PROJECT MANUAL

FOR

ASHTON HOUSE REMODELING PROJECT

OWNER: City of Iowa City
410 East Washington Street, Iowa City, Iowa 52240

ARCHITECT: Thomas McInerney Architect
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Project Architect and Contract Administration: Thomas McInerney
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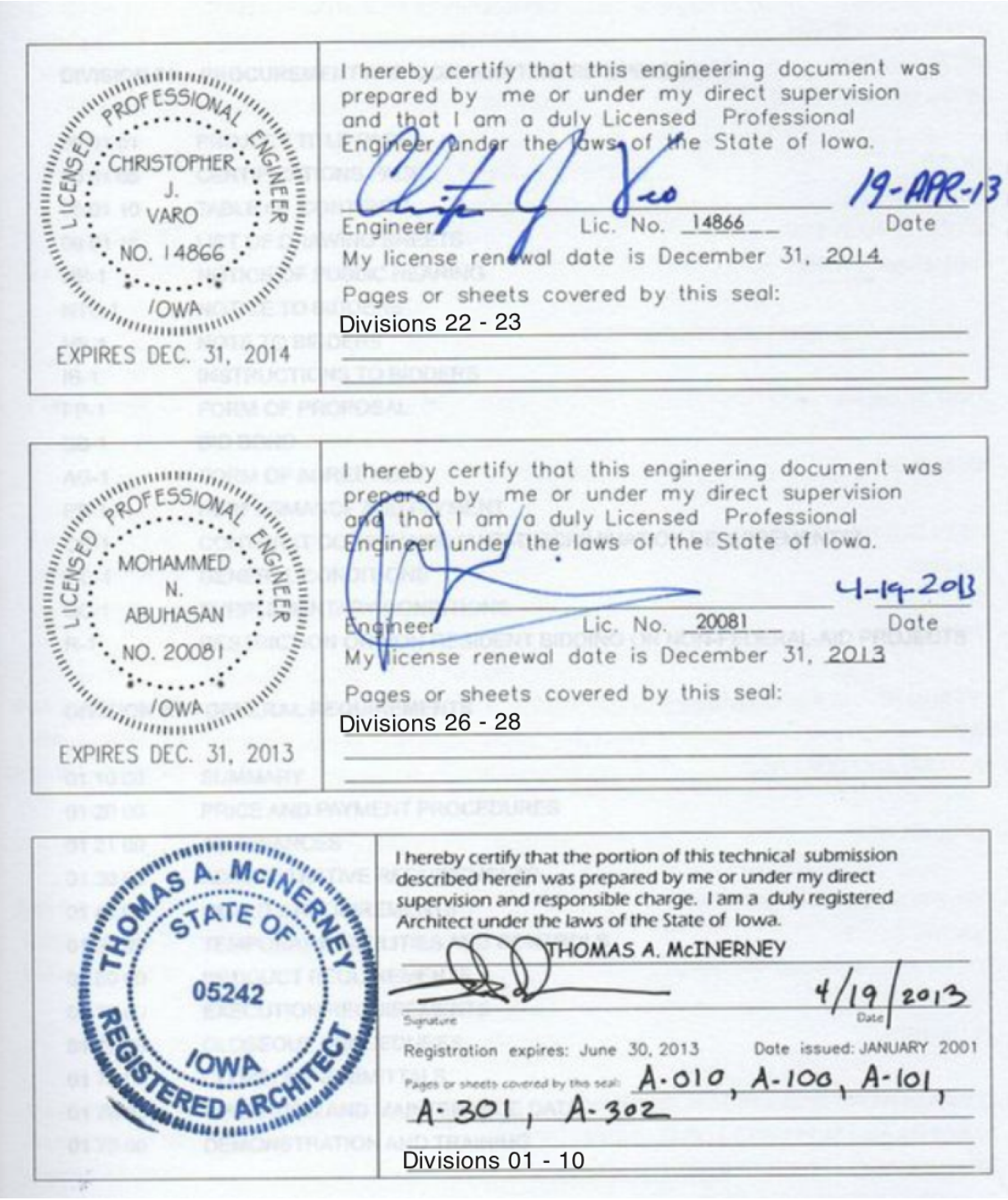
BIDS DUE: June 14, 2013
2:30 PM
City Clerk's Office
410 East Washington Street
Iowa City, Iowa 52245

PREBID MEETING: May 30, 2013, 10:00am, on-site at 820 Park Road, Iowa City, Iowa.

ISSUE FOR BID: May 15, 2013

SECTION 000107 - SEALS PAGE



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SECTION 011000 - SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Ashton House Remodeling Project.

B. Owner's Name: City of Iowa City.

C. Architect's Name: Thomas McInerney Architect.

D. The Project consists of the interior renovation and modification of an existing 5,000 square foot building, resulting in the converting of the building use from a residential type occupancy to an assembly type occupancy with the intended purpose and use as a public and community gathering place.

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document AG-1 - Form of Agreement.

1.03 DESCRIPTION OF ALTERATIONS WORK

A. Scope of demolition and removal work is the responsibility of the Landlord.

B. Plumbing: Alter existing system and add new construction, keeping existing in operation.

C. HVAC: Alter existing system and add new construction, keeping existing in operation.

D. Electrical Power and Lighting: Alter existing system and add new construction, keeping existing in operation.

1.04 OWNER OCCUPANCY

B. OWNER intends to occupy the Project upon Substantial Completion.

C. Cooperate with OWNER to minimize conflict and to facilitate OWNER's operations.

D. Schedule the Work to accommodate OWNER occupancy.

1.05 CONTRACTOR USE OF SITE AND PREMISES

A. Arrange use of site and premises to allow:
   1. OWNER occupancy.
   2. Use of site and premises by the public and adjacent Tenant.

B. Provide access to and from site as required by law, Landlord, adjacent Tenants and by OWNER:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

C. Existing building spaces may not be used for storage.

D. Time Restrictions:
   1. Limit conduct of especially noisy exterior work to the hours of 9PM to 8AM.

1.06 WORK SEQUENCE

A. Coordinate construction schedule and operations with OWNER and Landlord.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Change procedures.

1.02 RELATED SECTIONS

A. Section AG-1 - Form of Agreement: Contract Sum, payment period.

B. Section GC-1 - General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

C. Section SC-1 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.

1.03 SCHEDULE OF VALUES

A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic media printout will be considered.

B. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.

C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization, bonds and insurance, and Contractor's overhead and profit.

D. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Make applications for progress payments in amounts equal to ninety-five percent of the value of Work completed, including cost of materials and equipment properly stored at the jobsite, less the amount of previous payments.

B. Payment Period: Submit at intervals stipulated in the Agreement.

C. Present required information in typewritten form.

D. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.

E. Execute certification by signature of authorized officer.

F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.

G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

H. Submit three copies of each Application for Payment.

I. Include the following with the application:
   1. Construction progress schedule, revised and current as specified in Section 01 3000 - Administrative Requirements.
   2. Partial release of liens from major Subcontractors and vendors.
   3. Affidavits attesting to off-site stored products.

J. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

A. Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on Architect's form.

B. Construction Change Directive: Architect may issue a document, signed by OWNER, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. The document will describe changes in the Work, and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change in Work.

C. Proposal Request: Architect may issue a document which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 15 days.

D. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.

E. Computation of Change in Contract Amount:
   1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
   3. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.
   4. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

F. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. Support each claim for additional costs with additional information:
      a. Origin and date of claim.
      b. Dates and times work was performed, and by whom.
      c. Time records and wage rates paid.
      d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
   3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract on AIA G701.

H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

J. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Final Payment shall be the remaining balance of five percent of the final contract sum (contract retainage).

B. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

C. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 7000 - Execution and Closeout Requirements .
   2. Owner's written acceptance of the completed Work.

D. Final Payment shall become due after 30 days following the Owner's final acceptance of the Work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 012100 - ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cash allowances.

B. Contingency allowance.

1.02 RELATED SECTIONS

A. Section 01 2000 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CASH ALLOWANCES

A. Costs Included in Cash Allowances: Cost of product to Contractor or subcontractor, less applicable trade discounts, less applicable taxes.

B. Costs Not Included in Cash Allowances: Product handling at the site, including unloading, uncrating, and storage; protection of products from elements and from damage; and labor for installation and finishing.

C. Architect Responsibilities:
   1. Select products in consultation with OWNER and transmit decision to Contractor.
   2. Prepare Change Order.

D. Contractor Responsibilities:
   1. Obtain proposals from suppliers and offer recommendations.
   2. On notification of which products have been selected, execute purchase agreement with designated supplier.
   3. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.

E. Differences in costs will be adjusted by Change Order.

1.04 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

B. Funds will be drawn from the Contingency Allowance only by Change Order.

C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.05 INSPECTING AND TESTING ALLOWANCES

A. Costs Included in Inspecting and Testing Allowances: Cost of engaging an inspecting or testing agency; execution of inspecting and tests; and reporting results.

B. Costs Not Included in the Inspecting and Testing Allowances:
   1. Costs of incidental labor and facilities required to assist inspecting or testing agency.
   2. Costs of testing services used by Contractor separate from Contract Document requirements.
   3. Costs of retesting upon failure of previous tests as determined by Architect.

C. Payment Procedures:
   1. Submit one copy of the inspecting or testing firm's invoice with next application for payment.
   2. Pay invoice on approval by Architect.

D. Differences in cost will be adjusted by Change Order.

1.06 ALLOWANCES SCHEDULE

A. Contingency Allowance: Include the stipulated sum/price of **$32,000** for use upon Owner's instructions.

B. HVAC Testing, Adjusting, and Balancing Allowance: Include the sum of **$2,000** for testing, adjusting, and balancing mechanical systems as specified in Section 23 05 93.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Progress meetings.

C. Construction progress schedule.

D. Submittals for review, information, and project closeout.

E. Number of copies of submittals.

F. Submittal procedures.

1.02 RELATED SECTIONS

A. Section 01 1000 - Summary: Stages of the Work, occupancy,

B. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

C. Section 01 7800 - Closeout Submittals: Project record documents.

D. Section 01 7900 - Demonstration and Training: Instruction of Owner's operating personnel.

1.04 PROJECT COORDINATION

A. Project Coordinator: Owner's designated contact person.

B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for construction access, traffic, and parking facilities.

C. During construction, coordinate use of site and facilities through the Project Coordinator.

D. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Owner's "Notice to Proceed".

B. Attendance Required:
   1. OWNER.
   2. Architect.
   3. Contractor.
   4. Major Subcontractors.

C. Agenda:
   1. Distribution of Contract Documents.
   2. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
   3. Designation of personnel representing the parties to Contract, the Owner's jobsite representative, the Contractor's key administrative and field personnel, and Architect.
   4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   5. Scheduling.

D. Architect will record minutes and distribute copies within three days after meeting to participants, with two copies to OWNER, Contractor participants, and those affected by decisions made.

3.02 CONTRACTOR'S PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.

B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required: Job superintendent, major Subcontractors and suppliers, OWNER, Architect, as appropriate to agenda topics for each meeting.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems which impede planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Maintenance of progress schedule.
   8. Corrective measures to regain projected schedules.
   9. Planned progress during succeeding work period.
   10. Maintenance of quality and work standards.
   11. Effect of proposed changes on progress schedule and coordination.
   12. Other business relating to Work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, OWNER, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE - See Section 01 3216

A. Within 15 days after date established in Notice to Proceed, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Incorporate the following schedule for contract closeout:
   1. Closeout Meeting: Schedule at least 45 days prior to anticipated date of Substantial Completion. Submit initial copy of Operation and Maintenance Manuals for review.
   2. Demonstration and Instruction: Schedule at least 15 days prior to Substantial Completion.
   3. Contractor's Punchlist and Notification of Substantial Completion: Submit at least 10 days prior to anticipated date of Substantial Completion.
      a. Architect will schedule verification inspection of Work within 5 days of receipt of Contractor's Notice of Substantial Completion.
   4. Architect will issue "Certificate of Substantial Completion" in accordance with provisions in the Conditions of the Contract.
   5. Closeout Submittals: See Section 01 7800 - Execution and Closeout Requirements. Submit within 25 days following Substantial Completion.
   6. Final Change Order: Architect will prepare and issue within 5 days after Substantial Completion.
   7. Contractor's Notification of Final Completion: Architect will schedule Final Inspection of the Work within 5 days of receipt of Contractor's Notice.
   8. Architect will issue Final Certificate for Payment upon Owner's Final Acceptance of the Work.
   9. Final Payment: See Section 01 2000 - Price and Payment Procedures. Payment due and payable 30 days after Owner's Final Acceptance of the Work.

