing Agency Responsibilities (where testing agency is a sub-contractor to the Contractor): Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Owner, Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.

5. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

4. Facilities for storage and field-curing of test samples.

5. Delivery of samples to testing agencies.

6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.

2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

SECTION 01500 - **TEMPORARY FACILITIES AND CONTROLS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. See Division 1 Section "Summary of Multiple Contracts" for division of responsibilities for temporary facilities and controls.

C. See Division 1 Section "Execution Requirements" for progress cleaning requirements.

1.2 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weather tight; exterior walls are insulated and weather tight; and all openings are closed with permanent construction or substantial temporary closures.

1.3 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of Project, Architect, testing and inspecting agencies, and personnel of authorities having jurisdiction.

B. Water Service: Contractor may use Owner’s existing water supply for construction and dust control.

C. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.

1.4 SUBMITTALS

A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

1.5 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.

1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.

2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.

B. Pavement: Comply with Division 2

C. Chain-Link Fencing: Minimum 2-inch 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts**,** and with 1-5/8-inch OD top rails.

D. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inchOD line posts and 2-7/8-inchOD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide galvanized steel bases for supporting posts.

E. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

F. Water: Potable.

2.2 EQUIPMENT

A. Field Offices: Provide prefabricated mobile unit with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading. Coordinate location with Architect and Owner.

B. Self-Contained Mobile Storage Units: Provide secure, lockable mobile storage units suitable to the Project on foundations adequate for normal loading. Coordinate location with Architect and Owner.

C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated re-circulation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

E. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water, drinking-water unit, including paper cup supply.

F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service,

provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.

3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

B. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.

1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.

2. Connect temporary sewers to municipal system as directed by sewer department officials.

3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.

4. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.

C. Water Service: Provide water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping before use.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

2. Toilets: Install self-contained toilet units.

   a. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up.

3. Drinking-Water Facilities: Provide potable drinking water.

E. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.

F. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.

1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements.

H. Telephone Service: Provide temporary telephone service throughout construction period.

1. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate pre-fabricated office unit, mobile storage units, sanitary facilities, and other temporary construction and support facilities for easy access.

2. Provide non-combustible construction for on-site storage units located within construction area or within 30 feet of building lines. Comply with NFPA 241.

3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Access Roads and Paved Areas: Contractor shall maintain all vehicular access ways and paved areas used for construction activities. Verify that access ways are adequate to support loads and to withstand exposure to traffic during construction period.

1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.

C. Dewatering Facilities and Drains: Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.

D. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.

1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated.

2. Prepare temporary signs to provide directional information to construction personnel and visitors.

E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements " for progress cleaning requirements.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

F. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.

C. Landscaping Protection: Protect all landscape materials or restore and replace in kind at the conclusion of the Project.

E. Site Enclosure Fence: Before construction operations begin, install enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

1. Set chain-link fence posts in compacted mixture of gravel and earth.

2. Set portable chain-link fence posts in concrete bases or on sleeved 4-legged galvanized bases on solid ground or existing pavement.

3. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.

4. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with two sets of keys.

F. Security, Enclosure and Lockup: Install substantial temporary enclosure around all areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

1. Provide such security watchmen's service as necessary to protect Owner's interest during the progress of construction of the building.

2. The Architect and the Owner do not assume any responsibility, at any time, for the protection of the building and 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 Architect and Owner. If watchman service is deemed necessary by the Contractor, such protection shall be provided and paid for by the Contractor.

G. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

1. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.

3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing construction.

H. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.

a. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.

2. Store combustible materials in containers in fire-safe locations.

3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.

4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

6. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

SECTION 01600 - **PRODUCT REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for selecting products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. See Division 1 Section "Closeout Procedures" for submitting warranties for contract closeout.

C. See Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.3 SUBMITTALS

A. Product List: Submit a list, in tabular from, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
2. Completed List: Within **15** days after date of commencement of the Work, submit **3** copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
3. Architect's Action: Architect will respond in writing to Contractor within **15** days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.

B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use **CSI Form 13.1A** or **same content form provided by Contractor.**
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within **10** calendar days of receipt of request, or **5** calendar days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.
b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

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

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

5. Store products to allow for inspection and measurement of quantity or counting of units.
6. Store materials in a manner that will not endanger Project structure.
7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Retain subparagraph above or below, or both, depending on what is specified in individual Specification Sections.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS-

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

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.

6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures: Procedures for product selection include the following:

1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.

   a. Substitutions may be considered, unless otherwise indicated.

2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.

   a. Substitutions may be considered, unless otherwise indicated.

3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

   a. Substitutions may be considered, unless otherwise indicated.

4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

   a. Substitutions may be considered, unless otherwise indicated.

5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

7. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

   a. Substitutions will be considered, unless otherwise indicated.

8. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.

    a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.

9. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.

    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution submitted 15 calendar days prior to Bid date and during the Construction Submittal Review period.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

2.3 COMPARABLE PRODUCTS

A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

EXECUTION (Not Used)

END OF SECTION 01600

Advancement of Construction Technology

SUBSTITUTION REQUEST

(After the Bidding Phase)

Project: _____ Substitution Request Number: _____

_____ From: _____

To: _____ Date: _____

_____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone: _____

History: ☐ New product ☐ 2-5 years old ☐ 5-10 yrs old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

_____

_____

☐ Point-by-point comparative data attached - REQUIRED BY A/E

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

_____

Savings to Owner for accepting substitution: _____ ($ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

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SUBSTITUTION REQUEST
(Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

Attachments: _____

_____

_____

_____

A/E's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01330.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: Date:

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ _____

_____

_____

_____

_____

_____

_____

_____

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SECTION 01700 - **EXECUTION REQUIREMENTS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. General installation of products.
3. Progress cleaning.
4. Starting and adjusting.
5. Protection of installed construction.
6. Correction of the Work.

B. See Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 SUBMITTALS

A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. **Submit requests on CSI Form 13.2A, "Request for Interpretation," or similar form supplied by Contractor.**

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to existing conditions. If discrepancies are discovered, notify Architect promptly.

B. Site Improvements: Locate and lay out site improvements, including paving, grading, fill and topsoil placement, utility slopes, and invert elevations.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

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

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01700

Advancement of Construction Technology

REQUEST FOR INTERPRETATION

Project: _____ R.F.I. Number: _____

_____ From: _____

To: _____ Date: _____

_____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Section: Paragraph: Drawing Reference: Detail:

Request:

Signed by: Date:

Response:

☐ Attachments

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

Signed by: Date:

Copies: ☐ Owner ☐ Consultants ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ File

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SECTION 01710 - **CLEANING**

PART 1 - GENERAL

1.1 SUMMARY

A. This section outlines requirements for cleaning of the Project Work. This Section is complementary to the General Conditions and Supplementary General Conditions and nothing herein shall be considered to waive any requirements of the General Conditions or Supplementary General Conditions.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

A. Safety and Insurance Standards: Maintain Project in accordance with the following safety and insurance standards:

State Industrial Commission of Arizona
OSHA

B. Fire Protection: Store volatile waste in covered metal containers, and remove from the premises daily.

C. Pollution Control: Conduct clean-up and disposal operations to comply with local ordinances and antipollution laws. Burning or burying of rubbish and waste material on the project site is not permitted. Disposal of volatile fluid waste (such as mineral spirits, oils, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is not permitted.

PART 2 - PRODUCTS

2.1 Cleaning Material

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 DURING CONSTRUCTION

A. During the construction period, the material to be used in the Work shall be kept in an orderly manner, neatly stacked or piled.

B. Clean up frequently (at least weekly) all refuse, rubbish, scrap materials, and debris caused by operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance. Sprinkler dusty debris with water.

C. Provide for the disposal of all waste products, trash, debris, etc., and make necessary arrangement for legal disposal of same off the site. Never throw rubbish from windows or other parts of building. Lower waste material in a controlled manner with as few handlings as possible.

D. Remove all surplus material, false-work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from operations, and put the site in a neat, orderly condition.

E. Clean interior building areas when ready to receive finish painting and continue cleaning on an as-needed basis until building is ready for acceptance.

F. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

G. General Contractor shall provide trash gondolas or containers for use by all trades.

3.2 FINAL CLEANING

A. Use experienced workman, or professional cleaners for final cleaning.

B. Besides general broom cleaning, do the following special cleaning for all trades at completion of work:

1. Remove marks, stains, fingerprints, other soil, dirt from painted work.

2. Clean and polish hardware for removal of stains, dust, dirt, paint and the like.

3. Remove spots, soil, paint from tile and similar work; wash same.

4. Clean fixtures, equipment, remove stains, paint, dirt, dust.

5. Remove temporary floor protections.

6. Clean and polish all floors.

7. Remove all temporary protections at the site.

8. Clean exterior and interior metal surfaces, including doors and windows, of oil, stains, dust, dirt, paint and the like.

9. Make building ready for occupancy in all respects.

10. All existing improvements, inside or outside the property which are disturbed, damaged or destroyed by the work under the Contract shall be restored to the condition in which they originally were, or to the satisfaction of the City of Tempe.

END OF SECTION 01710- CLEANING

SECTION 01770 – **PROJECT CLOSEOUT**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Project Record Documents.
3. Operation and maintenance manuals.
4. Warranties.
5. Spare Parts & Maintenance Materials.
6. Final cleaning.
7. 12-month Warranty Review.

B. See Division 1 Section "Construction Progress Documentation" for submitting Final Completion construction photographs.

C. See Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

2. Advise Owner of pending insurance changeover requirements.

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

4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.

7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.

8. Complete startup testing of systems.

9. Submit test/adjust/balance records.

10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

11. Advise Owner of changeover in heat and other utilities.

12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

13. Complete final cleaning requirements, including touchup painting.

14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

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

4. Submit pest-control final inspection report and warranty.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit **three** copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. **Use CSI Form 14.1A.**

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.

b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.

4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

C. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.6 OPERATION AND MAINTENANCE MANUALS

A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data: Include emergency instructions and procedures, system and equipment descriptions, operating procedures, and sequence of operations.

2. Maintenance Data: Include manufacturer's information, list of spare parts, maintenance procedures, maintenance and service schedules for preventive and routine maintenance, and copies of warranties and bonds.

B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title **"EARL EDGAR PARK RESTROOM REPLACEMENT- OPERATION AND MAINTENANCE MANUAL,"** and subject matter of contents. Provide TAB sections for each trade.

1.7 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed

description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in all **Operation and** Maintenance manuals.

D. 12-MONTH WARRANTY REVIEW: A warranty review will be conducted just prior to the twelfth month following the Certificate of Occupancy to review the operations and maintenance of all installed systems, subsystems, materials, and finishes for potential claims for defects.

1.8 SPARE PARTS AND MAINTENANCE MATERIALS

A. The Contractor shall deliver to the Owner the spare parts, extra stock and maintenance materials listed below, and shall obtain a signed receipt for these materials. Materials shall be neatly packaged and identified.

Section	Item
09900- Painting	One full gallon, each color and type of paint
Division 16- Lighting	4 Extra lamps of each fixture type

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site.

e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

g. Sweep concrete floors broom-clean in unoccupied spaces.

h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

j. Remove labels that are not permanent.

k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

    1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

l. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

m. Replace parts subject to unusual operating conditions.

n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

q. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770- PROJECT CLOSEOUT

Advancement of Construction Technology

PUNCH LIST

Project: _____

_____

To (Contractor): _____

_____

From (A/E): _____

Site Visit Date: _____

A/E Project Number: _____

Contract For: _____

The following items require the attention of the Contractor for completion or correction. This list may not be all-inclusive, and the failure to include any items on this list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Item Number	Room Number	Location (Area)	Description	Correction/Completion Date	Verification A/E Check

☐ Attachments

Signed by: Date:

Copies: ☐ Owner ☐ Consultants ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ File

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September 1996
CSI Form 14.1A

SECTION 01781 - **PROJECT RECORD DOCUMENTS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. See Division 1 Section "**Closeout Procedures** & **Operation and Maintenance Data**" for **Operation and Maintenance Manual requirements**.

C. See Divisions 2 through 16 Sections for specific requirements for Project Record Documents of products in those Sections.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:
1. Number of Copies: Submit copies of Record Drawings as follows:
a. Final Submittal: Submit **two sets** of marked-up Record Prints, and the following:
1) Two copies printed from Record Field Changes. Print each Drawing, whether or not changes and additional information were recorded.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation **"PROJECT RECORD DRAWING**" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 01781

SECTION 01782 - **OPERATION AND MAINTENANCE DATA**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. **City of Mesa Operation & Maintenance Manuals** for systems, subsystems, products, materials, finishes, and equipment.

2. Emergency Manual(s).

B. See Divisions 2 through 16 Sections for specific operation and maintenance manual requirements for products in those Sections.

1.2 SUBMITTALS

A. Manual: Submit **2 copies** of O & M Manual in final form at least **7** days before final inspection. Architect will return copy with comments within **7** days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit **3** copies of each corrected manual within **7** days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 **Operation & Maintenance Manuals**, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.

