

ATTACHMENT I

Scope of Work

ATTACHMENT I

**Maintenance Shop Building
Men's Toilet and Locker Room Renovation
For
Orange County Drainage District**

Orange, Texas

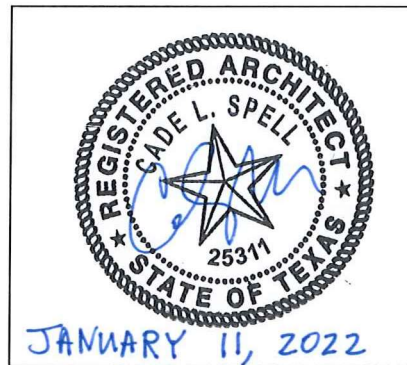
Bids and Construction Documents

December 11, 2022



5955 Phelan Boulevard, Ste. L | Beaumont, Texas 77706-6100

**Maintenance Shop Building Men's Toilet and
Locker Room Renovation
for
Orange County Drainage District**



Cade L. Spell, A.I.A.
Long Architecture

PROJECT MANUAL INDEX

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DIVISION 01-GENERAL REQUIREMENTS

SECTION 010000- GENERAL REQUIREMENTS

111000- SUMMARY OF WORK

- 1.1** All workmanship and materials will be supervised and inspected by a superintendent present full time during construction furnished by the Contractor. It will be his duty to advise, coordinate, instruct, oversee, and evaluate the performance of his workers, and each subcontractor and to see that the Contract Documents are properly followed and complied with and to maintain accurate record drawings of the construction in the field.

011113- WORK COVERED BY CONTRACT DOCUMENTS

- 1.1** Work outlined in the Specifications and shown and noted on the Drawings will be awarded under multiple contracts with the Contractor to subcontractors and material suppliers specializing in the different areas of construction required by the Documents.

011116- WORK BY OWNER

- 1.1** Owner reserves the right to award any work under separate contract that they deem necessary, and the Contractor and all subcontractors and material suppliers will cooperate to the fullest with Owner and their separate Construction Managers at Risk, Contractors, or Subcontractors.

011119- PURCHASE CONTRACTS

- 1.1** The Owner reserves the right to self-perform certain work not awarded under this contract or under other contracts, and the Contractor and all subcontractors and material suppliers will coordinate with the Owner and their workers so as not to interfere with the successful completion of their work.

011120- LIQUIDATED DAMAGES

- 1.1** It is understood and agreed between the parties hereto, that time is of the essence in this contract, and in case the Contractor shall fail to fully, entirely and in conformity with the provisions of this contract, perform and substantially complete said work within the time frame stated in the Specification, the Architect shall compute the number of days of delinquency until such time as the project is complete. It is hereby acknowledged by the Contractor that such delinquency will cause additional costs and expenses to the Owner from the incomplete work, and that the said delinquency is a damage to the Owner caused through the fault of the Contractor.

It is hereby agreed between the Contractor and the Owner, that the amount of said damages are here ascertained and liquidated at the rate of **FIVE HUNDRED DOLLARS (\$500.00)** per calendar day of delay. The Contractor hereby agrees to pay the stated sum to the Owner for each and every day of delinquency.

END OF SECTION

SECTION 012000- PRICE AND PAYMENT PROCEDURES

012200- UNIT PRICES

012100- Allowances

- 1.1 A. Following is a list of items and allowance amounts for this project:
1. Ceramic Wall tile- \$9.00/sq.ft. materials only. Reference Division 9.
 2. Porcelain Floor Tile- \$9.00/sq.ft. materials only. Reference Division 9

012213- Unit Price Measurement

- 1.1 Before ordering any materials or doing any work, the Contractor shall verify all measurements, (existing and new), of the work and shall be responsible for the correctness of same; any difference which may be found shall be submitted to the Architect for consideration before proceeding with any work. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on the drawings. If there should be any discrepancy between scale and dimension, figured dimensions always override scaled dimensions. Although drawings are drawn to scale, as indicated, and dimensions are given, field dimensions shall be taken and verified with the Architect.

012983- Payment Procedure for Testing Laboratory Services

- 1.1 The testing laboratory will be paid for and selected by the Owner under a separate contract, however, the Contractor will, at all times, be responsible for notifying the testing laboratory well in advance of the time of their required services. The Contractor shall maintain a log of requested laboratory tests, including the dates and times of all testing laboratory service request notifications and the dates and time testing laboratory arrived on site to perform the requested tests.

END OF SECTION

SECTION 013000-ADMINISTRATIVE REQUIREMENTS

013100- PROJECT MANAGEMENT AND COORDINATION

013113- Project Coordination

- 1.1** A. Notice to Proceed must be issued by Architect before work may begin. The following documents must be submitted to the Architect prior to the Architect's issuance of a Notice to Proceed:
1. Performance and Payment Bond (if required by Owner)
 2. Certificate of Liability Insurance
 3. Schedule of Values
 4. Construction Schedule
 5. Subcontractors list
 6. Bid Security

013119- Project Meetings

013119.13-Preconstruction Meetings

- 1.1** A. This Section specifies administrative and procedural requirements for project meetings including, but not limited to:
1. Pre-Construction Conference
 2. Pre-Installation Conference
 3. Coordination Meetings
 4. Progress Meetings
- B. Construction schedules are specified in Section 013300.
- 1.2** A. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers, and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
1. Tentative construction schedule.
 2. Critical Work sequencing.
 3. Designation of responsible personnel.
 4. Procedures for processing field decisions and Change Orders.
 5. Procedures for processing Applications for Payment.
 6. Distribution of Contract Documents.
 7. Submittal of Shop Drawings, Product Data, and Samples.
 8. Preparation of record documents.
 9. Use of the premises.
 10. Office, work, and storage areas.
 11. Equipment deliveries and priorities.
 12. Safety procedures.
 13. First aid.
 14. Security.
 15. Housekeeping.

16. Working hours.
17. Supplementary Conditions of the Contract for Construction.
18. Procedures for requesting construction document clarifications.
19. Procedures for reporting and correcting non-compliant work.
20. Substantial completion of work or portion thereof.
21. Cost certification requirements.

013119.16- Site Mobilization Meetings

- 1.1 A. Conduct project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- C. Record meeting results and distribute copies to everyone in attendance and to others affected by the decisions or actions resulting from each meeting.

013119.23-Progress Meetings

- 1.1 A. Conduct progress meetings at the Project site once every two weeks. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meeting with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
- D. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule and, whether each activity is on time, ahead, or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 1. Review the present and future needs of each entity present, including items such as:
 - a. Interface requirements
 - b. Time
 - c. Sequences
 - d. Deliveries
 - e. Off-site fabrication problems
 - f. Access
 - g. Site utilization
 - h. Temporary facilities and services
 - i. Hours of Work
 - j. Hazards and risks
 - k. Housekeeping
 - l. Quality and Work standards
 - m. Change Orders
 - n. Documentation of information for payment requests

- E. Reporting: No later than three (3) days after each progress meeting date, the contractor shall distribute copies of meeting minutes to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - 1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

013119.33- Pre-Installation Meetings

- 1.1
 - A. Conduct a pre-installation meeting at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and Fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow shall attend the meeting. Advise the Architect of scheduled meeting dates.
 - B. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation meeting, including requirements for:
 - 1. Contract Documents
 - 2. Options
 - 3. Related Change Orders
 - 4. Purchases
 - 5. Deliveries
 - 6. Shop Drawings, Product Data, and quality control samples
 - 7. Possible conflicts
 - 8. Compatibility problems
 - 9. Time schedules
 - 10. Weather limitations
 - 11. Manufacturer's recommendations
 - 12. Compatibility of materials
 - 13. Acceptability of substrates
 - 14. Temporary facilities
 - 15. Space and access limitations
 - 16. Governing regulations
 - 17. Safety
 - 18. Inspection and testing requirements
 - 19. Required performance results
 - 20. Recording requirements
 - 21. Protection
 - C. Record significant discussions and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.
 - D. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

END OF SECTION

SECTION 013200- CONSTRUCTION PROGRESS DOCUMENTATION

013219- CONSTRUCTION SCHEDULE

- 1.1** A. The Contractor will provide a construction schedule showing in detail the projected scheduled progress of the project.
- B. The Contractor will update and submit the Construction schedule every two weeks, or as needed by the Owner and Architect. Additionally, the Contractor must submit two-week and four-week workload projection schedules at the same time for review by the Owner and Architect.

013219- SUBMITTAL SCHEDULE

- 1.1** A. The Contractor will provide a submittal schedule showing in detail the projected scheduled issuance of submittals for the project for review by the Owner and Architect.

013226- CONSTRUCTION PROGRESS REPORTING

- 1.1** A. The Contractor will give a full written accounting of construction progress at all Construction Progress meetings, noting any foreseeable difficulties or time-sensitive issues well in advance of the critical timeline for such issues or items.

013300 –SUBMITTAL PROCEDURES

- 1.1** A. Related Documents:
 - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.
- 1.2** A. Summary:
 - 1. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:
 - a. Contractor's construction schedule.
 - b. Submittal schedule.
 - c. Daily construction reports.
 - d. Shop Drawings.
 - e. Product Data.
 - f. Samples.
 - g. Request for interpretation.
 - B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
 - a. Permits.
 - b. Applications for payment.
 - c. Performance and Payment bonds.
 - d. Insurance certificates.
 - e. List of Subcontractors
 - C. The Schedule of Values submittal is included in Section "Applications for Payment".
 - D. Inspection and test reports are included in Section "Quality Control Services".

1.3 A. Submittal Procedures:

1. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
2. Submit to the Architect for review three (3) copies of checked shop drawings for all items as required in later sections of these specifications.
3. The Architect will review shop drawings only for conformance with the design intent of the project and compliance with information given in the Contract Documents. **The Contractor and his Subcontractors are responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.**
4. Resubmit all shop drawings promptly which are returned for correction. Fabrication shall be started only after receipt of drawings requiring no further re-submittals.
5. Review of shop drawings will in no event constitute a waiver of detailed and/or specified requirements unless so stated in writing by the Architect.
6. Samples to be submitted to Architect as required in later sections of these specifications.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 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 elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals. Shop drawings must be submitted well in advance of the construction for which it is scheduled. Late submittals of shop drawings by the Contractor or his subcontractors will not be reason to use a lesser quality substitute material or to extend the Contract Time.
 4. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
 - a. If an intermediate submittal is necessary, process the same as the initial submittal.
 5. Allow two weeks for reprocessing each submittal.
 - a. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
 6. The Contractor shall check all submittals **BEFORE** submitting them to the Architect, noting thereon all errors detected.
- C. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 - 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. Number and title of appropriate Specification Section.
 - 1. Drawing number and detail reference, as appropriate.
- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
 - 1. Record on the transmittal relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

1.4 A. Contractor's Construction Schedule

- 1. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 30 days of the date established for "Commencement of the Work".
 - a. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
 - b. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 - c. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in the proper sequence, indicate graphically sequences necessary for completion of related portions of the Work.
 - d. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontractors, submittal schedule, progress reports, payment requests, and other schedules.
 - e. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
 - 1. When revisions are made, distribute 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 construction activities.
- D. Schedule Updating: Revise the schedule as needed. Issue the updated schedule concurrently with report of each meeting.

1.5 A. Submittal Schedule:

- 1. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.
 - a. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.

- b. Prepare the schedule in chronological order; include submittals required during the first 90 days of construction. Provide the following information:
 - 1. Scheduled date for the first submittal.
 - 2. Related Section number.
 - 3. Submittal category.
 - 4. Name of subcontractor.
 - 5. Description of the part of the Work covered.
 - 6. Scheduled date for resubmittal.
 - a. Scheduled date the Architect's final release or approval.
- B. Distribution: Following response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
 - 1. When revisions are made, distribute 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 construction activities.
- C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.6 A. Daily Construction Reports

- 1. Prepare a daily construction report, recording the following information concerning events at the site; make report available to the Architect and Owner at the Project site:
 - a. List of subcontractors at the site.
 - b. Approximate count of personnel at the site.
 - c. General weather conditions.
 - d. Accidents and unusual events.
 - e. Meetings and significant decisions.
 - f. Stoppages delays, shortages, losses.
 - g. Orders and requests of governing authorities.
 - h. Services connected, disconnected.
 - i. Equipment or system tests and start-ups.
 - j. Partial Completions, occupancies.
 - k. Substantial Completions authorized.

1.7 A. Shop Drawings

- 1. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise insert deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings. The Contractor shall check shop drawings **BEFORE** submitting them to the Architect, noting thereon all errors detected.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns and templates, and similar drawings. Include the following information.
 - 1. Dimensions.
 - 2. Identification of products and materials included.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurement.
- C. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings sheets at least 8-1/2" x 11" but no larger than 36" x 48".
- D. Initial and intermediate submittals: Submit two blue- or black-line prints for the Architect's review. The print will be returned.

- E. Final Submittal: Submit three blue- or black-line prints for the Architect's review; one print will be returned. The Contractor shall provide necessary final copies to be included in maintenance manual.
 - 1. One copy maintained as a "Record Document".
 - a. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
 - b. Resubmit all shop drawings promptly which are returned for correction. Fabrication shall be started only after receipt of drawings requiring no further resubmittals.
- F. Coordination drawings are a special type of Shop Drawings to show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.
 - 1. Preparation of coordination Drawings is specified in section "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
 - 2. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.
- G. Review of shop drawings will in no event constitute a waiver of detailed and/or specified requirements unless so stated in writing by the Architect.
- H. The following is a list of required shop drawings. This list is not all inclusive. Submit shop drawings for all items as required by subsequent section of these specifications:
 - 1. Masonry ties and reinforcing.
 - 2. Miscellaneous steel.
 - 3. Insulation
 - 4. Sealant
 - 5. Water proofing/damp proofing materials.
 - 6. Paint
 - 7. All mechanical, electrical, plumbing items

1.8 A. Product Data

- 1. Collect Product Data into a single submittal for each element of construction or system. Product Data included printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, rough-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings".
- B. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
 - 1. Manufacturer's printed recommendation.
 - 2. Compliance with recognized trade association standards.
 - 3. Compliance with recognized testing agency standards.
 - 4. Application of testing agency labels and seals.
 - 5. Notation of dimensions verified by field measurement.
 - a. Notation of coordination requirements.
- C. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- D. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.

- E. Submittals: Submit three (3) copies of each required MEP submittal; submit three (3) Architectural submittals and submit four (4) where required for maintenance manuals. The Architect will retain one, and will return the others marked with the action taken and corrections or modifications required.
 - 1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- F. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, Manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - 1. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
 - 2. Do not permit use of unmarked copies of Product Data, in connection with construction.

1.9 A. Samples

- 1. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
 - a. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:
 - 1. Generic description of the Sample.
 - 2. Sample source.
 - 3. Product name or name of manufacturer.
 - 4. Compliance with recognized standards.
 - a) Availability and delivery time.
 - b. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittals and the actual component as delivered and installed.
 - c. Where variation in color, pattern, texture or other characteristics are inherent to the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
 - d. Refer to other Specification Sections for requirements for Samples that illustrate workmanship and fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
 - e. Refer to other Sections for Samples to be returned to the Contractor for incorporation into the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special request regarding disposition of Sample submittals.
- B. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
 - 1. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.
- C. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit four (4) sets; one will be returned marked with action to be taken.
 - 1. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

2. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 - a. Sample sets may be used to obtain final acceptance of the construction associated with each set.
 - D. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
 1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finished materials and to establish the standard by which the Work will be judged.
 - a. Comply with submittal requirements, to the fullest extent possible. Process transmittal forms to provide a record of activity.
- 1.10**
- A. Architect's Action: Except for submittals for record, information or similar purposes where action and return is required or requested, the Architect will review each architectural submittals, mark to indicate action taken, and return promptly.
 1. Compliance with specified characteristics is the Contractor's responsibility.
 - B. Submit to the Architect for review three (3) copies of checked shop drawings for all items as required in later sections of these specifications.
 - C. The Architect will review shop drawings only for conformance with the design intent of the project and compliance with information given in the Contract Documents. **The Contractor and his Subcontractors are responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.**
 - D. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked as follows, to indicate the action taken:
 - E. Final Release: where submittals are marked "No Exceptions," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 - F. Final-But-Restricted- Release: When submittals are marked "Exceptions Noted" or "Make Corrections Noted", as part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 - G. Returned for Resubmittal: When submittal is marked "Revise and Resubmit", do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, deliver, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 1. Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
 - H. Other Action: Where submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "No Exceptions".
- 1.11**
- A. Request for Interpretation: All contractor requests for interpretation pertaining to all aspects of the construction documents and this project shall be submitted on the form at the end of this section, or on the Construction Specification Institute form CSI Form 13.2A, "Request for Interpretation". The Architect shall review the Contractor's "Request for Interpretation" form for acceptance, if requested for use.