E. Submit updated schedule with each Application for Payment.

3.04 SCHEDULE FORMAT

A. Bar Charts: Include a separate bar for each major portion of Work or operation.

B. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

C. Sheet Size: Multiples of 8-1/2 x 11 inches.

D. Scale and Spacing: To allow for notations and revisions.

3.05 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with Submittal Procedures article below and for record documents purposes described in Section 01 7800 - CLOSEOUT SUBMITTALS.

3.06 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for OWNER. No action will be taken.

3.07 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

B. Submit for OWNER's benefit during and after project completion.

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
   1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Architect.
   2. Larger Sheets, Not Larger Than 24 x 36 inches: Submit one reproducible transparency and two opaque reproduction.

B. Documents for Information: Submit two copies.

C. Documents for Project Closeout: Make three reproductions of submittal originally reviewed. Submit one extra of submittals for information.

D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.09 SUBMITTAL PROCEDURES

A. Transmit each submittal with approved form.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

E. Deliver submittals to Architect at business address.

F. Schedule submittals to expedite the Project, and coordinate submission of related items.

G. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

H. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

I. Provide space for Contractor and Architect review stamps.

J. When revised for resubmission, identify all changes made since previous submission.

K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

L. Submittals not requested will not be recognized or processed.

3.10 ATTACHED FORMS

A. Transmittal Form for "Construction Submittals".

END OF SECTION

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Quality assurance submittals.

B. Mock-ups.

C. Control of installation.

D. Tolerances.

E. Testing and inspection services.

F. Manufacturers' field services.

1.02 RELATED SECTIONS

A. Section 01 3000 - Administrative Requirements: Submittal procedures.

B. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCES

1.04 SUBMITTALS

A. Testing Agency Qualifications:
   1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time specialist and responsible officer.

B. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Conformance with Contract Documents.
      k. When requested by Architect, provide interpretation of results.
   2. Test reports are submitted for Architect's knowledge as contract administrator or for the OWNER, for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
   1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
   2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the OWNER's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

E. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for OWNER.

1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.05 TESTING AND INSPECTION AGENCIES

A. OWNER will employ and pay for services of an independent testing agency to perform specified testing and inspection.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

A. See individual specification sections for testing required.

B. Testing Agency Duties:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Architect and Contractor in

performance of services.
3. Perform specified sampling and testing of products in accordance with specified standards.
4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
5. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
6. Perform additional tests and inspections required by Architect.
7. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

D. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
a. To provide access to Work to be tested/inspected.
b. To obtain and handle samples at the site or at source of Products to be tested/ inspected.
c. To facilitate tests/inspections.
d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with OWNER's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect. Payment for re testing will be charged to the Contractor by deducting testing charges from the Contract Price.

3.05 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telephone service.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

H. Project identification sign.

1.02 TEMPORARY UTILITIES

A. Provide and pay for all electrical power, lighting, heating and cooling, and ventilation required for construction purposes.

B. Existing facilities may not be used.

C. New permanent facilities may not be used.

D. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TELEPHONE SERVICE

A. Provide, maintain, and pay for telephone service to field office at time of project mobilization.

B. Provide, maintain and pay for facsimile service and a dedicated telephone line to field office at time of project mobilization.

1.04 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.05 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 EXTERIOR ENCLOSURES

A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.07 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from OWNER-occupied areas, to prevent penetration of dust and moisture into OWNER-occupied areas, and

to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.08 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and OWNER's operations from unauthorized entry, vandalism, or theft.

B. Coordinate with OWNER's security program.

1.09 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with governing authorities and OWNER.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Designated existing on-site roads may be used for construction traffic.

E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.10 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.11 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition.

E. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations and procedures.

E. Spare parts and maintenance materials.

1.02 RELATED SECTIONS

A. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.03 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Notice to Proceed.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

E. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.03 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra products of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to OWNER.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.
   5. Will reimburse OWNER and Architect for review or redesign services associated with acceptance of substitutions and re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution. Requests shall be submitted on Form 01 6000A: REQUEST/ CERTIFICATION FOR PROPOSED SUBSTITUTE PRODUCTS (this form is found after the end of this Section).
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. Thomas McInerney Architect will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

FORM 01 6000A

REQUEST/CERTIFICATION FOR PROPOSED SUBSTITUTE PRODUCTS

TO:

PROJECT: _____

BID DATE: _____

The undersigned hereby states the following:

1. Having examined the Drawings, Specifications and other Bidding Documents, and being familiar with the conditions surrounding the installation of materials/products/systems herein proposed for acceptance for the above project, do hereby certify that the function, appearance, quality and performance of the following:

   _____

   _____

   _____

   _____

   complies with requirements contained in the Drawings and the following specifications sections:

   _____

   _____

   _____

2. Upon acceptance of the above materials/products/system, full compliance with the proposed Contract Documents shall be maintained.

   Submitted by:

   _____
   Signature Title

   _____
   Firm

   _____
   Address

   _____
   Telephone Date

   Signature shall be by person having authority to legally bind his firm to the above terms. Failure to provide legally binding signature will result in retraction of approval

SECTION 017300 - EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Pre-installation meetings.

D. Cutting and patching.

E. Laying out the work.

F. Cleaning and protection.

G. Starting of systems and equipment.

1.02 RELATED SECTIONS

A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated equipment and materials.

B. Section 01 5000 - Temporary Facilities and Controls: Temporary exterior enclosures, heating, cooling, and ventilating facilities.

D. Section 01 7700 - Closeout Procedures: Closeout procedures related to achieving Substantial Completion and Final Completion of the Work.

E. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

G. Section 01 7900 - Demonstration and Training: Training Owner personnel in operation and maintenance of equipment and systems.

H. Individual Product Specification Sections:
   1. Advance notification to other sections of openings required in work of those sections.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.

D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 PROJECT CONDITIONS

A. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
   2. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

F. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

1.06 COORDINATION

A. See Section 01 1000 - Summary, for occupancy-related requirements.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

C. Notify affected utility companies and comply with their requirements.

D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E. Coordinate space requirements, supports, and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean-up of work of separate sections.

H. After OWNER occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of OWNER's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, OWNER, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Contractor shall locate and protect reference points.

D. Control datum for survey is that indicated on Drawings.

E. Protect and preserve permanent reference points during construction.

F. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

H. Utilize recognized engineering survey practices.

I. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

J. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading and fill placement; utility

locations, slopes, and invert elevations.
2. Grid or axis for structures.
3. Building foundation and ground floor elevations.

K. Periodically verify layouts by same means.

L. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
1. Verify that construction and utility arrangements are as shown.
2. Report discrepancies to Architect before disturbing existing installation.
3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Separate areas in which alterations are being conducted from other areas that are still occupied.
1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. Remove existing work as indicated and as required to accomplish new work.
1. Remove items indicated on drawings.
2. Relocate items indicated on drawings.
3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   a. Disable existing systems only to make switchovers and connections; minimize

duration of outages.
b. Provide temporary connections as required to maintain existing systems in service.
4. Verify that abandoned services serve only abandoned facilities.
5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

G. Adapt existing work to fit new work:
1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
2. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
3. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

H. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
3. Patch as specified for patching new work.

I. Clean existing systems and equipment.

J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

K. Do not begin new construction in alterations areas before demolition is complete.

L. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

C. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

D. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

E. Restore work with new products in accordance with requirements of Contract Documents.

F. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

G. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

H. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

I. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 STARTING SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning

correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. See Section 01 7900 - Demonstration and Training.

3.12 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Testing, adjusting, and balancing HVAC systems: See Section 23 05 93.

3.13 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.
   1. Clean areas to be occupied by OWNER prior to final completion before OWNER occupancy.

B. Use cleaning materials that are nonhazardous.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, and drainage systems.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

A. Refer to Section 01 7700.

B. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect and OWNER.

C. OWNER will occupy all of the building as specified in Section 01 1000 - Summary.

3.15 MAINTENANCE SERVICE

A. Furnish service and maintenance of components indicated in specification sections for 1 (one) year from date of Substantial Completion.

B. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

D. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the OWNER.

END OF SECTION

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contract closeout procedures related to:
   1. Substantial Completion of the Work and
   2. Final inspection and Owner's acceptance of the Work.

B. Closeout submittals including:
   1. Substantial Completion documents.
   2. Final Application for Payment with supporting documents.
   3. Project Record Documents.
   4. Warranties and Bonds.

1.02 RELATED SECTIONS

A. Section GC-1 - General Conditions: Performance and Payment Bonds, warranty, and correction of work.

B. Section 01 3000 - Administrative Requirements: Submittal procedures for shop drawings, product data, and samples.

C. Section 01 7800 - Operation and Maintenance Data: Preparation of Operation and Maintenance Manuals.

D. Section 01 7900 - Demonstration and Training: Operation and maintenance instruction of Owner's personnel.

E. Individual product sections: Specific requirements for operation and maintenance data.

F. Individual product sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Contractor's Declaration of Substantial Completion: Submit three copies of required forms and related documentation certifying that status of Work is consistent with "Substantial Completion".

B. Operation and Maintenance Manuals: Provide three sets of revised documents in final form for use by Owner's personnel. Submit at least 45 days prior to date of Declaration of Substantial Completion.

C. Material and Product Warranties: Submit fully executed manufacturers' warranties within ten days following Date of Substantial Completion except as follows:
   1. For equipment and component parts of equipment put into service during construction with OWNER"S permission, submit documents within ten days after acceptance; list date of acceptance as the beginning of the warranty period .
   2. For items of Work for which acceptance is delayed beyond date of Substantial Completion, submit within ten days after acceptance; list date of acceptance as the beginning of the warranty period.

D. Contractor's Statement of Final Completion: Submit two copies of required forms certifying that Work has been fully completed; make submittal within 45 days after Date of Substantial Completion.

E. Claim for Final Payment: Submit two copies of required final Application for Payment forms together with supporting documents.

F. Evidence of Payments and Release of Liens: Submit two copies of required forms with claim for Final Payment.

G. Project Record Documents: Submit required Record Documents with claim for Final Payment.

1.04 COORDINATION

A. Coordinate scheduling, submittals, and inspection of the work of the various sections of the Project Manual to ensure efficient and orderly closeout procedure, with provision for accommodating items installed later.

B. Final Utility Connections: Notify affected utility companies and comply with their requirements for final connections.

1.05 PRE- SUBSTANTIAL COMPLETION MEETING

A. Convene 30 days before submitting Declaration of Substantial Completion for purpose of reviewing required closeout procedures with representatives of Owner and Architect.

1.06 PROJECT CONDITIONS

A. Coordinate completion and ensure clean-up of work of separate sections of the Project Manual.

B. The Owner intends to occupy the entire project area at Date of Substantial Completion.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION FOR SUBSTANTIAL COMPLETION

A. Operation and Maintenance Manuals:
   1. Comply with additional requirements in Section 01 7800.
   2. Include operating instructions and maintenance data prepared by personnel experienced in maintenance and operation of described equipment and systems.
   3. Use Operating and Maintenance Manuals as reference for instruction of Owner's personnel.

B. Demonstration and Training:
   1. Comply with additional requirements in Section 01 7900.
   2. Prior to Substantial Completion, perform demonstration and train Owner's personnel in proper operation and maintenance of equipment and systems designated in individual sections of the Project Manual.

C. Preliminary Inspection for Substantial Completion:
   1. Schedule and conduct preliminary inspection of the Work accompanied by Owner's Project Representative.
      a. Determine and identify items to be listed for correction and completion (punchlist) on Contractor's Declaration of Substantial Completion.
   2. Verify that surface finish materials are properly installed in accordance with manufacturer's recommendations and exposed surfaces are clean and free from damage.
   3. Verify final adjustment of operating items, equipment and system components to ensure smooth and unhindered operation.
   4. Verify specific operating and performance requirements described in individual specification sections.
      a. Secure certification by TAB contractor that testing, adjusting and balancing work has been completed, and respective systems are performing in accordance with specified design requirements.
      b. Replace filters of operating equipment.
   5. Verify that utility services are properly connected and of the correct characteristics.
   6. Verify inspection and acceptance of the respective portions of the Work by Authorities Having Jurisdiction (AHJ).