4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to content of volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. Identify each binder on front and spine, with printed title "**CITY of BUCKEYE Project No. 2016-020-031 Task Order # 3: OPERATION & MAINTENANCE MANUAL (and the date)**" Project title or name, and subject matter of contents.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include startup, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.3 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations for inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in the manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment.

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

E. Comply with Division 1 Section "Closeout Procedures" for the schedule for submitting operation and maintenance documentation.

END OF SECTION 01782

SECTION 01900 – **SELECTED DEMOLITION**

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes, in general, requirements of the Demolition and Remodeling and related items of work necessary for the complete job indicated by the Contract Documents.

The General Conditions are applicable to this Section and shall form a part of the Contract.

1.2 GENERAL LIST OF WORK

A. The work of this Section and related work described in other Sections which is commonly executed by a Subcontractor and / or supplier includes, but is not limited to, demolition and removal from the site of the following:

1. Existing Restroom building, foundations, and related elements.

2. All interior partitions and fixtures.

3. Concrete sidewalks and paving.

4. Underground plumbing and irrigation indicated to be replaced or re-routed.

5. Abandoned Equipment or Plumbing Fixtures and Accessories.

6. Miscellaneous items as indicated on the drawings.

B. General: All debris from demolition operations shall be promptly disposed of to a legal dump. Demolition and removal Work is indicated on the Drawings and as specified herein.

1.3 QUALITY ASSURANCE

A. Codes and Standards: The Work of this Section shall comply with the following codes and standards including all current editions, revisions and supplements.

1. International Conference of Building Officials- International Building Code.

2. Underwriters Laboratories, Inc. (U.L.) Fire Resistance Directory, Current Edition.

3. OSHA- 29CFR Parts 1910, 1915, 1917, 1926 and 1928 Occupational Health and Safety Standards for the Construction Industry, with Amendments.

4. NFPA 241, Building Construction and Demolition Operations.

5. The Americans with Disabilities Act (ADA).

B. Coordination:

1. All trades and subcontractors shall coordinate their Work, checking with one another before commencing with Work to be sure of limits of required Work.

2. The Contractor (General Contractor) shall be ultimately responsible for all coordination.

3. Contractor shall coordinate all Work to ensure shortest possible demolition time in existing building. No Work shall be started until all material, products and equipment are on hand and all trades ready for a total combined coordinated effort.

1.4 SUBMITTALS

A. Methods: Submit schedule indicating proposed methods and sequence of operations for selective demolition Work to Owner for review prior to commencement of Work. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection.

B. Sequencing: Provide detailed sequence of demolition and removal Work to ensure uninterrupted progress of Owner's on-site operations.

1.5 DRAWINGS

A. The drawings indicate in general, items of materials and equipment which must be removed, revised, reworked or otherwise modified. No attempt has been made to indicate each and every portion of demolition and remodeling Work. Rather, the intent of the Drawings is to provide a guide to the Contractors to better enable them to anticipate the entire Scope of the Work.

1.6 HAZARDOUS MATERIALS

A. Hazardous materials, if encountered, will be handled by the Owner under a separate contract. All hazardous materials and materials / finishes ladened with hazardous materials will be removed and disposed of in accordance with all governing agency statutes which apply to the type of hazardous material.

1.7 JOB CONDITIONS

A. Condition of Structures: The Owner assumes no responsibility for actual condition of items or structures to be demolished.

B. Any damage created to existing building and surrounding structures, site improvements or landscaping by operations of Contractors under this contract shall be repaired to original condition at Contractor's expense. Extreme caution shall be exercised to prevent damage to existing areas not scheduled to be remodeled.

C. Maintenance, operation, and control of all new temporary (where approved by Owner) electrical or mechanical facilities put into operation before final acceptance of project will be the complete responsibility of the Contractor until final acceptance.

D. Traffic: Access must be maintained at all times by all personnel, public, etc.

1. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

2. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

E. Explosives: Use of explosives shall not be permitted.

F. Noise and Vibration:

1. Contractor shall schedule any operations creating noise or vibration in advance with the authorities having jurisdiction.

G. Environmental Controls

1. Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.

2. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

3. Burning of removed materials is not permitted.

PART 2- PRODUCTS

2.1 MATERIALS

A. Other Materials: All other materials not specifically described in each individual Section of the specifications, but required for a complete and proper installation of the Work of that Section or Sections shall be new, first quality of their respective kinds, selected by Contractor and submitted to Owner and Architect in accordance with Section 01330. Submittals shall be contained within the Project Manual. All other materials shall be furnished and installed at Contractor's expense.

PART 3- EXECUTION

3.1 PREPARATION

A. Building Inspection

1. Prior to all Work of this Section, carefully inspect the entire area designated to be altered and note all objects designated to be removed, modified or preserved.

2. Locate all existing active utilities and determine all requirements for disconnection, reconnection, rerouting, or capping. Use all means necessary to protect all utilities designated not to be altered or changed in any manner from damage.

B. Pre-Demolition Meeting to be held at the Project Site.

3.2 HAZARDOUS MATERIALS

A. If asbestos or other hazardous materials are discovered during construction, notify the Owner immediately for action, handling and disposal of this material. No further work shall be done in the immediate area in question.

3.3 DEMOLITION AND REMOVAL

A. General: Demolition Work shall be executed in an orderly, careful manner, with due consideration for public and personnel being treated or working in adjacent areas.

B. Specific Items of Demolition and Remodeling:

1. Concrete, Masonry: Demolish in small sections. Walls to be removed shall be cut down, not tumbled, thrown or dropped.

C. Removal of Demolished Materials: Accumulation of demolished materials is prohibited. Regardless of nature of debris, it shall be immediately cleared from working areas as demolition progresses. Removal shall be accomplished by removing materials out through most direct route. Care shall be taken to avoid spilling debris. Any spilled materials shall be promptly cleaned up. All debris shall be immediately removed as directed or required by and through routes as approved by Owner.

3.4 CLEAN-UP

A. Upon completion of demolition and remodeling work, Contractor shall remove all dirt, debris, scraps, trash, etc. from Project site. The Project site shall be left absolutely clean.

3.5 REPAIR

A. Contractor shall repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 01900- DEMOLITION AND REMODELING

SECTION 02300 - **EARTHWORK**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing sub-grades for slabs-on-grade, walks and pavements
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Sub-base course for concrete walks and pavements.
5. Sub-base and base course for asphalt paving.
6. Excavating and backfilling for utility trenches.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the sub-base course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated sub-grade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above sub-grade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below sub-grade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
2. Unauthorized Excavation: Excavation below sub-grade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Sub-base Course: Course placed between the sub-grade and base course for hot-mix asphalt pavement, or course placed between the sub-grade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Sub-grade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below sub-base, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT SITE CONDITIONS

A. Soils Report:

1. See GEOTECHNICAL ENGINEERING REPORT, RESTROOM REPLACEMENT - EARL EDGAR PARK by Ricker, Atkinson, McBee, Morman & Associates, Inc., (RAMM) dated December 12, 2017 at the end of this Section for Foundation and Site Soil Recommendations,

2. See GENERAL STRUCTURAL NOTES in the Drawings for assumed soils bearing pressure and compaction requirements for foundations. Notify the Architect if any discrepancies with the Soils Report Recommendations.

B. Existing Conditions:

1. Bidders are expected to visit the site to form their own conclusions as to the character of the Work under this Section.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with applicable Federal, State, and local ordinances, including Arizona Highway Department Standard Specifications and MAG Specifications. Where the General Structural Notes or Notes on Drawings state more restrictive requirements, the requirements of the General Structural Notes or Notes on Drawings shall govern.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Fill and Backfill Materials: Engineered Fill.

C. Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

D. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

E. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

F. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

G. Drainage Course: Narrowly graded mixture of washed, crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 s

PART 3- EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of sub-grade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to sub-grade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

B. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and sub-grades.

3.5 EXCAVATION FOR UTILITY TRENCHES.

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape sub-grade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench sub-grade.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material, 4 inches deeper elsewhere, to allow for bedding course.

D. Compact sub-base and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than **95** percent of maximum dry unit weight according to ASTM D 698.

3.6 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top

elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.

B. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 UTILITY TRENCH BACKFILL

A. Place backfill on sub-grades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 3 Section Cast-in-Place Concrete**.**

D. Place and compact initial backfill of sub-base material or satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

E. Place and compact final backfill of satisfactory soil to final sub-grade elevation.

3.9 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under asphalt and concrete pavements, use engineered fill.
2. Under building slabs, use engineered fill.
3. Under footings and foundations, use engineered fill.

3.10 SOIL MOISTURE CONTROL

3.11 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

B. Compact soil materials to not less than the following percentages of maximum dry density according to ASTM D 698.

1. Under structures, building slabs, steps, and pavements, scarify and re-compact per recommendation of **Geotechnical Engineering Report**.
2. Under walkways, scarify and re-compact below sub-grade and compact each layer of backfill or fill soil material.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish sub-grades to required elevations within the following tolerances:

1. Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1/2 inch.
3. Pavements: Plus or minus 1/2 inch

G. Grading inside Building Lines: Finish sub-grade to a tolerance of 1/2 inch when tested with a 10-foot (3-m) straightedge.

2.2 SUB-BASE AND BASE COURSES

A. Place sub-base and base course on sub-grades free of mud.

B. On prepared sub-grade, place sub-base and base course under pavements and walks as follows:

1. Shape sub-base and base course to required crown elevations and cross-slope grades.
2. Compact sub-base and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

2.3 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test sub-grades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Sub-grade: At footing sub-grades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing sub-grades may be based on a visual comparison of sub-grade with tested sub-grade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that sub-grades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.

2.4 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

2.5 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

Geotechnical Engineering Report
Restroom Replacement – Earl Edgar Park
500 South Miller Road
Buckeye, Arizona
RAMM Project No. G24514

For:
Michael Wilson Kelly-Architects, Ltd.
331 North First Avenue, Suite 108
Phoenix, Arizona 85003

◆◆◆

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

RICKER • ATKINSON • McBEE • MORMAN & ASSOCIATES, INC.
Geotechnical Engineering • Construction Materials Testing

R·A·M·M

Michael Wilson Kelly-Architects, Ltd.
331 North First Avenue, Suite 108
Phoenix, Arizona 85003

December 12, 2017

Attention: Michael Wilson Kelly, Principal Architect, LEED AP

Subject: Geotechnical Engineering Report
Restroom Replacement – Earl Edgar Park
500 South Miller Road
Buckeye, Arizona

RAMM Project No. G24514

Attached to this letter is the Geotechnical Engineering Report for the proposed Restroom Replacement – Earl Edgar Park, to be located in Buckeye, Arizona.

The proposed phased development will consist of replacing existing temporary restrooms with new restroom buildings. 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. Spread Footing Foundations:
   - Restrooms may be supported on undisturbed site soils, existing fill soils that are recompacted in place and/or new compacted fill.
   - Found at least 1.5 feet or 2.0 feet below finished grade.
   - Design for allowable bearing pressure of 1500 psf or 2000 psf, respectively.
   - Foundation elements must extend through any loose fill and/or disturbed soils.

B. Site Soil:
   - May be used as fill and backfill in all areas of the site.

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 the local geotechnical engineering practice. Our services did not include evaluations for the presence of hazardous materials; for concrete durability and corrosion potential with respect to on-site soils and site use water sources; for area subsidence resulting from groundwater withdrawal; or for other geologic hazards.

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

Respectfully submitted,

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

Expires – 9/30/2018

By: Kip E. Reese, P.E.

Expires – 3/31/2019

Reviewed By: Kenneth L. Ricker, P.E.

/dh
Copies to: Addressee (mike@mwkarch.com)

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Expires 9/30/2018

REPORT

R·A·M·M

INTRODUCTION

This report presents the results of our geotechnical engineering services for the proposed Restroom Replacement – Earl Edgar Park, to be located in Buckeye, 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, 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 project design parameters (locations, types, sizes, structural loads), site use or conditions encountered during construction differ from those presented herein.

PROPOSED CONSTRUCTION

The proposed development will consist of replacing existing temporary restrooms with new restroom buildings. It is anticipated that maximum structural loads for the buildings will be on the order of 0.5 to 1.0 kips per linear foot for bearing walls and 5 to 15 kips for columns. The concrete slab-on-grade floors will probably be founded at or slightly above existing site grades.

SITE CONDITIONS

The site of the proposed Restroom Replacement – Earl Edgar Park is located at the east end of the parking area of the existing park at 500 South Miller Road, in Buckeye, Arizona. At the time of our investigation, the site was a relatively flat area with a restroom building with wood siding, a slump block building, two metal storage units, gravel surface areas and an adjacent paved parking area and drive. Vegetative cover consisted of grass, landscaping and mature trees.