END OF SECTION

REQUEST FOR INTERPRETATION (R.F.I)

Project Name: Maintenance Shop Building Men's Toilet and Locker Room Renovation

Date Submitted: _____

Contractor: _____

RFI #: _____

Architect: Long Architecture

This is a field and/or office request for interpretation to supplement the design data depicted on the drawings or in the specifications. Changes to the Contract Documents, the Contract Sum, or the Time for Contract Performance that may result from the replay to the RFI shall be processed in accordance with the changes clause of the Contract, if appropriate.

Question Submitted by: _____

Proposed or Suggested Solution from: _____ **Date:** _____

Attached Drawing/Specification referenced:

DEVELOPMENT SERVICES BUILDING OFFICE USE ONLY:

RFI response issued to following on-Date: _____

SECTION 014000- QUALITY REQUIREMENTS

GENERAL

1.1 A. Related Documents

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

1.2 A. Summary: This section specifies administrative and procedural requirements for quality control services.

- B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include Contract enforcement activities performed by the Architect.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor or responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard.
 1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
 2. Inspections, test and related actions specified are not intended to limit the contractor's quality control procedures that facilitate compliance with Contract Document requirements.
 3. Requirements for the Contractor to provide quality control services required by the Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 A. Responsibilities

1. Contractor Responsibilities: The Contractor shall provide inspections, tests and similar quality control services specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the Contract Sum.
 - a. The Contractor shall employ and pay an independent agency to perform quality control services specified in PART 1- GENERAL, QUALITY ASSURANCE. The cost for these services is not borne by the Owner.
 - b. The Owner will engage the services of an independent agency to perform some of the inspections and tests specified in PART 3- EXECUTION, QUALITY CONTROL, QUALITY CONTROL TESTING DURING CONSTRUCTION, or FIELD QUALITY CONTROL. Payment for these services will be made by the Owner.
 1. Where the Owner has engaged a testing agency or other entity for testing and inspection of a part of the Work, and the Contractor is also required to engage an entity for the same reason or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.
 - c. Retesting: The Contractor is responsible for retesting where results of required inspection, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the contractor's responsibility.
 1. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

- d. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:
 1. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
 2. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 3. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
 4. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 5. Security and protection of samples and test equipment at the Project site.
- e. The Contractor will, at all times, be responsible for notifying the testing laboratory well in advance on their required services.
- f. Payment Management and Issuance of Progress Payment Applications:
 1. Reference Division 1, Section 012900- PAYMENT PROCEDURES, 012976- Progress Payments Procedure, 1.2.
2. Owner Responsibilities: The Owner will provide inspections, tests and similar quality control services specified to be performed by independent agencies and not by the Contractor, except where they are specifically indicated as the Contractor's responsibility or are provided by another identified entity. Costs for these services are not included in the Contract Sum.
 - a. The Owner will employ and pay for these services of an independent agency, testing laboratory or other qualified firm to perform services which are the Owner's responsibility, however, the Contractor will, at all times, be responsible for notifying the testing laboratory well in advance on their required services.
3. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Architect and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.
 - a. The agency shall notify the Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - b. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
 - c. The agency shall not perform any duties of the Contractor.
 - d. **All testing laboratory reports** must be sent to the Architect and Owner directly from the testing laboratory.
4. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. Additionally, Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
 - a. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.
 - b. The Contractor shall maintain a log of requested laboratory tests, including the dates and times of all testing laboratory service request notifications and the dates and time testing laboratory arrived on site to perform the requested tests.

- 1.4** A. Submittals: The independent testing agency shall submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.
- B. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
- C. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:
1. Date of issue.
 2. Project title and number
 3. Name, address and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making the inspection or test.
 6. Designation of the Work and test method.
 7. Identification of product and Specification Section.
 8. Complete inspection or test data.
 9. Test results and an interpretation of test results.
 10. Ambient conditions at the time of sample-taking and testing.
 11. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting.
- 1.5** A. Quality Assurance:
1. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.
 - a. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

PART 2- Products (not applicable)

PART 3- EXECUTION

- 3.1** A. Repair and Protection: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching".
- B. Protect construction exposed by or for quality control service activities, and protect repaired construction.
- C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

014100- REGULATORY REQUIREMENTS

014113-Codes

- 1.1** A. All work must conform to the following Codes, with current amendments as adopted by the City.
1. 2015 International Building Code
 2. 2015 International Fire Code
 3. 2015 International Existing Building Code
 4. 2015 International Mechanical Code
 5. 2015 International Energy Conservation Code
 6. 2015 International Fuel Gas Code
 7. 2015 National Electrical Code
- B. 2012 Texas Accessibility Standards, Elimination of Architectural Barriers, Texas Government Code, Chapter 469.
- C. Applicable OSHA requirements.
- D. Factory Mutual Requirements and NFPA Standards.
- E. Applicable portions of the most recent editions of the following:
1. The American Institute of Steel Construction (AISC)
 2. The American Concrete Institute (ACI)
 3. Applicable ANSI Standards
 4. NFPA Life Safety Code, NFPA 101
 5. Texas Department of Insurance Windstorm requirements
- F. All City, County, State, and Federal Standards
- G. 2010 ADA Standards for Accessible Design, Title II and III of the Americans with Disabilities Act of 1990.

014126- Permits

- 1.1** The Contractor is responsible for submitting all documents, and paying all fees required to obtain all necessary permits for the complete construction of the project.

END OF SECTION

SECTION 014200-REFERENCES

014216- DEFINITONS

- 1.1** Whenever the following terms are used in these specifications, in the contract, in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

ADVERTISEMENT:

A public announcement inviting bids for work to be performed and materials to be furnished.

ASTM:

The American Society for Testing and Materials.

APPROVED: The term approved, when used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.

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

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

AWARD:

The acceptance, by the owner, of the successful bidder's proposal.

BIDDER/PROPOSER:

Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

CALENDAR DAY:

Every day shown on the calendar.

CHANGE ORDERS:

A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. The work, covered by a change order, shall be within the scope of the contract.

COMPARABLE:

Similar, of like quality, as determined by the Architect.

CONTRACT:

The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: the Advertisement; the Contract Form; the Proposal; the Performance Bond; the Payment Bond; any required insurance certificates; the Specifications; the Plans; and any addenda issued to proposers.

CONTRACT ITEM (PAY ITEM):

A specific unit of work for which a price is provided in the contract.

CONTRACT TIME:

The number of calendar days or working days stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.

CONTRACTOR:

The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.

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

EQUIPMENT:

All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

EXTRA WORK:

An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the engineer to be necessary to complete the work within the intended scope of the contract as previously modified.

FURNISH: The term furnish means supply and deliver to the Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.

GENERAL: Basic Contract definitions are included in the Conditions of the Contract.

INDICATED: The term indicated refers to graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference. There is no limitation on location.

INSTALL: The term install describes operations at the Project Site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protection, cleaning, and similar operations.

INSTALLER: An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term experienced, when used in the term Installer, means having a minimum of five (5) previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.

LABORATORY:

The official testing laboratories of the owner or such other laboratories as may be designated by the engineer.

MATERIALS:

Any substance specified for use in the construction of the contract work.

NOTICE TO PROCEED:

A written notice to the Contractor to begin the actual contract work on a previously agreed date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

OWNER (SPONSOR):

The term owner shall mean the party of the of the first part of the contracting agency signatory to the contract.

PAVEMENT:

The combined surface course, base course, and sub-base course, if any, considered as a single unit.

PAYMENT BOND:

The approved form of security furnished by the Contractor and his surety as a guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

PERFORMANCE BOND:

The approved form of security furnished by the Contractor and his surety as a guarantee that the Contractor will complete the work in accordance with the terms of the contract.

PLANS:

The official drawings or exact reproductions, approved by the Architect or Engineer, which show the location, character, dimensions and details of the project and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications.

PROJECT:

The agreed scope of work for accomplishing specific improvements.

PROJECT SITE: Project site is the space available to the Contractor for performing construction activities either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project site is shown on the drawings and may or may not be identical with description of the land on which the Project is to be built.

PROPOSAL:

The written offer of the proposer (when submitted on the bid or proposal forms) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.

PROPOSAL GUARANTY:

The security furnished with a proposal to guarantee that the bidder will enter into a contract if his proposal is accepted by the owner.

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

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

SPECIFICATIONS:

A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.

STRUCTURES:

Facilities such as bridges, culverts, catch basins, inlets, retaining walls, cribbing, storm and sanitary sewer lines, water lines, under-drains, electrical ducts, manholes, hand-holes, lighting fixtures and bases, transformers, flexible and rigid pavements, buildings, vaults, and other man-made features that may be encountered in the work and not otherwise classified herein.

SUBGRADE:

The soil which forms the pavement foundations.

SUPERINTENDENT:

The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the Architect and Engineer, and who shall supervise and direct the construction.

SUPPLEMENTAL AGREEMENT:

A written agreement between the Contractor and the Owner covering:

1. Work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25 percent (25%), such increased or decreased work being within the scope of the originally awarded contract, or
2. Work that is not within the scope of the originally awarded contract.

SURETY:

The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds which are furnished to the owner by the Contractor.

TESTING AGENCIES: A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

TRADES: Using terms such as carpentry is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as carpenter. It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

WORK:

The furnishing of all labor, materials, tools, equipment and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.

WORKING DAY:

A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least 6 hours toward completion of the contract. Unless work is suspended for causes beyond the Contractor's control, Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work, requiring the presence of an inspector, will be considered as working days.

014500-QUALITY CONTROL

014529-Testing Laboratory Services

- 1.1** All testing laboratory reports must be sent to the Architect and Owner directly from the testing laboratory.
- 1.2** The testing laboratory will be paid for and selected by the Owner under a separate contract, however, the Contractor will, at all times, be responsible for notifying the testing laboratory well in advance of their required services.
- 1.3** The Owner will obtain, and pay directly for, the services of a testing laboratory, approved by the Architect, for determining the degree of compaction, or re-compacted existing sub-grade, earth fill, sand, and for analysis and Atterberg Limits Tests of earth fill. The Contractor will coordinate and organize these services, as well as any additional services required to comply with specifications.
- 1.4** Compaction Test Required: The testing laboratory shall check the fill material at the pit or source of supply and make liquid limit and P.I. tests before the engineer approves the material. Provide a minimum of 4 tests of sub-grade and 4 of fill per lift located where directed by the Architect or Engineer. If additional tests are required for reason of poor compaction work by the contractor, such additional tests shall be paid for by the Contractor without cost to the Owner.
- 1.5** The Contractor shall notify the testing laboratory sufficiently in advance concerning fill materials and placement so tests can be made. ***Any work completed without being tested according to the specifications will be rejected.**
- 1.6** Duties of the Testing Agency: As specified in Section 014000 Quality Requirement, 1.3 Responsibilities

END OF SECTION

SECTION 015000- TEMPORARY FACILITIES AND CONTROLS

GENERAL

- 1.1** The Contractor shall be responsible to Owner for all temporary facilities, storage areas, and traffic controls around the project site during the construction period and shall control excessive dust, noise, etc. Temporary parking areas for contract workers will be designated by the Owner.
- 1.2** A. Access to the Site:
1. Access to the site will be made available by the Owner, and will be specifically addressed at the pre-construction conference.
 2. Suitable areas at the project site for the Contractor's field office, warehouse, etc., and exterior storage of materials will be determined by the Owner, Architect, and Contractor, and will be provided free of charge by the Owner.
- 1.3** A. Temporary Controls: The Contractor shall provide the following as a minimum requirement:
1. Pumping: When necessary to avoid delay or to protect work on the premises, provide pumping equipment and keep excavations, pits, and other areas involved, free of water that may accumulate due to rain or leakage.
 2. Shoring: Provide and be responsible for all temporary shoring required for executing work.
 3. Temporary Coverings: When necessary to avoid delay or to protect work or equipment, provide suitable watertight coverings over openings admitting rain. All openings shall have full protection established and in place at all times.
 4. Erosion and silt control as required under the State and Federal laws.
 5. All full protection system is required.

015100-TEMPORARY UTILITIES

- 1.1** A. The Contractor shall make arrangements for temporary water, electrical service, and other utilities necessary for construction purposes, and shall bear all costs associated with setting them up for construction purposes and removing them at final completion.
- B. All temporary water usage fees, electric utility service costs, and other utility usage fees will be paid for by the Contractor.
- C. Electric utility main service costs will be paid by the Owner.
- D. Temporary services must provide for all necessary construction equipment, security lighting, office trailer(s), etc. required by the Owner and Contractor. Contact the Owner and the City for their temporary power requirements.

015200-CONSTRUCTION FACILITIES

015213-Field Offices and Sheds

- 1.1** A. Temporary Office:
1. The Contractor must provide a job site office. It's location must be coordinated with the Architect and Owner.
 2. Maintain one (1) copy of all reviewed shop drawings, manufacturers' directions, drawings, specifications, all letters connected with the work, samples, change orders, project logs, and the Contractor's monthly statements at all times on the job site.
 3. Computer, Internet, Fax, and Telephone Service: The Contractor shall provide or arrange for a computer with Microsoft Word (2007 or later version); Adobe Acrobat Reader DC

(current version), internet, standard 8.5 x 11 printer, fax and telephone at the job for the use of all of his subcontractors, the Owner, and the Architect at the job trailer. The Contractor shall pay for the installation, maintenance, removal and charges for use of these services.

- B. Storage Rooms: If necessary, provide, maintain, and remove when directed, suitable watertight storage facilities at the job site to store all materials subject to damage by weather.
- C. Removal of Temporary Facilities: The Contractor shall remove all temporary facilities provided on the premises for his own use at the termination of their usefulness and termination of the work, or when requested, and shall leave the premises and adjacent property affected by the work in a condition satisfactory to the Owner.

015219-Sanitary Facilities

- 1.1 The Contractor shall provide and maintain sanitary toilets and sanitary urinals located where directed by Owner for use by those engaged at the job site. For each 25 workmen provide one (1) urinal and one (1) toilet. Keep such toilet facilities in sanitary condition and at the completion of the contract, remove them from the job site, leaving the location clean and in a sanitary condition.

015600-TEMPORARY BARRIERS AND ENCLOSURES

- 1.1 The Contractor shall provide and maintain suitable barricades, fences, guard rails and other protective structures to protect general public property or stored materials. The Contractor shall also provide and maintain, between sunset and sunrise, warning lights on any structures, equipment, material, excavation or other elements of constructions located outside of the construction area.

015800-PROJECT IDENTIFICATION

015813-Temporary Project Signage

- 1.1
 - A. Contractor shall provide one (1) 8' x 8' job sign per jobsite located as indicated by the Architect and constructed as detailed by the Architect and approved by the Owner. The job signs shall be constructed and installed immediately after the construction commences and will remain in place until final completion or by instruction of the Owner. The job sign will include the job name, name and address of the Architect, name and address of the Contractor, names of the engineers, and names of Owner and will be according to the design prepared by the Architect.
 - B. Signs or advertisements other than the job sign are not permitted to be displayed without the Owner's approval.

END OF SECTION

SECTION 017000 – EXECUTION AND CLOSEOUT REQUIREMENTS

GENERAL

- 1.1** Refer to the Conditions for requirements relating to Substantial Completion, Final Payment, the Contractor's One-Year Guarantee and Warranties covering materials and equipment furnished and installed under this agreement

017400- CLEANING AND WASTE MANAGEMENT

017413-Progress Cleaning

- 1.1** The Contractor and his Subcontractors, at all times, shall keep the premises free from accumulation of waste materials or rubbish caused by his operations.

017423-Final Cleaning

- 1.1** At the completion of the work, the Contractor and his subcontractors shall remove all waste materials and rubbish from and about the project, as well as all tools, construction equipment, machinery, and surplus materials, returning the project site to it's original condition.

017800-CLOSEOUT SUBMITTALS

017823-Operation and Maintenance Data

- 1.1**
- A. At the termination of the work, but prior to final payment, the Contractor will deliver to the Architect two (2) bound Maintenance/Operation/Installation/Spare Parts Manuals presenting full details for care and maintenance of visible surfaces and all equipment installed on the project, operation of all equipment and other items, installation of all equipment and other items, and manufacturer's lists of spare parts for all items.
 - B. The installation and spare parts manuals must be delivered as soon as possible for use by the Owner prior to completion of the project.
 - C. The Contractor is to make them available at the job trailer.