3.02 SUBSTANTIAL COMPLETION DOCUMENTS

A. Contractor's Declaration of Substantial Completion:
   1. Provide the necessary assurance that the progress of the Work is consistent with Substantial Completion as defined by the Contract Documents.
   2. Upon receipt of the required forms the Architect will schedule and conduct a Substantial Completion Inspection.

B. Certificate of Substantial Completion: Upon verification of Contractor's Punchlist, and subsequent determination by Architect that status of Work is suitable for occupancy by the Owner, the Architect will prepare Certificate of Substantial Completion (AIA Doc G704-2000).

C. Complete and correct respective items of work listed and attached to the Certificate of Substantial Completion within 30 days following Date of Substantial Completion.

3.03 FINAL CLOSEOUT DOCUMENTS

A. Contractor's Statement of Final Completion: Certify that the Work is complete and has been inspected and found to be in compliance with the Contract Documents.

B. Claim for Final Payment:
   1. Prepare application for payment on approved forms.
   2. Amount of final payment shall be the Contractor's retainage (5% of the contract amount).
   3. In accordance with Iowa law, final payment shall become due and payable 31 days after the date of Owner's written acceptance of the completed Work.

C. Evidence of Payments and Release of Liens: Prepare the following:
   1. "Contractors Affidavit of Payment of Debts and Claims" (AIA Doc G706).
   2. "Contractor's Affidavit of Release of Liens" (AIA Doc G706A).
      a. Include separate waivers of lien from subcontractors, suppliers, and others with lien rights against property of the Owner.
   3. Obtain "Consent of Surety to Final Payment" (AIA Doc G707).

D. Project Record Documents:
   1. Submit one set of the following Record Documents; record actual revisions to the Work:
      a. Drawings
      b. Specifications
      c. Addenda
      d. Change Orders and other modifications to the Contract.
      e. Reviewed shop drawings, product data, and samples.
   2. Ensure entries are complete and accurate, enabling future reference by the Owner.
   3. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
      a. Manufacturer's name and product model and number.
      b. Product substitutions or alternates utilized.
      c. Changes made by Addenda and modifications.
   4. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
      a. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
      b. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
      c. Field changes of dimension and detail.
      d. Details not on original Contract Drawings.

E. Material and Product Warranties:
   1. Obtain required warranties executed in duplicate by responsible subcontractors, suppliers and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with OWNER'S permission, leave date of beginning of time of warranty until Date of Substantial Completion is determined.
   2. Verify that documents are in proper form, contain full information, and are notarized.
   3. Co-execute warranty documents when required.
   4. Retain warranties until time specified for submittal.
   5. Include photocopies of each in operation and maintenance manuals; indicate on Table of Contents.

3.04 FINAL INSPECTION OF THE WORK

A. Following submittal of required closeout documents, the Architect will conduct a Final Inspection

of the Work.

B. Accompany Owner's Project Representative and Architect on final inspection of the Work.

C. Complete items of work determined and identified during final inspection.

3.05 OWNER'S FINAL ACCEPTANCE OF THE WORK

A. Upon satisfactory completion of the Work, the Architect will recommend acceptance of the completed Work by the Owner and final payment to the Contractor.

B. The Owner will notify the Contractor in writing of the effective date of their acceptance of the Work.

END OF SECTION

SECTION 017800 - CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

D. Evidence of payments and release of liens.

1.02 RELATED SECTIONS

A. Section GC-1 - General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

D. Section 01 7900 - Demonstration and Training: Operation and maintenance instruction of Owner's personnel.

E. Individual Product Sections: Specific requirements for operation and maintenance data.

F. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. Submit 1 copy of completed documents 45 days prior to "Substantial Completion". This copy will be reviewed and returned, with Architect comments. Revise content of all document sets required prior to final submission.
   3. Submit three sets of revised final documents in final form at least 15 days prior to "Substantial Completion" for use by Owner's personnel during demonstration and training activities.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with OWNER's permission, submit documents within ten days after acceptance.
   2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

D. Evidence of Payments and Release of Liens: Submit required documents to Architect with Application for Final Payment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.

2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.

B. Ensure entries are complete and accurate, enabling future reference by OWNER.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
3. Field changes of dimension and detail.
4. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
1. Product data, with catalog number, size, composition, and color and texture designations.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
1. Description of unit or system, and component parts.
2. Identify function, normal operating characteristics, and limiting conditions.
3. Include performance curves, with engineering data and tests.
4. Complete nomenclature and model number of replaceable parts.

B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

C. Include color coded wiring diagrams as installed.

D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions.

Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide control diagrams by controls manufacturer as installed.

K. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

L. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

M. Include test and balancing reports.

N. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an instructional manual.

C. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
      f. Maintenance instructions for special finishes, including recommended cleaning

methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:
   a. Shop drawings and product data.
   b. Air and water balance reports.
   c. Certificates.
   d. Photocopies of warranties and bonds.

J. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with OWNER's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Include photocopies of each in operation and maintenance manuals, indexed separately on Table of Contents.

3.07 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS

A. Execute "Contractor's Affidavit of Payment of Debts and Claims" (AIA Doc G706).

B. Submit "Contractor's Affidavit of Release of Liens" (AIA Doc G706A), together with:
   1. Separate waivers of lien from subcontractors, suppliers, and others with lien rights against property of the Owner.

C. Obtain "Consent of Surety to Final Payment" (AIA Doc G707).

END OF SECTION

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Operation and Maintenance Data.

B. Warranties and bonds.

1.02 RELATED SECTIONS

A. Section GC-1 - General Conditions: Warranty, and correction of work.

B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 7700 - Closeout Procedures: Contract closeout procedures.

D. Section 01 7900 - Demonstration and Training: Operation and maintenance instruction of Owner's personnel.

E. Individual Product Sections: Specific requirements for operation and maintenance data.

F. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Operation and Maintenance Data:
   1. Preliminary Draft: Prepare two copies before start of Work. Indicate proposed formats and outlines of contents. Architect will review draft and return one copy with comments.
   2. Submit 1 copy of completed documents 45 days prior to "Substantial Completion". This copy will be reviewed and returned, with Architect comments. Revise content of all document sets required prior to final submission.
   3. Submit three sets of revised final documents in final form at least 15 days prior to "Substantial Completion" for use by Owner's personnel during demonstration and training activities specified in Section 01 7900.

B. Product and Material Warranties: Obtain required manufacturer's warranties; assemble original documents in separate three-ring binder to be submitted within ten days after Date of Substantial Completion, prior to final Application for Payment.
   1. Ensure that manufacturer's warranties have been completed in OWNER's name and registered with respective manufacturer.
   2. Include photocopies of each in operation and maintenance manuals, indexed separately on Table of Contents.

1.04 PRE-SUBMITTAL MEETING

A. Convene 15 days before starting work on revised Operation and Maintenance Manuals for the purpose of reviewing Architect's comments on preliminary draft.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION OF OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an instructional manual.

C. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
   3. Part 3: Project documents and certificates, including the following:
      a. Shop drawings and product data.
      b. Air and water balance reports.
      c. Certificates.
      d. Photocopies of warranties and bonds.

J. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

K. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

C. Include color coded wiring diagrams as installed.

D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide control diagrams by controls manufacturer as installed.

K. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

L. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

M. Include test and balancing reports.

N. Additional Requirements: As specified in individual product specification sections.

3.05 WARRANTIES

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with OWNER's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Retain warranties and bonds until time specified for submittal.

C. Manual: Bind in commercial quality 8-1/2 x 11 inch three D side ring binders with durable plastic covers.

END OF SECTION

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Demonstration of products and systems where indicated in specific specification sections.

B. Training of OWNER personnel in operation and maintenance is required for:
   1. All software-operated systems.
   2. HVAC systems and equipment.
   3. Plumbing equipment.
   4. Electrical systems and equipment.
   5. Conveying systems.
   6. Items specified in individual product Sections.

C. Training of OWNER personnel in care, cleaning, maintenance, and repair is required for:
   1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
   2. Finishes, including flooring, wall finishes, ceiling finishes.
   3. Fixtures and fittings.
   4. Items specified in individual product Sections.

1.02 RELATED SECTIONS

A. Section 01 7800 - Closeout Submittals: Operation and maintenance manuals.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Training Plan: OWNER will designate personnel to be trained; tailor training to needs and skill-level of attendees.
   1. Submit to Architect for transmittal to OWNER.
   2. Submit not less than four weeks prior to start of training.
   3. Revise and resubmit until acceptable.
   4. Provide an overall schedule showing all training sessions.
   5. Include at least the following for each training session:
      a. Identification, date, time, and duration.
      b. Description of products and/or systems to be covered.
      c. Name of firm and person conducting training; include qualifications.
      d. Intended audience, such as job description.
      e. Objectives of training and suggested methods of ensuring adequate training.
      f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
      g. Media to be used, such a slides, hand-outs, etc.
      h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
   1. Include applicable portion of O&M manuals.
   2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
   3. Provide one extra copy of each training manual to be included with operation and maintenance data.

D. Training Reports:
   1. Identification of each training session, date, time, and duration.
   2. Sign-in sheet showing names and job titles of attendees.
   3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.
   4. Include Owner's formal acceptance of training session.

1.04 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
   1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
   2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

1.05 PROJECT CONDITIONS

A. Coordinate preparation of operation and maintenance data specified in Section 01 7823.

B. Schedule work to ensure demonstration and training sessions are completed prior to request for Substantial Completion.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by OWNER.

B. Demonstration may be combined with OWNER personnel training if applicable.

C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
   1. Perform demonstrations not less than two weeks prior to Substantial Completion.
   2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
   1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.02 TRAINING - GENERAL

A. Conduct training on-site unless otherwise indicated.

B. OWNER will provide classroom and seating at no cost to Contractor.

C. Provide training in minimum two hour segments.

D. Training schedule will be subject to availability of OWNER's personnel to be trained; re-schedule training sessions as required by OWNER; once schedule has been approved by OWNER failure to conduct sessions according to schedule will be cause for OWNER to charge Contractor for personnel "show-up" time.

E. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
   1. The location of the O&M manuals and procedures for use and preservation; backup copies.
   2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
   3. Typical uses of the O&M manuals.

F. Product- and System-Specific Training:
   1. Review the applicable O&M manuals.
   2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
   3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.

4. Provide hands-on training on all operational modes possible and preventive maintenance.
5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
6. Discuss common troubleshooting problems and solutions.
7. Discuss any peculiarities of equipment installation or operation.
8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
9. Review recommended tools and spare parts inventory suggestions of manufacturers.
10. Review spare parts and tools required to be furnished by Contractor.
11. Review spare parts suppliers and sources and procurement procedures.

G. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION

SECTION 02 4119 – SELECTIVE DEMOLITION

PART 1 GENERAL

1. REFERENCE STANDARDS AND RELATED DOCUMENTS

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

    B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

    C. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

    D. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

    E. All materials, installation and workmanship shall comply with all applicable requirements and standards.

2. SUBMITTALS

    A. Record Documents:

        1. Schedule indicating proposed sequence of operations for selective demolition Work to Owner's Representative for review prior to start of Work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

            a. Provide detailed sequence of demolition and removal Work to ensure uninterrupted progress of Owner's on-site operations.

            b. Coordinate with Owner's continuing occupation of portions of existing building and with Owner's partial occupancy of completed new addition.

        2. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner's Representative prior to start of Work.

3. PROJECT CONDITIONS

    A. Owner will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition Work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities that will affect Owner's normal operations.

    B. Owner assumes no responsibility for actual condition of items or structures to be demolished.

        1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition Work.

C. Promptly repair damages caused to adjacent facilities by demolition Work.

D. Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

E. Do not use cutting torches for removal until Work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame cutting operations. Maintain portable fire suppression devices during flame cutting operations.

F. Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

2. Maintain fire protection services during selective demolition operations.

G. Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 PRODUCTS

1. GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2. MATERIAL OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the Owner's property, demolished materials shall be become the Contractor's property and shall be removed from the Site with further disposition of the Construction's option.

B. Historical items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the Owner, which may be encountered during demolition, remain the Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the Owner.

PART 3 EXECUTION

1. PREPARATION

A. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.