FIELD EXPLORATIONS

Subsurface conditions at the site were explored by hand excavating two test borings to a depth of 10 feet in the restroom area, as shown on the Site Plan in Appendix A. The test borings were excavated with a hand auger. The excavating equipment and crew were provided by Wildcat Drilling, Inc. The test boring locations were determined in the field by a field technician from our firm. During the field explorations, 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 (ring samples) were obtained by manually driving a 3-inch diameter, ring-lined, open-end sampler into the soil with a 36-pound hammer thrown down an 18-inch vertical rod. 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 laboratory tests.

Type of Test	Type of Sample	Number of Samples Tested
Compression	Undisturbed	1
Swell	Representative	1
Percent Passing No. 200 Sieve and Atterberg Limits	Representative	1
Moisture Content/Dry Density *	Undisturbed	4

* Reported in the Test Boring Logs

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

SUBSURFACE CONDITIONS

The subsurface conditions encountered at the test boring locations were relatively uniform. 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 the test borings in the restroom areas, and extending to a depth of 2.5 feet, consisted of silty clayey sand fill containing some gravel. The fill soils were medium dense and had low plasticity fines. Underlying the fill soils, and extending to the maximum depth of our exploration (10 feet), silty clayey sand containing trace to some of gravel was encountered. These soils were medium dense and had low plasticity fines. Soil moisture contents were described as slightly damp to damp throughout the depths explored. No groundwater was observed in any of the test borings during the drilling operations.

DISCUSSIONS OF TEST RESULTS

A remolded sample of the site soils exhibited a low swell potential following wetting, when tested in the laboratory. An intact sample of the fill soils from anticipated foundation grade was found to undergo some compression during loading to approximate foundation loads. Upon wetting at approximate foundation loads these soils underwent some additional compression.

FOUNDATION DESIGN RECOMMENDATIONS

Footings:

The existing fill soils appear to have been placed with some compactive effort based on our findings. Accordingly, the proposed Earl Edgar Park new restrooms can be supported on shallow spread footings, designed to bear on undisturbed native site soils, existing fill soils that are recompacted in place and/or new compacted fill. Footings for the buildings should be founded at least 1.5 feet or 2.0 feet below the lowest adjacent finished grade within five feet of the building perimeter. Footings thus founded may be designed using an allowable bearing pressure of 1500 psf or 2000 psf, respectively.

Foundation elements must extend through any loose fill and/or disturbed soils. Structural loads should not exceed 6 kips per linear foot for walls and 80 kips for columns. All foundation excavations should be reviewed by the geotechnical engineer, prior to placing reinforcing steel or concrete, to verify and approve bearing conditions. Where footings have to be deepened to achieve acceptable bearing conditions, these excavations should be backfilled as directed by the geotechnical engineer.

The allowable bearing capacities 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 Class designation of D should be used for the site, per the 2006, 2009, 2012 and 2015 International Building Code (IBC). The site class designations are based on a review of available well holes within the vicinity of the site. This data was available on ADWR's website and indicate that stiff 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 on the order of ½ inch where soils below footing level remain at or below the construction moisture content. Additional post-construction, differential foundation settlement of equal or greater magnitude could occur if bearing soils become wet after construction. Therefore, continuous footings and stem walls (where used) should be reinforced and any masonry walls

constructed with properly designed reinforcement and with frequent expansion/contraction joints. Positive drainage away from the perimeter of the buildings 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 ---------- 35 psf/ft
- Restrained walls ---------- 55 psf/ft

Passive Pressures:
- Continuous ---------- 250 psf/ft
- Isolated column footings ---------- 350 psf/ft

Coefficient of Base Friction:
- Concrete to soil ---------- 0.45
- 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 of low plasticity and, when compacted and wetted, these soils exhibit a low potential for expansion. These soils, when recompacted or used as fill, 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 in accordance with ACI (American Concrete Institute) or PCA (Portland Cement Association) guidelines.

Vapor retarders/barriers such as plastic membranes are not typically used in Arizona's semi-arid climate. Such membranes may be required in vapor-sensitive floor covering areas or in humidity controlled areas. Should plastic vapor retarders/barriers be used, the membrane should be at least

15 mil in thickness, have all seams and penetrations sealed per manufacturer's recommendations and should be placed in accordance with ACI 302.2R.

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, depths of backfills, or degree of compaction (if a fill). These volume changes could result in movements in overlying structure 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 structure 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 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 10 feet can probably be removed with conventional excavating equipment. 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 areas, some pumping is not detrimental to foundation or floor slabs provided the specified percent compaction is achieved. However, 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.

MATERIALS SUITABILITY AND REQUIREMENTS

Site Soils:

The near surface soils are low in plasticity and exhibit a low swell potential when compacted and wetted. These soils may be used as fill in areas of the site. All materials should be free of organics, debris, rubble and material greater than 6 inches in size.

Imported Soils:

Additional fill required to raise the building and exterior slab areas, or for use as retaining wall backfills, should be imported soils meeting the following requirements:

Minimum Percent Passing No. 4 Sieve	30
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 should conform to the requirements of Maricopa Association of Governments (MAG) Specifications for Aggregate Base (Section 702).

SITE PREPARATION AND GRADING PROCEDURES

Restroom 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 restrooms and exterior slab areas.

1. Clear and grub the site by removing and disposing of any vegetation, debris, rubble and remnants of any former developments (existing restroom and buildings).

2. Strip the site of any loose existing fill zones, any dumped fill piles, any backfill zones and any 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 at-grade areas, in fill areas and in areas cut to grade by scarifying, moisture conditioning and compacting the exposed surface soils to a depth of 10 inches.

4. Moisten and compact existing fill soils exposed in the bottom of the footing excavations. The foundation excavations should be reviewed by a representative of the geotechnical engineer prior to placing reinforcing steel or concrete to verify and approve bearing conditions.

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 thickness 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	95
Below concrete floor slabs (above footings)	90
Base Material:	
Below concrete floor slabs	95
Backfill*	90

* Outside of building and exterior slab 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%
Imported	Building, Exterior Slabs	Optimum plus or minus 3%
Base Material	Building,	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. The above compaction requirements will also apply to any disturbance occurring within the construction limits, including but not limited to backfilling of trenches inside and outside of the building pad.

APPENDIX A
FIELD EXPLORATIONS

Ref: Maricopa County Assessor Web Site
http://maps.mcassessor.maricopa.gov/

Note: Site Address - 500 South Miller Road, Buckeye, AZ.

Test Boring Location

N

Not To Scale

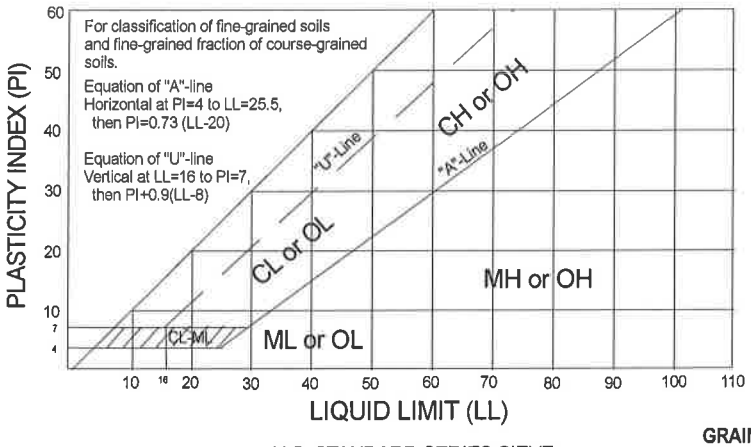
SITE PLAN

LEGEND

CLASSIFICATION OF SOILS

ASTM Designation: D2487-11
(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 36 pound slide hammer thrown down an 18 inch long vertical rod.

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

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	CLEAR SQUARE SIEVE OPENINGS 3/4"	3"	12"
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: Earl Edgar Park Restroom Replacement – Buckeye, Arizona Test Boring: 1

Elevation: Not Determined Datum: --- Date: 11-6-17

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		45	R	100	8	SM/SC	FILL: Silty Clayey Sand, Some Gravel; brown, slightly damp to damp, medium dense, low plasticity fines.
5		32	R	102	8	SM/SC	Silty Clayey Sand, Trace to Some Gravel; brown, slightly damp to damp, medium dense, low plasticity fines.
10							Stopped hand auger excavation at 10 feet. No groundwater observed.
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: Earl Edgar Park Restroom Replacement – Buckeye, Arizona Test Boring: 2

Elevation: Not Determined Datum: --- Date: 11-6-17

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
		65	R	103	10	SM/SC	FILL: Silty Clayey Sand, Some Gravel; brown, slightly damp to damp, medium dense, low plasticity fines.
5		35	R	99	8	SM/SC	Silty Clayey Sand, Trace to Some Gravel; brown, slightly damp to damp, medium dense, low plasticity fines.
10							Stopped hand auger excavation at 10 feet. No groundwater observed.
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

LABORATORY TEST RESULTS

Date: 15-Nov-17

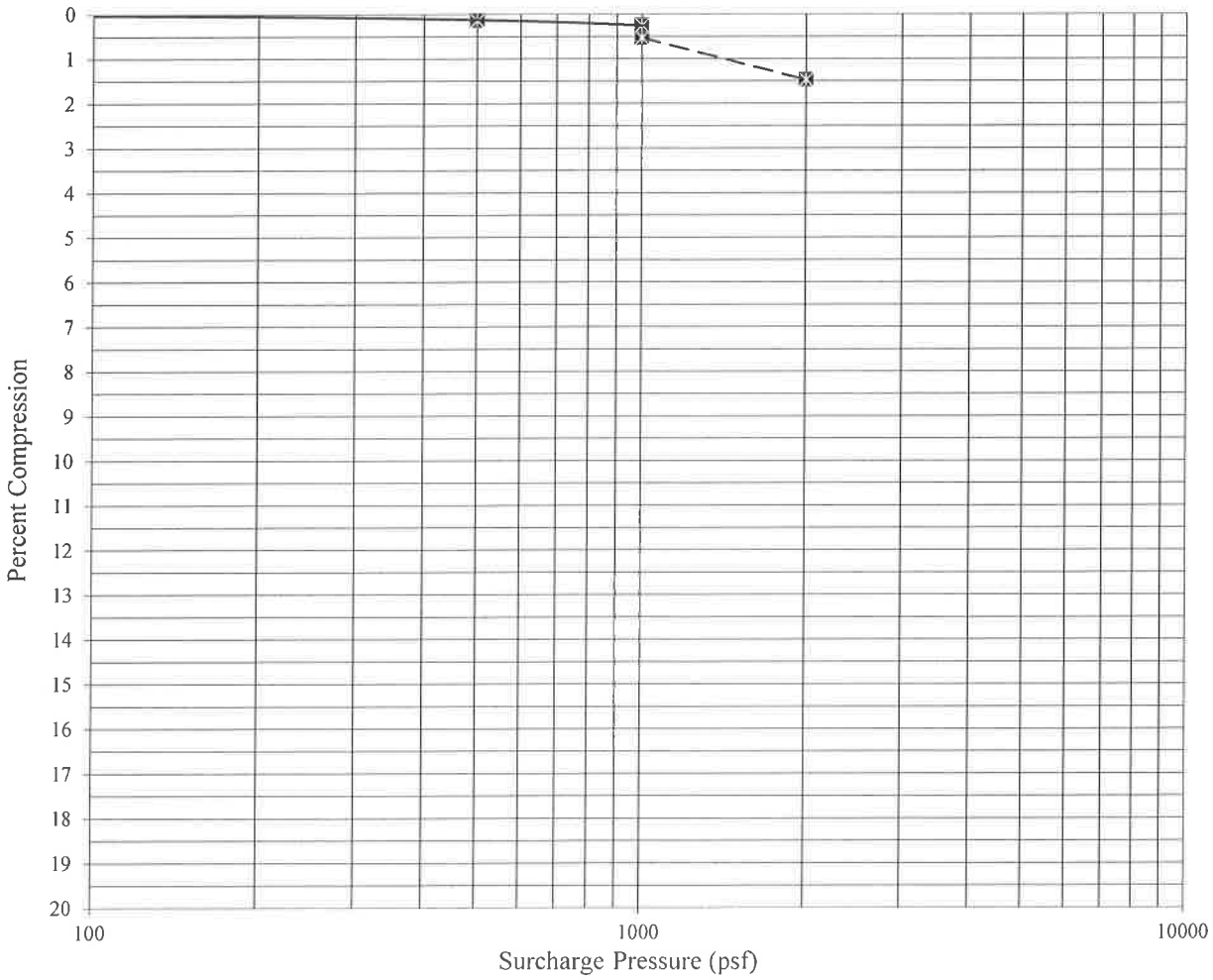
SAMPLE SOURCE: 1 @ 1.5'-2.5'

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

SAMPLED BY: RAMM/Durot

RESULTS:

Dry Density (pcf): 100 Moisture Content (%): 8



REMARKS: Sample submerged at 1000 psf.

LABORATORY TEST RESULTS

Date: 15-Nov-17

SAMPLE SOURCE: As noted below

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

SAMPLED BY: RAMM/Durot

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 (%)
2 @ 0'-3'	17	36	21	3	0.4	116	9

* 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.