017836-Warranties

- 1.1**
- A. Where Guarantees and/or Warranties are required by the Contract Documents or they are shown in printed technical literature, the Contractor will furnish three (3) copies of ALL Guarantees or Warranties made out in the name of the Owner prior to final payment.
 - B. The Contractor shall guarantee his work and the work of his Subcontractors for a period of one (1) year from the date of substantial completion. This Guarantee of one year on the entire work shall not in any way abrogate or shorten Guarantees on special parts of the work for periods longer than one year as may be required in the contract documents.
 - C. The Contractor shall be responsible for obtaining a Windstorm Insurance Certificate from the State Board of Insurance, and shall pay all fees and related costs involved in obtaining it. This certificate shall be coordinated with a Texas Department of Insurance approved State of Texas licensed professional engineer. The engineer must be selected within (2) weeks after signing of the contract for construction. The engineer's name and address will be given to the Architect and Owner at that time.

017839- Project Record Documents

- 1.1** A. AFFIDAVITS: The Contractor will completely execute the Contractor Affidavit of Release of Liens Forms GC-A1, SC-A2, and MS-A3 (bound herewith) in triplicate and furnish the Architect with two (2) executed forms.

017853- Sustainable Design Closeout Documentation

- 1.1** A. The Contractor will provide the Architect with two complete sets of reproducible record drawings indicating any, and all, changes to the design drawings that occurred during the course of construction. These sets will be delivered to the Architect for review. Final payment will not be made until the Architect has received and reviewed the record drawings for completeness and accuracy, and they have subsequently been delivered to the Owner.

END OF SECTION

DIVISION 03-CONCRETE

SECTION 031000-CONCRETE FORMING AND ACCESSORIES

031100- CONCRETE FORMING

GENERAL

- 1.1** A. The Foundation Sub contractor shall be solely responsible for the structural adequacy of the forms, ties, shoring, and bracing.
 B. Refer to structural drawings for other notes.
- 1.2** Quality Standards
- A. Forms shall be built and secured in place in such a manner to have sufficient strength to carry the dead weight of the concrete as a liquid, without deflection or vibration.
- B. Forms shall be built watertight, true to position and direction, thoroughly braced, wired and fastened together.
- C. All work shall conform to the requirements set forth in ACI-347.
- D. If any form shows deflection, which in the opinion of the Engineer is excessive, the concrete shall be removed and the work rebuilt.
- E. Care shall be taken in the removal of all form work, as not to damage the surface of the concrete. Vertical forms may be removed after twenty-four (24) hours. Providing the concrete will not be injured. Supporting forms shall be kept in place at least seven (7) days.
- F. Per Section 013119.13 a Preconstruction Meeting to be held no earlier than two (2) weeks prior to and before concrete forms are created.
- 1.3** A. Typical Forms
1. Earth Forms:
- a. Earth forms may only be used with approval from the Architect and Engineer.
- b. Sloped sided grade beams are designed for monolithic pours, with floor slab, using earth forms. These beams will not be formed separately without the Architect's acceptance.
- c. Straight sided grade beams are designed for separate or monolithic pours. They shall not be poured in earth forms without the Architect's acceptance concerning additional width and depth.
- d. Earth forms shall be increased 2" in width to provide 3" side cover of steel reinforcing.
2. Wood forms
- a. Form material may be plywood, hardboard, wood, steel, or plastic, at the Contractor's option, unless specifically noted elsewhere.
- b. Forms must be continuous over entire vertical surface of grade beam.
- c. Form ties can be threaded, snap removal of at least 1" from concrete faces.
- d. Form coating and Release Agent: Coatings and releasing agents shall be approved by the Architect. When applied according to instructions, the manufacturer shall guarantee against staining concrete, and impairing the natural bonding character of any plaster, paint or Cementos coating intended for use on concrete. Agent will be suitable for type of form used.

3. Fiber Carton Forms

- a. Form material shall be placed in accordance with the Geotechnical Soils Report located in Section 023213.
- b. Form material will be wax impregnated, corrugated, fiber carton forms. Beam forms shall be 4" deep and shall be 2" less than the beam width.
- c. Install forms in bottom of all grade beams as indicated on structural drawings. Excavate beams 6" additional to allow for fiber forms. Forms shall be centered in beam bottoms and secured in place with stakes while pouring non structural concrete topping.
- d. Provide 1" minimum topping of non structural concrete on top and edge of forms to protect before placement of final structural concrete for beams.
- e. Approved Carton Form Manufacturers:

Harris Packaging Corporation
P. O. Box 14437
Halton City, Texas 76117

Jayhawk Fiber Fiberguard Form Company
Lawrence, Kansas
Alton Box Board Company,
Alton, Illinois

END OF SECTION

SECTION 032000- CONCRETE REINFORCING

GENERAL

- 1.1**
- A. Submit fabrication drawings to the Engineer for review.
 - B. All reinforcing steel shall be grade 60 (except #2 and #3 bars and all stirrups and ties shall be grade 40).
 - C. All reinforcing steel shall conform to the ASTM specifications A615.
 - D. Detailing of reinforcing steel shall conform to the American Concrete Institute Detailing Manual.
 - E. Bar Deformations - ASTM A305 and/or A408.
 - F. Manual of Standard Practice for Detailing Reinforced Concrete Structures, ACI-315 latest edition will be used for detailing.
 - G. All reinforcing to be free from rust, scale, dirt, sand, oil, and other foreign material that will destroy or reduce bond or reduce cross sectional area.
 - H. No concrete shall be poured without inspection and review of the Engineer or Architect. All sleeves, bolts, inserts, electrical conduit, pipes, and other embedded items shall be in place for this inspection.
 - I. Foundation sub contractor shall give the Architect/Engineer **AT LEAST 24 HOURS NOTICE** in advance with sufficient time allowed for the Architect's scheduling, examination, and for corrective work.
 - J. **Refer to structural drawings for additional notes.**
- 1.2**
- A. Materials and Products:
- 1. Steel Bars:
All reinforcing steel shall be sized according to structural design drawings. Any change or deviation from the drawings shall be approved by the structural engineer.
 - 2. Welded Wire Fabric:
Welded wire fabric or cold drawn wire for concrete reinforcement shall conform to ASTM A82-61T or ASTM A185. Refer to drawings for size and gauge.
 - 3. Accessory Materials:
 - a. Chairs, Bolsters, Bar Supports, Spacers: Sizes and shaped for strength and support of reinforcement during concrete placement conditions; use plastic- or wire bar-type supports complying with CRSI specifications.
 - 1. For slabs-on-grade, use heavy duty supports with sand plates to prevent puncturing vapor retarder or barrier.
 - 2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).
 - b. Metal Accessories:
 - 1. Include all spacers, chairs, ties, and other devices for properly placing, supporting and fastening reinforcement in place.
 - 2. Use 3" x 6" x 20 gauge sheet metal bar chairs at 3'-0" o.c. maximum each way for all top reinforcing for slabs on grade. Depth of chairs shall provide for 1" top cover to reinforcing.
 - 3. Tie Wire: 16 gauge, annealed iron wire.
 - c. Plastic Accessories:
 - 1. Plastic snap-on mesh, paving, or bar chairs may be used as manufactured by MeadowBurke, www.MeadowBurke.com. Size and application as recommended by manufacturer. Bar chairs shall be at 3'-0" o.c. maximum each way for all top reinforcing for slabs on grade. Depth of chairs shall provide for 1" top cover to reinforcing.

1.3 A. Fabrication and Installation

1. Follow ACI 315 manual for detailing reinforced concrete structures.
2. The setting, splicing, bending, fabrication, etc., of all reinforcing steel shall be as shown on the Drawings and shall conform to the "Standard Practice for Reinforced Concrete Structure" as published by the American Concrete Institute. All bars shall be bent cold.
3. Splices are not permitted except as shown on the plans or authorized by the engineer.
4. All welding to conform to the American Welding Society's AWS/D12.1.
5. All reinforcing steel shall be accurately located in the forms and firmly tied in place before and during the placing of concrete to prevent displacement during the course of construction and to keep the steel at a proper distance from the forms.
6. Bar supports are to be sufficient in number and sufficiently heavy to properly carry the steel they support.
7. Supports for bars in paving and walks shall be plastic chairs or slab and beam bolsters with runners. Spacing shall not exceed 3'-0" o.c.
8. It is recommended that bent bars be shop fabricated.
9. All reinforcing steel shall be placed in accordance with the "Specifications for Placing Reinforcement of the Concrete Reinforcing Steel Institute".
10. Steel reinforcing for slabs on grade, paving, and walks shall be in the middle of the slab.
11. Lap continuous unscheduled reinforcing bars as follows: Bottom bars in members supported by columns or footings - 12" at supports only. All others - 50 bar diameters.
12. Reinforcing steel coverage shall be as follows: In grade beams, 1-1/2" top, 3" bottom, 3" sides. Reference the structural drawings for additional details.
13. Welded fabric shall be lapped one space or more and tied.

B. Metal Accessories:

1. Include all spacers, chairs, ties, and other devices for properly placing, supporting and fastening reinforcement in place.
2. Use 3" x 6" x 20 gauge sheet metal bar chairs at 4'-0" o.c. maximum each way for all top reinforcing for slabs on grade. Depth of chairs shall provide for 1" top cover to reinforcing.
3. Tie Wire: 16 gauge, annealed iron wire.

032100- REINFORCING STEEL

1.1 A. Steel Bars

All reinforcing steel shall be sizes, lengths and configurations as shown on the structural design drawings. Any change or deviation from the drawings must be approved by the structural engineer.

032200- WELDED WIRE FABRIC REINFORCING

1.1 A. Welded Wire Fabric

Welded wire fabric or cold drawn wire for concrete reinforcement shall conform to ASTM A82-61T or ASTM A185. Refer to drawings for size and gauge.

B. Submittals Requirements:

1. Submit detailed fabrication and installation drawings to the Architect/Engineer for review and approval prior to fabrication and installation.
2. Submit manufacturer's cut sheets for the proposed metal/plastic bar chairs to the Architect/Engineer for review and approval prior to ordering.

3. Submittals shall denote the size, spacing, tying method, and the design specifications of all sizes of reinforcing steel as indicated in the drawings. In addition, the submittals shall indicate the location of the intended placement of the reinforcing steel in plan section.
4. Submit eight (8) copies to the Architect/Engineer 14 days for review and approval.

END OF SECTION

SECTION 033000- CAST IN-PLACE CONCRETE

033100- STRUCTURAL CONCRETE

033113- Heavyweight Structural Concrete

- 1.1** A. All concrete foundation work is to be performed according to these specifications. All concrete sidewalk paving **IS** included as a part of this proposal package.
1. Drawings:
 - a. Contractor is to reference Foundation drawings for additional concrete and reinforcing steel notes. If there is a discrepancy between the notes on the drawings and these specifications, the contractor is to notify the Architect immediately for resolution.
 - b. The drawings accompanying these specifications show typical details of all reinforced concrete construction. Detailed drawings showing number and location of bars, including complete bar lists and bending diagrams, prepared by the sub-contractor are to be submitted as per General Conditions for Architect's review.
 - c. All reinforced concrete construction shall be performed under the personal and constant supervision of competent building superintendent experienced in this class of work, who may be removed for reasonable cause upon written notice.
 2. Workmanship: The Sub contractor is responsible for correction of concrete work which does not conform to the specified requirements, including strength, tolerances and finishes. Correct deficient concrete as directed by the Architect.
- 1.2** A. Materials and Products
1. Portland Cement: Portland Cement shall conform to the "Specifications for Portland Cement" (ASTM Designation: C150 Type I or Type 3, or the "Specifications for Air Entraining Aggregates:
 2. Concrete Aggregates:
 - a. Concrete aggregates shall conform to the "Specifications for Concrete Aggregates" (ASTM Designation C33). However, other aggregates which have been shown by test or actual service to produce concrete of the required strength, durability, water tightness, fire resistance and wearing qualities may be used where authorized by the Architect.
 - b. The maximum size of the aggregate shall be 1-1/2" for concrete slabs, grade beams, and walks.
 3. Calcium chloride or admixtures containing calcium chloride shall not be used.
 4. Mixing Water: Water shall be clean and free from injurious amount of oil, acid, alkalis, organic matter, or other deleterious substances. Water containing 5% or more of salt shall not be used.
 5. Fly ash in concrete shall not be more than 15 percent in weight.
 6. Concrete:
 - a. All concrete not noted shall test at 3000 p.s.i. at 28 days.
 - b. Water/cement ratio: 6 gallons of water per bag of cement (American Concrete Institute Spec. for 5 sack 3000 p.s.i. concrete).
 - c. Slump to be between 3 and 5 inches.
 - d. Temperature of concrete at time of placing shall not be less than 50 F. or more than 90 F.
 - e. Concrete showing more than 5" slump shall not be used on this project.
 - f. All concrete shall conform to "Standard Specifications for Ready-Mixed Concrete" ASTM C94.

7. Grouting:
 - a. Provide non shrink grout under structural steel base plates and other locations as detailed.
 - b. Deliver and store material in undamaged packages with seals and labels intact. Store in dry location, off ground.
 - c. Products manufactured by Supreme Grout by Cormix Chemical Co., Masterflow 713 Grout by Master Builders, Upcon High Flow Grout by the Upco Company.
8. Tests:
 - a. The Owner will pay for an approved laboratory for the purpose of testing concrete, and the contractor shall coordinate.
 1. The testing laboratory will be employed to stay at the site during the entire concrete pour unless prior arrangements have been made with the Architect's approval.
 2. No concrete will be poured until the testing laboratory representative has approved the concrete at the site.
 3. The Contractor shall notify the testing laboratory in advance concerning any and all concrete pours. *Any work put in place without notifying the testing lab, and being tested, will be rejected.
 - b. The laboratory shall:
 1. Review design mixes for each type of concrete in accordance with ACI 613 and 318 and with P.C.A. T12. Use an independent testing facility acceptable to the Architect for preparing and reporting proposed mix designs.
 2. Proportion mixes by either laboratory trial batch or field experience methods, using materials to be employed on the project for each class of concrete required, complying with ACI 211.1.
 3. Laboratory Trial Batches: When laboratory trial batches are used to select concrete proportions, prepare test specimens in accordance with ASTM C 192 and conduct strength tests in accordance with ASTM C39, specified in ACI 301. Establish a curve showing relationship between water-cement ratio (or cement content. and compressive strength, with at least three points representing batches which produce strengths above and below that required. Use not less than three specimens tested at 28 days, or an earlier age when acceptable to the Engineer, to establish each point on the curve.
 4. Adjustment to Concrete Mixes: Mix design adjustments may be requested by the Sub contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at the Architect's approval and at no additional cost to the Owner. Laboratory test data for revised mix designs and strength results must be submitted to and accepted by the Architect's before using in the work.
 - c. The laboratory shall take one set of 3 cylinders at the beginning of each pour (first concrete truck at site), and an additional set of 3 cylinders for every additional 50 yds. or fraction thereof. Take extra samples at any noticeable change in the make-up of the concrete. Sampling as per ASTM C172-54.
 1. Test one cylinder at 7 days.
 2. Test one cylinder at 28 days.
 3. The third cylinder need only be tested if either the 7 day or 28 day cylinder falls below specified strength and then only after the 28 day cylinder has been broken.
 4. Test cylinders cast during the placing operation shall be protected by covering them from exposure to high temperature and wind.
 - d. Cure cylinders in accordance with ASTM C31-62T. Test on cylinders for compression in accordance with ASTM C39.

- e. Slump tests shall be taken by the laboratory from the first concrete delivered to the site and every 50 yards after that, or as requested by the Architect/Engineer. Test shall be in accordance with ANSI/ASTM C 143, latest revision.
- f. Tests of hardened concrete in, or removed from paving and walks:
 - 1. Where question exists as to concrete quality on job, the Engineer may require tests as per ASTM, C42 or other load tests for that portion of job where questionable concrete has been placed.
 - 2. Make load test as per Section 202 ACI Building Code (ACI 318). If load tests indicate that concrete placed does not conform to drawings and specifications, take measures as directed to correct deficiency without extra cost to Owner.
- g. The resulting data from the tests shall be furnished to the Engineer as soon as they are completed.