1. Cease operations and notify Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

2. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

2. INSTALLATION

A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

B. All installation shall be in accordance with manufacturer’s published recommendations.

3. DEMOLITION

A. Perform selective demolition Work in a systematic manner. Use such methods as required to complete Work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power driven masonry saw or hand tools; do not use power driven impact tools.

2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.

3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

4. Demolish foundation walls to a depth of not less than 12 inches below existing ground surface. Demolish and remove below grade wood or metal construction. Break up below grade concrete slabs.

5. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.

6. Completely fill below grade areas and voids resulting from demolition Work. Provide fill consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic matter.

B. Remove culvert or sewer pipe for reuse by careful excavation of all material on the top and sides so that the pipe will not be damaged. Removal of sewer appurtenances shall be included for removal with the pipe. Remove pipe which are unsatisfactory for reuse, and dispose of, off the Project Site.

C. Concrete parts of structures below the permanent ground-line shall be neatly squared off with reinforcement cut off close to the concrete.

D. Dismantle steel structures or steel portions of structures in sections determined by the Owner's Representative.

1. The sections shall be of such weight and dimensions which permit convenient handling, hauling and storing.

2. Rivet and bolts connecting steel rail members, steel beams or girder spans and steel stringers of truss spans will be removed by cutting the heads with a cold cut then punching or drilling by a method that will not injure the member for reuse.

3. The removal of rivets and bolts from connections will not be required unless specifically indicated.

4. Unless otherwise specified, the Contractor shall have the option of dismantling these members by flame cutting immediately adjacent to the connection.

5. Flame-cutting will not be permitted when Drawings call for the structural unit to be salvaged in such a manner as to permit re-erection. In such cases, all members shall be carefully dismantled without damage, match marked with paint, and all rivets and bolts removed from the connections.

E. Remove brick and stone structures by sledging the masonry into removal sizes. Portions of such structures below the permanent ground-line, which will not in any manner interfere with the proposed construction, may be left in place, but removal shall be carried at least two feet below the permanent ground-line and neatly squared off.

F. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

4. EXCAVATION AND BACKFILL

A. Back-fill to the level of the original ground-line, all excavation made in, and all openings below, the natural ground-line caused by the removal of old structures or portions thereof.

B. That portion of the back-fill which will support any portion of the roadbed or paving shall be placed in layers of the same thickness as those required subgrade preparation.

1. Material in each layer shall be wetted uniformly, if required, and shall be compacted to the density required in the adjoining embankment. In places inaccessible to blading and rolling equipment, mechanical or handtampers shall be used to obtain the required compaction.

C. Place that portion of the back-fill which will not support any portion of the roadbed or paving in such a manner, and compact, to preclude settling.

5. DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from building Site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off Site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

2. Burning of removed materials is not permitted on the Project Site.

6. CLEANUP AND REPAIR

A. Upon completion of demolition Work, remove tools, equipment, and demolished materials from the Project Site. Remove protections and leave interior areas broom clean.

1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition Work.

END OF SECTION 02 41 19

SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.

B. Concrete foundation walls and footings.

C. Joint devices associated with concrete work.

1.02 RELATED SECTIONS

A. Section 07 9005 - Joint Sealers.

1.03 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1999.

C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004.

D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.

E. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1999.

F. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988.

G. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2005.

H. ASTM C 33 - Standard Specification for Concrete Aggregates; 2003.

I. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2004a.

J. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2004a.

K. ASTM C 143/C 143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2003.

L. ASTM C 150 - Standard Specification for Portland Cement; 2004a.

M. ASTM C 173/C 173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2001.

N. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2001.

O. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; 2004.

P. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2003.

Q. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1999.

R. ASTM C 1116 - Standard Specification for

S. ASTM C 1240 - Standard Specification for

T. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004.

U. ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 1997 (Reapproved 2004).

1.04 DESIGN REQUIREMENTS

A. The project design is based on the following minimum compressive strengths for various cast-in-place concrete components:

1. Foundation walls and footings: 3500 psi.

2. Interior Slabs-on-grade: 4000 psi.

3. Exterior Paving: 4000 psi.

B. Do not permit superimposed loads to be applied to concrete components until at least 75 percent of minimum design compressive strength has been achieved.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements.

C. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction for concrete accessories.

D. Proposed Mix Design(s): Material proportions for each class of concrete; indicate compressive strength development at 7, 28, and 90 days; indicate alkalinity (pH) of hardened concrete sample at 90 days.

E. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.06 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Acquire cement from same source and aggregate from same source for entire project.

C. Follow recommendations of ACI 305R when concreting during hot weather.

1. Take precautions to minimize plastic shrinkage cracking. Coordinate with additional requirements in Section 03390.

D. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

2.02 REINFORCEMENT

2.03 CONCRETE MATERIALS

A. Cement: ASTM C 150, Type I - Normal Portland type.

B. Fine and Coarse Aggregates: ASTM C 33.

C. Fly Ash: ASTM C 618, Class C or F.

D. Granulated Blast-Furnace Slag: ASTM C 989, Grade 100. Provide "GranCem" cement supplied by Holcim Inc.

E. Water: Clean and not detrimental to concrete.

2.04 ADMIXTURES

A. Air Entrainment Admixture: ASTM C 260.

1. Provide products manufactured by one of the following:

a. The Euclid Chemical Company; www.euclidchemical.com.

b. Grace Construction Products; www.na.graceconstruction.com.

2. Do not use air entrainment admixture in concrete for interior floor slabs.

3. Provide products from same manufacturer as other admixtures used.

B. Chemical Admixtures: ASTM C 494/C 494M, Type A - Water Reducing.

1. Provide mid-range water-reducing admixture allowing 12-15 percent reduction of water content in concrete mix.

2. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

3. Acceptable Products:

a. "Eucon MR" manufactured by The Euclid Chemical Company.

b. "Daracem 65" manufactured by Grace Construction Products.

2.05 CONCRETE ACCESSORIES

A. Bonding Agent: ASTM C 1059, Type II acrylic non-redispersable type.

B. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E 1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene is prohibited.

2.06 JOINT DEVICES AND MATERIALS

A. Joint Filler: Nonextruding, resilient asphalt impregnated fiberboard or felt, complying with ASTM D 1751, 1/4 inch thick and 4 inches deep; tongue and groove profile.

B. Construction Joint Devices: Integral galvanized steel; 0.028 inch thick, formed to tongue and groove profile, with removable top strip exposing sealant trough, knockout holes spaced at 6 inches, ribbed steel spikes with tongue to fit top screed edge.

C. Bond Break Material: Self-adhering flexible flashing.

1. Acceptable product: "Flex-Flash" Cavity Wall Flashing manufactured by Hohmann and Barnard, Inc.: www.h-b.com.

D. Sealant and Primer: As specified in Section 07 9005.

2.07 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.

1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.

E. Normal Weight Concrete:

1. Cementitious Materials Content: Minimum 525 lb per cubic yard.

a. Fly Ash Content (Contractor's Option): Maximum 15 percent of cementitious materials by weight.

b. Granulated Blast-Furnace Slag Content (Contractor's Option): Maximum 15 percent of cementitious materials by weight.

2. Ratio of Water to Cementitious Materials (percent by weight):

a. Footings and foundation walls (air-entrained): Maximum 50 percent.

b. Reinforced building framing members (water reducing admixture): Maximum 45 percent.

c. Paving and exterior slabs-on-grade (air-entrained and water reducing admixture): Maximum 45 percent.

3. Total Air Content: 7 percent, determined in accordance with ASTM C 173/C 173M.

4. Maximum Aggregate Size - Footings and Foundation Walls: 1 inch.

5. Maximum Aggregate Size - Floor Slabs: 3/4 inch.

6. Maximum Aggregate Size - Floor Toppings with depth less than 2-1/2 inches: 1/2 inch.

2.08 MIXING

A. Transit Mixers: Comply with ASTM C 94/C 94M.

B. Reduce mixing and delivery time to less than 60 minutes when air temperature is 90 degrees F or higher.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

B. Verify proper installation of vapor retarder under interior slabs on grade.

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.02 PREPARATION

A. Verify that forms are clean and free of rust before applying release agent.

B. Install self-adhering bond break material on interior vertical wall surfaces to separate perimeter of interior slabs on grade from vertical surfaces. Extend bond break material horizontally under slab at least 6 inches and tape seal to sheet vapor retarder.

C. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

D. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

F. Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches and seal watertight by taping edges and ends. Cover with sand to depth shown on drawings; repair damaged vapor retarder before covering.

3.03 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R; comply with requirements for "flat" floors.

C. Notify Architect not less than 24 hours prior to commencement of placement operations.

D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

E. Repair underslab vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.

F. Separate exterior slabs on grade from vertical surfaces with joint filler.

G. Install joint devices in accordance with manufacturer's instructions.

H. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

I. Apply sealants in joint devices in accordance with Section 07 9005.

J. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

K. Place concrete continuously between predetermined expansion, control, and construction joints.

L. Do not interrupt successive placement; do not permit cold joints to occur.

M. Place floor slabs in saw cut pattern indicated.

N. Saw cut joints within 24 hours after placing. Use 1/8 inch thick blade, cut into 1/3 depth of slab thickness.

O. Screed floors and slabs on grade level, maintaining surface flatness of maximum 3/16 inch in 10 ft.

3.05 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide additional finishing as follows:

1. Grout cleaned finish for exposed wall surfaces:

a. Begin cleaning operations after all contiguous surfaces to be cleaned are accessible and properly prepared for finishing.

b. Grout: Use one part portland cement and 1-1/2 part fine sand mixed with sufficient water to produce a grout with the consistency of thick paint.

c. Wet concrete surface to limit absorption of water from the grout; apply grout uniformly with brushes or rubber floats.

d. Immediately after application of grout, scrub surface vigorously with firm rubber float to coat the surface and completely fill air bubbles and holes.

e. While grout is still plastic, remove excess grout by working surface with cork float.

f. After the surface whites from initial drying (about 30 minutes at normal temperatures), rub vigorously with clean burlap.

g. Immediately after finishing, apply water mist to wall surfaces; maintain damp surface for at least 36 hours after final rubbing.

3.06 CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

A. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

B. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture retaining cover curing, or by combining these methods, as specified.

C. Provide moisture curing by the following methods:

1. Keep concrete surface continuously wet by covering with water.

2. Use continuous water fog spray.

3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4 inch lap over adjacent absorptive covers.

D. Provide moisture retaining cover curing as follows:

1. Cover concrete surfaces with moisture retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

E. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:

1. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

2. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

F. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

G. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.

1. Final cure concrete surfaces to receive finish flooring with a moisture retaining cover, unless otherwise directed.

3.07 FIELD QUALITY CONTROL

A. Provide an independent testing agency to perform field quality control tests, as specified in Section 01 4000.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

E. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 75 cu yd or less of each class of concrete placed.

F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C 143/C 143M.

3.08 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

END OF SECTION

SECTION 05 5000 - METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel items.

1.02 RELATED SECTIONS

A. Section 09 9000 - Paints and Coatings: Paint finish.

1.03 REFERENCES

A. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.

B. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2004a.

C. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.

D. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2004.

E. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength; 2004.

F. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2003a.

G. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2000.

H. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 1998.

I. AWS D1.1 - Structural Welding Code - Steel; American Welding Society; 2004.

J. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

PART 2 PRODUCTS

2.01 MATERIALS - CARBON STEEL

A. Steel Sections: ASTM A 572 or A 36..

B. Steel Tubing (HSS): ASTM A 500, Grade B cold-formed structural tubing.

C. Plates: ASTM A 36.

D. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black and hot-dip galvanized finish, as indicated.

E. Bolts, Nuts, and Washers: ASTM A307, galvanized to ASTM A 153/A 153M where connecting galvanized components.

F. Welding Materials: AWS D1.1; type required for materials being welded.

G. Shop and Touch-Up Primer: Modified alkyd; "Series 10 Tnemec Primer" manufactured by Tnemec Company Incorporated, complying with VOC limitations of authorities having jurisdiction.

H. Touch-Up Primer for Galvanized Surfaces: "Series 27 Typoxy" manufactured by Tnemec Company Incorporated., complying with VOC limitations of authorities having jurisdiction.

www.secosouth.com.

2.02 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Continuously seal joined members by continuous welds.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

A. Steel Pipe Railing:

1. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, Pipe: galvanized finish after fabrication to ASTM A 123; 1.3 oz/sq ft galvanized coating.