SECTION 02361 - **TERMITE CONTROL**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Soil treatment with termiticide under new concrete slabs, foundations at and all other locations where concrete removal is required for new work.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include the EPA-Registered Label for termiticide products.

B. Product certificates.

C. Soil Treatment Application Report: Include the following:

1. Date and time of application.
2. Moisture content of soil before application.
3. Termiticide brand name and manufacturer.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes used, and rates of application.
6. Areas of application.
7. Water source for application.

D. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located and who employs workers trained and approved by manufacturer to install manufacturer's products.

B. Regulatory Requirements: Formulate and apply termiticides and termiticide devices according to the EPA-Registered Label.

C. Pre-installation Conference: Conduct conference at Project site.

1.4 PROJECT CONDITIONS

A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.

B. Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs before construction.

1.5 WARRANTY

A. Soil Treatment Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor, certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Ten years from date of Substantial Completion.

1.6 MAINTENANCE SERVICE

A. Continuing Service: Beginning at Substantial Completion, provide 12 months' continuing service including monitoring, inspection, and re-treatment for occurrences of termite activity. Provide a standard continuing service agreement. State services, obligations, conditions, terms for agreement period, and terms for future renewal options.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

A. Termiticide: Provide an EPA-Registered termiticide, complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work shall be the following:

a. BASF Corporation, Agricultural Products; Termidor SL.

2. Service Life of Treatment: Soil treatment termiticide that is effective for not less than ten years against infestation of subterranean termites.

PART 3 - EXECUTION

3.1 APPLICATION, GENERAL

A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.2 APPLYING SOIL TREATMENT

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label requirements, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.

B. Proceed with application only after unsatisfactory conditions have been corrected.

C. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

1. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

D. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

1. Slabs-on-Grade: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil, including soil along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers, and chimney bases; and along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

E. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

F. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

G. Post warning signs in areas of application.

H. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 02361

SECTION 02751 - **CONCRETE PAVEMENT**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Walkways & Finished Concrete Flatwork.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

C. Comply with applicable Federal, State, and local ordinances. Where Geotechnical (Soils) Report, General Structural Notes, or notes on Drawings state more restrictive requirements, they shall govern.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Expansion Joint Filler: MAG Section 729 or equal.

B. Epoxy Resin: Sta-Crete Epoxy Resin no. 15-J or 20.

C. Curing Compound: ASTM C309, Type 1, Class B: Acrylic type.

2.3 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and/or ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

2.4 SUB-BASE

A. Engineered Fill: Provide 4 inches of ABC Fill under all concrete flatwork.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared sub-base surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 3/8-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten sub-base to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Re-float surface immediately to uniform granular texture.
   1. Finish: MATCH EXISTING ADJACENT FINISH.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. 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.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

   1. Elevation: 1/4 inch.
   2. Thickness: Plus 3/8 inch, minus 1/4 inch.
   3. Surface: Gap below 10-foot long, unleveled straightedge not to exceed 1/4 inch
   4. Joint Spacing: 3 inches
   5. Contraction Joint Depth: Plus 1/4 inch, no minus.
   6. Joint Width: Plus 1/8 inch, no minus.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 02751

SECTION 02764 - **PAVEMENT JOINT SEALANTS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement and where new concrete expansion joints are noted on the Drawings.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

B. Colors of Exposed Joint Sealants**:** Gray to match concrete flatwork.

2.2 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on pre-construction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Non-sag Sealants: Immediately after sealant application and before 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.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 02764

SECTION 03300 - **CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

PART 2 - PRODUCTS

2.1 STEEL

1. Reinforcing Bars: place and epoxy as shown to receive vertical CMU walls.

2.2 CONCRETE MATERIALS

1. Cementitious Material:
   a. Portland Cement: ASTM C-150, Type II, alkali content not to exceed 0.6%.
   b. Water: Potable
   c. Coarse Aggregate: ASTM C-33, Table II, size 57. (3/4 inch or less)
   d. Fine Aggregate: ASTM C-33
   e. Air Entraining Admixture: ASTM C-260

f. Floor Hardener: Lapidolith as manufactured by Sonneborn Contech.
g. Contractor shall submit certification that sub-grade is level and compacted and that there is a minimum of 4 inches of coarse aggregate or crushed rock.

2.3 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Water: Potable.

C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.4 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips**:** ASTM D 1751, asphalt-saturated cellulosic fiber.

2.5 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength at 28 days: **3000 psi**

2. Maximum Allowable Slump: **5 inches**

3. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and/or ASTM C 1116, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 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.

3.2 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.

3.3 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of reinforcement, and embedded items is complete and that required inspections have been performed.

1. Deposit concrete continuously in one layer.

B. Cold-Weather Placement: Comply with ACI 306R.

C. Hot-Weather Placement: Comply with ACI 305R.

3.4 FINISHING FLOORS AND SLABS:

A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with by hand floating. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture matching existing adjacent concrete finish.

3.5 CONCRETE PROTECTING 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 ACI 301 for hot-weather protection during curing.

B. Cure concrete according to ACI 308.1, by the following method:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.

3.6 CONCRETE SURFACE REPAIRS

1. Defective Concrete: Repair and patch defective areas identified by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.7 FIELD QUALITY CONTROL

1. Finished concrete shall match existing adjacent slabs to the greatest extent possible.

END OF SECTION 03300- CAST IN PLACE CONCRETE

SECTION 04065 - **MORTAR**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes, in general, requirements of the Mortar and related items of work necessary for the complete job indicated by the Contract Documents.

B. The General Conditions are applicable to this Section and shall form a part of the Contract.

1.2 GENERAL LIST OF WORK

A. The work of this Section and related work described in other Sections which is commonly executed by a Subcontractor and / or his supplier includes, but is not limited to, furnishing and / or installing the following:

1. Masonry Mortar.

B. Related Sections:

1. Section 04080 Masonry Anchorage and Reinforcement

2. Section 04816 Concrete Unit Masonry Assemblies

1.3 REFERENCE

A. Arizona Masonry Guild Standards:

1. 108-98- Standard Practices.

2. 109-98- Arizona Masonry Guild Position of Field Testing Prisms, Mortar and Grout.

B. ASTM:

1. C 91- Standard Specification for Masonry Cement.

2. C 144- Standard Specification for Aggregate for Masonry Mortar.

3. C 150- Standard Specification for Portland Cement.

4. C 207- Standard Specification for Hydrated Lime for Masonry Purposes.

5. C 270- Standard Specification for Mortar for Unit Masonry.

6. C 595- Standard Specification for Blended Hydraulic Cements.

7. C 780- Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

8. C 1329- Standard Specification for Mortar Cement.

9. E 72- Standard Methods of Conducting Strength Tests of Panels for Building Construction.

10. E 329- Standard Specification for Agencies Engaged in the Testing and / or Inspection of Materials used in Construction.

11. E 514- Standard Test Method for Water Penetration and Leakage Through Masonry.

C. International Building Code Standards (IBC):

1. 19-1- Portland Cement.

2. 21-11- Masonry Cement.

3. 21-13- Hydrated Lime for Masonry Purposes.

4. 21-14- Mortar Cement.

5. 21-15- Mortar for Unit Masonry.

D. International Masonry Industry All-Weather Council (IMIAC): Recommended Practices and Guide Specifications for Warm Weather Masonry Construction.

1.4 SYSTEM DESCRIPTION

A. Performance Requirements: Admixture provided in both the masonry units and the mortar shall constitute a complete integral water repellent system for exterior above grade walls.

1. Admixture shall leave the finished surface water repellent and shall not alter the natural texture or color of the masonry units and mortar.

2. Admixture shall provide wind driven rain resistance as measured by ASTM E 514.

3. Bond strength as determined by ASTM E 72 shall not be reduced by the use of the water repellent admixture.

1.5 SUBMITTALS

A. Submit mix designs and samples to the Architect for approval prior to delivering materials to the site or commencing the work in this section (in accordance with Section 01330).

1. Mortar Mix Design: Furnish in accordance with ASTM C270.

B. Submit warranty for mortar with integral water repellent admixture.

1.6 QUALTIY ASSURANCE

A. Qualifications:

1. Water Repellent Manufacturer: Engaged in producing materials with a satisfactory performance record for at least 5 years.

1.7 DELIVERY, STORAGE AND HANDLING

A. Storage and Protection: Cementitious materials shall be stored off the ground, under cover and shall be kept dry.

B. Packing and Shipping: Mortar admixture shall be delivered to the job site in manufacturer's original containers with seals unbroken and labeled with manufacturer's batch number.

C. Storage and Protection:

1. Store materials in original, unopened containers in compliance with manufacturer's printed instructions.

2. Do not store in areas where temperature will fall below 20 degrees F.

1.8 PROJECT / SITE CONDITIONS

A. Environmental Requirements:

1. Cold Weather Requirements: In accordance with "Recommended Practices and Guide Specifications for Cold Weather Masonry Construction" by IMIAC, provide adequate equipment for heating the mortar materials, when air temperature is below 40 degrees F. Temperatures of the separate materials, including water, shall not exceed 140 degrees F when placed in the mixer. When air temperatures is below 32 degrees F, maintain mortar temperature on boards above freezing.

2. Hot Weather Requirements: Wet mortar board before loading and cover mortar to retard drying when not being used.

1.9 WARRANTY

A. Manufacturer shall provide a written warranty for the integral water repellent admixtures.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portland Cement: ASTM C 150, Type III.

B. Masonry Cement: ASTM C 91, Type as applicable for mortar type specified.

C. Mortar Cement: ASTM C 1329, Type applicable for mortar type selected.

D. Hydrated Lime: ASTM C 207, Type S.

E. Aggregates for Mortar: ASTM C 144.

F. Mortar Color:

1. Standard Gray

2. Provide lime-proof, inorganic compounds which shall not exceed 15% by weight of the cement, unless otherwise directed by manufacturer.

3. Carbon black shall not exceed 3% by weight of the cement.

4. Color to be factory blended for full color saturation of mortar joint and to be factory packaged for unitized jobsite mixing at a ratio of one unit of color per sack of cementitious material, (Portland cement, lime, or masonry cement).

G. Water: Clean and free from deleterious amounts of acid, alkalis or organic materials.

H. Admixtures:

1. Chemical: The use of accelerator admixtures, water reducing plasticizers and other chemical admixtures shall not be allowed in mortar unless approved by the Architect.

2. Water Repellent admixture: Liquid polymeric type, for use in concrete masonry units and mortar, as applicable. Mortar or exterior concrete masonry units shall contain the recommended amount of integral water repellent admixture and shall meet the following minimum requirements:

a. Mortar shall be ASTM C 270, type S.

b. Provide mortar water repellent admixture in accordance with manufacturer's printed instructions.

c. No other admixtures shall be used in conjunction with the water repellent admixture unless approved in writing by the water repellent admixture manufacturer.

2.2 MIXES

A. Mortar ASTM C 270, Type S.

1. The property method requires the Contractor to submit a mortar mix design meeting the specified material properties listed in ASTM C 270, Table 2. These properties are confirmed by laboratory testing of prepared specimens.

a. Measurement: Materials shall be accurately measured by ASTM C 270 by the Property Method per Table 2.

b. All cementitious materials and aggregates shall be mixed at least three minutes, but not more than ten minutes in a mechanical mixer. (Small amounts of mortar may be mixed by hand). The consistency of the mortar shall be adjusted depending on the absorptive quality of the units being laid, and to the satisfaction of the mason.

c. If mortar begins to stiffen, it may be re-tempered by adding water within a basin formed by the mortar, and remixing.

d. Use within 2-1/2 hours of initial mixing and no mortar shall be used after it has begun to set of after is has become harsh or non-plastic.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation of mortar shall be as specified under each of the following Sections and in accordance with AMG Standard 108:

1. Section 04816 Concrete Unit Masonry Assemblies.

B. Colored Mortar: Consistency of appearance shall be maintained throughout the project.

C. Temperature: Mortar shall have a temperature between 60 degrees F and 80 degrees F while being used.

END OF SECTION 04065- MORTAR

SECTION 04080 – **MASONRY ANCHORAGE AND REINFORCEMENT**

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes, in general, requirements for the Masonry Anchorage and Reinforcement and related items of work necessary for the complete job indicated by the Contract Documents.

B. The General Conditions are applicable to this section and shall form a part of the Contract.

1.2 GENERAL LIST OF WORK

A. The work of this section and related work described in other sections which is commonly executed by a Subcontractor and / or his supplier includes, but is not limited to, furnishing and / or installing the following:

1. Wire reinforcement in mortar joints.

2. Ties.

3. Anchors.

4. Vertical and bond beam reinforcement.

B. Related Sections:

1. Section 04065- Mortar

2. Section 04816- Concrete Unit Masonry Assemblies.

1.3 REFERENCE

A. Arizona Masonry Guild Standards:

1. 108-98- Standard Practices.

B. American Concrete Institute (ACI):

1. 117-90- Standard Specifications for Tolerances for Concrete Construction and Materials.