2.1 A. Concrete Proportions and Consistency:

- 1. The proportions of aggregate to cement for any concrete shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement with the method of placing employed, but without permitting the materials to segregate, or excess free water to collect on the surface.
- 2. The combined aggregates shall be of such composition of sizes that when separated on the No. 4 standard sieve the weight passing the sieve (fine aggregate) shall not be less than 30 percent nor greater than 50 percent of the total.
- 3. The methods of measuring concrete materials shall be such that the proportions can accurately be controlled and easily checked at any time during the work. Measurement of materials for Ready Mixed Concrete shall conform to the "Standard Specifications for Ready Mixed Concrete" (ASTM Designation: C94).

B. Mixing and Conveying:

- 1. Preparation of equipment and Place of Deposit: Before placing concrete, all equipment for mixing and transporting the concrete shall be cleaned, all debris removed from the spaces to be occupied by the concrete, forms shall be thoroughly wetted (except in freezing weather) or oiled, and the reinforcement shall be thoroughly cleaned of ice or other coatings.
- 2. Mixing of Concrete:
 - a. The concrete shall be mixed until there is a uniform distribution of the materials and shall be discharged.
 - b. For job mixed concrete, the mixer shall be rotated at a speed recommended by the manufacturers and mixing shall be continued for at least one minute after all materials are in the mixer.
 - c. Ready mixed concrete shall be mixed and delivered in accordance with the requirements set forth in the "Standard Specifications for Ready Mixed Concrete" (ASTM Designation: C94).
 - d. Pouring of Ready-Mix Concrete shall commence within 60 minutes of truck leaving batching plant, otherwise truck with its load will be refused for use on this project.
- 3. Conveying:
 - a. Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation, or loss of the materials.
 - b. Equipment for chuting, pumping and pneumatically conveying concrete shall be of such size and design as to insure a practically continuous flow of concrete at the delivery and without separation of the materials.
 - c. No concrete will have a vertical drop greater than 4'-0" except for drilled footings.
 - d. Chutes may not have a slope greater than 4" in 12".

C. Depositing Concrete:

1. Footings shall be poured immediately after excavation.
2. Carts, buggies, or conveyors shall be run on temporary runways supported clear of reinforcing steel or mesh.
3. Concrete shall be deposited as nearly as practicable in its final positions to avoid separation due to re-handling or flowing. Concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into spaces between bars. No concrete that has been partially hardened or been contaminated by foreign materials shall be deposited on the work, nor shall re-tempered concrete be used.
4. When concrete is once started, it shall be carried on in a continuous operation until the placing of the panel or section is completed. The top surface shall be generally level. When construction joints are necessary, they shall be made in accordance with "E." below.
5. All concrete shall be thoroughly compacted by suitable means during the operation of placing and shall be thoroughly worked around reinforcement, and into the corners of the form. Internal vibrators may be used to aid in the placement of concrete provided they are used under experienced supervision and are kept out of contact with reinforcement or steel forms and are not used in a manner that forces mortar between individual form members. In no case shall the vibrator be used to transport the concrete.
6. Concrete shall be poured monolithically for mechanical equipment slabs.
7. Such surfaces that are to be finished shall be brought to proper grade, struck off, and finished in a workmanlike manner. No honeycombing, rough spots, or protruding stones shall be left exposed.
8. The Foundation Sub contractor shall mark in red ink on the Drawings the time and the date of placing of concrete in the different members. Such drawings shall be kept on file at the job site until completion of the structure and shall be subject to inspection of the Engineer at all times.
9. Concrete shall be placed in beams forming diagonal layers so that no concrete "runs" ahead. Concrete shall be placed in as nearly horizontal layers as possible, each layer being thoroughly vibrated to incorporate it with the preceding layer.

D. Forms and Conduit:

1. Forms shall conform to the shape, lines, and dimensions of the members as called for on the Drawings, and shall be substantial and sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together so as to maintain position and shape.
2. A suitable means shall be provided to permit the forms to be thoroughly cleaned, and immediately before the concrete is placed, all chips, and other foreign material shall be removed.

E. Construction Joints:

1. Construction joints shall be located where shown on the drawings or at locations approved by the structural engineer. Joints shall be located near the middle of the spans of slabs, beams, or girders.
2. All construction joints must use 24 gauge galvanized steel keyed tongue and groove joint, with #3 dowels at 24" o.c. and 18" long. Manufactured by Heckman Building Products, Keyhold, Inc., Superior Concrete Accessories.

F. Control Joints:

1. Joints not indicated on the plans shall be spaced so that panels shall not be more than 2500 square feet maximum. All cold joints will use specified metal joint material complete with rod reinforcing and in accordance with cold joint manufacturers printed instructions.
2. There shall be no horizontal construction joints in concrete pours. All construction joints shall be made in the center of spans with vertical bulkheads. The location of construction joints shall be reviewed by the Engineer.
3. Panels shall be poured in a checkerboard pattern unless otherwise approved.

G. Expansion Joints:

1. No areas of flat concrete panels (paving, walkways, etc.) shall ever be greater than 2500 s.f. without expansion joints on all sides.
2. In all paving, roadwork, sidewalks, etc. expansion joints must be used at a minimum frequency of 60' in any direction.
3. Expansion joints shall include continuous redwood or 3/4" "Fibre Joint" expansion joint filler with the top held down 1/2" below the concrete surface. Completely fill 1/2" space with Sonneborn horizontal joint sealant. .
4. Use 1/2" diameter smooth steel dowels with plastic sleeves. Bars to be greased before installing sleeves. Open end of sleeve is to be sealed. Sleeves shall be held tight against expansion joint material during concrete pour. Dowels are to be parallel with the surface of the concrete.

H. Cold Weather Requirements: No concrete will be poured when the temperature of the surrounding air is below 40 degrees F. and falling.

I. Curing:

1. Provisions shall be made for maintaining concrete in a moist condition for a period of at least seven days after placements, except that for high-early strength Portland Cement concrete, this moist curing shall be provided for at least the first two days.
2. Approved Curing Methods:
 - a. Flooding by the construction of perimeter dams of non-staining soil.
 - b. Fogging by high pressure, low volume misters.
 - c. Absorptive mats or quilting.
 - d. Curing Compounds: Clear, All-resin with no oil or wax, meeting ASTM C 309-81, Type 1, Class B. and AASHTO M-148, Type 1, Class B. Dried surface shall be compatible with paint and resilient tile.
 - e. If staining or dying concrete, verify with manufacturer or contractor before adding any curing additive.

J. Exposed Concrete:

1. Special precautions shall be taken to produce concrete surfaces free from honeycomb and other defects.
2. The reinforcement shall be held firmly in place during concreting so as to maintain the minimum of concrete covering.

K. Concrete Admixture:

1. Slabs, Paving, and Walks - Pozzolith 300N as manufactured by Master Builders or others acceptable to the Engineer. Use when daytime average temperature is above 60° F.
2. Those not classified by ASTM will not be permitted.
3. Application: In strict accordance with manufacturers printed specifications.

3.1 A. Construction Joints

1. Construction joints shall be located where shown on the drawings. Joints not indicated on the drawings shall be located with the approval of the structural engineer. Joints in floors shall be located near the middle of the spans of slabs, beams, or girders.
2. The surface of the concrete at the joint shall be cleaned.
3. Joint Fillers:
 - a. 1/4" thick "Tongue and Groove" keyed joint filler. Top to be level with the concrete surface.
 - b. 3/4" thick "Fibre Joint" expansion joint filler. Top to be 1/2" below concrete surface. 1/2" space is to be filled with Sonneborn horizontal joint sealant.
4. Use 1/2" diameter smooth steel dowels with plastic sleeves. Bars to be greased before installing sleeves. Open end of sleeve is to be sealed. Sleeves shall be held tight against expansion joint material during concrete pour. Dowels are to be parallel to the surface of the concrete.

B. Contraction Joints:

1. Contraction joints shall be 24 gauge galvanized steel keyed tongue and groove joint. Provide #3 dowels @ 18" long and 24" o.c. Manufactured by Heckmann Building Products, Inc., Chicago, Ill; Keyhold, Inc., Louisville, KY., or Superior Concrete Accessories, Inc., Franklin Park, Ill.

033500-CONCRETE FINISHING

033516- Heavy-Duty Concrete Floor Finishing

1.1 A. General:

1. Spreading dry cement for finishing not permitted.
2. Finish all edges of slabs and joints with edging tools.

1.2 A. Interior Floor Slabs:

1. Troweling: Hand trowel to final finish so evidence of sheen is visible.
2. Maximum irregularity is 1/16" within any running foot and 1/4" in 8'-0".

1.4 A. Exposed Formed Surfaces:

1. Commence work immediately after removal of forms. If concrete is permitted to dry out, chip or abrasive blast, dampen and cover the surface with neat cement before proceeding.
2. Fill holes, chip off bulges, straighten and level lines, form corners uniformly, using a 1:2 mix of cement and sand.
3. Rub with Carborundum stones over entire surfaces, and grout - rubbing smooth and consistent.
4. Completed job to be uniformly smooth, showing no patches.
5. Finish to uniform color except where painting is specified.

END OF SECTION

SECTION 036000- GROUTING

1.1 A. References:

1. ASTM C 109, Compressive Strength of Hydraulic Cement Mortars.
2. ASTM C 191, Time of Setting of Hydraulic Cement by Vicat Needle.
3. ASTM C 827, Early Volume Change of Cementitious Mixtures.

1.2 A. Products:

1. Grout Materials:
 - a. Manufacturer: "Supreme" by Gillford-Hill is specified, "Masterflow 713" by Master Builders.
 - b. Type: Premixed non-shrink, non-metallic.
 - c. Expansion: ASTM C 27, 0.1% - 0.4% maximum.
 - d. Strength (1 day): ASTM C 109, 300 psi.
 - e. Strength (28 days): ASTM C 109, 7500 psi.
 - f. Set Time: ASTM C 191, minimum 45 minutes.
 - g. Water: Potable.

1.3 A. Execution:

1. Installation:
 - a. Combine premixed grout material with water to workable consistency in accordance with manufacturer's printed instructions.
 - b. Remove defective concrete, dirt or grease, and other foreign materials and lightly roughen concrete surface.
 - c. Remove any foreign materials from steel surfaces which will contact grout.
 - d. Place grout material quickly and continuously by the most practical means permissible.
 - e. Pack spaces with stiff grout material, tamping until voids are completely filled.
 - f. Use forms to retain grout in place until hard enough to support itself.
 - g. Effective Bearing Area: 95 to 100 percent.
2. Finishing and Cleaning:
 - a. After 48 hours, remove shims and point with pointing mix.
 - b. Tool exposed edges of grout to smooth uniform finish.
 - c. Remove grout materials from adjacent exposed surfaces.

END OF SECTION

DIVISION 04- MASONRY

SECTION 040000-MASONRY

040500- COMMON WORK RESULTS FOR MASONRY

040513- Masonry Mortaring

- 1.1**
 - A. Mortar is to be used at all masonry work.
 - B. Color is to be selected by the Architect
 - C. The masonry Subcontractor shall provide (minimum) 4 x 6 masonry panels of each masonry configuration, pattern, condition for review and approval by the Architect.
- 1.2**
 - A. MATERIAL AND PRODUCTS:
 - 1. Cements:
 - a. Masonry Cement: Magnolia mix cement to conform to ASTM C91-64 Type II, Latest Revision, as manufactured by Southern Cement Company, Trinity, or Ideal.
 - b. Portland Cement: ASTM C150 Type I.
 - 2. Admixture: Mort-R Fat as manufactured by A. E. Gibco Corp., Tulsa, Okla., or J-50 Miraclefoam as manufactured by DSG Chemical, Sycamore, Ill. Calcium chloride or admixtures containing calcium chloride shall not be used.
 - 3. Mason's Sand: Clean, sharp, hard, siliceous, free from loam, silt or other impurities.
 - 4. Water: Fresh, clean, and free from acid, alkalies, sewage, or organic matter.
 - 5. Mortar:
 - a. Type: Use Type S (Modified by use of admixture).
 - b. Proportions:
 - 1. 1 cu. ft. cement (94 lbs.)
 - 2. 3 ounces of Mort-R Fat
 - 3. 338 - 360 lbs. sand
 - 4. 3280 PSI in 28 days required
 - 5. Mortar color to be selected by Architect .
 - c. Include integral water repellent agent: A. C. Horn's Hydratite - Plus Powder, Two pounds per sack of cement.
- 1.3**
 - A. Installation:
 - 1. Mixing:
 - a. Thoroughly mix mortar ingredients in strict accordance with admixture manufacturer's specifications and in accordance with ASTM C270.
 - b. Mix only sufficient mortar to supply immediate requirements.
 - c. Mix by mechanical means, if possible.
 - d. Keep proportions constant.
 - e. Achieve uniformly damp sand immediately before mixing process.
 - f. Add mortar color to achieve uniformity of mix and colorant. Limit mineral-oxide pigments to no more than 10 percent of cement content by weight.
 - g. Add water repellent admixture to mortar used for bedding decorative concrete masonry units containing integral water repellent.
 - h. Re-temper only within two hours of mixing.

1.4 Field Quality Control

- A. Section 014000- Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Testing Frequency:
 - 1. One set of prism tests for every 5,000 sf of completed wall area.
 - 2. One set of mortar tests in accordance with ASTM C780 for aggregate ratio and water content, consistency, and compressive strength, for every 25 cy mortar.
 - 3. One set of grout tests in accordance with ASTM C780 for compressive strength and slump, for every 25 cy grout.
- C. Per Section 013119.13- Preconstruction Meetings are to be held no earlier than two (2) weeks prior to and before masonry subcontractor's mobilize on the job site.

040523- MASONRY ACCESSORIES

1.1 A. Joint Reinforcement:

- 1. Wall Ties:
 - a. At all double wythe masonry walls, provide the following: Wirebond Truss-type Series 300 3-wire masonry wall reinforcing with 9 gauge longitudinal wires welded not more than 16" o.c. to a 9 gauge diagonal cross wire. Out-to-out spacing of longitudinal wires shall be approximately 2 inches less than the nominal thickness of the wall. Supply complete with corners, tees, and splices. Provide radiused truss at all curved masonry walls. Hot-dipped galvanized after fabrication.
 - b. At all single wythe masonry walls, provide Wirebond Truss-type Series 300 2-wire masonry wall reinforcing. Out-to-out spacing of longitudinal wires shall be approximately 2" less than the nominal thickness of the block. Mill galvanized finish.
 - c. At all masonry walls with a structural steel backup, provide Wirebond 1001, Type II anchors.
 - d. At all masonry walls with a metal stud backup or a reverse rolled metal wall panel backup, provide Wirebond 2501 22 gauge hot-dipped galvanized 1 1/4" wide veneer anchors. Attach to metal studs at 15" o.c. vertically and 16" o.c. horizontally for face brick and 16" o.c. vertically and 16" o.c. horizontally for concrete masonry. Attach to studs by using stainless steel bolts and nuts and stainless steel washers. Sheet metal screws are not acceptable.
 - e. Corners and tees shall be used at all corners and wall intersections.
 - f. Installation: Place wire into a bed of mortar and seat in the mortar bed by frequent lifting of the cross rod. Each should be centered approximately 1" within both interior and exterior wall edges. All masonry wall reinforcing shall be installed at 15" or 16" o.c. maximum vertically, and continuously horizontally.
 - g. Manufacturers: Masonry Reinforcing Corporation of America, A.A. Wire Products Co., Dur-O-Wall Products, Heckmann Building Products, Inc., Wirebond.
- 2. Mortar Netting:
 - a. At all exterior double wythe masonry walls, all exterior masonry walls with metal stud backup wall, all exterior masonry walls with metal panel backup wall, and all other exterior masonry walls with a cavity behind the exterior wythe, install 2" wide, 10" high Mortar Net on top of the flashing inside the wall cavity.
 - b. Use 2" x 10" Mortar Net as manufactured by Wirebond, Memphis, Tennessee, 1-800-441-8359.
 - c. Any proposed substitutions must be submitted to the Architect for review and possible approval of both the manufacturer and the specific product.

3. Weep Holes:
 - a. Provide mortar net weep vents of size to fit head joints in brickwork or blockwork.
 - b. Plug anchorage by use of wood or plastic is prohibited.

END OF SECTION

SECTION 048000- MASONRY WATER REPELLENTS

1.1 A. General:

This section covers the preparation, materials, services, and equipment required in conjunction with the application of a clear water repellent on all above grade, vertical and horizontal, exterior exposed surfaces of masonry.