B. Steel Rail Posts:

1. ASTM A 36 steel plates and shapes in sizes and configuration indicated on Drawings. Galvanize after fabrication to ASTM A 123; 1.3 oz/sq ft galvanized coating.

C. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

D. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of masonry; galvanized finish.

E. Lintels: As detailed; galvanized finish.

F. Door Frames for Overhead Door Openings and Wall Openings: Channel sections; prime paint finish.

2.04 FINISHES - STEEL

A. Prime paint steel items.

1. Exceptions: Galvanize items to be embedded in concrete or masonry and items specified for Galvanized finish.

2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.

B. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

C. Prime Painting: One coat. Prepare surfaces to be primed in accordance with SSPC-SP6.

D. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A 123/A 123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

E. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A 123/A 123M requirements.

2.05 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components indicated on shop drawings.

D. Perform field welding in accordance with AWS D1.1.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

3.04 ERECTION TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 061000 - ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

B. Preservative treatment of wood.

C. Fire retardant treatment of wood.

D. Miscellaneous framing and sheathing.

E. Telephone and electrical panel boards.

G. Miscellaneous wood nailers and furring strips.

1.03 REFERENCES

A. AFPA T10 - Wood Frame Construction Manual; American Forest and Paper Association; 2001.

B. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2004.

C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2005.

D. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

E. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2003.

F. AWPA C20 - Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

G. AWPA C27 - Plywood -- Fire-Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

H. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association; 2005.

I. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.

J. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
   1. Acceptable Lumber Inspection Agencies: Any agency with rules approved by American Lumber Standards Committee.

B. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

1.06 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings.

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2 x 2 through 2 x 6):
   1. Species: Douglas Fir-Larch.
   2. Grade: Structural Select.

D. Joist and Small Beam Framing (2 x 6 through 4 x 16):
   1. Species: Douglas Fir-Larch.
   2. Grade: Structural Select.

E. Miscellaneous Blocking, Furring, and Nailers:
   1. Lumber: S4S, No. 1 or Construction Grade.

2.03 CONSTRUCTION PANELS

A. Wall or Roof Sheathing: Plywood, PS 1, Grade C-D, Exposure I.

B. Other Applications:
   1. Concealed Plywood: PS 1, C-C Plugged, exterior grade.
   2. Exposed Plywood: PS 1, A-D, interior grade.
   3. Electrical Component Mounting: APA rated sheathing, fire retardant treated.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.

B. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.

B. Preservative Treatment:

C. Preservative Pressure Treatment of Lumber Above Grade: AWPA Use Category UC3B, Commodity Specification A (Treatment C2) using waterborne preservative to 0.25 lb/cu ft retention.
   1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
   2. Treat lumber in contact with roofing, flashing, or waterproofing.
   3. Treat lumber in contact with masonry or concrete.
   4. Preservative Pressure Treatment of Plywood Above Grade: AWPA Use Category UC2 and UC3B, Commodity Specification F (Treatment C9) using waterborne preservative to 0.25 lb/cu ft retention.
      a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
      b. Treat plywood in contact with masonry or concrete.

c. Treat plywood in other locations as indicated.

PART 3 EXECUTION

3.01 FRAMING INSTALLATION

A. Extend partition framing to structure above in all locations. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Frame openings with two or more studs at each jamb; support headers on cripple studs.

H. Provide miscellaneous members as indicated or as required to support finishes, fixtures, specialty items, and trim.

3.02 INSTALLATION OF ACCESSORIES AND MISCELLANEOUS WOOD

A. Place sill gasket directly on cementitious foundation. Puncture gasket cleanly and fit tightly to protruding foundation anchor bolts.

B. Coordinate installation of wood decking and glue laminated structural units.

C. Curb roof openings except where prefabricated curbs are provided. Form corners by alternating lapping side members.

D. Coordinate curb installation with installation of decking and support of deck openings.

3.03 INSTALLATION OF CONSTRUCTION PANELS

A. Wall Sheathing: Secure with long dimension parallel to wall studs, with ends over firm bearing and staggered, using nails or screws.

3.04 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

END OF SECTION

SECTION 062000 - FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood door frames, glazed frames.

C. Wood casings and moldings.

D. Hardware and attachment accessories.

1.02 RELATED SECTIONS

A. Section 09 9000 - Painting and Coating: Painting and finishing of finish carpentry items.

1.03 REFERENCES

A. ANSI A135.4 - American National Standard for Basic Hardboard; 2004.

B. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2003.

C. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; Hardwood Plywood & Veneer Association; 2004.

D. PS 1 - Construction and Industrial Plywood; National Institute of Standards and Technology (Department of Commerce); 1995.

E. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.

F. WI (MAN) - Manual of Millwork; Woodwork Institute; 2003.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data:
   1. Provide instructions for attachment hardware and finish hardware.

C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, accessories, to a minimum scale of 1-1/2 inch to 1 ft.

D. Samples: Submit two samples of finished wood trim 12 inch long.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom grade.

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Protect work from moisture damage.

1.07 PROJECT CONDITIONS

A. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

B. Coordinate the work with installation of associated and adjacent components.

PART 2 PRODUCTS

2.01 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.02 LUMBER MATERIALS

A. Lumber: NIST PS 20; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade II/Custom; average moisture content of 5-10 percent; species as follows:
   1. Exposed Surfaces for transparent finish: Species Red Oak.
   2. Concealed Surfaces: Species Poplar.

2.03 SHEET MATERIALS

A. Hardboard: AHA A135.4; Pressed wood fiber with resin binder, Class 1 - Tempered, 1/4 inch thick, smooth one side (S1S).

2.04 FASTENERS

A. Fasteners: Of size and type to suit application; Paint finish in concealed locations and paint finish in exposed locations.

B. Concealed Joint Fasteners: Threaded steel.

2.05 ACCESSORIES

A. Lumber for Shimming, Blocking, and Backing: Softwood lumber of S/P/F species.

B. Primer: Alkyd primer sealer type.

C. Wood Filler: Solvent base, tinted to match surface finish color.

2.06 HARDWARE

A. Selected by fabricator subject to approval of Architect.

B. Comply with BHMA A156.9.

2.07 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. Shop prepare and identify components for book match grain matching during site erection.

C. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.08 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

D. Finish work in accordance with Woodwork Institute Manual of Millwork, Section 5, System #5 - catalyzed polyurethane.

E. Back prime woodwork items to be field finished, prior to installation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

A. Set and secure materials and components in place, plumb and level.

B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

C. Install hardware in accordance with manufacturer's instructions.

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Site Finishing: See Section 09 9000 - Paintings and Coatings.

3.04 ERECTION TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 07 9005 - JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

B. Precompressed foam sealers.

1.02 RELATED SECTIONS

A. Section 08 8000 - Glazing: Glazing sealants and accessories.

B. Section 09 2116 - Gypsum Board Assemblies: Acoustic sealant.

1.03 REFERENCES

A. ASTM C 834 - Standard Specification for Latex Sealants; 2000.

B. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications; 2002.

C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2002.

D. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005.

E. ASTM D 1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2000.

F. ASTM D 1667 - Standard Specification for Flexible Cellular Materials--Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam); 1997.

G. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; www.baaqmd.gov; current edition.

H. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.

C. Samples: Submit two samples, 1/4x2 inch in size illustrating sealant colors for selection.

D. Manufacturer's Installation Instructions: Indicate special procedures.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.07 COORDINATION

A. Coordinate the work with all sections referencing this section.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 SEALANTS

A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168.

B. General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; multi- component.
   1. Color: Standard colors matching finished surfaces.
   2. Acceptable products:
      a. Product: "NP 2" manufactured by Sonneborn Building Products.
      b. Product: "DYmeric" 511 manufactured by Tremco Incorporated.
      c. Substitutions: See Section 01 6000 - Product Requirements.
   3. Applications: Use for:
      a. Control, expansion, and soft joints in masonry.
      b. Joints between concrete and other materials.
      c. Joints between metal frames and other materials.
      d. Sealing under thresholds at exterior doors.
      e. Other exterior joints for which no other sealant is indicated.

C. Exterior Expansion Joint Sealer: Precompressed foam sealer; urethane with water-repellent;
   1. Color: Black.
   2. Size as required to provide weathertight seal when installed.
   3. Provide product recommended by manufacturer for traffic-bearing use.
   4. Acceptable products:
      a. Product: "Polytite Standard" manufactured by Polytite Manufacturing Corporation.
      b. Product: "Will-Seal 250" manufactured by Illbruck/ USA.
      c. Substitutions: See Section 01 6000 - Product Requirements.
   5. Applications: Use for:
      a. Exterior wall expansion joints.

D. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
   1. Acceptable products:
      a. Product: "Tremco 440 Tape" manufactured by Tremco Incoporated.
      b. Substitutions: See Section 01 6000 - Product Requirements.
   2. Applications: Use for:
      a. Non-compression glazing of vision lights in metal frames.
      b. Concealed sealant bead in sheet metal work.

E. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.
   1. Color: Standard colors matching finished surfaces.
   2. Acceptable products:
      a. Product: "Sonolac" manufactured by Sonneborn Building Products.
      b. Product: "Tremflex" 834 manufactured by Tremco Incorporated.
      c. Substitutions: See Section 01 6000 - Product Requirements.
   3. Applications: Use for:
      a. Interior wall and ceiling control joints.
      b. Joints between door and window frames and wall surfaces.
      c. Other interior joints for which no other type of sealant is indicated.

F. Bathtub/Tile Sealant: White silicone; ASTM C 920, Uses I, M and A; single component, mildew resistant.
   1. Acceptable products:

a. Product: "Dow Corning 786" Mildew-resistant silicone sealant manufactured by Dow Corning Corporation.
b. Product: "OmniPlus" manufactured by Sonneborn Building Products.
c. Substitutions: See Section 01 6000 - Product Requirements.

2. Applications: Use for:
a. Joints between plumbing fixtures and floor and wall surfaces.
b. Joints between kitchen and bath countertops and wall surfaces.

G. Acoustical Sealant: Butyl or acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
1. Product: "Tremco Acoustical Sealant" manufactured by Tremco Incorporated.
2. Applications: Use for concealed locations only:
a. Sealant bead between top stud runner and structure and between bottom stud track and floor.

H. Interior Floor Joint Filler: Semi-flexible epoxy; ASTM D 638; multi-component.
1. Color: Gray.
2. Shore A hardness: 80-85.
3. Acceptable products:
a. Product: "Joint-Loc 80" manufactured by Polytite Manufacturing Corporation.
b. Product: "Epolith - P" manufactured by Sonneborn Building Products.
4. Applications: Use for:
a. Saw-cut contraction joints in floors.

I. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Class 25, Uses T, I, M and A; single component.
1. Color: Gray.
2. Product: "SL 1" manufactured by Sonneborn Building Products.
3. Applications: Use for:
a. Joints in sidewalks and vehicular paving.

J. Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, neutral curing, non-sagging, non-staining, fungus resistant, non-bleeding.
1. Color: Standard colors matching finished surfaces.
2. Acceptable products:
a. Product: "Dow Corning 795" Silicone Building Sealant manufactured by Dow Corning Corporation.
b. Product: "Spectrem 2" manufactured by Tremco Incorporated.
c. Substitutions: See Section 01 6000 - Product Requirements.
3. Movement Capability: Plus and minus 50 percent.
4. Service Temperature Range: -65 to 180 degrees F.
5. Shore A Hardness Range: 15 to 35.
6. Applications: Use for:
a. Structural and nonstructural glazing of glass, metal and plastic..
b. Weatherproofing perimeter joints around metal frames.

2.02 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1056, sponge or expanded rubber; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C 1193.

C. Perform acoustical sealant application work in accordance with ASTM C 919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

E. Install bond breaker where joint backing is not used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

H. Tool joints concave.

I. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

END OF SECTION

SECTION 08 1100 - STEEL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated steel doors and frames.

B. Steel frames for wood doors.

1.02 RELATED SECTIONS

A. Section 087100 - Door Hardware.

B. Section 088000 - Glazing: Glass for doors and borrowed lites.

C. Section 099000 - Paints and Coatings: Field painting.

1.03 REFERENCES

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 1998.

B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.

C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998.

D. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2004a.

E. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000 (ANSI/DHI A115 Series).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1.05 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

B. Maintain at the project site a copy of all reference standards dealing with installation.

PART 2 PRODUCTS

2.01 DOORS AND FRAMES

A. Requirements for All Doors and Frames:

1. Accessibility: Comply with ANSI/ICC A117.1.

2. Door Top Closures: Flush with top of faces and edges.

3. Door Edge Profile: Beveled on both edges.

4. Door Texture: Smooth faces.

5. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.

6. Hardware Preparation: In accordance with DHI A115 Series, with reinforcement welded in place, in addition to other requirements specified in door grade standard.

7. Finish: Factory primed, for field finishing.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.02 STEEL DOORS

A. Exterior Doors:

1. Grade: ANSI A250.8 Level 3, physical performance Level A, Model 1, full flush.

2. Core: Polystyrene foam.

3. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A 653/A 653M, with manufacturer's standard coating thickness.

B. Interior Doors, Non-Fire-Rated:

1. Grade: ANSI A250.8 Level 2, physical performance Level B, Model 1, full flush.

2. Core: Cardboard honeycomb or polystyrene foam.

3. Thickness: 1-3/4 inches.

2.03 STEEL FRAMES

A. General:

1. Comply with the requirements of grade specified for corresponding door.

a. Interior Level 2 Doors: 16 gage frames.

b. Exterior Level 3 Doors: 14 gage frames.

c. Frames for Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 2

2. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A 653/A 653M, with manufacturer's standard coating thickness.

3. Finish: Factory primed, for field finishing.

4. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

5. Frames in Masonry Walls: Size to suit masonry coursing with head member to fill opening without cutting masonry units.

6. Frames Wider than 48 Inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

B. Exterior Door Frames: Fully welded.

1. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A 653/A 653M, with manufacturer's standard coating thickness.

2. Weatherstripping: Separate, see Section 08710.

C. Interior Door Frames, Non-Fire-Rated: Fully welded type.

D. Frames for Interior Glazing or Borrowed Lights: Construction and face dimensions to match door frames, and as indicated on drawings.

2.04 ACCESSORY MATERIALS

A. Glazing: As specified in Section 08 8000.

B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.

C. Astragals for Double Doors:

1. Exterior Doors: Steel, Z-shaped.

D. Grout for Frames installed in masonry walls: Portland cement grout of maximum 3-inch slump for hand troweling; thinner pumpable grout is prohibited.

E. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

F. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

2.05 FINISH MATERIALS

A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.

B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

B. Coat inside of other frames with bituminous coating to a thickness of 1/16 inch.

3.03 INSTALLATION

A. Install in accordance with the requirements of the specified door grade standard.

B. Coordinate frame anchor placement with wall construction.

C. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

D. Coordinate installation of hardware.

E. Coordinate installation of glazing.

F. Coordinate installation of electrical connections to electrical hardware items.

3.04 ERECTION TOLERANCES

A. Clearances Between Door and Frame: As specified in ANSI A250.8.

B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

SECTION 088000 - GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass.

B. Glazing compounds and accessories.

1.02 RELATED SECTIONS

A. Section 06 2000 - Finish Carpentry: interior window components with requirement for glass.

B. Section 07 9005 - Joint Sealers: Sealant and back-up material.

C. Section 08 1100 - Steel Doors and Frames: Glazed doors.

1.03 REFERENCES

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.

B. ASTM C 864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 1999 (Reapproved 2005).

C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2002.

D. ASTM C 1036 - Standard Specification for Flat Glass; 2001.

E. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; 2004.

F. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005.

G. ASTM E 1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2004.

H. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2004.

I. GANA (SM) - FGMA Sealant Manual; Glass Association of North America; 1990.

1.04 PERFORMANCE REQUIREMENTS

A. Provide glass and glazing materials for continuity of building enclosure vapor retarder and air barrier:
   1. In conjunction with vapor retarder and joint sealer materials described in other sections.
   2. To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.

B. Select type and thickness of exterior glass to withstand dead loads and wind loads acting normal to plane of glass at design pressures of 20 lb/sq ft positive and negative.
   1. Use the procedure specified in ASTM E 1300 to determine glass type and thickness.
   2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
   3. Thicknesses listed are minimum.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

D. Certificates: Certify that products meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

1.07 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this section.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide a ten (10) year warranty to include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

PART 2 PRODUCTS

2.01 FLAT GLASS MATERIALS

A. Clear Float Glass: Clear, annealed.
   1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
   2. 6 mm minimum thick.

B. Safety Glass: Clear; fully tempered with horizontal tempering.
   1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select) and ASTM C 1048.
   2. Comply with 16 CFR 1201 test requirements for Category II.
   3. 6 mm minimum thick.
   4. Provide this type of glazing in the locations required by code.
      a. Glazed lites in doors except fire doors.
      b. Glazed sidelights to doors.

C. Low E Glass: Float type, heat strengthened, clear.
   1. Coating on inner surface.
   2. Comply with ASTM C 1036, Type I, transparent flat, Quality Q3 (glazing select).
   3. Comply with ASTM C 1048.
   4. 6 mm minimum thick.

D. Laminated Glass: Laminated glass conforming to ASTM C1172, consisting of 2 sheets of clear float glass, 1/8 inch thick, complying with ASTM C 1036, Type I, Class 2, laminated with a 0.030 inch thick polyvinyl butyral interlayer by manufacturer's standard heat-plus-pressure process with dirt, air pockets, and foreign substances excluded.

2.02 GLAZING COMPOUNDS

A. Butyl Sealant: Single component; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; Shore A hardness of 10 to 20; black color; non-skinning.

B. Polyurethane Sealant: Single component, chemical curing, non-staining, non-bleeding; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; Shore A Hardness Range 20 to 35.

C. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 15 to 25.

2.03 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

B. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.

C. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C 864 Option I.

D. Glazing Clips: Manufacturer's standard type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that openings for glazing are correctly sized and within tolerance.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Prime surfaces scheduled to receive sealant.

C. Install sealants in accordance with ASTM C 1193 and FGMA Sealant Manual.

D. Install sealant in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Comply with manufacturer's glazing recommendations.

B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on glazing materials to attain full weathertight contact.

D. Cut glazing tape to length; install on glazing pane. Seal corners by butting tape and sealing junctions with butyl sealant.

E. Apply cap bead of silicone type sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.04 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

END OF SECTION

SECTION 092116 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire rated area separation walls.

B. Acoustic insulation.

C. Gypsum wallboard.

D. Joint treatment and accessories.

E. Level 5 finish system.

1.02 RELATED SECTIONS

A. Section 06 1000 - Rough Carpentry: Building framing and sheathing.

B. Section 07 9005 - Joint Sealers: Acoustic sealant.

1.03 REFERENCES

A. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 1999.

B. ANSI A118.9 - American National Standard Specifications for Cementitious Backer Units; 1999.

C. ASTM C 36/C 36M - Standard Specification for Gypsum Wallboard; 2001.

D. ASTM C 442/C 442M - Standard Specification for Gypsum Backing Board, Gypsum Coreboard, and Gypsum Shaftliner Board; 1999a.

E. ASTM C 475/C 475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002.

F. ASTM C 514 - Standard Specification for Nails for the Application of Gypsum Board; 2004.

G. ASTM C 557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing; 2003.

H. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2001.

I. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2004a.

J. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2004.

K. ASTM C 1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2004.

L. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board; 2004.

M. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2003.

1.04 QUALITY ASSURANCE

A. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.

B. Applicator Qualifications: Company specializing in performing gypsum board application and finishing, with minimum five years of documented experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD MATERIALS

A. Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place; ends square cut.
   1. Regular Type:
      a. Application: Use for ceilings, unless otherwise indicated.
      b. Thickness: 5/8 inch.
      c. Edges: Tapered.
   2. Type X: Fire resistant, UL or WH rated.
      a. Application: Where noted only.
      b. Thickness: 5/8 inch.
      c. Edges: Tapered.
   3. Abuse-Resistant Type: Gypsum wallboard especially formulated for increased impact resistance, with enhanced gypsum core and heavy duty face and back paper.
      a. Application: Vertical walls, typical.
      b. Core Type: Type X, as indicated.
      c. Thickness: 5/8 inch.
      d. Edges: Tapered.

B. Gypsum Shaftwall or Coreboard: ASTM C 1396/C 1396M; Type X core; sizes to minimize joints in place; 1 inch thick; square, tongue and groove, or double beveled edges, ends square cut.

2.02 FIBERGLASS FACED BOARD MATERIALS

A. Cementitious Backer Board: ANSI A118.9, aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces, 1/2 inch thick.

2.03 LEVEL 5 FINISH SYSTEM

A. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

B. Acceptable Products:
   1. "Level Coat" manufactured by Magnum Products: www.levelcoat.com.
   2. "SHEETROCK Brand Primer-Surfaceer, TUFF-HIDE" manufactured by US Gypsum Company.
   3. "ProForm Brand Surfacer/Primer" manufacturered by National Gypsum Company.

2.04 ACCESSORIES

A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, thickness matching depth of wall framing, unfaced.

B. Acoustic Sealant: As specified in Section 07 9005 - Joint Sealers.

C. Finishing Accessories: ASTM C 1047, galvanized steel or rolled zinc, unless otherwise indicated.
   1. Types: As detailed or required for finished appearance.
   2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.

D. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.
   1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
   2. Ready-mixed vinyl-based joint compound.

E. Screws: ASTM C 1002; self-piercing tapping type.

F. Nails: ASTM C 514.

G. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

H. Adhesive for Attachment to Wood: ASTM C 557.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install as follows:
   1. Place one bead continuously on substrate before installation of perimeter framing members.
   2. Place continuous bead at perimeter of each layer of gypsum board.
   3. In non-fire-rated construction, seal around all penetrations by conduit, pipe, ducts, and rough-in boxes.

3.03 GYPSUM BOARD AND GLASS MAT FACED BOARD INSTALLATION

A. Comply with ASTM C 840 and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
   1. Exception: Tapered edges to receive joint treatment at right angles to framing.

C. Double-Layer Non-Rated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.

D. Gypsum Soffit Board: Install perpendicular to framing, with staggered end joints over framing members or other solid backing.

E. Cementitious Backing Board: Install over wood framing members where walls are to receive tile.
   1. Comply with ANSI A108.11.
   2. Comply with manufacturer's instructions.

F. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For non-rated assemblies, install as follows:
   1. Single-Layer Applications: Adhesive application.
   2. Double-Layer Application: Install base layer using screws or nails. Install face layer using adhesive.

3.04 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as follows:
   1. Not more than 30 feet apart on walls and ceilings over 25 feet long.
   2. Locate over doors aligned along each jamb.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.05 JOINT TREATMENT

A. Finish gypsum board in scheduled areas in accordance with levels defined in ASTM C 840 and as scheduled below.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.
   2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
   3. Taping, filling and sanding is not required at base layer of double layer applications.

C. Apply skim coat of topping compound over entire surface after joints have been properly treated to achieve Level 5 finish.

D. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.06 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

3.07 FINISH LEVEL SCHEDULE

A. Level 5: Walls and ceilings exposed to view.

END OF SECTION

SECTION 09 3000 - TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for Non-ceramic trim.

1.02 RELATED SECTIONS

1.03 REFERENCES

A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 1999.
   1. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 1999.
   2. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar; 1999.
   3. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex Portland Cement Mortar; 1999.
   4. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile Setting Epoxy Adhesive; 1999.
   5. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 1999.
   6. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 1999.
   7. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Mortar and Grout; 1999.
   8. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999.
   9. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999.
   10. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 1999.
   11. ANSI A118.4 - American National Standard Specifications for Latex-Portland Cement Mortar; 1999.
   12. ANSI A118.7 - American National Standard Specifications for Polymer Modified Cement Grouts for Tile Installation; 1999.
   13. ANSI A118.8 - American National Standard Specifications for Modified Epoxy Emulsion Mortar/Grout; 1999.
   14. ANSI A136.1 - American National Standard for Organic Adhesives for Installation of Ceramic Tile; 1999.
   15. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 1988.

B. TCA (HB) - Handbook for Ceramic Tile Installation; Tile Council of North America, Inc.; 2005.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.05 QUALITY ASSURANCE

A. Maintain one copy of TCA Handbook and ANSI A108 Series/A118 Series on site.

B. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.