2. 315R-88- Manual of Standard Practice for Detailing Reinforced Concrete Structures.

3. 530-1-95- Specification for Masonry Structures.

C. ASTM:

1. A 36/ A 36M- Standard Specification for Carbon Structural Steel.

2. A 82- Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

3. A 153- Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

4. A 615 / A 615M- Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

5. A 641- Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

6. A 951- Standard Specification for Masonry Joint Reinforcement.

D. International Building Code (IBC) Standards:

1. 21-10, Part 1- Joint Reinforcement for Masonry.

2. 21-10, Part 2- Cold Drawn Steel for Concrete Reinforcement.

1.4 SUBMITTALS

A. Submit product data and shop drawings to the Architect for approval prior to delivering materials to the site or commencing the work in this section (in accordance with Section 01330).

1. Product Data: Submit copies of manufacturer's brochures depicting each item of the masonry reinforcing which will be used and certification for same.

2. Test Data: Submit copies of manufacturer's current test data to verify compliance with IBC 21-10.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver reinforcement to the project site bundled, tagged and marked to facilitate sorting and placing. Tags shall indicate bar sizes, lengths, grade and other information corresponding to markings shown on placement diagrams.

B. Storage and Protection: Store reinforcing at the site off the ground and in a manner to prevent damage to the materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Masonry reinforcing as manufactured by the following manufacturers are acceptable:

1. Dur-O-Wall.

2. Hohmann & Barnard.

3. Masonry Reinforcing Corporation.

B. Substitution of Manufacturers: In accordance with Prior Approval Requirements of Section General Project Requirements.

2.2 MATERIALS

A. Steel Wire: ASTM A 82, diameter as specified for prefabricated reinforcing.

B. Bar Anchor Material: ASTM A 36.

C. Galvanized Finish: ASTM A 641, mill galvanized (min. 0.1 oz per sf) for interior walls ASTM A 153, Class B-2, hot dip galvanized for exterior walls.

D. Vertical and Bond Beam Reinforcing: ASTM A 615, yield strength (40 ksi) (60 ksi) (as indicated on General Structural Notes).

E. Tie Wire (Vertical and Bond Beam Reinforcing): Annealed steel wire, cold drawn, minimum 18 gauge per ASTM A 82. Tie Wire used as structural component shall be minimum of 9 gauge unless indicated otherwise.

F. Welding Rods: AWS D12.1, D1.1, and A5.1, E70XX electrodes per CRSI unless noted otherwise.

2.3 ACCESSORIES

A. General: Anchors and ties shall be steel with zinc coated finish or shall be of other non-corrosive metal.

B. Ties:

1. Sheet Metal Ties: 22 gauge corrosion resistant corrugated sheet metal, not less than 7/8 inch wide by 7 inches long, pre-punched for wire ties to horizontal steel. Use only when cavity is one inch or less in width.

2. Metal Lath Ties: 3.4 lb. copper-bearing expanded plaster lath.

C. Anchors:

1. Dovetail Anchor: 16 gauge flat sheet steel, one inch wide, variable length to provide a minimum of 1-1/2 inch embedment into masonry, designed for use with embedded slot or inserts.
2. Bar Anchors: Machine made corrosion protected metal with cross section area not less than .25 square inch with ends turned up 2 inches, not less than 16 inches long for 8 inch walls nor less than 24 inches long for 12 inch walls.

D. Rebar Positioners: 9 gauge or heavier, double loop wire, or 18 gauge stamped sheet metal designed to anchor in mortar joints and position in center of wall cavity.

E. Dowels: 1/4" inch diameter rebar without deformation, or sleeved with heavy paper on one side or expansion joint, if deformed.

2.4 FABRICATION

A. Joint Reinforcing: (Truss) (Ladder) type, galvanized conforming to ASTM A951 and to IBC Standard 21-10, Part 1 with width 2 inches less than wall thickness.

B. Vertical and Bond Beam Reinforcing:

1. In accordance with ACI 117.

2. Shop fabricated bars shall conform to the required shapes and dimensions with fabrication tolerances complying with ACI 315. In case of fabricating errors, do not rebend or straighten reinforcement in a manner that will injure or weaken the material.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Tie Wire: Turn ends of tie wire away from exposed masonry surfaces.

2. Welding: Performed by Certified Welders.

END OF SECTION 04080- MASONRY ANCHORAGE AND REINFORCEMENT

SECTION 04816 - **CONCRETE UNIT MASONRY ASSEMBLIES**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes unit masonry assemblies consisting of the following:

1. Concrete masonry units (CMUs).

2. Ceramic glazed concrete masonry units.

B. See Division 9 Section “Paint” for Interior & Exterior CMU sealer finishes and coats.

C. See Division 9 Section “Anti-Graffiti Coatings” for CMU sealer finishes and coats.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for each type and color of exposed masonry units and colored mortars.

C. Material Certificates: For each type of product indicated. Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards.

1. For masonry units include material test reports substantiating compliance with requirements.

D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1.3 PROJECT CONDITIONS

A. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 COLORS, TEXTURES, AND PATTERNS

A. Exposed Masonry Units: As indicated by manufacturer's designations.

1. Products:

a. Standard Smooth Face Gray, Manufacturer's standard sizes and shapes.

b. Astra-glaze CMU, 8 X 8 X 16 stack bond, where indicated, Marigold color, integral ceramic face.

2.2 CONCRETE MASONRY UNITS (CMUs)

A. Shapes: Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

B. Integral Water Repellent: Provide units made with liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength for exposed units and where indicated.

C. Concrete Masonry Units: ASTM C 90, Medium Weight, Grade N, F'm = 1,500 psi, running bond, Mortar Type S, 1,800 psi, Grout 2,000 psi.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction.

B. Hydrated Lime: ASTM C 207, UBC Standard 21-13, Type S.

C. Masonry Cement: ASTM C 91, UBC Standard 21-11.

D. Mortar Pigments: Iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

1. Products:

a. Bayer Corporation, Industrial Chemicals Div.; Bayferrox Iron Oxide Pigments.
b. Davis Colors; True Tone Mortar Colors.
c. Solomon Grind-Chem Services, Inc.; SGS Mortar Colors.

E. Aggregate for Mortar: ASTM C 144.

1. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Aggregate for Grout: ASTM C 404.

G. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with concrete masonry units, containing integral water repellent by same manufacturer.

1. Products:

   a. Addiment Incorporated; Mortar Tite.
   b. Grace Construction Products, a unit of W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.
   c. Master Builders, Inc.; Color Cure Mortar Admix or Rheomix Rheopel.

H. Water: Potable.

2.4 REINFORCEMENT-

A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60. All bars #5 or larger.

B. Masonry Joint Reinforcement: ASTM A 951, UBC Standard 21-10; mill galvanized, carbon-steel wire for interior walls and hot-dip galvanized, carbon-steel wire for exterior walls.
   1. Wire Size for Side Rods: W1.7 or 0.148-inch, W2.8 or 0.188-inch, and W2.8 or 0.188-inch diameter as indicated.
   2. Wire Size for Veneer Ties: W1.7 or 0.148-inch and W2.8 or 0.188-inch diameter as indicated.
   3. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
   4. Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

2.5 TIES AND ANCHORS

A. Materials:

   1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
   2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.
   3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.

   1. Wire: Fabricate from 3/16-inch, or 1/4-inch-diameter, hot-dip galvanized steel wire.

2.6 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains from new masonry without damaging masonry. Use product approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Manufacturers:

a. Diedrich Technologies, Inc.
b. EaCo Chem, Inc.
c. ProSoCo, Inc.

2.7 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Limit cementitious materials in mortar for exterior and reinforced masonry to portland cement and lime.

B. Mortar for Unit Masonry: Comply with ASTM C 270, & UBC Standard 21-15, Proportion Specification.

1. Color: Standard Gray

C. Mortar for Unit Masonry: Comply with ASTM C 270 & UBC Standard 21-15, Property Specification.

1. For masonry below grade or in contact with earth, use Type S.
2. For reinforced masonry, use Type S.
3. For mortar parge coats, use Type S.
4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
5. For interior non-load-bearing partitions, Type O may be used instead of Type N.

D. Grout for Unit Masonry: Comply with ASTM C 47 & UBC Standard 21-19.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 & Table 21-C in the Uniform Building Code for dimensions of grout spaces and pour height.
2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required, cut units with motor-driven saws; provide clean, sharp, un-chipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

C. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:

1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet..
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet.

3.2 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Lay standard gray masonry in running bond pattern; Lay Astra-glaze CMU accent walls in a stack bond pattern; do not use units with less than nominal 8-inch horizontal face dimensions at corners or jambs.

C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

D. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.

E. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated. See Structural Drawings.

3.3 MORTAR BEDDING AND JOINTING

A. Lay hollow concrete masonry units as follows:

1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.

2. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
3. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.

3.4 MASONRY JOINT REINFORCEMENT

A. General: Install in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

C Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

3.5 ANCHORING MASONRY TO STRUCTURAL MEMBERS

A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:

1. Provide an open space not less than 1/2 inch in width between masonry and structural member, unless otherwise indicated.
2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated.

3.6 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

B. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

4. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

C. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602 and Section 2104.5 in the Uniform Building Code.

D. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 and Section 2104.6 in the Uniform Building Code for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 72 inches.

3.8 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Test cleaning methods on sample wall panel; leave one-half of panel un-cleaned for comparison purposes.
2. Protect adjacent surfaces from contact with cleaner.
3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
4. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
5. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

C. Excess Masonry Waste: Remove excess masonry waste and legally dispose of off Owner's property.

END OF SECTION 04816

SECTION 05120 - **STRUCTURAL STEEL**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes structural steel.

B. **General Structural Notes** in the Drawings shall govern in the event of a discrepancy.

1.2 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand ASD-service & LRFD loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using schematic details indicated and AISC's "Manual of Steel Construction, Load and Resistance Factor Design," Volume 2, Part 9 & AISC's "Manual of Steel Construction, Allowable Stress Design," Part 4.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show fabrication of structural-steel components.

C. Welding certificates.

D. Mill test reports.

E. Source quality-control test reports.

1.4 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel."

B. Comply with applicable provisions of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

C. Pre-installation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 STRUCTURAL STEEL MATERIALS **See Structural General Notes for Specifications:**

A. Channels, Angles

B. Cold-Formed Hollow Structural Sections:

C. Structural tubing.

D. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS: **See General Structural notes for Specifications.**

2.3 PRIMER

A. Primer: SSPC-Paint 25, Type II, iron oxide, zinc oxide, raw linseed oil, and alkyd.

B. Primer: Fabricator's standard lead and chromate free, non-asphaltic, rust-inhibiting primer.

2.4 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC's "Specification for Structural Steel Buildings-Allowable Stress Design and Plastic Design &Load and Resistance Factor Design Specification for Structural Steel Buildings."

B. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's written instructions.

2.5 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.

2.6 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches
2. Surfaces to be field welded.
3. Surfaces to be high-strength bolted with slip-critical connections.
4. Galvanized surfaces.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a dry film thickness of not less than 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.7 SOURCE QUALITY CONTROL

A. Owner may engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports. Comply with testing and inspection requirements of Part 3, Article "Field Quality Control."

B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

C. In addition to visual inspection, shop-welded shear connectors will be tested and inspected according to requirements in AWS D1.1 for stud welding.

PART 3 - EXECUTION

3.1 ERECTION

A. Examination: Verify elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments, with steel erector present, for compliance with requirements.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Set structural steel accurately in locations and to elevations indicated and according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design, Load and Resistance Factor Design Specification for Structural Steel Buildings."

C. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting base and bearing plates. Clean bottom surface of base and bearing plates.

1. Set base and bearing plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of base plate.
3. Snug-tighten or Pretension anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of base or bearing plate before packing with grout.
4. Promptly pack grout solidly between bearing surfaces and base or bearing plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

D. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.2 FIELD CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened or Pretensioned.

B. Weld Connections: Comply with AWS D1.1 for welding procedure specifications, tolerances, appearance, and quality of welds and for methods used in correcting welding work.

1. Comply with AISC's "Code of Standard Practice for Steel Buildings and Bridges" and "Specification for Structural Steel Buildings--Allowable Stress Design and Plastic Design, Load and Resistance Factor Design Specification for Structural Steel Building" for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

3.3 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections.

B. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Field welds will be visually inspected according to AWS D1.1.

D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION 05120

SECTION 05310 - **STEEL DECKING**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Cold formed steel roof decking.

1.2 SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Shop Drawings: Include layout and types of deck panels, anchorage details, reinforcing channels, pans, deck openings, special jointing, accessories, and attachments to other construction.

C. Product certificates.

D. Welding certificates.

E. Research/evaluation reports.

1.3 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."

B. Fire-Test-Response Characteristics: Where indicated, provide steel deck units identical to those steel deck units tested for fire resistance per ASTM E 119 by a testing and inspection agency acceptable to authorities having jurisdiction.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
2. Steel deck units shall be identified with appropriate markings of applicable testing and inspecting agency.