1.2 A. Material and Products:

1. PRIME A PELL 200, solvent based siloxane.
2. Manufacturer:
Chemprobe Technologies, Inc.
2805 Industrial Lane
Garland, Texas 75041
PH: 800-760-6776
3. All products shall contain siloxane. No fillers, sterates, or paraffins. Products containing siloxane only shall have a range of three (3) to seven (7) percent solids. Silane-siloxane blend products shall contain a minimum of fifteen (15) percent solids.

1.3 A. Examination:

The Contractor shall verify the following requirements have been met PRIOR TO the installation of water repellents specified herein:

1. The joint sealants have been installed.
2. New masonry and mortar has cured a minimum of twenty one (21) days.
3. The surface(s) to be treated is clean, dry and contains no frozen water.
4. Environmental conditions are appropriate for application.
5. The Architect must inspect all finished masonry surfaces for adequate removal of mortar, etc. prior to proceeding.

1.4 A. Preparation:

1. Special precautions should be taken to avoid vapor transmission (fumes) from entering the building being treated. Ventilation systems and fresh air intakes should be turned off and closed.
2. Protect shrubs, metal, wood trim, glass, asphalt and other building hardware during application from overspray.
3. Do not permit spray mist or liquid to drift onto surrounding properties or parking lots.

1.5 A. Application:

1. Apply water repellents in accordance with the manufacturer's written application instructions.
2. Material must be applied using low pressure application equipment designed for water repellent application.
3. Apply material as shipped by the manufacturer. Do not dilute.
4. Apply treatment evenly until surface is totally saturated. Coverage rates are dependent on substrate material. Only one saturation coat is required.

2.1 A. Field Quality Control:

1. The architect shall be contacted **48 hours** prior to application so as to provide supervision. The architect or the architect's representative shall inspect the progress as the work proceeds. Do not apply any water repellent that is not specified by the architect.
2. After water repellent has cured for 24 hours at low humidity and temperatures between 70°-90°F or 48 hours at high humidity and temperatures between 50°-69° F, all surfaces shall be tested with a water spray. Recoat any area that indicates water absorption.

2.2 A. Cleaning:

At completion, remove from the job site all excess material, debris, and waste resulting from this work. Dispose of water repellent containers according to state and local environmental regulations.

2.3 A. Submittals:

1. Product Specification Data: Submit manufacturer's technical literature, specifications, and application instructions for the specified clear water repellent material.
2. Obtain samples of water repellent for sample application as outlined in Qualification Assurance.
3. Applicator Qualifications: Applicator must have a minimum of three (3) years experience using the specified product. A list of several of the most recently completed projects where the specified material was used may be requested. Include the project name, location, architect and method of application.
4. Environmental Regulations: Submit certification stating the water repellent material to be applied is in compliance with federal, state and local environmental Volatile Organic Compounds (VOC) regulations.

2.4 A. Quality Assurance:

1. Manufacturer: A firm with no less than ten (10) years experience in manufacturing the products specified in this section.
2. Applicator Qualification: a firm with no less than three (3) years experience in the application of the products specified in this section. In addition, applicator must state the intended use of the proper application equipment and that it has been well maintained.
3. Mock-up:
 - a. Apply water repellent per manufacturer's application instructions as directed by the Architect to substrate material which matches actual job conditions. Determine the acceptability of appearance and optimum coverage rate for application.
 - b. After sample treatment has cured in accordance with manufacturer's recommendations, water test to verify that the substrate is coated with sufficient water repellent to effectively repel liquid water from the surface.
 - c. Obtain Architect's approval prior to full scale application of water repellents.
4. Pre-application Meeting: Convene a pre-application meeting prior to the start of application of the specified material. Attendance by a representative of each of the following organizations is requested; the application firm, the architectural firm, and the water repellent manufacturer. Notify each of the attendees at least three (3) days prior to the meeting time.

2.5 A. Product Delivery:

1. Material Delivery: Deliver materials to the job site in original sealed containers, clearly marked with the manufacturer's name, and type of material. Verify the product matches that of the original sample applied on the mock-up wall.
2. Storage & Protection: Store materials inside if possible, away from sparks and open flame. Store in a secure area to avoid tampering and contamination. Water based materials must be kept from freezing. Store and handle in accordance with the manufacturer's written instructions.

2.6 A. Project Conditions:

1. Surface Preparation: Surface must be free of cracks, dirt, oils, paint or other contaminants which may affect the appearance or performance of the water repellent material.
2. Environmental Requirements:
 - a. Air and substrate temperature must be above 40° F (5° C) or below 95° F (35° C) unless otherwise specified by the manufacturer.
 - b. Do not proceed with application if the substrate is wet or contains frozen water.
 - c. Do not apply material when rain is predicted within 48 hours; or earlier than five (5) days after the substrate became wet.
 - d. Do not apply materials in high or gusty winds.
2. Protection:
 - a. Special precautions should be taken to avoid vapor transmission (fumes) from entering the building being treated. Ventilation systems and fresh air intakes should be turned off and closed.
 - b. Protect shrubs, metal, wood trim, glass, asphalt and other building hardware during application from over-spray.
 - c. Do not permit spray mist or liquid to drift onto surrounding properties.

2.7 A. Scheduling:

1. The Architect shall be notified not less than 48 hours before each application of water repellent is scheduled.

2.8 A. Warranty:

1. The Contractor and applicator shall jointly and severally warrant water repellent material against failure in material and workmanship for a period of five (5) years from the date of application
2. Submit completed manufacturer's written "Request for Warranty From" to the manufacturer ten (10) days prior to application.
3. After substantial completion of the project, submit the manufacturer's written "5 Year Warranty Application" to the manufacturer for processing. Upon receiving the validated warranty, submit three (3) copies to the Architect for the Owner.

END OF SECTION

DIVISION 05- METALS

SECTION 054000- COLD-FORMED METAL FRAMING

PART 1- GENERAL

1.01 GENERAL

- A. This section includes non-load-bearing cold-formed metal framing.
- B. Related Sections include the following:
 - 1. Division 9 Section "Gypsum Board Assemblies" for interior non-load-bearing, metal-stud framing and ceiling-suspension assemblies.
 - 2. Division 6 Section "Miscellaneous Carpentry" for gypsum board sheathing.
 - 3. Division 7 Section 074210.31- Continuous Insulation (CI) with Composite Framing Support System (CFS) as a Weather Resistant Barrier (WB)
 - 4. Division 7 Section 074243-Composite Wall Panels.

1.02 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
 - 1. Design Loads: As indicated.
 - 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/720 of the wall height.
 - b. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120° F.
 - c. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
 - 1. Upward and downward movement of 3/4 inch.
- B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."
 - 1. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

1.03 SUBMITTALS

- A. Product Data. Submit manufacturer's product information on cold-formed framing and accessories, including other data as may be required to certify compliance with performance requirements specified herein.
- B. Shop Drawings. Submit detail drawings for special components and installations not fully dimensioned or detailed in manufacturer's product data.
 - 1. Submit complete structural calculations for the steel framing system, sealed by a structural engineer registered in Texas. Calculations shall cover all studs, jamb studs, runner track, bracing, attachment of cold-formed framing to cold-formed framing, and attachment of cold-formed framing to concrete or structural steel.
 - 2. Detail drawings for steel framing system shall show the type and spacing of all members. All attachments shall be clearly detailed. Indicate supplemental strapping, bracing, clips and other accessories required for proper installation.
- C. Material Certification. Submit certification of materials from the manufacturer to show compliance with these specifications and related drawings.

- D. Coordination Drawings: Submit scaled exterior elevations that provide the following items in coordination with each other and with input from installers of these items:
1. CFS system attachment methods and required fasteners
 2. Sub-framing
 3. Continuous insulation support system attachment methods and required fasteners
 4. Wall-mounted items including doors, windows, louvers, and lighting fixtures
 5. Wall penetrations including pipes, electrical fixtures, and any other utilities

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with at least three years of documented experience.
- B. Installer: Company specializing in performing work of this section and the following:
1. Install system in strict compliance with manufacturer's installation instructions.
 2. Have not less than three years of documented experience.
 3. Factory trained and approved by CFMF system manufacturer.
- C. Design Engineer's Qualifications: Design structural supports and anchorages under direct supervision of a licensed Structural Engineer experienced in design for this type of Work and licensed in State that Project is located.
- D. Installer for this product should also be installing products in Section 074210.31 Continuous Insulation with Composite Framing Support System as a Weather Resistive Barrier) and Section 074243-Composite Wall Panels.

PART 2- PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering cold-formed metal framing that may be incorporated into the Work include, but are not limited to, the following:
1. Mustang.
 2. Clark Steel Framing.
 3. Dale/Incor.
 4. Dietrich Metal Framing; a Worthington Industries Company.
 5. MarinoWare; a division of Ware Industries.
 6. Unimast Incorporated.

2.02 MATERIALS

- A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
1. Grade: As required by structural performance
 2. Coating: G90 ([Z275](#))
- B. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
1. Grade: As required by structural performance.
 2. Coating: G90 ([Z275](#)).

2.03 EXTERIOR NON-LOAD-BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm).
2. Flange Width: 1-5/8 inches (41 mm).
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
 1. Minimum Base-Metal Thickness: Matching steel studs.
 2. Flange Width: 1-1/4 inches (32 mm).
- C. Vertical Deflection Clips: Manufacturer's standard clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.

2.04 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members. Provide accessories of manufacturer's standard thickness and configuration.

2.05 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
- C. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified independent testing agency.
- D. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
- E. Welding Electrodes: Comply with AWS standards.

2.06 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035.

PART 3- EXECUTION

3.01 EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.
- B. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
 1. Cut framing members by sawing or shearing; do not torch cut.
 2. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, and complying

- with requirements for spacing, edge distances, and screw penetration.
3. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
 - C. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
 - D. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
 - E. Install insulation, specified in Division 7, in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
 - F. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
 - G. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 2. Double studs spaced at 17- 7/8" o.c. are required for composite framing support system and composite wall panel system attachment. Coordinate stud spacing with Section 074210.31 and Section 074243 shop drawings.
 3. Stud spacing within 8'-0" horizontally from building corners shall not exceed 8" o.c.

3.03 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
- B. Fasten both flanges of studs to top and bottom track, unless otherwise indicated. Space studs as indicated.
- C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
- D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
 1. Connect vertical deflection clips to bypassing studs and anchor to building structure.
 2. Connect drift clips to cold formed metal framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced in rows indicated on Shop Drawings but not more than 48 inches (1220 mm) apart. Fasten at each stud intersection.
 1. Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.
- F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, fasteners, and stud girts, to provide a complete and stable wall-framing system.

3.04 FIELD QUALITY CONTROL

- A. Field and shop welds will be subject to testing and inspecting.

3.05 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed metal framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION

DIVISION 06- WOOD, PLASTICS, AND COMPOSITES

SECTION 061053-WOOD NAILERS AND BLOCKING

PART 1- GENERAL

1.1 A. Quality Assurance:

1. Mill and Producer's Stamp: Each piece of lumber shall bear a stamp indicating type, grade, mill, and grading agency.
 - a. Pressure treated wood shall bear a stamp or tag indicating the name of the treating company, year treated, preservative used, the level of treatment, intended use (appropriate AWWPA Standard), and logo of inspecting company.

1.2 A. Storage:

1. Store lumber a minimum of 6 inches off the ground, in a dry, well-ventilated place, protected from the weather.

PART 2- PRODUCTS

2.1 A. Materials:

1. Lumber: "Standard" Grade Douglas Fir, Hem-Fir, White Pine, Southern Pine, or Spruce-Pine-Fir pressure preservative treated in accordance with the American Wood Preservers Association (AWPA) Standard U1, Commodity Specification A for the requirements listed under Use Category UC2 and kiln dried to 19 percent moisture content after treatment.
 - a. Use Category UCFA and UCFB: Wood nailers and blocking intended for fire protection and is used in either interior weather protected (UCFA) or exterior construction, exposed to weather (UCFB).
2. Nails, Screws, and Bolts: ASTM A653 Class G185 hot dipped galvanized, zinc or cadmium plated, or silicon bronze.
 - a. Screws and Bolts for fastening to Aluminum: Stainless steel, Type 304 or 316.
3. Expansion Anchors: G185 Hot dipped galvanized steel wedge anchors, FS FF-S-325, Group II, Type 4, Class 1.
4. Toggle Bolts: Cadmium or zinc plated tumble - wing type; FS FF-B-588.
5. Self Threading Masonry Screws: Zinc Plated; "Tapcon" by Elco Industries, Inc., 1111 Samuelson Rd., PO Box 7009, Rockford, IL 61125-7009, (815) 397-5151.
6. Separation Membrane For Aluminum Metals: Self adhering, self sealing, rubberized asphalt sheet membrane.
 - a. Physical Properties:
 1. Thickness: 40 mils minimum ASTM D 3767 Method A.
 2. Tensile strength: 250 psi ASTM D 412.
 3. Elongation (ultimate failure of the rubberized asphalt) 250% ASTM D 412 Die C Modified).
 4. Permeance: 0.05 perms max.) ASTM E 96.
 - b. "Ice And Water Shield" by W.R. Grace Co., 62 Whittemore Ave., Cambridge, MA 02140, (800) 354-5414; "Deck Guard" by Polyguard Products Inc., P.O. Box 755, Ennis, TX 75120, (800) 541-4994; "MetalSeal" by NEI Advanced Composite Technology, 50 Pine Road, Brentwood, NH, (800) 998-4634.

PART 3- EXECUTION

3.1 A. Installation:

1. Install nailers and blocking true to line and plane within a tolerance of 1/8 inch in 10 feet.
2. Fit joints neatly with no more than 1/16 inch space between abutting members.
3. Do not install nailers or blocking across bonding expansion joints.
4. Attach nailers and blocking securely to properly support the items that will be attached to them.
5. Space fasteners equally at not more than 16 inches on center and 4 inches from each end of each member, unless noted otherwise. Secure the nailers and blocking with the following types of fasteners:
 - a. To Cast-In-Place Concrete, Solid Concrete Masonry Units, and Brick: Use expansion anchors or self-threading masonry screws.
 - b. To Faces of Hollow Concrete Masonry Units: Use toggle bolts.
 - c. To Tops of Hollow Concrete Masonry Units: Use anchor bolts extending to course below, embedded in 3000 psi concrete filled cores.
 - d. To Wood: Use nails or screws.
 - e. To Metal: Use bolts or self-tapping screws.
6. Countersink fasteners if they interfere with the proper installation of items to be attached to the nailers and blocking.

3.2 A. Application of Separation Membrane:

1. Installing Separation Membrane:
 - a. Install 1 ply of underlayment over the entire horizontal and vertical surface of pressure treated wood nailers and blocking lapping each ply 2 inches over the preceding ply so that no metal, including but not limited to aluminum, iron, steel, etc. material comes in contact with pressure treated wood.
2. All fasteners anchors connectors etc. to be directly attached to pressure treated wood. Shall be hot dipped galvanized (per ASTM International A 153) or stainless steel.

END OF SECTION

DIVISION 07- THERMAL AND MOISTURE PROTECTION

SECTION 071000- DAMPROOFING AND WATERPROOFING

1.1 A. Materials:

1. Damp proofing:
 - a. Floor Slab: 10 mil polyethylene film as mfg. by the Viking Corp., American Sisalkraft Corp., or Ludlow Papers, Inc.
 - b. Jointing Tape: Richlite Tape - #90-1 as mfg. by Richkraft Corp., or T-90 as mfg. by Arno Tape and Adhesive Co., or similar tape mfg. by Minnesota Mining.

1.2 A. Installation:

1. Waterproofing:
 - a. Outer face of stud walls on sheathing.
 1. Extend membrane waterproofing a minimum of 12" vertically behind exterior sheathing, and extend under bottom course of masonry to outside face.
 2. Apply no materials when temperature is below 40 degrees F.
 3. Before commencing work, examine surfaces upon which waterproofing work is dependent for acceptable workmanship; make necessary adjustments to such surfaces.
 4. At joints, provide minimum 12" overlap of material and tape or weld continuously.
2. Dampproofing:
 - a. Floor Slab:
 1. Lay membrane beneath entire concrete slabs and beams lapping all joints a minimum of 8". Install tape over all joints, completely closing the joints. Cut carefully around openings and tape to pipes and conduits. Loosely laid and/or untaped installation is not acceptable.
 - b. Jointing Tape:
 1. Install tape over all joints in exterior gypsum board sealing completely.
 2. Install tape over any structural steel, plumbing, electrical, or other objects that break the plane of the exterior gypsum board wall, sealing them completely.
 - c. Lintels and Beams:
 1. Flash over all door and window openings which have masonry above.
 2. Apply no materials when temperature is below 40 ° F.
 3. Before commencing work, examine surfaces upon which waterproofing work is dependent for acceptable workmanship; make necessary adjustments to such surfaces.
 4. Installation: Carry into joint above opening. Run continuous over opening with no joints. Provide dam at each end.
 - d. Brick Sealing: See Division 4 for exterior brick sealer.