1.06 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not install adhesives in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

1.09 EXTRA MATERIALS

A. Provide 4 sq. ft of each size, color, and surface finish of tile specified.

PART 2 PRODUCTS

2.01 TILE

A. Manufacturers: All products of each type by the same manufacturer.
   1. Dal-Tile: www.daltile.com.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.03 PORCELAIN TILE

A. Homogeneous porcelain tile; ANSI A137.1, and as follows:
   1. Basis of Design: "Daltile", style: “Colorbody Porcelain / Timber Glen”
   2. Moisture Absorption: 0 to 0.5 percent.
   3. Size and Shape: 4 inch x 24 inch, square.
   4. Pattern: Perpendicular to the simulated grain surface of the adjacent laminate flooring.
   5. Group: "Rustic".
   6. Color: “Hickory”, P611.

2.04 TRIM AND ACCESSORIES

A. Non-Ceramic Trim: Solid brass, style and dimensions to suit application, for setting using tile mortar or adhesive.
   1. Applications: Use in the following locations:
      a. Transition between floor finishes.
   2. Manufacturer:
      a. Schluter-Systems: www.schluter.com.
      b. Model: "RENO-T".

2.06 MORTAR MATERIALS

A. Mortar Bond Coat Materials:
   1. Portland Cement type: thin-set, unmodified, dry set mortar complying with ANSI A118.1.

2.07 GROUT MATERIALS

A. Grout: Polymer modified cement grout, sanded, complying with ANSI A118.7.

2.08 ACCESSORY MATERIALS

A. Uncoupling Membrane: 1/8 inch thick polyurethane matting with three-dimensional grid structure with dovetail shaped cavities and fleece webbing laminated to the underside to provide

a mechanical bond to the substrate adhesive.

1. Acceptable Product: "DITRA" by Schluter Systems.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

3.03 INSTALLATION - GENERAL

A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.

E. Form internal angles square and external angles bullnosed.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Sound tile after setting. Replace hollow sounding units.

H. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

I. Allow tile to set for a minimum of 48 hours prior to grouting.

J. Grout tile joints. Use standard grout unless otherwise indicated.

K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat, with standard grout, unless otherwise indicated.

B. Use uncoupling membrane under all tile.

3.05 INSTALLATION - WALL TILE

A. Over cementitious backer units install in accordance with TCA Handbook Method W223, organic adhesive.

3.06 CLEANING

A. Clean tile and grout surfaces.

3.07 PROTECTION OF FINISHED WORK

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 9000 – PAINTING AND COATINGS

PART 1 GENERAL

1. REFERENCE STANDARDS

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

C. All materials, installation and workmanship shall comply with the applicable requirements and standards.

2. DEFINITIONS

A. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate, or finish coats.

B. “Substrate" as used herein means the surface to which paint is to be applied. In the case of previously painted existing surfaces, substrate means the surface to which the existing paint was applied.

3. QUALITY ASSURANCE

A. Single Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

B. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

C. Notify the Architect of problems anticipated using the materials specified.

D. Material Quality: Provide the manufacturer's best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

E. Odor Eliminating Additive: At all locations scheduled to receive solvent or alkyd-based coatings, provide an odor-eliminating additive to minimize the presence of odor from wet and drying paint films.

1. Provide additive recommended and approved by the primer/finish coat manufacturer for use with their paint. Benjamin Moore does not recommend an “odor eliminator additive” for Benjamin. Moore Paints.

2. Subject to compliance with above requirements, "Bio Zapp Paint Odor Eliminator" by Bio Zapp Laboratories, (941/922-9199) is acceptable.

4. SUBMITTALS

A. Samples:

1. Samples for initial color selection in the form of manufacturer's color charts.

a. After color selection, the Architect will furnish color chips for surfaces to be coated.

2. Samples for verification purposes:

a. Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.

b. Define each separate coat, including block fillers and primers.

c. Use representative colors when preparing samples for review.

d. Resubmit until required sheen, color, and texture are achieved.

e. Provide a list of material and application for each coat of each sample. Label each sample as to location and application.

f. Submit samples on the following substrates for the Architect's review of color and texture only:

1. Concrete: Provide two 4 inch square samples for each color and finish.

2. Concrete Masonry: Provide two 4 by 8inch samples of masonry, with mortar joint in the center, for each finish and color.

3. Painted Wood: Provide two 12 by 12inch samples of each color and material on hardboard.

4. Stained or Natural Wood: Provide two 4 by 8inch samples of natural and stained wood finish on actual wood surfaces.

5. Ferrous Metal: Provide two 4 inch square samples of flat metal and two 8 inch long samples of solid metal for each color and finish.

6. Drywall: Provide two 12 by 12-inch samples of each color and finish.

B. Product Data:

1. Submit manufacturer’s catalog cuts and descriptive information on each product used. Include preparation requirements and application instructions.

C. Record Documents: Provide record approved samples and product data.

5. DELIVERY, STORAGE and HANDLING

A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:

1. Product name or title of material.

2. Product description (generic classification or binder type).

3. Federal Specification number, if applicable.

4. Manufacturer's stock number and date of manufacture.

5. Contents by volume, for pigment and vehicle constituents.

6. Thinning instructions.

7. Application instructions.

8. Color name and number.

B. Store materials not in use in tightly covered containers in a well ventilated area at a minimum ambient temperature of 45 deg F (7 degrees C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

6. PROJECT CONDITIONS

A. Apply waterbased paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F (10 degrees C) and 90 degrees F (32 degrees C).

B. Apply solventthinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F (7 degrees C) and 95 degrees F (35 degrees C).

C. Do not apply paint in snow, rain, fog, or mist, when the relative humidity exceeds 85 percent, at temperatures less than 5 degrees F (3 degrees C) above the dew point, or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

PART 2 PRODUCTS

1. MANUFACTURES

PPG Industries, Inc. www.ppg.com	One PPG Place Pittsburgh, PA 15272
Benjamin Moore Paints www.benjaminmoore.com	101Paragon Drive Montvale, NJ 07645
Glidden Professional www.gliddenprofessional.com	15885 West Sprague Road, Strongsville, OH 44136

2. PAINT SCHEDULE

A. Provide the following paint systems for the various substrates, as indicated. Provide only the listed prime and finish coat materials unless otherwise recommended in writing by the paint manufacturer for each specific substrate.

B. Where specific finish paint material is not indicated, refer to notes and finish schedules for finish paint material and gloss levels for each surface to be painted.

3. EXTERIOR PAINT SCHEDULE

A. Concrete and Concrete Block; 2 finish coats of Exterior Flat Acrylic Emulsion (over block-filler on CMU):

1. Block Filler for CMU:

a. PPG: 4-603 Perma-Crete Alkali Resistant Primer.

b. Benjamin Moore: 160 super spec Latex Block Filler.

c. Glidden Professional: 3010 Concrete Coatings Block Filler.

2. Finish Coat:

a. PPG: SunProof Exterior Flat Acrylic Latex 72-45.

b. Benjamin Moore: P29 Super Spec H.P. Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Fortis 350 Exterior Semi-Gloss Paint 2406V Series.

3. Ferrous Metal; 2 finish coats of water borne <semigloss><gloss> acrylic enamel over primer:

4. RustInhibiting Primer:

a. PPG: Pitt-Tech 100 percent Acrylic Primer 90-712.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss Rust Inhibitive.

c. Glidden Professional: Devflex 4020 PF Direct to Metal Primer and Flat Finish .

5. Finish Coat:

a. PPG: Pitt-Tech 100 percent Acrylic Satin Direct to Metal 90-474.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss Rust Inhibitive.

c. Glidden Professional: Devflex Lifemaster Oil Interior/Exterior Eggshell 1502 Series.

B. Galvanized Metal; 2 finish coats of water borne <semigloss><gloss> acrylic enamel over primer:

1. Galvanized Metal Primer:

a. PPG: Pitt-Tech 100 percent Acrylic Primer 90-712.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Devflex 4020 PF Direct to Metal Primer and Flat Finish.

2. Finish Coat:

a. PPG: Pitt-Tech 100 percent Acrylic Satin Direct to Metal 90-474.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-Gloss.

c. Glidden Professional: Devflex Lifemaster Oil Interior/Exterior Eggshell 1502 Series.

C. Aluminum; 2 finish coats of water borne <semigloss><gloss> acrylic enamel over primer:

1. Aluminum Metal Primer:

a. PPG: Pitt-Tech 100 percent Acrylic Primer 90-712.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Devflex 4020 PF Direct to Metal Primer and Flat Finish.

2. Finish Coat:

a. PPG: Pitt-Tech 100 percent Acrylic Satin Direct to Metal 90-474.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Lifemaster Oil Interior/Exterior Eggshell 1502 Series.

D. Plaster - Stucco; 2 finish coats of Exterior Flat Acrylic Emulsion over primer:

1. Exterior Primer:

a. PPG: 4-603 Perma-Crete Alkali Resistant Primer.

b. Benjamin Moore – N066 Super Spec 100% Acrylic Masonry Sealer.

c. Glidden Professional: 3030 Concrete Coatings Bond-Prep Bonding Primer.

2. Finish Coat:

a. PPG: Sun Proof Exterior Flat Acrylic Latex 72-45.

b. Benjamin Moore: N105 Moorlife 100% Acrylic flat house paint.

c. Glidden Professional: 2200V Fortis 350 Flat Finish.

E. Wood; 2 finish coats of Exterior Flat Acrylic Emulsion over primer:

1. Exterior Primer:

a. PPG: Sun Proof Exterior House & Trim Flat Latex 100 percent Acrylic Primer 72-1.

b. Benjamin Moore: O46 BM Fresh Start All 100% Acrylic Superior Primer.

c. Glidden Professional: 6001 Hydrosealer Exterior Primer.

2. Finish Coat:

a. PPG: Sun Proof Exterior Flat Acrylic Latex 72-45.

b. Benjamin Moore: N105 Moorlife 100% Acrylic Flat House Paint.

c. Glidden Professional: 2200 Fortis 350 Flat Finish.

4. INTERIOR PAINTING SCHEDULE

A. Concrete and Concrete Block; 2 finish coats (over block-filler on CMU):

1. Block Filler for CMU:

a. PPG: Speedhide 6-7 Latex Block Filler.

b. Benjamin Moore: 160 Super Spec Latex Block Filler.

c. Glidden Professional: 3010 Concrete Coatings Block Filler.

2. Finish Coat:

a. PPG: Pure Performance Interior Latex Semi-Gloss 9-500.

b. Benjamin Moore: N376 Eco Spec WB Semi-Gloss Finish.

c. Glidden Professional: Lifemaster 9200 Interior 0 VOC Semi-gloss.

3. Heavy duty block filler for CMU industrial grade:

a. PPG: 16-90 Pitt-Glaze Acrylic Block Filler.

b. Benjamin Moore: P31 Super Spec HP Waterborne Epoxy Block Filler.

c. Glidden Professional: 4000-1000 Heavy Duty Acrylic Block Filler.

4. Finish Coat Industrial Grade:

a. PPG: 16-551 Pitt-Glaze WB Waterborne Acrylic Epoxy.

b. Benjamin Moore: P42 Waterborne Polyamide Epoxy coating.

c. Glidden Professional: Tru Glaze WB 4418 Waterborne Acrylic Epoxy.

B. Gypsum Drywall; 2 finish coats over primer:

1. Primer 1A:

a. PPG: Pure Performance Interior Latex Primer 9-900.

b. Benjamin Moore: N372 Eco Spec WB interior latex primer.

c. Glidden Professional: LM 9116 Lifemaster 0 VOC Primer.

2. Finish Coat 1A:

a. PPG: Pure Performance Interior Latex Eggshell 9-300.

b. Benjamin Moore: N374 Eco Spec WB Eggshell Finish.

c. Glidden Professional: LM 9300 Lifemaster 0 VOC Interior Eggshell.

C. Plaster; 2 finish coats over primer:

1. Primer:

a. PPG: Pure Performance Interior Latex Primer 9-900.

b. Benjamin Moore: Eco Spec WB Interior Latex Primer N372.

c. Glidden Professional: LM 9116 Lifemaster 0 VOC Interior Primer.

2. Finish Coat:

a. PPG: Pure Performance Interior Latex Eggshell 9-300.

b. Benjamin Moore: N374 Eco Spec WB Interior Latex Eggshell.

c. Glidden Professional: LM 9300 Lifemaster 0 VOC Interior Eggshell.