C. AISI Specifications: Calculate structural characteristics of steel deck according to AISI's "Specification for the Design of Cold-Formed Steel Structural Members."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. BHP Steel Building Products USA Inc.
2. Nucor Corp.; Vulcraft Div.
3. **Verco Decking, Inc.** (Basis of Design)

2.2 ROOF DECK

A. Steel Roof Deck: Manufacturer's standard.

1. Galvanized Steel Sheet: **Verco HSB-36, 18 gauge, Type B profile, 1.5 inches deep X 3 ft. wide, 6 ribs, with male and female edges, attachment pattern 36/4, Galv G60, 2.9 psf.**

2.3 ACCESSORIES

A. Accessories: Steel deck manufacturer's standard accessory materials, including mechanical fasteners, closure strips, pour stops, and closures for deck.

B. Shear Connectors: ASTM A 108, Grades 1010 through 1020 headed stud type, cold-finished carbon steel, AWS D1.1, Type B, with arc shields.

C. Galvanizing Repair Paint: ASTM A 780, or SSPC-Paint 20, or DOD-P-21035, with dry film containing a minimum of 94 percent zinc dust by weight.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 29, manufacturer's written instructions, and requirements in this Section.

B. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

C. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

D. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to decking.

E. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of decking, and support of other work.

F. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

1. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

G. Roof Deck Accessories: Install sump pans and sump plates**,** ridge and valley plates, finish strips, cover plates, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.

H. Shear Connectors: Weld shear connectors through deck to supporting frame according to AWS D1.1 and manufacturer's written instructions. Butt end joints of deck panels; do not overlap. Remove and discard arc shields after welding shear connectors.

I. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations, unless otherwise indicated.

J. Repairs and Protection:

1. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
2. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.

3.2 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing agency to perform field quality-control testing.

B. Field welds will be subject to inspection.

C. Shear connector stud welds will be tested and inspected according to AWS D1.1.

D. Remove and replace work that does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

END OF SECTION 05310

SECTION 05500 - **METAL FABRICATIONS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Steel weld plates and angles.

2. Miscellaneous steel trim.

3. Woven wire mesh steel framed panels.

4. Custom secure toilet paper holders.

1.2 SUBMITTALS

A. Shop Drawings: Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

B. Templates: For anchors and bolts.

PART 2 - PRODUCTS

2.1 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.

B. Ferrous Metals:

1. Steel Plates, Shapes, and Bars: ASTM A 36.

2. Steel Woven Mesh Panels: **McNichols Co., Quality 1, Mesh Square Weave wire mesh, 0.1200” diameter wire, plain steel, 1” X 1” grid, on 1” centers.**

2.2 FASTENERS

A. General: Type 304 or 316 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.

B. Cast-in-Place Anchors in Concrete: Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27 cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153.

2.3 MISCELLANEOUS MATERIALS

A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI #79.

B. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.

1. Products:

a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.

b. International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer.

c. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.

d. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.

e. Tnemec Company, Inc.; Tneme-Zinc 90-97.

C. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint for regalvanizing welds in steel.

D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107.

E. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.

2.4 FABRICATION

A. General: Pre-assemble items in the shop to greatest extent possible. Use connections that maintain structural value of joined pieces.

1. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.

2. Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.

3. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.

4. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

5. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, not less than 24 inches o.c.

B. Shelf Angles: Fabricate shelf angles of sizes indicated and for attachment to framing. Fabricate with horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c.

1. Shelf Angles on Exterior Walls: Prime with zinc-rich primer.

C. Miscellaneous Steel Trim: Fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.

1. Exterior Miscellaneous Steel Trim: Prime with zinc-rich primer.

2.5 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Finish metal fabrications after assembly.

B. Steel and Iron Finishes:

1. Hot-dip galvanize items as indicated to comply with ASTM A 123/A 123M or ASTM A 153/A 153M as applicable.
2. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with requirements indicated below for environmental exposure conditions of installed metal fabrications:

a. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

b. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

3. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with edges and surfaces level, plumb, and true.

1. Fit exposed connections accurately together. Weld connections that are not to be left as exposed joints but cannot be shop welded. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication.

2. Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.

3. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

B. Set bearing and leveling plates on cleaned surfaces using wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts and pack solidly with non-shrink, nonmetallic grout.

C. Touch up surfaces and finishes after erection.

1. Painted Surfaces: Clean field welds, bolted connections, and abraded areas and touch up paint with the same material as used for shop painting.

2. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500- METAL FABRICATIONS

SECTION 07920 – **CAULKING AND SEALANTS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes joint sealants for the following including those specified by reference to this Section.

1. Interior joints in vertical surfaces and horizontal non-traffic surfaces.

1.2 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Preconstruction field test reports.

D. Compatibility and adhesion test reports.

E. Product certificates.

1.4 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to **manufacturer's standard test method** to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates according to the method in ASTM C 1193 that is appropriate for the types of Project joints.

1.5 WARRANTY

A. **Special Installer's Warranty**: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: **Two years** from date of Substantial Completion.

B. **Special Manufacturer's Warranty**: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: **Two years** from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: **As selected by Architect from manufacturer's full range**.

2.3 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing

according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

2.4 SOLVENT-RELEASE JOINT SEALANTS

A. Acrylic-Based Solvent-Release Joint Sealant: Comply with ASTM C 1311 or FS TT-S-00230.

B. Butyl-Rubber-Based Solvent-Release Joint Sealant: Comply with ASTM C 1085.

C. Pigmented Narrow-Joint Sealant Manufacturer's standard, solvent-release-curing, pigmented, synthetic-rubber sealant complying with AAMA 803.3 and formulated for sealing joints 3/16 inch or smaller in width.

2.5 LATEX JOINT SEALANTS

A. Latex Sealant: Comply with ASTM C 834, Type O P, Grade NF.

2.6 PREFORMED JOINT SEALANTS

A. Preformed Silicone-Sealant System: Manufacturer's standard system consisting of pre-cured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.

B. Preformed Foam Sealant: Manufacturer's standard mildew-resistant, non-migratory, non-staining, preformed, pre-compressed, open-cell foam sealant that is manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent.

2.7 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), or as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.8 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from pre-construction 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 joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant.

    a. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.

2. Remove laitance and form-release agents from concrete.

    a. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on pre-construction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

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.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.

2. Do not stretch, twist, puncture, or tear sealant backings.

3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.

2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

F. Installation of Preformed Silicone-Sealant System: Comply with manufacturer's written instructions.

G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

H. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 07920- CAULKING AND SEALANTS

SECTION 08255 – **FRP FLUSH DOORS and HOLLOW METAL FRAMES**

PART 1 - GENERAL

1.1 SUMMARY

A. Fiberglass reinforced polyester (FRP) flush doors with hollow metal frames.

1.2 RELATED SECTIONS

A. Section 08710 - Door Hardware.

1.3 SUBMITTALS

A. Comply with Section 01330 - Submittal Procedures.

B. Product Data: Submit manufacturer's product data, including description of materials, components, fabrication, finishes, and installation.

C. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections, and details, indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, and finish.

D. Samples:
   1. Door: Submit manufacturer's sample of door showing face sheets, core, framing, and finish.
   2. Color: Submit manufacturer's samples of standard colors of doors and frames.

E. Test Reports: Submit certified test reports from qualified independent testing agency indicating doors comply with specified performance requirements.

F. Manufacturer's Project References: Submit list of successfully completed projects including project name and location, name of architect, and type and quantity of doors manufactured.

G. Maintenance Manual: Submit manufacturer's maintenance and cleaning instructions for doors, including maintenance and operating instructions for hardware.

H. Warranty: Submit manufacturer's standard warranty.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 25 years successful experience.

2. Door and frame components from same manufacturer.
3. Evidence of a compliant documented quality management system.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

1.6 WARRANTY

A. Warrant doors, frames, and factory hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.

B. Warranty Period: Ten years starting on date of shipment. In addition, a limited lifetime (while the door is in its specified application in its original installation) warranty covering: failure of corner joinery, core deterioration, delamination or bubbling of door skin.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Special-Lite, Inc., PO Box 6, Decatur, Michigan 49045. Toll Free (800) 821-6531. Phone (269) 423-7068. Fax (800) 423-7610. Web Site www.special-lite.com E-Mail info@special-lite.com.

2.2 FRP FLUSH DOORS

A. Model: SL-17 Flush Doors with SpecLite3 fiberglass reinforced polyester (FRP) face sheets.

B. Door Opening Sizes: As indicated on the Drawings.

C. Construction:
1. Door Thickness: 1-3/4 inches.
2. Stiles and Rails: Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes, minimum of 2-5/16-inch depth.
3. Corners: Mitered.
4. Provide joinery of 3/8-inch diameter full-width tie rods through extruded splines top and bottom integral to standard tubular shaped stiles and rails reinforced to accept hardware as specified.

5. Securing Internal Door Extrusions: 3/16-inch angle blocks and locking hex nuts for joinery. Welds, glue, or other methods are not acceptable.
6. Furnish extruded stiles and rails with integral reglets to accept face sheets. Lock face sheets into place to permit flush appearance.
7. Rail caps or other face sheet capture methods are not acceptable.
8. Extrude top and bottom rail legs for interlocking continuous weather bar.
9. Meeting Stiles: Pile brush weatherseals. Extrude meeting stile to include integral pocket to accept pile brush weatherseals.
10. Bottom of Door: Install bottom weather bar with nylon brush weather-stripping into extruded interlocking edge of bottom rail at Chase Door, closed sections at raised Toilet Room doors.
11. Glue: Use of glue to bond sheet to core or extrusions is not acceptable.

D. Face Sheet:
1. Material: SpecLite3 FRP, 0.120-inch thickness, finish color throughout.
2. Protective coating: Abuse-resistant engineered surface. Provide FRP with SpecLite3 protective coating.
3. Texture: Pebble.
4. Color: Dark Bronze #5534
5. Adhesion: The use of glue to bond face sheet to foam core is prohibited.

E. Core:
1. Material: Poured-in-place polyurethane foam.
2. Density: Minimum of 5 pounds per cubic foot.
3. R-Value: Minimum of 9.

G. Hardware:
1. Premachine doors in accordance with templates from specified hardware manufacturers and hardware schedule.
2. Factory install hardware.

2.3 MATERIALS

A. Aluminum Members:
1. Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes: ASTM B 221.
2. Sheet and Plate: ASTM B 209.
3. Alloy and Temper: As required by manufacturer for strength, corrosion resistance, application of required finish, and control of color.

B. Components: Door and frame components from same manufacturer.

2.4 STANDARD STEEL FRAMES

A. General: Comply with ANSI A250.8 and with details indicated for type and profile.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped and welded face corners and seamless face joints.
2. Frames : ANSI/SDI 100, 16 gauge

C. Supports and Anchors: Fabricated from electrolytic zinc-coated or metallic-coated steel sheet.

D. Jamb Anchors: Masonry, stud-wall, compression, or post-installed expansion type; not less than 0.042 inch thick.

E. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick.

F. Plaster Guards: Formed from same material as frames, not less than 0.016-inch thick.

2.5 FABRICATION

A. General: Fabricate FRP flush doors and frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Standard Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints; fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
4. Plaster Guards: Weld guards to frame at back of hardware mortises in frames installed in concrete or masonry.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c.
7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.

G. Hardware Preparation: Factory prepare standard steel doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."

1. Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

2.3 FINISHES

A. Steel Finish: Factory priming for field-painted finish.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Ensure openings to receive frames are plumb, level, square, and in tolerance.

3.3 INSTALLATION

A. Install doors in accordance with manufacturer's instructions.

B. Install doors plumb, level, square, true to line, and without warp or rack.

C. Anchor frames securely in place.

D. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.

E. Set thresholds in bed of mastic and backseal.

F. Install exterior doors to be weathertight in closed position.

G. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.

H. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

I. Remove welded-in shipping spreaders installed at factory.

J. Provide doors and frames of sizes, thicknesses, and designs indicated. Install FRP flush doors and steel frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

K. Standard Steel Frames: Install standard frames for doors, other openings, of size and profile indicated. Comply with SDI 105.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
   a. Apply bituminous coating to backs of frames that are filled with mortar, grout, and plaster containing anti-freezing agents.
2. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar as specified in Division 4 Section "Unit Masonry Assemblies."

L. Standard FRP Flush Doors: Fit doors accurately in frames. Shim as necessary.

M. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.

N. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for installation of doors.

3.5 ADJUSTING

A. Adjust doors, hinges, and locksets for smooth operation without binding.

3.6 CLEANING

A. Clean doors promptly after installation in accordance with manufacturer's instructions.

B. Do not use harsh cleaning materials or methods that would damage finish.

3.7 PROTECTION

A. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

END OF SECTION 08255

SECTION 08710 – **FINISH HARDWARE**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes, in general, requirements of the Finish Hardware and related items of work necessary for the complete job indicated by the Contract Documents.