END OF SECTION

SECTION 072000 – THERMAL PROTECTON

072100- THERMAL INSULATION

1.1 MATERIALS

A. Materials:

1. New Exterior Wall Cavities: 3 ½", 6", and 8" thick full batt kraft faced with minimum thermal resistance of R-15.
2. New Interior Wall Cavities: 3 ½", 6", and 8" thick insulation to completely fill the wall cavities.
3. Above Gypsum Board Ceilings: Western Fibers Craftkote Mix II blown-in-place cellulose insulation with thermal resistance of R-38. Refer to manufacturer for required depth
4. Cellulose insulation to meet or exceed the amended CPSC standards for flame resistance and corrosiveness or cellulose insulation. Tested in accordance with ASTM-C-739 Standard Specification for Cellulosic Fiber (Wood Base) Thermal Insulation and E-84 Standard Method of Testing for Surface Burning Characteristics of Building Materials.
5. Above lay-in ceilings: 6" nominal thickness non-faced, R-19 batt insulation.
6. Materials shall comply with Federal Specification HH-I-515D, Class 25, Type Sprayon.
7. New Exterior Wall Continuous Insulation: 2" thick Extruded Polystyrene Rigid Foam Insulation with minimum R-5/1" of thickness.

1.2 INSTALLATION

A. Installation:

1. Cellulose Insulation:
 - a. Install Cellulose fiber insulation in all new exterior wood stud walls, all new interior stud walls, and attic space over all air conditioned spaces with gypsum board ceilings.
 - b. Cellulose fiber insulation pneumatically installed by trained applicators. Apply with liquid adhesive furnished by Western Fibers, Inc. and mixed with water.
 - c. Apply cellulose fiber insulation to thoroughly fill wall cavities and all points of air infiltration in accordance with manufacturer's printed instructions to obtain the proper density and assure no setting.
 - d. Apply cellulose fiber insulation after all plumbing, electrical, and other trade work has been completed. If any cutting or carving out insulation is required for additions or alterations inside walls, completely refill voids with new cellulose fiber insulation.
2. Batt Insulation:
 - a. Install batt insulation above all lay-in ceiling tiles. Make all joints between batts tight. Do not leave air spaces between batts.

END OF SECTION

DIVISION 09- FINISHES

SECTION 092000- PLASTER AND GYPSUM

092116-Gypsum Board Systems

PART 1- GENERAL

1.1 A. General:

1. Work includes providing and installing nailers, rough bucks, metal studs, metal sills, furring channels, and all incidentals necessary to make the permanent gypsum board wall partitions complete.
2. Deliver all products to the job site in the manufacturer's unopened containers with grade seal unbroken and labels intact.
3. Proprietary products listed in this section are intended to establish a basis of design by which products submitted for substitution during Bidding will be evaluated and deemed equivalent as determined by the Architect.

1.2 A. Related Work:

1. Furring for Gypsum Board Ceilings: Section 092214.
2. Tile Backer Board: Section 092813.
3. Rough Carpentry 061000

B. Definitions:

1. Gypsum Board Terminology: ASTM C 11 - Standard Terminology Relating to Gypsum and Related Building Materials and Systems.

1.3 A. Approved Manufacturers:

1. United States Gypsum Company
2. National Gypsum Company
3. Georgia-Pacific Gypsum, LLC
4. Certainteed Gypsum, Inc.

1.4 A. Submittals:

1. Product Data: Catalog sheets, specifications, and installation instructions for each item specified.
2. Samples:
 - a. Gypsum Board: 12 inches square, each type specified.
 - b. Fasteners: 10 each type specified.
 - c. Adhesive: 1 pint.

1.5 A. Quality Assurance:

1. Fire Resistance Rated Applications: Provide UL listed or ASTM E 119 tested materials, accessories, and application procedures to comply with the rating, UL Design Number, or Gypsum Association File Number indicated.

- 1.6** A. Delivery, Storage, and Handling:
1. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.
 2. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.
- 1.7** A. Project Conditions:
1. Environmental Requirements: Comply with gypsum board manufacturer's printed temperature and ventilation requirements during application and finishing. Ventilate installation areas to relieve excess moisture.

PART 2- PRODUCTS

- 2.1** A. Gypsum Board:
1. Moisture and Fire Resistant Gypsum Board: ASTM C 1396; Type X, UL listed and bearing listing mark; long edges tapered.
- 2.2** A. Gypsum Material:
1. Interior Metal Studs: For all partitions, use roll formed, (gauge as recommended by manufacturer), electro-galvanized steel studs manufactured by Gold Bond. The following chart outlines the minimum unbraced span for various sizes and gauges of studs.
 2. Exterior Metal Studs: 6" x 20 gauge CSJ type, spaced at 16" o.c. maximum and 3 5/8" x 20 gauge CST type spaced at 16" o.c. maximum. The exterior walls are designed to withstand 110 mph wind loads.
 3. Floor and ceiling wall runners: 6", 3 5/8" and 2-1/2", by length required, roll formed, 22 gauge electro-galvanized steel as manufactured by Gold bond.
 4. Wall Board:
 - a. 5/8" x 4' x 8' and 5/8" x 4' x required length U.S.G. Firecode® tapered edge gypsum board in all interior areas where impact resistant gypsum board is not required, and above ceilings to deck, (where required).
 - b. 5/8" x 4' x 8' and 5/8" x 4' x required length VHI Firecode® X Panel high-impact resistant gypsum board to be used where noted on the drawings.
 - c. 5/8" DUROCK Board at all wet locations.
 - d. 5/8" x 4' x length required, tapered edge gypsum board at gypsum board ceilings.
 - e. 5/8" x 4' x 8' and 5/8" x 4' x required length U.S.G. Mold Tough® tapered edge gypsum board in all interior areas where scheduled on drawings.
 5. Liner Panels: 1" x 24" at required lengths as shown on drawings, USG Mold Tough® Gypsum Liner Panels. Reference Section 092600 for gypsum shaft wall systems at 1-hour fire wall (UL Design Numbers U415 System A and U438).
 6. Accessories: Metal edge trim #200-A, corner bead #100 by Gold Bond, and expansion joints as per manufacturer's recommendations and the drawings.
 7. Fasteners:a. Sheet rock screws of sufficient length to allow a minimum 5/8" penetration of framing members.
 8. Trim:
 - a. Interior Trim: ASTM C 1047.
 1. Material: Galvanized steel.
 2. Shapes:
 - a. Cornerbead: Use at outside corners.
 - b. Bullnose Bead: Use where indicated.

- c. LC-Bead: J-Shaped, exposed long flange receives joint compound. Use at exposed panel edges.
 - d. L-Bead: L-shaped, exposed long leg receives joint compound with tear away bead. Use where gypsum board abuts or intersects dissimilar material.
 - e. U-Bead: J-shaped, exposed short flange does not receive joint compound. Use where indicated.
 - f. Expansion (Control) Joint: Use where indicated.
 - 9. Joint Treatment Materials:
 - a. Joint Tapes: ASTM C 475; plain or perforated.
 - b. Joint Compound: ASTM C 475; gypsum board manufacturer's recommended dry powder or ready-mixed, either of the following:
 - 1. One Compound Treatment: One compound for both bedding and finishing joints.
 - 2. Two Compound Treatment: Compatible joint compounds; one compound for bedding and the other compound for finishing joints.
 - c. Special Edged Gypsum Board: Gypsum board manufacturer's special joint treatment materials.
 - 10. Manufacturers: National Gypsum Co., U.S. Gypsum Co., Georgia-Pacific Gypsum LLC or Certainteed Gypsum Inc. All other manufacturers: Equivalent as determined by Architect at time of bidding.
 - 11. Substitutions will be considered for approval if submitted to Architect a minimum of two weeks prior to Bid Opening. Approval by Architect of other manufacturers does not relieve Contractor of responsibility to provide products which comply with all requirements of this specification.
- B. Specialty Gypsum Board:
- 1. Manufacturers:
 - a. "GlasRoc"; BPB America, Inc. www.glasroc.com
 - b. "Dens-Glass Gold"; Georgia-Pacific Gypsum, www.gp.com
 - 2. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M, paperless, with glass mat facing on, or embedded into, each side of a water-resistant gypsum core.
 - a. Core: 5/8 inch (15.9 mm), Type X
 - b. Long Edges: Square.
 - 3. Sheathing Accessories:
 - a. Silicone Emulsion Sealant; ASTM C834, compatible with sheathing tape and sheathing, recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
 - b. Glass-Fiber Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, to by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing board and with a history of successful in-service use.
 - 4. Fasteners: ASTM C695; steel drill screws in length recommended by sheathing manufacturer for thickness of sheathing board to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B117.

PART 3- EXECUTION

3.1 A. Examination:

1. Examine substrates to which gypsum board system attaches or abuts, with installer present for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board system construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 A. Construction Tolerances:

1. Do not exceed 1/8 inch in 8 feet variation from plumb or level in any exposed line or surface, except at joints between boards do not exceed 1/16 inch variation between planes or abutting edges or ends. Shim to comply with specified tolerances.

3.3 A. Gypsum Installation:

1. Runners shall be aligned at floor and ceiling and be securely anchored with suitable fasteners on 16" centers. All partitions shall penetrate ceilings.
2. Studs shall be on 16" centers with all studs attached to runner flanges. Studs shall be spaced not over 2" from jambs, corners, and partition intersections. Headers shall be securely anchored as required. Heavy fixture anchorage shall be provided; refer to drawings. Brace to structure above ceiling. Form furrdowns as detailed.
3. Gypsum wallboard shall be applied with all edges over stud flanges. Wallboard shall be used in lengths to minimize joints. Where unavoidable, locate end butt joints as far from center of walls or ceilings as possible. Install gypsum board with face side out. Butt boards together at edges and ends over firm bearing with not more than 1/16 inch of open space between boards. Do not force into place.
4. Fasteners:
 - a. Wallboard shall be attached to framing, using screws of required size and spacing as recommended by gypsum board manufacturer. Screws shall be power driven and screw heads shall provide a slight depression below the surface of the wallboard. Care shall be used not to tear the paper surface. Screws shall be no closer than 3/8" from edges of board.
 - b. Multiple-layer Work:
 1. Mechanically fasten both layers.
 2. Stagger vertical joints in multiple layer Work. Offset joints not less than 10 inches.
5. Provide additional framing and blocking required to support gypsum board at openings and cutouts.
6. Form control joints in gypsum board where indicated. Allow 1/2 inch continuous opening between boards to allow for insertion of control joint trim.
7. Reinforce joints formed by tapered edges, butt edges, and interior corners or angles with joint tape.
8. Drywall contractor shall cut openings for duct work, light fixtures, etc., as required and shall cooperate with the other contractors in building of their work. All drywall opening sizes shall be coordinated with other contractors to assure all holes can be covered by escutcheon plates, etc.
9. Embed all perimeter channels in caulking.
10. Tape and float all surfaces ready for painting, wallpaper or tile where scheduled.
11. Rough 2" x 4" bucks shall be installed and securely anchored to metal studs where required.
12. Provide chases where shown on plans and as may be required for piping, pocket doors, etc.

B. Trim Installation:

1. Coordinate installation of trim progressively with gypsum board installation where trim is of type required to be installed prior to, or progressively with installation of gypsum board.
2. Securely fasten trim pieces in accordance with manufacturer's printed instructions.
3. Install cornerbeads at external corners. Install LC-Bead (J-Bead) beads at unprotected (exposed) edges and where gypsum board abuts dissimilar materials. Use single unjointed lengths unless otherwise approved by the Director.
 - a. Miter corners of semi-finishing type casing and trim beads.
4. Install control joint trim in accordance with ASTM C 840, where indicated.
5. Comply with joint compound manufacturer's recommended drying time for the relative humidity and temperature at time of application. Allow minimum of 24 hours drying time between applications of joint compound.
6. Except Type X Gypsum Board: Joint compound treatment is not required on gypsum board surfaces installed above suspended ceiling lines.
7. Type X Gypsum Board: Install joint and corner reinforcing and trim, and one coat of joint compound over joints, fastener heads, and metal flanges above suspended ceiling lines.

3.4 A. Levels of Gypsum Board Finish:

1. General: Finish panels to levels indicated below, in accordance with ASTM C 840, for locations indicated.
 - a. Level 4 Finish: Joints and angles, provide tape embedded in joint compound and provide three separate coats of joint compound over all joints, angles, and fastener heads. Accessories to be covered with three separate coats of joint compound. Joint compounds to be smooth and free of tool marks and ridges. Cover the prepared surface with a drywall primer prior to the application of the final decoration.

092813-Tile Backer Board

PART 1- GENERAL

- 1.1** A. Related Work:
 - 1. Gypsum Board: Section 092116.
 - 2. Ceramic Tile: Section 093013.
- 1.2** A. Submittals:
 - 1. Product Data: Catalog sheets, specifications, and installation instructions for tile backer board.
 - 2. Samples:
 - a. Tile Backer Board: 12 inches square.
 - b. Joint Reinforcement Tape: 12 inches long.

PART 2- PRODUCTS

- 2.1** A. Materials:
 - 1. Tile Backer Board: Cement mortar building board specifically for use as backer for ceramic tile, either of the following:
 - a. Durock Tile Backer Board by United States Gypsum, 101 South Wacker Drive, Chicago, IL 60606, (800) 874-4968.
 - b. Wonder-Board by Gold Bond Building Products National Gypsum Company, 2001 Rexford Rd., Charlotte, NC 28211, (800) 628-4662.
 - c. Hardi Backer Board by James Hardie Building Products, Inc., which is located at: 26300 La Alameda Suite 400 ; Mission Viejo, CA 92691; Toll Free Tel: 866-274-3464; Tel: 949-367-4980; Email: request info (info@jameshardie.com); Web: www.jameshardiecommercial.com
 - 2. Joint Reinforcement: Tile backer board manufacturer's recommended adhesives, fillers, and tapes.
 - 3. Fasteners: Tile backer board manufacturer's recommended nails or screws.

PART 3- EXECUTION

- 3.1** A. Installation:
 - 1. Install the Work of this Section in accordance with the manufacturer's printed instructions.

END OF SECTION

SECTION 093000-TILING

1.1 A. General:

1. Provide all material, equipment, labor, and incidentals as required to install tile as recommended by the manufacturer.
2. Deliver all products to the job site in the manufacturer's unopened containers with grade seals unbroken and labels intact.
3. Keep all cartons dry.
4. Supply extra 5% of each tile used, in clean, unopened, marked cartons for the Owner's use.
5. Any substitution must be approved by the Architect prior to bid date.
6. All tile must conform to the recommendations of the Tile Council of America (TCA).

1.2 A. Installation:

1. Surface Preparation: All surfaces to receive tile shall be sound, plumb, level and true, free from dust, dirt, grease, calcimine, water or other foreign matter.
2. Thin Set Tile Installation:
 - a. According to tile and setting bed manufacturer's specifications.
 - b. Use "thin-set" method and apply organic adhesive with flat side of trowel, using sufficient pressure to obtain mechanical bond, after which strike with 1/4 x 3/8" notched trowel to regulate thickness of float coat.
 - c. Allow tile to set at least 2 hours before wetting and removing paper back. Use minimum amount of water.
3. Install specified fittings using bullnose at all outside corners and concave units at inside corners with other fittings as required.
4. Grouting:
 - a. According to manufacturers specifications.
 - b. Allow walls to set two (2) hours before grouting.
 - c. Protect for at least 48 hours to keep dirt and foreign matter from being ground into joints.
5. Cleaning:
 - a. Remove all traces of bonding material on all surfaces.
 - b. Tile work shall be completed in a good and workmanlike manner and premises cleared of all debris, rubbish, etc.
 - c. Upon completion, clean all ceramic tile thoroughly, leaving each tile 100% exposed and perfectly clean.
 - d. Take extra caution in applying grout. Clean as quickly as grout is installed.
6. Lay tile sheets to straight edges with joints between sheets same as joint between tiles on sheets. Reference Drawings for field pattern and verify pattern with Architect.
7. Replace cut tile or damaged tile misfits.
8. Expansion joints: 1/4" vertical and horizontal joints at locations and frequencies in accordance with Tile Council of America 1988 Handbook, Method EJ 171-88.
9. All tile joints must line up from floor to base tile and fittings in all directions. No fittings or tile joint will terminate except at another adjoining joint.
10. Do not perform work of this section unless the temperature of areas in which work occurs is 49°F. and rising.
11. Protection:
 - a. Protect all tile from damage during construction.
 - b. Remove cracked, broken, or damaged tiles, replace with new.