D. Ferrous Metal; 2 finish coats of water borne semi-gloss acrylic latex enamel over primer:

1. Waterborne Acrylic Primer:

a. PPG: Pitt-Tech 100 percent Acrylic Primer 90-712.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Devflex 4020 PF Direct to Metal Primer and Flat Finish.

2. Finish Coat:

a. PPG: Pitt-Tech 100 percent Acrylic Satin Direct to Metal 90-474.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Lifemaster Oil Interior/Exterior Semi-Gloss Paint 1506 Series.

E. Galvanized Metal; 2 finish coats of water borne semi-gloss acrylic latex enamel over primer:

1. Waterborne Acrylic Galvanized Metal Primer:

a. PPG: Pitt-Tech 100 percent Acrylic Primer 90-712.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Devflex 4020 PF Direct to Metal Primer and Flat Finish.

2. Finish Coat:

a. PPG: Pitt-Tech 100 percent Acrylic Satin Direct to Metal 90-474.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Lifemaster Oil Interior/Exterior Semi-Gloss Paint 1506 Series.

F. Aluminum: 2 finish coats of water borne acrylic latex enamel over primer:

1. Waterborne Acrylic Galvanized Metal Primer:

a. PPG: Pitt-Tech 100 percent Acrylic Primer 90-712.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Devflex 4020 PF Direct to Metal Primer and Flat Finish.

2. Finish Coat:

a. PPG: Pitt-Tech 100 percent Acrylic Satin Direct to Metal 90-474.

b. Benjamin Moore: P29 Super Spec HP Direct to Metal Acrylic Semi-gloss.

c. Glidden Professional: Lifemaster Oil Interior/Exterior Semi-Gloss Paint 1506 Series.

G. Wood; 2 finish coats over primer:

1. Primer:

a. PPG: Pure Performance Interior Latex Primer 9-900.

b. Benjamin Moore: 046 BM Fresh Start All 100% Acrylic Superior Primer.

c. Glidden Professional: Lifemaster 9116 0 VOC Primer.

2. Finish Coat:

a. PPG: Pure Performance Interior Latex Eggshell 9-300.

b. Benjamin Moore: N374 Eco Spec WB Interior Latex Eggshell.

c. Glidden Professional: 9300 Lifemaster 0 VOC Interior Eggshell.

PART 3 EXECUTION

1. PREPARATION

A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected.

1. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

B. General Procedures: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers and existing surfaces, or remove and reprime. Notify Architect in writing of problems anticipated with using the specified finish coat material with substrates primed by others.

2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral fiber reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

a. Use abrasive blast cleaning methods if recommended by the paint manufacturer.

b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, and rinse; allow to dry and vacuum before painting.

3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

a. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

4. Ferrous Metals: Clean non-galvanized ferrous metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.

   a. Blast steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPCSP 10.

   a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.

   a. Touch up bare areas and shop applied prime coats that have been damaged. Wire brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.

5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

D. Materials Preparation: Carefully mix and prepare paint materials in accordance with manufacturer's directions.

1. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3. Use only thinners approved by the paint manufacturer, and only within recommended limits.

2. INSTALLATION

A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

B. All installation shall be in accordance with manufacturer’s published recommendations

3. APPLICATION

A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Paint exposed surfaces whether or not colors are designated in "schedules," except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.

1. Painting of mechanical, electrical, and plumbing items is limited to exposed natural gas piping, exposed fire sprinkler piping, and roof top exhaust fan hoods. Items in mechanical and electrical rooms shall not be field painted unless otherwise scheduled on Drawings.

C. At "unoccupied" interior areas, painting is not required on prefinished items or finished metal surfaces.

1. Do not paint over Underwriter's Laboratories, Factory Mutual or other code required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

1. Paint colors, surface treatments, and finishes are indicated in "schedules."

2. Provide finish coats that are compatible with primers used.

1. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.

2. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.

3. The term "exposed surfaces" includes areas visible when permanent or builtin fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas as required to maintain the system integrity and provide desired protection.

4. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.

5. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.

E. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure and where application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

F. Minimum Coating Thickness: Apply materials at not less than the manufacturer's recommended spreading rate. Provide a total dry film thickness of the entire system as recommended by the manufacturer.

G. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

1. Prime Coats: Before application of finish coats, apply a prime coat of material as recommended by the manufacturer to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.

4. CLEANING

A. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

B. Upon completion of painting, clean glass and paint spattered surfaces. Remove spattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.

5. PROTECTION

A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

B. Provide "wet paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 09 90 00

SECTION 10 4400 - FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire extinguishers.

B. Fire extinguisher cabinets.

C. Accessories.

1.02 RELATED SECTIONS

A. Section 09 9000 - Painting and Coating: Field paint finish.

1.03 REFERENCES

A. NFPA 10 - Standard for Portable Fire Extinguishers; National Fire Protection Association; 2002.

B. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.

1.04 PERFORMANCE REQUIREMENTS

A. Conform to NFPA 10.

B. Provide extinguishers classified and labeled by Underwriters Laboratories Inc. for the purpose specified and indicated.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate cabinet physical dimensions and rough-in measurements for recessed cabinets.

C. Product Data: Provide extinguisher operational features and color and finish.

D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fire Extinguishers, Cabinets and Accessories:
   1. JL Industries, Inc: www.jlindustries.com.
   2. Larsen's Manufacturing Co: www.larsensmfg.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FIRE EXTINGUISHERS

A. Dry Chemical Type: Cast steel tank, with pressure gage.
   1. Class 4A-60B:C.
   2. Size 10 lbs.
   3. Finish: Baked enamel, red color.

B. Carbon Dioxide Type: Stainless steel tank, with pressure gage.
   1. Finish: Baked enamel, red color.

2.03 FIRE EXTINGUISHER CABINETS

A. Metal: Formed primed steel sheet; 0.036 inch thick base metal.

B. Cabinet Configuration: Recessed type.
   1. Exterior nominal dimensions of 13 inch wide x 27 inch high x 6 inch deep.
   2. Trim: Flat, 5/16 inch wide face.
   3. Form cabinet enclosure with right angle inside corners and seams. Form perimeter trim and door stiles.

C. Door: 0.036 inch thick, reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with two butt hinge. Provide nylon catch.

D. Door Glazing: Full Glass, clear, 1/8 inch thick tempered. Set in resilient channel gasket glazing.

E. Cabinet Mounting Hardware: Appropriate to cabinet. Pre-drill for anchors.

F. Finish of Cabinet Exterior Trim and Door: Primed for field paint finish.

G. Finish of Cabinet Interior: White enamel.

2.04 ACCESSORIES

A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install cabinets plumb and level in wall openings, 28 inches from finished floor to inside bottom of cabinet.

C. Secure rigidly in place.

D. Place extinguishers in cabinets and on wall brackets.

3.03 SCHEDULES

A. Provide a Dry Chemical Type with Cabinet for both upstairs and downstairs. Reference the drawings for location.

END OF SECTION

SECTION 10 4410 - PLASTIC SIGNS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Engraved plastic signs.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Plastic Signs:

1. Best Sign Systems, Inc: www.bestsigns.com.

2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ENGRAVED SIGNS

A. Engraved Signs: Laminated colored plastic; lettering engraved through face to expose core color:

1. Comply with applicable provisions of ANSI/ICC A117.1, including Braille.

2. Total Thickness: 1/16 inch.

3. Edges: Square.

4. Character Font: Helvetica.

2.03 ACCESSORIES

A. Mounting Hardware: Chrome screws.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install signs after surfaces are finished, in locations indicated.

C. Position sign on the wall adjacent to the strike side of the door, 60" above the floor.

3.03 SCHEDULES

A. Rest Room Door Graphic: 6 inches (150 mm) high, "male" and "female" graphic image; black color, located adjacent to restroom doors.

END OF SECTION

SECTION 10810 - TOILET ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Toilet Room Accessories.

1.02 RELATED SECTIONS

B. Section 09 2621 - Gypsum Board Assemblies.

1.03 REFERENCES

A. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines; US Architectural and Transportation Barriers Compliance Board; 2004.

B. ASTM A 240/A 240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2005.

C. ASTM A 554 - Standard Specification for Welded Stainless Steel Mechanical Tubing; 2003.

D. ASTM F 446 - Standard Consumer Safety Specification for Grab Bars and Accessories Installed in the Bathing Area; 1985 (Reapproved 2004).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's product data for products specified, indicating selected options and accessories.

C. Shop Drawings:

1. Plans: Locate each specified unit in project.

2. Elevations: Indicate mounting height of each specified unit in project.

3. Details: Indicate anchoring and fastening details, required locations and types of anchors and reinforcement, and materials required for correct installation of specified products not supplied by manufacturer of products of this section.

D. Manufacturer's printed installation instructions for each specified product.

E. Closeout Submittals: Warranty documents, issued and executed by manufacturer of products of this section, and countersigned by Contractor.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum five (5) years of documented experience producing

products of the types specified in this section.

B. Regulatory Requirements: Conform to ADAAG requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Factory-apply strippable protective vinyl coating to sight-exposed surfaces after finishing of products; ship products in manufacturer's standard protective packaging.

B. Storage and Protection: Store products in manufacturer's protective packaging until installation.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

B. Manufacturer's standard warranty against defects in product workmanship and materials.

C. Manufacturer's 15-year warranty against silver spoilage of mirrors.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of design: Bobrick Washroom Equipment, Inc.: www.bobrick.com.

B. Other Acceptable Manufacturers:

1. Bobrick Washroom Equipment, Inc.: www.bobrick.com.

2. Bradley Corporation, Washroom Accessories Division: www.bradleycorp.com.

3. Substitutions: Section 016000 - Product Requirements.

C. Supply all products of this section from a single manufacturer.

2.02 MATERIALS

A. Stainless Steel Sheet: ASTM A 240/A 240M, Type 304, 18-8 alloy. No.4 satin finish.

2.03 TOILET ACCESSORIES

A. Basic Construction Requirements:

1. Doors: Fabricated from minimum 0.0313 inch stainless steel sheet, formed hems at sight-exposed edges; welded corners, finished to match sheet finish.

2. Cabinets: Fabricated from minimum 0.0313 inch stainless steel sheet, formed hems at

sight-exposed edges; all joints welded, sight-exposed welds finished to match sheet finish.

3. Hinges: Stainless steel piano hinge, 3/16 inch diameter barrel, full length of cabinet; hinge leaves spot-welded to door and cabinet body.

4. Locks: Tumbler locks, keyed alike other toilet accessory locks, with two keys for each lock.

5. Stainless Steel Finish: No.4 satin.

B. Paper Towel Dispenser: Model B-2620.

C. Paper Towel Disposal: Model B-275.

D. Toilet Paper Holder: Model B-6867.

E. Heavy Duty Wall Hook (WH): Model B-2116.

2.05 GRAB BARS

A. Grab Bars - Basic Requirements: Fabricated to comply with ASTM F 446 and to withstand a 900 pound force, from ASTM A 554 stainless steel tubing, 0.050 inch, Type 304, 18-8 alloy; formed 1-1/2 inch radius return to wall at each end; each end heliarc-welded to minimum 11 gage stainless steel circular flange; welds finished to match tube finish.

B. Grab Bars (GB): Series B-6806.

1. Sizes and configurations: As indicated on drawings.

C. Grab Bar Snap-on Mounting Flanges: Snap-on stainless steel cover, 3-1/4 inch diameter by 1/2 inch deep, for concealing grab bar mounting flange.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions:

1. Prepared openings are sized and located in accordance with shop drawings.

2. Reinforcement and anchoring devices are correct type and are located in accordance with shop drawings.

B. Installer's Examination:

1. Examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.

2. Transmit two copies of installer's report to Architect within 24 hours of receipt.

3. Beginning construction activities of this section before unacceptable conditions have been

corrected is prohibited.

4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.02 INSTALLATION

A. Install toilet accessories plumb and level in accordance with shop drawings and manufacturer's printed installation instructions.

B. Locate toilet accessories at heights specified by Americans with Disabilities Act (ADA).

3.03 CLEANING

A. Remove manufacturer's protective vinyl coating from sight-exposed surfaces 24 hours before final inspection.

B. Clean surfaces in accordance with manufacturer's recommendations.

3.04 PROTECTION OF INSTALLED PRODUCTS

A. Protect products from damage caused by subsequent construction activities.

B. Field repair of damaged product finishes is prohibited; replace products having damaged finishes caused by subsequent construction activities.

END OF SECTION