B. The General Conditions are applicable to this section and shall form a part of the Contract.

1.2 GENERAL LIST OF WORK:

A. This work of this section and related work described in other sections which is commonly executed by a Subcontractor and/or supplier includes, but is not limited to the following:

1. Finish Hardware, Complete, as Specified Herein.

1.3 SUBSTITUTIONS

A. In accordance with General Conditions of the Contract.

1.4 SUBMITTALS

A. Product Data: In accordance with the provisions of Section 01330, submit complete manufacturer's literature and specifications. Include complete lists of materials proposed for use, giving the manufacturer's name, product numbers and product information sheets for each specified item.

B. Submit complete hardware schedule prior to fabrication in accordance with Section 01330 – Submittals showing each item proposed for use. Hardware bidders shall state in their bid the date of delivery to the Contractor. List also a summary of all symbols and abbreviations used and the complete meanings of each. Hardware schedule shall include a summary of individual items of hardware used on the job, complete with the name of the manufacturer of each item and the cost.

C. Upon Architect's request, samples shall be submitted for approval.

1.5 QUALITY ASSURANCE

A. Qualifications

1. Use products by manufacturers regularly engaged in manufacturing of this product and with a continuous history of successful applications within the last 3 years.
2. Use skilled workers who are thoroughly trained and experienced and who are completely familiar with the specified requirements and methods.

B. Finish hardware shall be properly protected at all times. All finish hardware shall be free of any paint of lacquer, other than the factory finish.

C. Any firm bidding this project must be a factory authorized distributor of the specified and requested items, must have an AHC on their staff and must have been doing business in the state of Arizona for 5 years. Firm must have an established parts inventory on hand for immediate distribution.

1.6 JOB CONDITIONS

A. The contractor shall visit the jobsite prior to beginning the installation. Commencement of work constitutes that the contractor has inspected the site and the Contractor's acceptance of responsibility related to guarantee requirements.

1.7 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Hardware Contractor shall label each box with a number and description of location in the building. All such markings shall reference the approved hardware schedule.

B. The installing contractor shall receive hardware when delivered at the jobsite. A room shall be set aside and be under lock and key. The installing contractor shall unpack, tag, index and file all keys as directed. Hardware shall be installed by experienced workmen of the installing contractor and he shall be responsible for correct application according to factory installation instructions, leaving hardware in proper working order by adjusting hardware and tightening all nuts, bolts, screws, etc., before leaving the project.

C. Installing contractor shall be responsible for all hardware from the time of receipt of same to completion of project and any damaged or lost items shall be replaced at expense of the installing contractor.

1.8 WARRANTY

A. Distributor is to provide a written warranty for all material and labor from date of Substantial Completion as noted below:
1. Continuous Hinges – 10 years
2. Locksets – 7 years
3. Closers – 25 years
4. All other hardware – 2 years

1.9 MAINTENANCE

A. Six months after acceptance of hardware, re-adjust hardware items. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation.

PART 2 - PRODUCTS

2.1 GENERAL

A. It shall be the specific duty and responsibility of the finish hardware supplier to examine the Specifications, Drawings, and details, and furnish the proper hardware for all openings, whether listed or not. If there are any omissions in the hardware groups in regard to regular doors, they shall be called to the attention of the Architect for instructions, prior to bid opening; otherwise, the list will be considered complete. No extras will be allowed.

B. Submit final hardware schedule. Coordinate with doors, frames and related work to ensure proper size, thickness, hand, function and finish. Organize hardware schedule into groups indicating complete designations of every item required for each door opening. Include type, style, function, size and finish of each hardware item, name and manufacturer of each item, explanation of abbreviations, symbols and codes contained in schedule, mounting locations, doors and frame sizes and materials and keying information.

2.2 FINISH HARDWARE LIST

A. Hardware Schedule:

NOTE 1: FOR CONTINUOUS HINGE- MATCH DOOR HEIGHT

NOTE 2: CORMAX, 7 PIN **BEST** LOCKSETS FOR ALL DOORS, CONTACT BUCKEYE FACILITIES DEPARTMENT FOR PINNING INSTRUCTIONS

Hardware Set 1: (Doors 01, 02, 03, 04, (05 ADD ALT #1**), 06, 07, 08, 09)**			
Quantity	**Item**	**Model No.**	**Manufacturer**
1 each	Cont. Hinge	FM300 x US32D **(See Note 1)**	Markar
1 each	Lockset	9K37T 15D S3 626 **(See Note 2)**	Best
1 each	Closer/Stop	281 CPS EN x Push Side	Sargent
3 each	Silencers	608	Rockwood

Hardware Set 2: (Door 05 (Base Bid STORAGE RM) **& Door 10** CHASE**)**			
Quantity	**Item**	**Model No.**	**Manufacturer**
1 each	Cont. Hinge	FM300 x US32D **(See Note 1)**	Markar
1 each	Lockset	9K37D 15D S3 626 **(See Note 2)**	Best
1 each	Overhead Stop	9 series – Surface Mounted	Rixson
1 set	Weatherstrip	S88D	Pemko
1 each	Threshold	271A- MSESX 1/4”x5”	Pemko
1 each	Door Bottom	2163CV Door Bottom U-shape with drip	Pemko

B. Acceptable Manufacturers for Bidding:

Item	**Specified Manufacturer**	**Approved Substitution**
Hinges	Markar	Select, Stanley
Locksets	Best	No Substitution
Closer	Sargent	LCN
Overhead Stops	Rixson	Glynn Johnson
Thresholds, Seals	Pemko	NGP, Reese, Zero
Silencers	Rockwood	Ives, Trimco

2.3 KEYING

A. Review the keying system with the Owner and provide the type required. Furnish construction key which can be rendered inoperative by turn of the change key. Comply with Owner's instructions for master-keying and provide individual change key for each lock not designated to be keyed alike. Inscribe each key with number or lock that identifies cylinder manufacturer key symbol and notation "DO NOT DUPLICATE".

2.4 TEMPLATES

A. As soon as the contract is awarded, Hardware Contractor shall furnish to the various manufacturers, required blueprints for fabricating purposes. If any manufacturer desires hardware shipped to their factory for incorporation in the work, this Contractor shall do so under the terms of this contract. Shipment of such hardware to be prepaid to door manufacturer.

2.5 LOCKSETS

A. All locksets shall be equipped with removable cores and 7-pin cylinders.

2.6 CLOSERS

A. Surface door closers shall be heavy duty type with cast iron cylinder and full covers. Cover shall match finish of lockset. Closers shall have separate valves for closing speed, latch speed and backcheck adjustment. Closers shall be fully adjustable. Individually set spring tension at exterior doors to 8.5 pounds maximum opening force and interior doors to 5 pounds maximum opening force.

2.7 Thresholds

A. Fabricate to accommodate door hardware and to fit door frames.

PART 3 - EXECUTION

3.1 CERTIFICATION

A. Hardware supplier shall inspect the installation of all hardware furnished herein, so that at the completion of all such installation, he can certify that said hardware is properly installed according to manufacturer's printed instructions. Forward copy of certification in duplicate to Architect as soon as possible after installation of all hardware.

3.2 HARDWARE LOCATIONS

A. Hinges:

1. Bottom Hinge: 10 inches from door bottom

2. Top Hinge: 5 inches from door top to top of hinge.

3. Center Hinges: Equally spaced between top and bottom hinges.

B. Locksets and Latchsets: 38 inches from bottom of door to center of lever.

C. Push/Pull Plates: 42 inches from bottom of door to center of plate

D. Deadbolts: 48 inches from floor to center of deadbolt.

3.3 INSTALLATION

A. Install each hardware item in compliance with the manufacturer's written instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished, coordinate removal, storage and reinstallation or application of surface protection with Section 09910. Do not install surface-mounted items until finishes have been completed on the substrate.

B. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as required for proper installation and operation.

C. Adjust and check each operating item to ensure proper operation or function. Replace units which cannot be adjusted to operate freely and smoothly as intended. Clean adjacent surfaces soiled by hardware installation.

D. Instruct Owner's personnel in proper adjustment and maintenance of hardware and finishes during the final adjustment.

END OF SECTION 08710 – FINISH HARDWARE

SECTION 09240 - **PORTLAND CEMENT PLASTERING**

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Exterior 2-coat portland cement plasterwork (stucco) on CMU.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type of factory-prepared finish coat indicated.

1.3 QUALITY ASSURANCE

A. Mockups: Before plastering, install mockups of at least **10 sq. ft.** in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

   1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 PROJECT CONDITIONS

A. Comply with ASTM C 926 requirements.

B. Factory-Prepared Finishes: Comply with manufacturer's written recommendations for environmental conditions for applying finishes.

PART 2 - PRODUCTS

2.1 ACCESSORIES

A. General: Comply with ASTM C 1063 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Metal Accessories:

   1. Foundation Weep Screed: Fabricated from hot-dip galvanized-steel sheet, ASTM A 653/A 653M, G60 (Z180) zinc coating.
   2. Cornerite: Fabricated from metal lath with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.

3. External-Corner Reinforcement: Fabricated from metal lath with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.
4. Cornerbeads: Fabricated from zinc or zinc-coated (galvanized) steel.

    a. Small-nose style; use unless otherwise indicated.

5. Casing Beads: Fabricated from zinc or zinc-coated (galvanized) steel; square-edged style; with expanded flanges.
6. Control Joints: Fabricated from zinc or zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
7. Expansion Joints: Fabricated from zinc or zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.

2.2 MISCELLANEOUS MATERIALS

A. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch (13 mm) long, free of contaminants, manufactured for use in portland cement plaster.

C. Bonding Compound: ASTM C 932.

D. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of no fewer than three exposed threads.

2.3 PLASTER MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type II.

1. Color for Finish Coats: Gray.

B. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.

C. Sand Aggregate: ASTM C 897.

1. Color for Job-Mixed Finish Coats: White

2.4 PLASTER MIXES

A. General: Comply with ASTM C 926 for applications indicated.

1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber

quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. (0.6 kg of fiber/cu. m) of cementitious materials.

B. Base-Coat Mixes for Use over CMU: Scratch and brown coats for two-coat plasterwork as follows:

1. Portland Cement Mixes:
   a. Brown Coat: For cementitious material, mix 1 part portland cement and 0 to 3/4 parts lime. Use 3 to 5 parts aggregate per part of cementitious material, but not less than volume of aggregate used in scratch coat.

C. Job-Mixed Finish-Coat Mixes:

1. Portland Cement Mix: For cementitious materials, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material.

D. Factory-Prepared Finish-Coat Mixes: For ready-mixed finish-coat plasters, comply with manufacturer's written instructions.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

B. Prepare solid substrates for plaster that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C 926.

3.2 INSTALLATION, GENERAL

A. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.3 INSTALLING ACCESSORIES

A. Install according to ASTM C 1063 and at locations indicated on Drawings.

B. Reinforcement for External Corners:

1. Install lath-type, external-corner reinforcement at exterior locations.

3.4 PLASTER APPLICATION

A. General: Comply with ASTM C 926.

B. Walls; Base-Coat Mixes for Use over Metal Lath: Brown coats for three-coat plasterwork on CMU; 1/2-inch (12-mm) thickness.

1. Portland cement mixes.

C. Plaster Finish Coats: Apply to provide semi smooth light sand finish.

3.5 PLASTER REPAIRS

A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

END OF SECTION 092400

SECTION 09860 – **ANTI-GRAFFITI COATINGS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes, in general, requirements of the Anti-Graffiti Coatings and related items of work necessary for the complete job indicated by the Contract Documents. The General Conditions are applicable to this section and shall form a part of the Contract.

B. Related Sections: Section 09910- Painting: Applicable preparation and application requirements.

1.2 SUBMITTALS

A. Product Data: In accordance with the provisions of Section 01330, submit complete manufacturer's literature and specifications. Include complete lists of materials proposed for use, giving the manufacturer's name, product numbers and product information sheets for each specified item.

B. Samples: When specified system requires that the graffiti resistant coating be applied over a paint color.

C. Application and Safety: Submit the manufacturer's recommended methods of installation, including limitations, safety and environmental cautions, material safety data sheets and application rates.

1.3 QUALITY ASSURANCE

A. Qualifications:

1. Use products by manufacturers regularly engaged in manufacturing of this product and with a history of at least three successful applications within the last 3 years.

2. Use skilled workers who are thoroughly trained and experienced and who are completely familiar with the specified requirements and methods.

B. Regulatory Requirements: Comply with applicable codes and regulations. All products must comply with current VOC requirements for the air quality management district where application takes place. Where these requirements conflict with this Specification, comply with the more stringent provisions.

C. Field Samples: Apply the system as specified in a designated area in accordance with Section 01400. This will serve as an indication that applicator can provide acceptable results and will be used as the standard for the rest of the work.

1.4 DELIVERY, STORAGE AND HANDLING

A. Acceptable at Site: Material shall be delivered to Project in original containers, completely sealed and bearing name of coating contained therein.

B. Storage and Protection: Use all means necessary to protect the materials of this Section before, during and after installation.

1.5 PROJECT / SITE CONDITIONS

A. Project Conditions: Do not apply coating when surface temperature is more than 90 degrees F in the shade, or when the relative humidity is more than 70%. Do not apply coating when adverse weather conditions are imminent.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Design is based on products manufactured by Dunn-Edwards Corporation, Los Angeles, CA (213) 771-3330 and Okon, Inc., Lakewood, CO. Okon products are distributed by Dunn-Edwards Corporation.

2.2 MATERIALS, GENERAL

A. Clear Finish Over Block Masonry Types:

1. Waterborne sealer with an active solids content of 10 percent.

2. Clear Finish- a two component aliphatic urethane polyester based mixture.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Prior to the commencement of the Work of this Section, examine the installed work of other trades and verify that all such work is complete or properly corrected to the points where this installation may properly commence. Commencement of work will indicate that applicator has accepted the conditions.

3.2 PREPARATION

A. Protection: Protect and cover finished work and materials of all other trades which may be affected by work of this Section during coating application. Protect all surrounding vegetation and adjacent areas from overspray.

B. Surface Preparation.

1. Substrates to receive sealers or primers prior to graffiti resistant coatings must be cleaned of all dirt, bondbreakers, and all other foreign materials which will adversely affect the required appearance of the finished product

2. Power wash all surfaces in accordance with manufacturer's recommendations.

3.3 APPLICATION

A. General:

1. Apply primers, paints and coatings in strict accordance with the manufacturer's recommendations as accepted by the Architect.

2. The number of coats specified is the minimum that will be applied. Apply additional coats when undercoats, stains, or other conditions show through final paint coat, until paint film is of uniform color and appearance.

3. When additional coats of graffiti resistant coating are required, allow no more than 48 hours between coats.

4. Apply a total dry film thickness of not less than 1.2 mils for primers and paint finishes and not less than 1.5 mils for graffiti resistant coatings.

3.4 CLEANING, TOUCH-UP AND REFINISHING

A. General:

1. Carefully remove all splatters, spots and blemishes caused by work of this Section.

2. Upon completion of the work, remove all rubbish, cans and accumulated materials. All areas must be left in a clean and orderly condition.

3. Runs, sags, misses, holidays, stains and other defected in the coated surfaces, including inadequate coverage and mil thickness will be satisfactorily touched-up or refinished.

B. Removal of Graffiti: Gramover Graffiti Remover, a water soluble solvent.

C. Curing of Polyurethane Enamels: Seven to ten days during time required in order for coating to resist graffiti.

3.5 FINISH SCHEDULE

Materials	No.	Primer or First Coat	Second Coat	Third Coat
Stucco (Clear Gloss Finish over paint)	G1	EFF-STOP #W 709	EVERSHIELD #W 701	ULTRASHEILD #IP 631
Block Masonry Types (Clear Gloss Finish over paint)	G2	BLOCFIL #W 305	ULTRASHIELD #IP 630	ULTRASHEILD #IP 631

END OF SECTION 09860- ANTI-GRAFFITI COATINGS

SECTION 09910 - **PAINTING** (PROFESSIONAL LINE PRODUCTS)

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Samples: For each type of finish-coat material indicated.

1.3 QUALITY ASSURANCE

A. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5.

1. Wall Surfaces: Provide samples on at least **25 sq. ft.**

2. Small Areas and Items: Architect will designate items or areas required.

3. Final approval of colors will be from benchmark samples.

1.4 PROJECT CONDITIONS

A. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F Maintain storage containers in a clean condition, free of foreign materials and residue.

B. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.

C. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.

D. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.5 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

1. Quantity not less than 1 gal. as appropriate, of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. **Dunn-Edwards**. (Dunn-Edwards). **(Basis of Design)**

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

C. Colors: **As indicated on Drawings.**

2.3 PREPARATORY COATS

A. Concrete Unit Masonry Block Filler: High-performance latex block filler of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.

B. Exterior Primer: Exterior alkyd or latex-based primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.

1. Ferrous-Metal and Aluminum Substrates: Rust-inhibitive metal primer.

2. Zinc-Coated Metal Substrates: Galvanized metal primer.

3. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.

C. Interior Primer: Interior latex-based or alkyd primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.

1. Ferrous-Metal Substrates: Quick drying, rust-inhibitive metal primer.

2. Zinc-Coated Metal Substrates: Galvanized metal primer.

3. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.

2.4 Schedule of Finishes:

A. Not all Finishes may apply. Refer to Drawings for Materials for finishes.

SEMI-GLOSS (41-69%) Unless Noted Otherwise.					
Materials	**No.**	**Primer or First Coat**	**Second Coat**	**Third Coat**	**Fourth Coat**
Stucco (Exterior)	P1	Super-Loc W 718	Permasheen #W 901	Permasheen #W901	--
Painted Masonry (Interior)	P2	Blocfil Smooth #W 305	Decoglo #W 450	Decoglo #W 450	--
Non-Ferrous Metal (Exterior)	P3	Galv-Alum #QD 43-7	Permasheen #W 901	Permasheen #W 901	--
Ferrous Metals (Exterior)	P4	Corrobar #43-5	Permasheen #W 901	Permasheen #W 901	--
Non-Ferrous Metals (Interior)	P5	Galv-Alum #QD 43-7	Decoglo #W 450	Decoglo #W 450	--
Ferrous Metals (Interiorr)	P6	Corrobar #43-5	Decoglo #W 450	Decoglo #W 450	--

PART 3 - EXECUTION

3.1 APPLICATION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

C. 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 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.

D. 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 re-prime.

2. Cementitious Materials: 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.

3. Ferrous Metals: Clean un-galvanized 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's recommendations.

a. Blast steel surfaces clean as recommended by paint system manufacturer and according to SSPC-SP 6/NACE No. 3 or SSPC-SP 10/NACE No. 2.

b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.

c. 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 same primer as the shop coat.

4. Galvanized Surfaces: Clean galvanized surfaces with non-petroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

E. Material Preparation:

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.

F. Exposed Surfaces: Include areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.

1. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

2. Paint interior surfaces of ducts with a flat, non-specular black paint where visible through registers or grilles.

3. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

4. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.

G. 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.

1. Omit primer over metal surfaces that have been shop primed and touchup painted.

2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.

H. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

I. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by manufacturer.

J. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.

K. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

L. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by 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.

M. 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.

3.2 CLEANING AND PROTECTING

A. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

B. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

C. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION 09910- PAINTING

SECTION 10431 – **SIGNS**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Exterior panel signs mounted flush with face of finish stucco.
2. Signage accessories.

1.2 DEFINITIONS

A. ADA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities.

1.3 SUBMITTALS

A. Product Data: For each product indicated.

B. Shop Drawings: Include plans, elevations, sections, details, wiring diagrams**,** and attachments to other Work.

1. Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.
2. Provide message list, typestyles, graphic elements, including tactile characters and Braille, and layout for each sign.

C. Samples: For each sign material indicated that involves color selection.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with the Americans with Disabilities Act (ADA) Accessibility Guidelines, ICC/ANSI A117.1, and all with code provisions as adopted by authorities having jurisdiction.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).

2.2 PANEL SIGNS

A. General: Provide ADA compliant exterior restroom signage with room name, symbols, and raised braille copy to suit each type of Toilet Room provided as indicated on the Drawings.

B. Exterior Panel Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch (1.5 mm) measured diagonally from corner to corner, complying with the following requirements:
   1. Acrylic Sheet: 0.080 inch (2.03 mm) thick or greater.
   2. Edge Condition: Square cut.
   3. Corner Condition: Rounded.
   4. UV resistant.
   5. Wall Mounting: Flush to masonry wall inset into stucco.
   6. Background Color: Blue
   7. Symbols: white
   8. Copy Font: Helvetica white.

C. 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 are UV and water resistant for five years for application intended.

   1. Color: Blue background, white copy.

D. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA 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.

   1. Panel Material: Opaque acrylic sheet.
   2. Raised-Copy Thickness: Not less than 1/32 inch (0.8 mm).

2.3 ACCESSORIES

A. Mounting Methods: Use concealed fasteners fabricated from materials that are not corrosive to sign material and mounting surface.

PART 3- EXECUTION

3.1 PREPARATION

A. General: **SPECIAL NOTE:** Coordinate with stucco applicator to install recessed wall mounted signs flush with face of finish stucco to protect edges.

3.2 INSTALLATION

A. General: Locate signs and accessories where indicated, using mounting methods of types described and in compliance with manufacturer's written instructions.

1. Install signs level, plumb, and at heights indicated, with sign surfaces free from distortion and other defects in appearance.

B. Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using method indicated below:

1. Silicone-Adhesive Mounting: Use liquid-silicone adhesive recommended in writing by sign manufacturer to attach signs to irregular, porous, or vinyl-covered surfaces.

END OF SECTION 10431

SECTION 10801 - **TOILET ACCESSORIES**

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Toilet Accessories.
2. Under-lavatory Guards.
3. Recessed Stainless Steel Diaper Changing Stations.
4. Semi-Recessed Chase Mounted Secure Hand Dryers.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use room and product designations indicated on Drawings.

1.3 WARRANTY

A. Hand Dryer Warranty: Manufacturer's standard 3 year warranty from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Products: The design for toilet accessories described in Part 2 is based on products indicated. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:

1. Toilet and Bath Accessories:
   a. Bobrick Washroom Equipment, Inc. (Basis of Design)
   b. Bradley Corporation. (Basis of Design)

2. Under-lavatory Guards:

   a. Brocar Products, Inc.
   b. Truebro, Inc (Basis of Design)

3. Recessed Stainless Steel Diaper Changing Stations:
   a. **Bobrick** Washroom Equipment, Inc. (Basis of Design)

4. Semi-Recessed Chase Mounted Secure Hand Dryers:
   a. **Murdock Super Secur** Restroom Accessories. (Basis of Design)

2.2 MATERIALS:

A. Stainless Steel: ASTM A 666, Type 304, No. 4 finish (satin), 0.0312-inch minimum nominal thickness, unless otherwise indicated.

B. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.

C. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

2.2 TOILET AND BATH ACCESSORIES

A. Recessed Liquid-Soap Dispensers

1. Basis-of-Design Product: **Bradley 6437**
2. Faceplate: **18 gauge stainless steel**, faceplate and soap vessel form one integral piece.
3. Mounting: **Recessed, securely fasten and epoxy recessed outer shell into masonry wall to secure.**
4. Capacity: **32 ounce liquid soap.**
5. Operation: **Less than 5 lbs of pressure, ADA compliant**
6. Overall faceplate dimensions**: 10.25”W x 6.25”H x 4.0”D.**
7. Recessed dimensions: **8”W x 4”H into masonry wall**
8. Soap vessel liner: **molded high impact polystyrene.**
9. Soap Valve**: chrome plated brass with ABS mechanism.**

B. Grab Bar

1. Basis-of-Design Product: **Bobrick 6806 Series**, **lengths as indicated on Drawings.**
2. Material: Stainless steel, **0.05 inch thick.**
3. Mounting: **Concealed, Tamper-proof**
4. Gripping Surfaces: **Standard**
5. Outside Diameter: **1-1/4 inches for heavy-duty applications**.

C. Semi-Recessed Rear (Chase) Mount Hand Dryers:

1. Basis-of-Design Product: **Murdock Super Secur Fastaire Hand Dryer 1118-3 (HD-03)**

2. Mounting: **Switch box, blower unit and air duct are mounted in the Plumbing Chase. Cast aluminum nozzle with start button is mounted on the face of the wall. Pushrod assembly is mounted via threaded pipe through the masonry wall.**
3. Finish: **Vandal resistant epoxy coated cast aluminum nozzle with start button.**

D. Horizontal, Recessed Mounted Baby Changing Station:

1. Basis-of-Design Product: **Bobrick KB110-SSRE**
2. Material: **18 gauge type 304 stainless steel exterior finish with molded gray color polystyrene interior.**
3. Mounting: **Recessed, see Drawings**
4. Gripping Surfaces: **Standard**
5. Dimensions: Unit 3**7"W x 23"H**
6. Depth (Closed): **3/4 inch from face of wall**
7. Depth: (recessed): **4 inches**
8. Rough Wall Opening (wood furring per drawings): **35.5"W x 20.5"H x 4.0"D.**
9. Face trim Flange**: 2 inches all around**

E. Under-lavatory Guards:

1. Basis-of-Design Product: **Truebo Lav Guard 2 Undersink Piping Covers**

2. Insulating Piping Coverings: **ADA compliant white, antimicrobial, molded-vinyl covering for supply and drain piping assemblies** intended for use at accessible lavatories to prevent direct contact with and burns from piping. Provide components as required for applications indicated with flip tops at valves that allow service access without removing coverings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Install grab bars to withstand a downward load of at least **900 lb** when tested according to method in ASTM F 446.

B. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items. Remove temporary labels and protective coatings.

C. Seal & Caulk around all recessed accessories with clear silicone.

END OF SECTION 10801- TOILET ACCESSORIES