1.4 A. Shop Drawings and Samples: Reference Division 1- Submittals.

093013- Ceramic Tiling

1.1 A. Materials:

1. Ceramic Wall Tile:
 - a. Allowance \$9.00/sq.ft. materials only. Color and size to be determined by Architect. Reference drawings for locations.
 - b. Use cove base, bullnose cap trim, coved base corners (inside and outside corners) and other special pieces as required.
2. Organic Adhesives: Mapei - Keraflex Super
3. Grouting: Ultracolor Plus Fa Sanded Grout. Color as selected by Architect.
 - b. Floors-Kerapoxy CQ Sanded Grout. Color ss selected by Architect

093024-Porcelain Tile

1.1 A. Materials:

1. Porcelain floor tile:
 - a. Allowance- \$9.00/sq.ft. material only. Size to be 12" x 24" with 3/16" grout joint set on a 1/3 or straight joint- no 1/2" joint allowed, color to be selected by Architect. Reference drawings for location.
 - b. Use cove base, bullnose cap trim, coved base corners (inside and outside corners) and other special pieces as required.
2. Grouting: Kerapoxy CQ Sanded Grout. Color as selected by Architect.
3. Organic Adhesives: Mapei - Keraflex Super Per manufacturer recommendations.

093050- Tile Setting Material and Accessories

PART 1 GENERAL

1.1 A. Section Includes:

1. Waterproofing Membrane.
2. Floor drain, with integrated bonding flange.
3. Setting materials: adhesives, mortars, grouts, and sealants.

1.2 A. Related Sections

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 06 10 00 - Rough Carpentry.
- C. Section 07 90 00 - Joint Protection.
- D. Section 09 29 00 - Gypsum Board.
- E. Section 09 30 00 - Tiling.
- F. Section 09307 - Tile Shower Components and Waterproofing Membrane. Shower trays, curbs, ramps, bench, niche, sealing compound, waterproofing membrane, drainage panels, drainage membrane compatible with floor drains.
- G. Section 22 30 00 - Plumbing Equipment.

1.3 A. References

1. CSA B79-08: Floor, Area, and Shower Drains, and Cleanouts for Residential Construction.
2. IAPMO IGC 195: Interim Guide Criteria for Floor Drain with Integrated Bonding Flange.
3. Tile Council of North America (TCNA) Handbook for Ceramic Tile Installation.

4. Terrazzo, Tile and Marble Association of Canada (TTMAC) Specification Guide 09300 Tile Installation Manual.
5. American National Standard Specifications for the installation of ceramic tile A108 / A118 / A136.1.

1.4 A. Submittals

1. Submit under provisions of Section 01 30 00.
2. Product Data: Manufacturer's data sheets on each product to be used, including:
 - a. Preparation instructions and recommendations.
 - b. Storage and handling requirements and recommendations.
 - c. Installation methods.
3. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and finish.
4. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 A. Quality Assurance

1. Installer Qualifications: Company specializing in performing the work of this section with minimum five years experience.
2. Source Limitations for Setting Materials and Accessories: Obtain product of a uniform quality for each application condition from a single manufacturer.
3. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - a. Finish areas designated by Architect.
 - b. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - c. Refinish mock-up area as required to produce acceptable work.
4. Preinstallation Conference: Conduct conference at the Project site.
 - a. Convene one week prior to commencing work of this section.
 - b. Require attendance of installation material manufacturer, tile supplier, tile installer and installers of related work. Review installation procedures and coordination required with related work.
 - c. Meeting agenda includes but is not limited to:
 - i. Surface preparation.
 - ii. Tile and installation material compatibility.
 - iii. Edge protection, transition and pre-fabricated movement joint profiles.
 - iv. Waterproofing techniques.
 - v. Crack isolation techniques.

1.6 A. Delivery, Storage, and Handling

1. Store products in manufacturer's unopened packaging until ready for installation.
2. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
3. Store materials in a dry, warm, ventilated weathertight location.

1.7 A. Project Conditions

1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 A. Coordination

1. Coordinate Work with other operations and installation of floor finish materials to avoid damage to installed materials.

PART 2 PRODUCTS

2.1 A. Manufacturers

1. Basis of Design: Schluter Systems, L.P., 194 Pleasant Ridge Road, Plattsburgh, NY 12901-5841. ASD. Tel: (800) 472-4588. Fax (800) 477-9783. E-mail: specassist@schluter.com. Web: www.schluter.com. Local representative contact: Josie Janssen, A+D Manager, South Texas, Tel: 512-230-7953 E-Mail: jjanssen@schluter.com
- B. Substitutions as determined by Architect at time of bidding.

2.2 A. Waterproof Membrane

1. Schluter-KERDI
 - a. Description: 0.008 inch (0.2 mm) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides, which is listed by cUPC to meet or exceed requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10 and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467).
2. Schluter-KERDI-BAND
 - a. Description: Seams and Corners material 0.004 inch (0.1 mm) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides.
 - b. Width: Width as required.

2.3 A. Floor Drain with Integrated Bonding Flange

1. Schluter-KERDI-LINE DRAIN, Brushed Stainless Steel:
 - a. Description:

Linear floor drain consisting of a formed stainless steel channel body and grate assembly that can be seamlessly adjusted to tile or stone covering thickness from 1/8 inch (3 mm) to 1 inch (25 mm). The channel body features a 2-1/4 inch (57 mm) wide trough, a 2 inch (50 mm) no-hub outlet and a 7/8 inch (22 mm) wide bonding flange laminated with a collar made of the Schluter-KERDI waterproofing membrane. Drain type as referenced in methods B422 and B422 STONE in the Tile Council of North America Handbook for Ceramic, Glass, and Stone Tile Installation.
 - b. Channel Body Material:

Stainless Steel 304 (1.4301 = V2A).

2.4 A. Prefabricated Shower Components

1. Schluter-KERDI-SHOWER-T/-TS/-TT
 - a. Description: Trapezoid-imprinted, prefabricated, sloped tiled shower tray base, made of lightweight, self-extinguishing (HF-1 rating per UL-94) expanded polystyrene (PS 40), with 12-5/16 inch (313 mm) diameter removable recessed section and bonded Schluter KERDI Membrane 0.008 inch (0.2 mm) thick, which meet or exceed the requirements of the American National Standard Specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10, and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467). Meeting ANSI A118.10 as detail as referenced in method B422 of the Tile Council of North America Handbook for Ceramic Tile Installation.

- b. Thin Tray:
 - i. KST-965NA/BF - 38 inch by 38 inch by 1 1/32 inch Neo Angle Off Center (97 cm by 97 cm by 26 mm).

2.5 A. Setting Materials

- 1. Schluter-ALL SET Modified Thin Set Mortar.
 - a. Description: specialized sag-resistant modified thin-set mortar specifically formulated for use with Schluter membranes and boards. It is engineered for use both under and over all DITRA and KERDI products. ALL-SET is suitable for use with ceramic, porcelain, and stone tile, including large and heavy tile, in conjunction with Schluter-Systems' uncoupling and waterproofing membranes. Meets the requirements of ANSI A118.4T, A118.11, and A118.15T.

PART 3 EXECUTION

3.1 A. Examination

- 1. Do not begin installation until substrates have been properly prepared.
- 2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 A. Preparation

- 1. Clean surfaces thoroughly prior to installation.
- 2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 A. Installation

- 1. Install in accordance with manufacturer's instructions.

3.4 A. Protection

- 1. Protect installed products until completion of project.
- 2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 096000- FLOORING
096519 – Resilient Tile Flooring

1.01 SCOPE

A. General:

1. Furnish materials and work required for installation of floor tile, base, feature and edging strips complete with all incidentals necessary to complete the work of this section.
2. Reference Floor Finish Plans for specific patterns and colors.
3. Provide extra material equal to 5% of the installed material in clean, unopened, marked cartons.

1.02 MATERIAL

A. Materials:

1. Rubber Cove Base:

Basis of Design -Johnsonite- Other products approved as equivalent by Architect at time of Bidding.

- a. Johnsonite Duracove Thermoplastic Rubber (TP) 4". Color as selected by Owner
- b. All cove base shall be 1/8" thick x 4" or 4 1/2" high, in lengths of 120".
- c. Location: Reference drawings.
- d. Adhesives: As recommended by product manufacturer.
- e. Installation: Follow manufacturer's instructions for installation of all products. If contractor wants to vary from manufacturer's recommendations, they must have prior written approval from Architect and/or Manufacturer.

END OF SECTION

SECTION 099000- PAINTING AND COATING

099100 – PAINTING

1.1 A. General:

1. Work Included: Apply painter's finish as herein specified to:
 - a. All exterior wood, and metal where called for to be painted on drawings or elsewhere in the specifications.
 - b. All cmu where scheduled at interior partitions.
 - c. All interior wood, and gypsum board where called for on the drawings.
 - d. All sight-exposed electrical work on exterior of building.
 - e. All sight-exposed plumbing and gas lines on exterior of building.
 - f. All sight-exposed mechanical work on exterior of building.
 - g. Back prime all items listed in Division 6.
2. Work Not Included:
 - a. Non-ferrous metal, copper, brass, stainless steel, etc., (except as hereinafter specified).
 - b. Shop coat of paint on metal.
 - c. Provide five (5) gallons of unopened paint, of every kind used on the job, to the Owner for their use.

1.2 A. Material:

1. Manufacturer: Basis of Design- Sherwin-Williams.
2. Quality:
 - a. Certain specified manufacturer's products are specified herein not with intent to limit competition, but to simplify description of type and quality of finish desired. Contractor may submit products of other manufacturers, which will be considered, but written approval of the Architect will be required.
 - b. Paint thinners and reducers shall be of best quality.
 - c. Deliver unadulterated products to building site in unbroken packages.
3. Colors:
 - a. Colors to be selected by the Architect or as noted on the drawings.
 - b. Submit manufacturer's color charts in duplicate as soon as possible after the award of the contract together with a list of all manufacturers, whose products are to be used. Notify the Architect when ready to apply color coats and a tentative selection of color will be made. Final selection for finish coat will be made after study of 2nd coat. (Prepare primer and paint color samples on the material being used, in order to ensure proper color selection).
4. Finish Samples: Prepare samples to the satisfaction of the Architect, on samples of materials to be used in the buildings.

1.3 A. Preparation of Surfaces:

1. Metal Work:
 - a. Remove rust, dirt, grease and clean thoroughly.
 - b. Touch up welds, cuts, and scratch marks, and paint with SW Kem Bond Primer.
2. Galvanized Iron: Thoroughly wash all surfaces with M.E.K. (Methyl Ethel Ketone).
3. Gypsum Board:
 - a. Tape all joints with perforated tape and super joint cement.
 - b. Install per-a-bead #100 to all external corners and float joints, nail heads, etc., with super joint cement.

- c. Install #400 series metal trim to all sheet rock terminating with other material and as shown and noted.
 - d. Sand floated areas flush and smooth.
- 4. Concrete Masonry: Remove all dirt and loose materials from face of units.
- 5. Wood Work:
 - a. Putty all nail holes with white lead putty and bring surfaces smooth (putty tinted to finish).
 - b. Fill open grain woods with paste wood filler.
 - c. Touch up knots resinous spots, etc., with shellac before applying primer coat of paint.
 - d. Apply one coat Thompson's Waterseal to all plywood sheets both sides and edges prior to installation.
 - e. Back prime unexposed backs of cases, cabinets, and millwork prior to installation.
 - f. All wood to receive prime coat plus 2 finish coats.
 - g. Existing wood paneling: Clean and sand existing paneling. Fill all holes with putty and touch-up knots. Finish as indicated below under interior stain grade wood.
- 6. A. Surface Preparation:
 - 1. Brick (Exterior):
 - a. Must be free of dirt, loose and excess mortar, and foreign material. All brick weathered at least one year should be wire brushed to remove efflorescence. Treat bare brick with once coat of Loxon Exterior Masonry Primer or Loxon Conditioner.

099113- Painting

1.1 A. Interior Painting: (Reference drawings for colors.)

- 1. Galvanized Iron:
 - a. First Coat - Pro Industrial Pro-Cryl Universal Primer, <100 g/L VOC.
 - b. Second Coat - Pro Industrial Acrylic Semi-Gloss Ultra Deep.
 - c. Third Coat - Pro Industrial Acrylic Semi-Gloss Ultra Deep.
- 2. Steel Surfaces (including doors, frames, exposed roof deck, joists, and conduit):
 - a. First Coat - Pro Industrial Pro-Cryl Universal Primer, <100 g/L VOC.
 - b. Second Coat - Pro Industrial Acrylic Semi-Gloss Ultra Deep.
 - c. Third Coat - Pro Industrial Acrylic Semi-Gloss Ultra Deep.
- 3. Gypsum Board Walls:
 - a. First Coat - ProMar 200 Zero VOC Latex Primer.
 - b. Second Coat - ProMar 200 0 VOC Interior Latex Eggshell Ultra Deep.
 - c. Third Coat - ProMar 200 0 VOC Interior Latex Eggshell Ultra Deep.
- 4. Gypsum Board Ceilings and Soffits:
 - a. First Coat - ProMar 200 Zero VOC Latex Primer.
 - b. Second Coat - ProMar 200 0 VOC Interior Latex Flat Ultra Deep.
 - c. Third Coat - ProMar 200 0 VOC Interior Latex Flat Ultra Deep.
- 5. Paint Grade Wood:
 - a. First Coat - Premium Wall & Wood Primer B28W08111.
 - b. Second Coat - ProMar 200 0 VOC Interior Latex Semi-Gloss Ultra Deep.
 - c. Third Coat - ProMar 200 0 VOC Interior Latex Semi-Gloss Ultra Deep.
- 6. Toilet Room, Mechanical Room, and Janitor Closets (Walls and Ceilings): (Colors to be selected by Architect or referenced on drawings.)
 - a. First Coat- ProMar 200) VOC Latex Primer.
 - b. Second Coat- Superpaint Air Purifying Semi-gloss Extra White- A88W0061.
 - c. Third Coat- Superpaint Air Purifying Semi-gloss Extra White- A88W0061

7. Epoxy Floor: (color to be selected by Architect or referenced on the drawings)
 - a. First Coat- Armorseal 8100 Gloss B70W08111 with Shark Grip Additive. Thin product per manufacturer recommendation
 - b. Second Coat- Armorseal 8100 Gloss B70W08111 with Shark Grip Additive
 - c. Third Coat- Armorseal 8100 Gloss B70W08111

1.3 A. Workmanship:

1. The best workmanship will be required with all materials spread and smoothly flowed on without runs, streaks, sags, brush marks, unfinished patches or other blemishes.
2. Employ only skilled laborers.
3. Perform all work under favorable weather conditions.
4. Commencing work will be construed as acceptance of preceding work performed under other sections of the specifications to receive work specified in this section.
5. BEFORE PAINTING - REMOVE ALL FINISH HARDWARE NOT PRIMED FOR PAINTING.
6. Protect work during progress against damage.
7. Apply coats of materials in strict accordance with manufacturer's recommendations unless otherwise specified.
8. ALLOW ALL PAINTS TO DRY 48 HOURS BETWEEN COATS.
9. Back-prime all interior wood finish, trim, and cabinets against masonry and all concealed surfaces.
10. Remove all finish hardware not primed for painting before painting.
11. First coat shall be tinted toward final color.
12. Paint all sight exposed galvanized iron, cast iron, steel and insulated pipe after all mechanical work and tests have been completed.
13. Sand lightly between all coats of paint.

END OF SECTION

DIVISION 10- SPECIALTIES

SECTION 101400- SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following types of signs:
 - 1. Panel Signs

1.2 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
 - 1. Product data for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
 - 2. Shop drawings showing fabrication and erection of signs. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, layout, reinforcement, accessories, and installation details.
 - 3. Provide message list for each sign required, including large-scale details of wording and lettering layout.
 - 4. For signs supported by or anchored to permanent construction, provide setting drawings, templates, and directions for installation of anchor bolts and other anchors to be installed as a unit of Work in other Sections.
- B. Templates: Furnish full-size spacing templates for individually mounted dimensional letters and numbers.
 - 1. Furnish full-size rubbings for metal plaques.
- C. Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.
 - 1. Samples for initial selection of color, pattern, and texture:
 - a. Cast Acrylic Sheet and Plastic Laminate: Manufacturer's color charts consisting of actual sections of material including the full range of colors available for each material required.
 - 2. Samples for verification of color, pattern, and texture selected and compliance with requirements indicated:
 - a. Cast Acrylic Sheet and Plastic Laminate: Provide a sample panel not less than 8-1/2 inches by 11 inches for each material, color, texture, and pattern required. On each panel include a representative sample of the graphic image process required, showing graphic style, and colors and finishes of letters, numbers, and other graphic devices.
- D. Dimensional Letters: Provide full-size representative samples of each dimensional letter type required, showing letter style, color, and material finish and method of attachment.

1.3 QUALITY ASSURANCE

- A. Sign Fabricator Qualifications: Firm experienced in producing signs similar to those indicated for this Project, with a record of successful in-service performance, and sufficient production capacity to produce sign units required without causing delay in the Work.
- B. Single-Source Responsibility: For each separate sign type required, obtain signs from one source of a single manufacturer.

- C. Design Concept: The Drawings indicate sizes, profiles, and dimensional requirements of signs and are based on the specific types and models indicated. Sign units by other manufacturers may be considered provided deviations in dimensions and profiles do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.
- D. Regulatory Requirements: Comply with the Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities having jurisdiction.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay.

PART 2- PRODUCTS

2.1 MATERIALS

- A. Cast Acrylic Sheet: Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, in sizes and thicknesses indicated, with a minimum flexural strength of 16,000 psi when tested according to ASTM D 790, with a minimum allowable continuous service temperature of 176 deg F (80 deg C), and of the following general types:
 - 1. Transparent Sheet: Where sheet material is indicated as "clear," provide colorless sheet in matte finish, with light transmittance of 92 percent, when tested according to the requirements of ASTM D 1003.
 - 2. Opaque Sheet: Where sheet material is indicated as "opaque," provide colored opaque acrylic sheet in colors and finishes as selected from the manufacturer's standards.
- B. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to the sign material and mounting surface.
- C. Anchors and Inserts: Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
- D. Colored Coatings for Acrylic Plastic Sheet: Use colored coatings, including inks and paints for copy and background colors, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are nonfading for the application intended.

2.4 FINISHES

- A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other characteristics related to appearance, provide color matches indicated, or if not indicated, as selected by the Architect from the manufacturer's standards.

PART 3 - EXECUTION

3.1 INSTALLATION

- A General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
 - 1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- B. Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using the methods indicated below:
 - 1. Vinyl-Tape Mounting: Use double-sided foam tape to mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
 - 2. Silicone-Adhesive Mounting: Use liquid silicone adhesive recommended by the sign manufacturer to attach sign units to irregular, porous, or vinyl-covered surfaces. Use double-sided vinyl tape where recommended by the sign manufacturer to hold the sign in place until the adhesive has fully cured.
 - 3. Shim Plate Mounting: Provide 1/8-inch-thick concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other mounting methods are not practicable. Attach the plate with fasteners and anchors suitable for secure attachment to the substrate. Attach panel sign units to the plate using the method specified above.

3.2 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION

SECTION 102000- INTERIOR SPECIALTIES
102800- TOILET, BATH AND LAUNDRY ACCESSORIES

102813- Toilet Accessories

- 1.1** A. Materials:
1. Grab Bars:
 - a. B-6806.99 Grab Bar in lengths 42" and 36" long at all accessible toilet rooms as shown on the drawings.
 - b. B-6861 Horizontal Two Wall Bar-Shower Stall
 - 2.. B-5181 Reversible Folding Shower Seat
 3. Bobrick B-2013 Automatic Wall Mounted foam soap dispenser
 4. Scott/Kimberly Clark Surface Mounted Toilet Tissue Dispenser 09601 JRT Bath Tissue Dispenser.
 5. Mirrors: (reference drawings for locations)
 - a. Type A- Bobrick B-1652448 24" x 48" one-piece channel frame mirrors with tempered glass.
 6. Bobrick B-677 Bright Finish Towel Pin
 7. B-207 x 72 Shower Curtain Rod with Concealed Mounting
 8. Bobrick- 204-1 Shower Curtain Hook
 9. Bobrick- 204-3 Shower Curtain
- 1.2** A. Installation:
1. Concealed mountings shall be used where possible. Provide solid in wall blocking at all mounting locations
 2. Units are to be mounted on wood stud and gypsum board partitions. Manufacturer shall furnish matching bolts, screws, nuts, and other installation devices with theft-proof heads. All exposed items shall be stainless.
 3. Installation shall be in accordance with manufacturer's printed instructions.

END OF SECTION

SECTION 102000- INTERIOR SPECIALTIES

102100- COMPARTMENTS AND CUBICLES

102113- Toilet Compartments

PART 1 -GENERAL

- 1.1 A. Section Includes:**
1. Floor-mounted overhead-braced solid plastic toilet compartments, urinal and privacy screens.
- 1.2 A. Related Sections:**
1. Section 055000 - Metal Fabrications: Structural support ceiling beam for ceiling hung partitions provided as Work of Section 055000; Unistrut channels not acceptable.
 2. Section 061000 -Rough Carpentry: Anchorage/blocking for attachment of partitions.
- 1.3 A. References:**
1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- 1.4 A. Submittals:**
1. Submit under provisions of Section 01300.
 2. Product Data: Manufacturer's data sheets on each product to be used, including:
 - a. Preparation instructions and recommendations.
 - b. Storage and handling requirements and recommendations.
 - c. Installation methods.
 3. Shop Drawings: Provide layout drawings and installation details with location and type of hardware required.
 4. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
 5. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.
- 1.5 A. Quality Assurance:**
1. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.
 2. Installer Qualifications: A company regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.
 3. Materials: Doors, panels and pilasters shall be constructed from High Density Polyethylene (HDPE) resins. Partitions shall be fabricated from polymer resins compounded under high pressure, forming a single component which is waterproof, nonabsorbent and has a self-lubricating surface that resists marks from pens, pencils, markers and other writing instruments. All plastic components shall be covered with a protective plastic masking.
 4. Performance Requirements:
 - a. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with the ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials:
 1. Smoke Developed Index: Not to exceed 450.

2. Flame Spread Index: Not to exceed 75.
 - b. Material Fire Ratings:
 1. National Fire Protection Association (NFPA): Class B.
 2. International Code Council (ICC): Class B.
- 1.6 A. Delivery, Storage, and Handling:**
1. Store products in manufacturer's unopened packaging until ready for installation.
- 1.7 A. Project Conditions:**
1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
 2. Warranty:
 - a. Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. (Labor not included in warranty.)

PART 2 - PRODUCTS

- 2.1 A. Manufacturers:**
1. Acceptable Manufacturer: Scranton Products, which is located at: 801 E. Corey St., Scranton, PA 18507; Toll Free Tel: 800-445-5148; Email: [request_info \(info@scrantonproducts.com\)](mailto:request_info@scrantonproducts.com); Web: www.scrantonproducts.com
 - a. Fabricator: Santana Products/Hiny Hiders Toilet Partitions.
 2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- 2.2 A. Floor-Mounted Overhead-Braced Solid Plastic Toilet Compartments**
1. Doors, panels, and pilasters shall be 1 inch (25 mm) thick with all edges rounded to a radius. Doors and dividing panels shall be 55 inches (1397 mm) high and mounted at 14 inches (356 mm) above the finished floor. Color as selected by Architect from manufacturer's full line of current colors.
 2. Headrail shall be made of heavy-duty extruded aluminum (6463-T5 alloy) with anti-grip design and integrated curtain track. The headrail shall have a clear anodized finish and shall be fastened to the headrail bracket by a stainless steel tamper resistant Torx head sex bolt, and fastened at the top of the pilaster with stainless steel tamper resistant Torx head screws.
 3. Headrail brackets shall be 20 gauge stainless steel with a satin finish and secured to the wall with a stainless steel tamper resistant Torx head screws.
 4. Pilaster Shoes:
 - a. Stainless Steel Shoes: Pilaster shoes shall be 3 inches (76 mm) high (type 304, 20 gauge) stainless steel. Pilaster shoes shall be secured to the pilaster with a stainless steel tamper resistant Torx head sex bolt.
 5. Wall Brackets:
 - a. Aluminum Brackets: Wall brackets shall be 1-1/2 inches (38 mm) stirrup type made of heavy-duty aluminum (6463-T5 alloy) with a bright dip anodized finish. Stirrup brackets shall be fastened to pilasters and panels with stainless steel tamper resistant Torx head sex bolts.

6. Door Hardware:
 - a. Integral Hinges: Hinges shall be integral, fabricated in the door and pilaster with no exposed metal parts. Hinges operate with field adjustable nylon cams. Cams can be field adjusted to any degree.
 - b. Door strike/keeper shall be 6 inches (152 mm) long and made of heavy-duty extruded aluminum (6436-T5 alloy) with a bright dip anodized finish and secured to the pilasters with stainless steel tamper resistant Torx head sex bolts. Bumper shall be made of extruded black vinyl.
 - c. Latch and housing shall be made of heavy-duty extruded aluminum (6463-T5 alloy). The latch housing shall have a bright dip anodized finish, and the slide bolt and button shall have a black anodized finish.
 - d. Each door shall be supplied with one coat hook/bumper and door pull made of chrome plated Zamak.

PART 3 - EXECUTION

- 3.1 A. Examination:
 1. Do not begin installation until substrates have been properly prepared.
 2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- 3.2 A. Preparation:
 1. Clean surfaces thoroughly prior to installation.
 2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
 3. Examine areas to receive toilet partitions, screens, and shower compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that affect installation of partitions. Report discrepancies to the architect.
- 3.3 A. Installation:
 1. Install in accordance with manufacturer's instructions.
 2. Install partitions rigid, straight, plumb, and level manor, with plastic laid out as shown on shop drawings.
 3. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 3/8 inch (9.5 mm).
 4. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.
 5. Finished surfaces shall be cleaned after installation and be left free of imperfections.
- 3.4 A. Protection:
 1. Protect installed products until completion of project.
 2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 105116- LOCKERS

- 1.1** A. Section Includes
 - 1. Lockers.
 - 2. Locker benches.
- 1.2** A. References
 - 1. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.
- 1.3** A. Submittals
 - 1. Submit under provisions of Division 1.
 - 2. Product Data: Manufacturer's data sheets on each product to be used, including:
 - a. Preparation instructions and recommendations.
 - b. Storage and handling requirements and recommendations.
 - c. Installation methods.
 - 3. Shop Drawings: Drawings shall be submitted showing individual locker size and overall dimensions.
- 1.4** A. Quality Assurance
 - 1. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.
 - 2. Installer Qualifications: A company regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.
- 1.5** A. Delivery, Storage, and Handling
 - 1. Store products in manufacturer's unopened packaging until ready for installation.
 - 2. Locker components shall be stored flat until assembly. All finishes shall be protected from soiling and damage during handling.
- 1.6** A. Project Conditions
 - 1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
- 1.7** A. Warranty: Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. (Labor not included in warranty).

PART 2- PRODUCTS

2.1 A. Manufacturers

1. Acceptable Manufacturer: Scranton Products, which is located at: 801 E. Corey St.; Scranton, PA 18505; Toll Free Tel: 800-445-5148; Fax: 855-376-6161; Email:[request info \(info@scrantonproducts.com\)](mailto:info@scrantonproducts.com); Web:<http://www.scrantonproducts.com>
2. Substitutions: Not permitted.

2.2 A. Lockers

1. Design: Solid plastic storage locker.
2. Product: Duralife Locker.
 - a. Passes NFPA 286.
 - b. Recycled content. minimum 25 percent.
 - c. Vertical Stack: Two tier.
3. Size: Individual and stack height as indicated on drawings.
 - a. Locker Depth: 18 inches (457 mm).
4. Hardware:
 - a. Padlock hasp.
 - b. One top-mounted, two-pronged plastic coat hook (1, 2 and 3 tier only).
 - c. Horizontal venting.
 - d. Continuous hinge.
 - e. Continuous security latch.
 - f. Lattice venting (full and horizontal).
 - g. Slope top.
 - h. Base.
 - i. Built-In combination lock.
 - j. Coin return lock.
 - k. Combination padlock.
 - l. Built-in key lock.
5. Bases shall be supplied 4 inches (102 mm) high, black unless otherwise specified. Locker bases shall be fabricated from 1 inch (25 mm) or 3/4 inch (19mm) black plastic. Bases are assembled in the field.

2.3 A. Construction

1. Locker doors and frames shall be made from high impact, high density polyethylene (HDPE) formed under high pressure into solid plastic components 1/2 inch (13 mm) thick with homogeneous color throughout.
2. Sides, tops, bottoms, backs, and shelves shall be made from high impact, high density, polyethylene (HDPE) formed under pressure into solid plastic components 3/8 inch (9.5 mm) thick with homogenous natural color throughout. Out sides, insides, tops, bottoms, backs, dividers and shelves shall be natural in color.
3. Provide end panels and filler panels of plastic material in color of locker unless noted otherwise as an accent color.
4. Continuous latch shall be made from high impact HDPE plastic and capable of accepting various locking mechanisms. The spring-loaded latch shall be securely fastened to the entire length of the door providing a quiet positive latching function.
5. Door hinge shall be made from heavy duty zinc-plated steel, full length, assembled onto door and locker front.
6. Assembly profile shall be full height of the lockers. Profile shall be Tongue-and-groove joint construction using 3/8 inch thick HDPE.

7. Coat hooks shall be two-prong and made from high impact plastic. Hooks shall be mounted to bottom of the shelf or divider, one each per door opening. (Standard on Single, Double and Triple tier lockers only).

2.4 A. Materials

1. Lockers shall be constructed from High Density Polyethylene (HDPE) resins. Material shall be fabricated from polymer resins compounded under high pressure, forming a single component which is waterproof, nonabsorbent and has a self-lubricating surface that resists marks from pens, pencils, markers and other writing instruments.
2. Plastic components shall resist deterioration and discoloration when subjected to any of the following: acetic acid 80%, acetone, ammonia 12%, ammonium phosphate, bleach 12%, borax, brine, caustic soda, chlorine water, citric acid, copper chloride, core oils, hydrochloric acid 40%, hydrogen peroxide 30%, isopropyl alcohol, lactic acid 25%, lime sulfur, nicotine, potassium bromide; soaps, sodium bicarbonate, trisodium phosphate, urea, urine and vinegar. (Testing in accordance with corrosion testing procedure established by the United States Plastic Corporation.)
3. HDPE components shall have a smooth "orange peel" finish. Locker doors and door frames shall be the same color.
 - a. Color: As selected from manufacturer's standard colors.

2.5 A. Fabrication

1. Locker components shall be fabricated square and rigid with a finish free of scratches and chips.
2. Solid plastic locker components shall snap together at profile connections or slide together at dovetail connections for easy assembly and shall provide a solid and secure anti-racking book case component construction for clean lines and precise reveals. Adjacent lockers shall share a common side panel. Locker units shall be manufactured for assembly in a group of no more than three adjacent lockers.

2.6 A. Benches

1. Bench tops shall be 1-1/2 inches (38 mm) thick with all edges rounded to a 1/4 inch (6 mm) radius. Bench top size is 24 inches wide by inches 42 inches long for one single piece.
2. Steel pedestals shall be 16-1/4 inches (413 mm) high, secured to bench tops with stainless steel tamper resistant Torx head screws and secured to the floor using lead expansion shields with 2 inches (51 mm) stainless steel Phillips head machine bolts.
 - a. Bench Top Color: As selected from manufacturer's standard colors.

PART 3- EXECUTION

3.1 A. Examination

1. Do not begin installation until substrates have been properly prepared.
2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 A. Preparation

1. Clean surfaces thoroughly prior to installation.
2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
3. Report discrepancies to the architect.

3.3 A. Installation

1. Install in accordance with manufacturer's instructions.
2. Install lockers at the location shown in accordance with the manufacturers' instructions for plumb, level, rigid and flush installations.
3. Anchor the units to the wall studs through the locker back and to the floor using 1-1/2 inches (38 mm) tapcon screws.
4. Lockers shall be installed on a 4 inch (102 mm) high base as scheduled or indicated. Base shall be level for proper installation.

3.4 A. Protection

1. Protect installed products until completion of project.
2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION