

PROJECT MANUAL

**CMHA HEADQUARTERS BUILDING
GATE REPLACEMENT**

COLUMBUS, OHIO

PREPARED FOR:



880 EAST 11TH AVENUE
COLUMBUS, OHIO

PREPARED BY:



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**CONSTRUCTION DOCUMENTS
FEBRUARY 19, 2020**

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SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Administrative and supervisory personnel.
 - 2. Requests for Interpretation (RFIs).
- B. Contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

1.02 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.03 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
- 1 Preparation of Contractor's Construction Schedule.
 - 2 Preparation of the Schedule of Values.
 - 3 Installation and removal of temporary facilities and controls.
 - 4 Delivery and processing of submittals.
 - 5 Progress meetings.
 - 6 Preinstallation conferences.
 - 7 Project closeout activities.
 - 8 Startup and adjustment of systems.
 - 9 Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.04 SUBMITTALS

- A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.05 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
1. Include special personnel required for coordination of operations with other contractors.

1.06 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Architect.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs: Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- E. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow 15 days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within 7 days if Contractor disagrees with response.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 GENERAL

1.01 SUMMARY

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

1.02 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.03 GENERAL REQUIREMENTS

- A. Requirements of this Section are in addition to the requirements of the General Conditions.
- B. This Section includes procedures for processing:
 - 1. Shop drawings.
 - 2. Product data.
 - 3. Samples.
 - 4. Certificates of compliance.
 - 5. Reports.
 - 6. Schedules.
 - 7. Design data.
 - 8. Other submittals listed.
- C. Submittals as approved do not constitute a change order.
- D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

- a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. Submittals Schedule: See Section 01 32 16, Construction Schedules, for list of submittals and time requirements for scheduled performance of related construction activities.
1. Submittals received prior to receipt of the initial Submittals Schedule will be rejected.
 2. Submittals received prior to the time they are indicated on the Submittal Schedule to be submitted will be rejected.
- F. Make all submittals far enough in advance of scheduled dates for installation to provide sufficient time for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.
1. Delays caused by the tardiness of the Contractor in preparing and forwarding submittals will not be an acceptable basis for an extension of the Contract completion date or for consideration of alternate products which do not meet the specified requirements of this Project Manual.
 2. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 3. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Resubmittal Review: Allow 14 days for review of each resubmittal.
 5. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is necessary, allow 14 days for initial review of each submittal.
 6. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 14 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- G. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.

- f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- H. Notify Architect in writing at time of submittal of deviations from the requirements of the Contract Documents. In addition, highlight, encircle, or otherwise specifically identify deviations.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
- 1. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Submittal and transmittal distribution record.
 - k. Remarks.
 - l. Signature of transmitter.
 - 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- J. Resubmittals: When Architect requires that a submittal be resubmitted, comply with requirements of this section.
- 1. Identify changes made since the previous submittal.
- K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- L. Electronic Files: At Contractor's written request, copies of Architect's electronic files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Execute Electronic File Transfer Agreement provided by the Architect to obtain files.
2. The electronic files are provided for the Contractor's convenience and their use will be at the Contractors risk.
 - a. There are no assurances that the information in the electronic files is current. All dimensions must be field-verified.

1.04 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data
 1. Submit only pages which are pertinent.
 - a. Mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number.
 - b. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
 2. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.
 3. Stamp and sign each set of manufacturer's product data before submitting to Architect to certify compliance with Contract Documents.
 4. Number of Copies Required: Submit two paper copies of Product Data, and in portable data file (.pdf) format, unless otherwise indicated. When submitting for Concurrent Consultant Review, submit two copies to Consultant and one copy to Architect. Architect will return one copy. Mark up and retain returned copy as a Project Record Document.
 - a. Reproduction and cost of reproduction of processed Product Data for distribution to concerned parties is Contractor's responsibility.
- C. Shop Drawings
 1. Reproduction of any portion of the Contract Documents for use as submittals for Shop Drawings is not acceptable.
 2. Submit Shop Drawings in a clear and thorough manner.
 - a. Title each drawing with Project name.
 - b. Identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.
 3. Identify the following:
 - a. Requirements of the individual section of Project Manual.
 - b. Field measurements.
 - c. Field construction criteria.
 - d. Relation to adjacent or critical features of the Work or products.
 - e. Conformance of submittal with requirements of Contract Documents.

4. Each sheet of Shop Drawings shall be stamped and signed by Contractor before submitting to Architect. Certify compliance with requirements of Contract Documents.
 5. Review by the Architect shall not relieve Contractor from his responsibility in preparing and submitting proper Shop Drawings in accordance with his current obligations.
 6. All submissions which, in the opinion of the Architect are incomplete, contain errors or have not been checked or only superficially checked, will be returned unchecked by the Architect for resubmission.
 7. Fabrication of products or start of work before required Shop Drawings are approved by Architect and returned to Contractor shall be at Contractor's risk.
 8. Number of Copies Required: Submit two paper copies of each submittal, and in portable data file (.pdf) format, unless indicated otherwise. When submitting for Concurrent Consultant Review, submit two copies to Consultant and one copy to Architect. Architect will return one copy. Mark up and retain one returned copy as a Project Record Drawing.
 - a. Reproduction and cost of reproduction of processed Shop Drawings for distribution to concerned parties is Contractor's responsibility.
 - b. This procedure is to be followed for each submission of a drawing or group of drawings until they are finally approved by the Architect.
- D. Office Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified,

and physically identical with material or product proposed for use, and that show full range of color and texture variations expected.

Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples Required: Submit two sets of Samples. Architect will retain one Sample set; the other will be returned.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

3.01 CONTRACTOR'S REVIEW

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

3.02 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Reference the General Conditions for Architect's review responsibilities. Approval of a specific item does not indicate approval of an assembly of which the item is a component. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. REVIEWED
2. APPROVED
3. APPROVED AS CORRECTED
4. REVISE AND RESUBMIT
4. REJECTED.

- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

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SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Requirements of this Section apply to the Work of all other Sections.
- B. Section Includes:
 - 1. Transportation and Handling.
 - 2. Storage and Protection.
 - 3. Standards.
 - 4. Manufacturers and Types.
 - 5. Fabrications.
 - 6. Shop Priming.

1.02 RELATED SECTIONS

- A. Cutting and Patching: Section 01 73 29.
- B. Shop Drawings, Product Data and Samples: Section 01 33 23.
- C. Execution Requirements: Section 01 73 00.

1.03 STANDARDS

- A. Standards, codes and regulations published by Manufacturer's Associations, governmental agencies and other regulatory authorities form a part of these Specifications as minimum requirements. Such references include the latest issue and all amendments up to 30 days prior to the Bid Date.
- B. "Governing Authority" means all federal, state and local laws and regulations.
- C. Where differences occur between the Contract Documents and such standards, the most restrictive requirement shall apply.
- D. Supply all materials and perform all work in accordance with the Manufacturer's Specifications and installation procedures, and in conformance with published trade and manufacturer's association standards, unless specifically noted otherwise herein.

1.04 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules and installation, coordinate to avoid conflict with work and conditions at the site.
 - 1. Transport products by methods to avoid product damage.
 - 2. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 3. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and accepted submittals, and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

1.05 DELIVERY, HANDLING, STORAGE AND PROTECTION

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected. Reject damaged and defective items.
- B. Storage products in accordance with manufacturer's instructions.
 - 1. Store products with seals and labels intact and legible.
 - 2. Store products to allow for inspection and measurement of quantity or counting of units.
 - 3. Store products subject to damage by the elements in weathertight enclosures.
 - 4. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- C. Exterior Storage
 - 1. Store fabricated products above the ground, on blocking or skids, to prevent soiling or staining. Cover products which are subject to

deterioration with impervious coverings. Provide adequate ventilation to avoid condensation.

- D. Arrange storage in a manner to provide access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage.
- E. Protection After Installation: Provide coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

PART 2 PRODUCTS

2.01 GENERAL PRODUCT REQUIREMENTS

- A. Products include materials, equipment and systems.
- B. Products incorporated into the work:
 - 1. Comply with specifications and referenced standards as minimum requirements.
 - 2. Undamaged.
 - 2. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accordance with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing by the Architect.
 - 4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
 - 5. New and unused at time of installation, except as otherwise indicated.
 - 6. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 7. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2.02 MANUFACTURER AND PRODUCT SELECTION PROCEDURES

- A. Specified Product: Where specifications name a single manufacturer and product or refer to a single manufacturer and product indicated on the drawings, provide the named product. Comparable products or substitutions for Contractor's convenience will not be considered.

- B. Specified Manufacturer: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
- C. Multiple Specified Products: Where more than one manufacturer and specific product is listed, provide one of the products named. No substitutions will be permitted after signing the contract. Comparable products or substitutions for Contractor's convenience will not be considered
- D. Basis of Design: Where specifications name a Basis of Design or refer to a Basis of Design product indicated on the drawings, the design is based on the product listed. Subject to compliance with requirements, provide the specified product or a product manufactured by one of the other manufacturers listed.
1. The characteristics of the Basis-of-Design Product establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.
 2. Equipment or materials from these manufacturers will be acceptable contingent upon their meeting the design, appearance and functional standards established by the specified items. If equipment or a material of an acceptable manufacturer requires changes; electrically, mechanically, structurally, from what is indicated on the drawings, it shall be the responsibility of the Contractor requiring such change, to pay all costs involved with no additional costs to the Owner.
 3. Submit evaluations as follows:
 - a. Submit proposed comparable products for evaluation by the Architect at least two weeks prior to awarding contract to the manufacturer of a comparable product.
 - b. Obtain samples of Basis-of-Design product.
 - c. Select comparable products that comply with the characteristics specified. Submit evidence demonstrating compliance.
 - d. Submit samples of comparable products displayed side-by-side with samples of Basis-of-Design products.
- Architect will determine whether the proposed comparable product is acceptable. Architect is not obligated to prove non-equivalence of proposed comparable products.
- E. Where a performance is specified and no manufacturer is listed, submit through the Shop Drawing procedure the name of the manufacturer, the product proposed, and detailed information showing its characteristics. Such proposal shall meet or exceed the specification, line item by line item, or be rejected.
- F. Equivalent components (articles, devices, materials, forms of construction, fixtures, etc.) may be submitted to the Architect for approval prior to bidding regardless of listed manufacturers.

- G. Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.03 FABRICATION

- A. Fabricate all items in the shop insofar as practicable. Where items cannot be completely shop fabricated and assembled for shipment, assemble and fit in shop, disassemble and ship. Identify parts for field assembly.
- B. Fabricate items to be straight, square, in proper alignment, and with hairline joints where joints are necessary and permitted. Pre-plan field joints to be as inconspicuous as possible; coordinate locations with Architect.

2.04 SHOP PRIMING

- A. Shop prime or seal surfaces of all products to receive paint materials in accordance with the requirements of Section 09 91 00.
- B. Apply a primer or sealer compatible with the specified paint materials.
- C. In the event such a primer is determined to be incompatible with the specified finish paint system, provide a barrier coat or remove the primer and reprime as directed, at no additional cost to the Owner.

PART 3 EXECUTION

Not Applicable

END OF SECTION

SECTION 01 73 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Requirements of this Section apply to the Work of all other Sections.
- B. Section Includes:
 - 1. Examination of Substrate.
 - 2. Preparation.
 - 3. Installation.
 - 4. Workmanship.
 - 5. Protection.
 - 6. Overhead Attachments.
 - 7. Prohibited Methods.

1.02 RELATED SECTIONS

- A. Cutting and Patching: Section 01 73 29.
- B. Shop Drawings, Product Data and Samples: Section 01 33 23.
- C. Product Requirements: Section 01 60 00.

1.03 STANDARDS

- A. Standards, codes and regulations published by Manufacturer's Associations, governmental agencies and other regulatory authorities form a part of these Specifications as minimum requirements. Such references include the latest issue and all amendments up to 30 days prior to the Bid Date.
- B. "Governing Authority" means all federal, state and local laws and regulations.
- C. Where differences occur between the Contract Documents and such standards, the most restrictive requirement shall apply.
- D. Supply all materials and perform all work in accordance with the Manufacturer's Specifications and installation procedures, and in conformance with published trade and manufacturer's association standards, unless specifically noted otherwise herein.

1.05 NON-CONFORMING WORK

- A. Faulty work or work not in conformance with the Contract Documents will not be permitted by the Architect.
 - 1. It is the responsibility of the Contractor to propose a remedy by means of detailed drawings and written documentation and submit such documentation to the Architect for comments.
 - 2. All costs for the removal and reconstruction of such work, as well as additional services of the Architect, shall be paid for by the Contractor.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION

3.01 EXAMINATION OF SUBSTRATE

- A. Examine the substrates or structure to which a product is to be applied or installed. Do not proceed until unsatisfactory conditions have been corrected. Starting the work indicates acceptance of conditions and the installer assumes full responsibility for results.
- B. Check the substrate or structure for proper tolerances and clearances. Tolerances are listed under individual specification Sections.

3.02 PREPARATION

- A. Substrate: Where the products are applied to a substrate, prepare the substrate as recommended by the product manufacturer. That generally includes the following:
 - 1. Bringing substrate to a uniform surface by smoothing uneven surfaces and filling holes, cracks and depressions with recommended filler or compatible type material.
 - 2. Depressed Slabs: Bring to required elevation to receive finished materials where finished materials cannot completely fill depression. Use approved cementitious filler or compatible type material. Coordinate depressed slab locations with finish material locations.
 - 3. Remove substances such as dust, oils and other foreign matter, not compatible with the product.
 - 4. Surfaces shall be dry, unless moisture content or wetting requirement is specified or recommended.
- B. Concrete Slabs: Provide steel shot abrasive cleaning of concrete slabs receiving designated finish flooring materials.
 - 1. Designated Finish Flooring Materials
 - a. Cementitious or cementitious set materials.
 - b. Sheet flooring materials.
 - c. Waterproofing materials.
 - d. Paint materials.
 - e. Polymer or epoxy type seamless flooring.
 - 2. Equipment: Electric powered portable unit with self-contained dust

collection system. Size(s) of unit(s) and shot media suitable for conditions and proposed finish materials. WHEELABRATOR CORP. "Blastrac" or similar type system by SASE COMPANY INC., BW MANUFACTURING or INNOVATECH.

3. Cleaning: Remove concrete surfaces to sufficient depth to remove bond breakers and contaminants such as curing compounds, oils, and other foreign matter which may be detrimental to the completed flooring installation.
 - a. Work smoothly and evenly over entire surface; avoid creating dips, ridges, or other imperfections which would show or telegraph in the completed installation.
 - b. Small transitions for different flooring materials may be obtained by multiple passes if carefully executed to create smooth even slope of not more than 1/8" in 2 feet.
4. Clean floor as near as possible to flooring installation to avoid contamination from work of other trades. Protect clean floor from soiling with suitable sheet materials. Reclean soiled areas.

C. Inserts and Anchorages

1. Anchorages where not detailed are the responsibility of the installer to design a suitable connection, structurally sound, and aesthetically acceptable to the Architect. Furnish calculations, drawings and product data when requested by the Architect. Such information may or may not be returned as indicated in Section 01 33 23.
2. It is the responsibility of the installer to furnish built-in fastening devices for his/her product to the proper trade for installation as the work proceeds.
3. In the event such devices are not furnished in time to be built-in, it is the installer's responsibility to provide other methods for attaching their product. Submit drawings and other required data to the Architect.

D. Templates: Provide templates, diagrams and other coordinating documents to the proper Contractor, manufacturer or supplier of related items affecting the Work.

E. Dimensions

1. If the exact location of an item is not indicated by dimension on the Drawings or noted in the Specifications, the Architect reserves the right to determine such location in the field prior to roughing-in.
2. If the exact dimensions of a product are not indicated, the Architect reserves the right to determine dimensions prior to the ordering or fabrication of a product.
3. Such dimensional changes shall not be a basis for changes in the Contract Sum.
4. Where miscellaneous devices, such as thermostats, switches, controls, grilles, pipes, or outlets of any nature are not specifically located by the Contract Documents, request such location or obtain approval of the location prior to installation. If approval has not been obtained, the Architect may direct the relocation of such devices at the expense of the installer.

3.03

INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - a. Where pipes occur in partitions, furred-out spaces and chases, determine exact location and size and fit entirely concealed into allotted space. Report conflicts to Architect prior to installation.
 - b. Where two or more pipes are to be installed in parallel, or parallel to the piping of other trades, the piping shall be installed with sufficient space between the pipes to allow for the proper application of pipe covering, painting, and servicing.
 - c. Furnish advance information on locations and sizes of frames, boxes, sleeves and openings needed for the Work to installers.
 4. Install work to allow for installation of future work identified on drawings.
 5. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.
- B. Install products in accordance with manufacturer's recommendations or the requirements of trade associations, listed standards, Shop Drawings and Contract Documents.
- C. If a conflict exists between these references, the most strict requirements govern. If printed instructions are not available, consult with the manufacturer or the manufacturer's field representative, where applicable.
- D. Provide hangers, auxiliary framing, and other means for installing ceiling suspension systems, lighting fixtures, diffusers, and other equipment in ceilings to avoid ductwork, piping, etc.
1. Suspend from structural members (i.e. joists, beams, etc.), and not from ductwork or piping.
 2. Provide supplemental framing members (i.e. angles, tubes, light gage steel framing, etc.) to span between structural members where required to support items of this paragraph C.
- E. Install work that will not interfere with the proper installation of the Work of other trades.
- F. Install work in a manner to facilitate operating, servicing and repairing.
- G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

- H. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.04 WORKMANSHIP

- A. Install products straight, plumb, level and in line. Securely attach items to the substrate, using recommended adhesives, mechanical fasteners or other devices. Where holes are provided for attachment, do not field drill or cut new holes without the approval of the Architect.
- B. Where applicable, match finished work to the approved samples or mock-ups.
- C. Conceal fasteners wherever possible, unless exposed fasteners are permitted or specified.
- D. Weld in accordance with AWS standards; comply with AWS for qualifications of operators and for workmanship.
- E. Visual Effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.

3.05 PROTECTION

- A. Protect finished surfaces of product being installed and surrounding products from damage during installation. Provide protective devices as required and as recommended by the manufacturer. Cover work subject to damage at the end of each day's work.
- B. Coat concealed surfaces of metal products with a bituminous or other approved coating to prevent contact between dissimilar metals or other material which can cause deterioration.
- C. Correct damage by repairing or replacing as directed by the Architect. Repairing will be permitted only where the repair is undetectable and does not cause structural damage or interfere with proper functioning of the part.
- D. Protect finish of installed products until Substantial Completion of the Project by use of wrappings, covers or other approved protective devices. Remove such protection immediately prior to final cleaning.
- E. Limiting Exposures: Coordinate and supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Maintain exposures within the manufacturers recommended limits. Where

applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading
2. Excessive internal or external pressure
3. Excessive high or low temperatures
4. Thermal shock
5. Excessively high or low humidity
6. Air contamination or pollution
7. Water or ice
8. Solvents
9. Chemicals
10. Light
11. Radiation
12. Puncture
13. Abrasion
14. Heavy traffic
15. Soiling, staining and corrosion
16. Bacteria
17. Rodent and insect infestation
18. Combustion
19. Electrical current
20. High speed operation
21. Improper lubrication
22. Unusual wear or other misuse
23. Contact between incompatible materials
24. Destructive testing
25. Misalignment
26. Excessive weathering
27. Unprotected storage
28. Improper shipping
29. Theft
30. Vandalism

F. Take precautions to protect existing concrete and asphalt pavement from damage due to vehicle loads, parking, and storage.

1. Schedule loading to minimize pavement material consolidation during hot weather. Distribute wheel loads to the greatest extent possible.

3.07 OPERATION AND MAINTENANCE

A. Contractor shall maintain all systems and equipment operated during construction. The contractor responsible for the installation of the system shall operate and maintain it. Make all repairs and perform all maintenance to assure Work is turned-over to Owner in first class condition.

B. Maintenance work includes:

1. Lubrication
2. Adjustments

3. Filter replacements
4. Chemical treatment.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.01 DESCRIPTION

- A. Execute cutting, fitting or patching of Work, required to:
1. Make several parts fit properly.
 2. Uncover Work to provide for installation of ill-timed Work.
 3. Remove and replace defective Work.
 4. Remove and replace Work not conforming to requirements of Contract Documents.
 5. Remove samples of installed Work as specified for testing.
 6. Install specified Work in existing construction.
- B. In addition to contract requirements, upon written instructions of Architect:
1. Uncover Work to provide for Architect's observation of covered Work.
 2. Remove samples of installed materials for testing.
 3. Remove Work to provide for alteration of existing Work.
- C. Do not endanger any Work by cutting or altering Work or any part of it.
- D. Do not cut or alter Work of another Contractor without written consent of Architect.

1.02 SUBMITTALS

- A. Prior to cutting which affects structural safety of Project, submit written notice to Architect, requesting consent to proceed with cutting, including:
1. Identification of Project.
 2. Description of Affected Work.
 3. Necessity for cutting.
 4. Affect on other Work, on structural integrity of Project.
 5. Description of proposed Work. Designate:
 - a. Scope of cutting and patching.
 - b. Contractor and trades to execute work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.
 6. Alternative to cutting and patching.
- B. Should conditions of Work, or schedule indicate change of materials or methods, submit written recommendation to Architect, including:

1. Conditions indicating change.
 2. Recommendations for alternative materials or methods.
 3. Submittals as required for Substitutions.
- C. Submit written notice to Architect, designating time Work will be uncovered, to provide observation.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Patching of materials and surfaces shall be in accordance with the requirements of the Contract Documents. Where not otherwise defined, patching shall match adjacent surfaces and proper materials shall be provided accordingly.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of Work, including elements subject to movement or damage during cutting and patching.
- B. After uncovering Work, inspect conditions affecting installation of new products.

3.02 PREPARATION PRIOR TO CUTTING

- A. Provide shoring, bracing and support as required to maintain structural integrity of Project.
- B. Provide protection for other portions of the Project, including all Contractors' personnel.

3.03 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances, finishes.
- B. Execute cutting and demolition by method which will prevent damage to other Work, and will provide surface to receive installation of repairs and new Work.
1. No cutting shall be performed which will, in any way, reduce the structural strength of the building. Should such cutting be necessary, consult Architect and do not proceed with such operation unless written approval is given.
 2. Finished Surfaces: Cur or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
- C. Restore Work which has been cut or removed; install new products to provide

completed Work in accord with requirements of Contract Documents.

- D. Patching of materials and surfaces shall be in accordance with the requirements of the Contract Documents. Where not otherwise defined, patching shall match existing or adjacent surfaces and proper materials shall be provided accordingly.
1. Wherever existing walls, floors, ceilings, etc., are cut, the exposed surfaces must be neatly finished by patching, painting, wall covering, etc., as required to blend patched areas into adjacent existing surfaces. Patched areas shall not be visible when viewing entire wall surface.
 - a. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 2. Where painting or finishing of patched surfaces or application of wall or floor covering is required, finish the entire plane of surface in which patched area occurs.
 3. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

3.04 SLEEVES AND OPENINGS

- A. Where pipes, conduits, ductwork or other materials pass through new walls, partitions, floors, roof or ceilings, provide suitable sleeves in these elements or provide openings where sleeves are not practical.
- B. Close sleeves and openings to prevent passage of smoke or fire using approved methods and materials to maintain the fire rating of the construction being penetrated. See Section 07 84 00.
- [1. Unless otherwise indicated, extend floor sleeves 2" above finished floor.]
- C. Where pipes, conduit, ductwork etc., pass through, behind, or above existing construction, provide all cutting, patching, and refinishing for doing this work as specified herein.
- D. Lintels: Provide steel or precast concrete lintels to span openings in masonry walls sized in accordance with schedule shown or as detailed on structural drawings. In general, lintels are not required for openings less than the width of masonry unit in which wall is being constructed. Penetrations under beams or other concentrated loads require approval of Architect.

3.05 CLEANING

- A. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

SECTION 02 41 19

SELECTIVE BUILDING DEMOLITION

PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. Work Included: The extent of demolition work is indicated on drawings, and includes, but is not necessarily limited to, the following:
1. Selective breaking up, dismantling and/or removal of existing building items.
 2. Salvage of selected existing materials to be turned over to Owner as may be determined by the Owner or to be reused in the project.
 3. Cutting and patching.
 4. Clean up.

1.02 RELATED SECTIONS

- A. Cutting and Patching: Section 01 73 29.

1.03 PROJECT CONDITIONS

- A. Condition of Structures: The Owner assumes no responsibility for actual condition of structures to be demolished.
1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, variations within the structure may occur by Owner's removal and salvage operations prior to the start of the Demolition work.
 2. It is solely the Contractor's responsibility to determine demolition procedure and sequence and to insure the safety of the building and its component parts during demolition. This includes the addition of whatever shoring, sheeting, temporary bracing, guys or tie-downs which might be necessary. Such material shall maintain the Contractor's property after completion of the project.
 3. It is solely the Contractor's responsibility to follow all applicable safety codes and regulations during all phases of the work.
 4. Existing Building: Provide temporary supports and other measures as required to prevent damage to the existing building during construction. Field verify all existing dimensions which affect the new construction.
- B. Coordination
1. Demolition sequence, phasing and methods must be approved by Architect prior to start of demolition work.
 2. Coordinate shoring with structural modifications. Shoring to be left in place

until completion of structural work permits its removal.

- C. Title to Removed Property
 - 1. All removal items, unless otherwise indicated for salvage or reuse will become the property of the Contractor and shall be removed from the Site. During the demolition operations, Owner reserves the right to add to, or delete from, the list of items designated for reuse or salvage.
 - 2. Items to be salvaged for the Owner or for reinstallation are as indicated on the drawings.
 - 3. Site storage or sale of Contractor owned removed items will not be permitted.

- D. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

- E. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse.
 - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

- G. Traffic: Conduct demolition operations and removal of debris to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.

- H. Protections: Ensure safe passage of persons around area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.

- I. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to Owner.
- J. Utility Services
 - 1. Locate and identify electrical and mechanical services passing through or located within affected area and serving areas outside the work limits.
 - 2. Maintain existing utilities and protect against damage during demolition operations.
 - 3. Shut-down periods
 - a. Arrange timing of shut-down periods of all in-service utilities with the Owner. Do not shut down any utility without prior written approval.
 - b. Keep shut-down period to a minimum or use intermittent period as directed.
 - c. Some shut-down hours may be required after normal working hours. No extra compensation will be made for Work after normal working hours, weekends or holidays.
- K. Scheduling: Conduct work so as to avoid interference with operations and work in areas of building which are to remain in service.
- L. Permits, Fees and Inspections: Obtain and pay for all permits, fees and inspections required by governing authorities.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The Contractor shall furnish all materials, tools, equipment, supplies and labor required to perform the work in accordance with the Drawings and Specifications and within the time limits as specified. All work done under this contract shall conform to all current standards, building codes and ordinances. American National Standard for Demolition Operations – Safety Requirements, ANSI A10.6 (latest edition), is included by reference.
- B. Shoring Materials: As determined by Contractor.

PART 3 EXECUTION

3.01 PROTECTION

- A. Use water sprinkling, temporary enclosures and other approved methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. 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, pollution and electrical shock.
 - 2. Clean adjacent structures and improvements of dust, dirt and debris

caused by demolition operations, as directed by the Architect. Return adjacent areas to conditions existing prior to the start of the work.

- B. In removal of existing materials, take care not to damage work remaining in place, salvageable materials or equipment. Repair or replace any existing construction, materials or equipment damaged during demolition to Owner's satisfaction at no additional cost.
- C. Erect dust chutes and use for removal of materials, rubbish and debris.

3.02 DEMOLITION

A. Building Items Demolition

- 1. General
 - a. Items specified herein or indicated on drawings.
 - b. Where indicated to be removed and either turned over to Owner or reinstalled, use methods for removal which will provide the least potential adjacent materials to remain.
 - c. Miscellaneous Items: Material or equipment encountered during construction which must be removed to aid in construction operations or that which will not be used in completed facilities.
- 2. Concrete and Masonry: Where cut line will be exposed in the finished work and where physically feasible, make edges by saw cutting.
- 3. New Door and Window Openings: Cut openings, install lintels and patch jambs and head as required to provide rough openings indicated on drawings.
- 4. Masonry: Demolish in small sections. Use bracing and shoring where necessary to avoid collapse of structure.
- 5. Removal of Masonry Units.
 - a. Limits: As indicated on Drawings or as directed by Architect.
 - b. Method.
 - 1) Remove to first full masonry unit beyond limits.
 - 2) Remove all old mortar from existing masonry units adjacent to new construction.
 - 3) Sufficiently brace opening when necessary until construction is completed.
- 6. Junction Points: Neatly repair the point of junction after removal of parts or all of masonry walls, slabs and like work which tie into new work or existing work, so as to leave only finished edges and surfaces exposed.
- 7. Except where Contract Documents require leaving an existing floor finish in place, completely remove existing flooring from locations where new finishes are scheduled. Leave top surface of substrate completely free from materials that would interfere with bond of new materials.
- 8. Completely remove existing carpet from areas to receive new floor finishes. Also remove pad and all traces of adhesive.

B. Electrical

- 1. Disconnect or shut off service to areas where electrical work is to be

removed.

2. Remove all electrical fixtures, equipment and related switches, outlets, conduit, wiring and appurtenances as indicated, except conduit in walls and ceilings not being removed may remain. If these conduits are left in place, cut ends are to be permanently sealed.

3.03 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Remove from site, debris, rubbish and other materials resulting from demolition operations.
- B. Removal: Transport materials removed and dispose of off site except as follows:
 1. Transport material indicated to be "salvaged" to storage areas as directed by Architect. Storage areas are located on-site.
 2. Store salvaged materials, protected from dirt and damage.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Basic Specification: Perform work of this Section according to ACI 301, "Specifications for Structural Concrete for Buildings," except as specifically modified herein. Numbers in parentheses (0.00) indicate a related paragraph of ACI 301.
- B. Work Included: All cast-in-place concrete work shown on the Drawings and required by these Specifications. Allow for the installation of cast-in items furnished under other Sections. Install anchor bolts for structural steel. Provide and install grout under steel column base plates and beam bearing areas.
- C. Provide concrete pads, piers, curbs, and bases required for equipment of all trades. Coordinate dimensions and details with requirements of equipment being supplied, prior to placing concrete.
- D. Cooperate with other trades who will provide and install items of work (sleeves, piping, conduit, inserts, etc.) to be cast in the concrete. Place no concrete until all such items are in place.

1.02 REFERENCES

- A. Conform to the provisions of the latest editions of the Standards referenced herein, except when standards are modified or supplemented herein.
- B. Standards: The following standards are hereby made a part of this Section and shall govern where applicable except as otherwise specified. Provide one copy of each at job site for reference. Contractor's supervisory personnel shall be thoroughly familiar with this material as it applies to this project.
 - 1. American Concrete Institute (ACI):
 - a. ACI 301, "Specifications for Structural Concrete for Buildings.
 - b. ACI 305, "Hot Weather Concreting."
 - c. ACI 306, "Cold Weather Concreting."
 - d. ACI 315, "Details and Detailing of Concrete Reinforcement."
 - e. ACI 318, "Building Code Requirements for Reinforced Concrete."
 - f. ACI 347, "Recommended Practice for Concrete Formwork."
 - g. ACI SP-15, "Field Reference Manual."
 - h. ACI SP-44, "Fiber Reinforced Concrete."
 - 2. Concrete Reinforcing Steel Institute (CRSI):
 - a. CRSI P-1, "Placing Reinforcing Bars."

- C. Reference Standards: Wherever the following abbreviations occur herein, they shall refer to the corresponding standard:

- 1. ASTM: American Society for Testing and Materials.

1.03 SUBMITTALS

- A. Submit for approval the name of the agency proposed for the required inspection and testing services. If some or all of the required testing is to be performed by personnel not employed by the proposed agency, submit letter from the agency stating that those personnel are qualified to perform the tests.
- B. Submit a mix design for each class of concrete required (1.6.3) Submittals to comply with appropriate methods listed in ACI 301 (4.2.3). Indicate whether mixes have been designed for pumping.
- C. Submit product literature for admixtures and curing compounds proposed for use.
- D. Submit reports of all required testing and inspection.
- E. Submit test data for aggregates proposed for use, indicating source and compliance with specification requirements. Date of test to be no more than 90 days prior to submittal. Resubmit in advance of any proposed change in source.

1.05 QUALITY ASSURANCE

- A. Layout: Establish and maintain accurate reference points for all concrete surfaces and elevations.
- B. Maintain field records of time, date of placing, curing and removal of forms of concrete in each portion of work. Such records shall be open to inspection, shall be kept until completion of work and turned over to the Architect.

1.06 FIELD REFERENCE MANUAL

- A. Provide at least one copy of the ACI Field Reference Manual, SP-15, and one copy of CRSI's "Placing Reinforcing Bars" in the field office at all times (1.3.3).

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cement (4.2.1.1): Portland Cement, ASTM C150, Type I or Type II or ASTM C1157, Type LH or GU. All cement to be from the same mill.
 - 1. All cement materials shall be extracted, processed, and manufactured within a radius of 500 miles from the project site.
- B. Water: Potable.

- C. Aggregates: ASTM C33.
1. Use crushed limestone for coarse aggregate.
 2. Coarse Aggregate Size
 - a. Stair Pans and Floor Topping: No. 8.
 - b. All Others: No. 57.
- D. Admixtures (where required or permitted).
1. Water Reducing: Eucon WR-75 by the EUCLID CHEMICAL COMPANY, Pozzoloth Series by BASF, WRDA Series by W R GRACE or Plastocrete by SIKA CHEMICAL CORPORATION. The admixture shall conform to ASTM C4946, Type A and not contain more chloride ions than are present in municipal drinking water. (4.2.1.4).
 2. Air-Entraining: ASTM C260 (4.2.1.4).
 3. High Range Water Reducing Admixture (Superplasticizer): ASTM C494, Type F or G and not contain more chloride ions than are present in municipal drinking water. (4.2.1.4). The following are acceptable:
 - a. Eucon 37 by EUCLID.
 - b. Sikament by SIKA.
 - c. MasterRheobuild by BASF
 4. Fly Ash or Pozzolans: ASTM C618 Class F (4.2.1.1.d). Maximum loss on ignition 3%.
 5. Accelerator: Non-corrosive, non-chloride, ASTM C494, Type C or E, containing no more chlorides than are present in municipal drinking water. The following are acceptable.
 - a. Accelguard 80 by EUCLID.
 - b. Pozzutec 20 by MASTER BUILDERS.
 - c. Plastocrete 161FL by SIKA.
 - d. Polarset by W R GRACE.
 6. Calcium chloride, thiocyanates or admixtures containing more than 0.05% ions are NOT permitted (4.2.2.6).
 7. Upon request only, provide a qualified full-time representative to assure proper use of admixtures.
 8. Use of admixtures other than those listed will be permitted only when approved prior to use.
- E. Reinforcing (3.2.1).
1. Deformed Bars: ASTM A615 (Including Supplementary Requirements), A617 or A706. Minimum yield strength to be 60 ksi, except that bars to be welded are 40 ksi.
 2. Welded Wire Fabric: ASTM A185. Provide in sheet form (not rolls). Where this is used, except in slabs on grade, it is designed as load-carrying reinforcement.
 3. Synthetic Fibers: Monofilament polypropylene fibers for secondary reinforcing of concrete members. Provide one of the following:
 - a. Fiberstrand by EUCLID CHEMICAL COMPANY.
 - b. Fibermesh by FIBERMESH, INC.

c. FORTA-FERRO.

- F. Premolded Expansion Joint Filler: ASTM D1751 (2.2.1.4).
- G. Curing and Sealing Compound: Water based type, conforming to ASTM C1315, Type 1, Class A, 25% solids content minimum, and VOC compliant. Manufacturer's certification required. Must be compatible with adhesive specified for floor finishes. EUCLID CHEMICAL COMPANY, CONSPEC, MASTER BUILDERS, SONNEBORN, L& M CHEMICAL.
- H. Bonding Compound
 - 1. Rewettable: Polyvinyl acetate type. Use in areas not subject to moisture. "Euco Weld" by EUCLID CHEMICAL COMPANY; "Weldcrete" by LARSEN COMPANY.
 - 2. Non-Rewettable: Polymer modified type. "Euco-Bond" by EUCLID CHEMICAL COMPANY or equal.
- I. Bonding Admixture: Latex, non-wettable type. "SBR Latex" or "FLEX-Con" by EUCLID CHEMICAL COMPANY or "Daraweld" by W.R. GRACE.
- J. Structural Bonding Epoxy Adhesive: Two component 100% solids, 100% reactive compound suitable for use on dry or damp surfaces. "Euco Epoxy #452MV or #620" by EUCLID CHEMICAL COMPANY or "Sikadur Hi-Mod" by SIKA CHEMICAL CORPORATION.
- K. Hardener: Liquid type. The following are acceptable:
 - 1. MasterKure HD 310 WB by BASF.
 - 2. Surfhard by EUCLID CHEMICAL CO.
 - 3. Fluohard by L & M

2.02 MIXES

- A. The following classes of concrete are required (4.2.2.9).

Location	F'c at 28 Days.	Min Cement Content	Max Water Cement Ratio	Air Content
Exterior slabs and any Concrete exposed to weather	4000	610	0.45	5% to 7%

- (1) Slump: Maximum 5" for all members. If a superplasticizer is used, initial slump to be 3", increased to 8" maximum after addition (at the job site) of the superplasticizer.
- (2) Fly ash is permitted in all classes, but shall not exceed 20% of cement weight indicated above and can be included in the water-to-cementitious ratio.

- (3) Ground granulated blast-furnace slag is permitted in all classes but shall not exceed 35% of the cement weight indicated above and can be included in the water-to-cementitious ratio
- (4) Mixes to be pumped are to be so identified on the mix design submittal. All pumped mixes are to have a mid-range or high-range water reducer.
- (5) Concrete for Class IIA slabs on grade must include a mid-range or high-range plasticizer. Water addition at the site will not be permitted.
- (6) All admixtures (other than superplasticizer) are to be added at the batch plant. Superplasticizers, designed for addition to the mix at the plant, may be added at the batch plant with verification from the Structural Engineer and verification that the water-to-cement ratio has not been exceeded.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

- A. Verify that excavations are free of water and ice, and of the required dimension, and have been approved by the Soils Engineer, prior to placing concrete (5.3.1).
- B. Determine field conditions by actual measurement.
- C. Notify Architect not less than 24 hours in advance of placing concrete. Place concrete only when Architect is present, unless this requirement is specifically waived.

3.02 FORMWORK AND REINFORCING

- A. Footings may be cast against earth cuts when soil conditions permit.
- B. Removal of forms and shoring:
 1. Remove no forms within 24 hours after placement.
 2. Shoring is to remain in place until concrete reaches its design strength. Windsor Penetrometer is to be used to verify in-place strength if forms are removed prior to 28 days after casting concrete.
- C. Reinforcing
 1. Welding of reinforcing is prohibited, except where shown.
 2. Use plastic-tipped bar supports for surfaces exposed to view in finished structure.

3.03 FINISHES

- A. Schedule of finishes on flatwork is as follows:
 1. Exterior slabs - broom finish (5.3.4.2.d).

3.04 CURING AND PROTECTION

A. Temperature

1. When air temperature during placement is less than 40 degrees, or will be within 24 hours, temperature of concrete as placed is to be between 50 and 90 degrees (55 and 90 degrees for sections less than 12" thick). Maintain concrete temperatures within these limits for the full curing period of seven (7) days (4.2.2.8 and 5.3.1.6).

3.05 ACCEPTANCE

- A. Concrete work with serious honeycombing, form misalignment or other deviation from Contract requirements is subject to rejection.
- B. When observations or tests indicate that the Contract requirements have not been met, the Contractor is to bear the costs of all additional testing and analysis to determine acceptability, and also the cost of removal and replacement, if such is required.

END OF SECTION

SECTION 11 12 00

PARKING CONTROL EQUIPMENT

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Work includes all parking controls and appurtenances specified and all labor and materials required to install and make fully operational the parking control equipment as specified herein and as indicated on drawings. Provide the following:
 - 1. Barrier operator and gates.
 - 2. Coordination of access control system
 - 3. Detector loops.
 - 4. Wiring, conduit and other miscellaneous items as required for complete and operational systems.

1.02 RELATED SECTIONS

- A. Electrical: Division 26.
- B. Concrete: Section 03 30 00.

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five (5) years experience in the manufacture of parking control items similar to those specified for this project.
- B. Installers Qualifications: Approved by manufacturer with a minimum of five years experience in installation of similar type parking control items.
- C. Maintenance Service: Manufacturer or supplier to have maintenance office or technician within a 30 mile radius of the site.

1.04 SUBMITTALS

- A. Certification of Experience: Submit, on request only, written description of personnel, projects and equipment which document the experience and qualifications required of the installer(s).
- B. Submit the following:
 - 1. Manufacturer's product data.
 - 2. Assembly/installation instructions.
 - 3. Wiring diagrams.
 - 4. Operating and maintenance data.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Prevent damage to parking control items and associated equipment during handling and storage.
- B. Ship, handle and store items as recommended by manufacturer.

PART 2 PRODUCTS

2.01 MATERIALS/COMPONENTS

A. Vertical Pivot Lift Barrier Gates

- 1. General: UL 325 7th Ed. Listed & CAN/CSA C22.2 No. 247-14 Listed Rated for Continuous Duty Cycling
- 2. Properties:
 - a. Cabinet: 68" x 53" x 30"
 - 1) Frame: 2" Sq., 11 Ga. (.120).
 - 2) Mounting pads: 304 stainless steel.
 - 3) Skins - 18 Ga. galvanealed steel. Powder coat finish. Color as selected.
 - 4) Gate Mounting Hardware: 304 stainless steel
 - b. Arm Options Straight Arm: Breakaway option with reflective striping.
 - c. Controls: Card Access. Solid state coated programmable control board in an NEMA 4 electrical enclosure (Tested to -40° F).
 - 1) Security Breach Protection: Built in 24V brake when A/C or battery is present.
 - 2) Programmable Inputs, Outputs, & Relays: The board has 2 programmable inputs, 2 programmable outputs, and 2 built in relays for configuration and integration.
 - 3) Control Wiring: 16 & 18 Ga. Single conductor. Copper with electronic compression terminals.
 - 4) Delayed Closing: Programmable from 0 - 90 seconds.
 - 5) Preemptive outputs: 1 - 5 seconds before gate move.
 - 6) Monitored photo eyes: As recommended.
 - d. Motor and Drive:
 - 1) RAD (Right Angle Drive): 1/2 HP, Gear Type, Right Angle Locking Worm Drive. Equip with disengage lever for manual operation.
 - 2) Dual Belt/High torque reduction system, counter balanced, Transport Maintenance pin (T/M)
 - e. Gates: ASTM B 221, alloy and temper 6063-T6, 2 1/2" sq. , 7 Ga. (.187) aluminum tubing frame with 3/4" pickets. Cable brace as required. Powder coat finish, color as selected.
- 3. Basis of Design Manufacturer/Model: AUTOGATE # 500 Buckeye.
 - a. Other Acceptable Manufacturers: Barrier gates manufactured by the following companies are acceptable providing they meet the requirements specified herein and an acceptable match as

determined by the Architect.

- 1) AMERICAN PARKING SYSTEMS.
- 2) PFC CONTROLS.

- B. Detector loops: Provide as required to arm and reset all devices per manufacturer's requirements.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

- A. Prior to beginning work of the Section, verify that the installed work of other trades is complete and correct to the extent necessary for proper execution of the work of this Section.
1. In the event of discrepancies immediately notify the Construction Manager. Do not proceed with work affected by the discrepancies until they have been resolved.

3.02 INSTALLATION

- A. Install all components in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Leave each system in operating condition. Instruct Owner's personnel on operation, programming and maintenance of all components individually and the system complete.

END OF SECTION

SECTION 31 00 00

SITE WORK

PART 1 GENERAL

1.01 WORK INCLUDED

- A. These general requirements apply to all sitework operations. Refer to Division 31 Specification sections for specific general, product and execution requirements.

1.02 RELATED SECTIONS

- A. Site Preparation: Section 31 15 00.
- B. Earthwork: Section 31 30 00.

1.03 QUALITY ASSURANCE

- A. Comply with local, State and Federal requirements regarding materials, methods of work and disposal of excess and waste materials.
- B. Obtain and pay for required inspections, permits and fees.

1.04 PROJECT CONDITIONS

- A. Each Contractor shall locate and identify existing underground and overhead utilities in areas of their sitework.
 - 1. If utilities are to remain, provide adequate means of protection during sitework operations. Repair utilities damaged during sitework operations at responsible Contractor's expense.
- B. When uncharted or incorrectly charted underground piping or other utilities are encountered during sitework operations, notify the Architect immediately for procedure directions.
- C. Locate, protect and maintain benchmarks, monuments, control points, and protect engineering reference points. Reestablish disturbed or destroyed items at responsible Contractor's expense.
- D. Control dust caused by the work. Dampen surfaces as required.
- E. Perform site operations and the removal of debris and waste materials to assure minimum interference with streets, walks, and other adjacent facilities.
- F. Protect existing paving and other services or facilities on site and adjacent to the

site from damage caused by sitework operations. Cost of repair and restoration of damaged items at responsible Contractor's expense.

- G. Protect and maintain utility services, valves and other services, except items designated for removal.
- H. Owner will occupy adjacent facilities during the entire construction period. Perform site work operations to minimize conflicts and to facilitate Owner's use of the premises and their ability to conduct normal operations.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. As selected by Contractor, except as indicated.

PART 3 EXECUTION

3.01 PREPARATION

- A. Examine the areas and conditions under which sitework is to be performed and materials installed. Do not proceed with the work until unsatisfactory conditions are corrected.
- B. Consult the records and drawings of adjacent work and of existing utilities and their connections which may affect sitework.

END OF SECTION

SECTION 31 15 00
SITE PREPARATION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Work Included: Perform site preparation work as shown and specified for all site preparation operations. Work includes:
1. Protecting existing improvements to remain.
 2. Removing plants, lawns and vegetation.
 3. Removing designated site improvements.
 4. Removing debris and waste materials.
 5. Stripping topsoil.

1.02 RELATED SECTIONS

- A. Site Work: Section 31 00 00.
- B. Seeding: Section 32 92 19.

1.03 QUALITY ASSURANCE

- A. Comply with Section 31 00 00 requirements.

1.04 PROJECT CONDITIONS

- A. Locate, protect, and maintain active utilities and site improvements to remain.
- B. Have utilities marked by the Ohio Utility Protection System (OUPS) prior to commencing work.
- C. Provide necessary barricades, coverings and protection to prevent damage to existing improvements indicated to remain.
- D. Restore to original grades and conditions, areas adjacent to site disturbed or damaged as a result of site preparation work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials and equipment: As selected by Contractor, except as indicated.
- B. Trees: Trees requiring removal to facilitate gate installation shall be replaced in like kind with 3" minimum caliper.

PART 3 EXECUTION

3.01 SITE CLEARANCE AND PROTECTION

- A. Clear and grub areas as required for access to sitework operations and performance of the work.
- B. Remove and dispose of all plants, other vegetation matter and debris from areas to be cleared and grubbed within Contract limits.
 - 1. Use only hand methods for grubbing inside the drip line of trees designated to remain. Strip existing grassplant materials to a maximum depth of 1" under tree canopies and carefully till or scarify existing grade to a maximum depth of 1".
 - 2. Remove stumps to their full depth; remove 3" and larger roots to a depth of 2'-0" below finished grade; and remove 3" and larger roots within 5'-0" of an underground structure, utility line, footings and paved areas.
- C. Care and Removal of Trees: Remove trees within building limits as indicated on the Drawings. Do not remove any other trees without permission of Architect.
- D. Other Improvements: Remove fences and other existing improvements as required to perform the work, and store and maintain for future replacement by Contractor.
- F. Topsoil - Stripping and Storage
 - 1. Strip topsoil to its full depth at building areas, and all areas to be regraded or resurfaced.
 - 2. Stop topsoil stripping at trees designated to remain, a sufficient distance to prevent damage to the root system.
 - 3. Dispose of roots, stones and other debris; store topsoil in piles within the work limits.
 - a. Obtain approval of Architect prior to establishing topsoil storage areas.
 - b. Grade and slope stockpiles for proper drainage and to prevent erosion.

3.02 EXISTING UTILITIES

- A. Contractor is to contact OUPS Excavate test pits as required to determine exact locations.
- B. Raise or lower existing catch basins, inlets, manholes and similar structures to accommodate new grade elevations at paved and lawn areas where indicated. Rework structures as required. Reuse existing catch basin, inlet and manhole frames and covers.

3.03 WASTE MATERIALS

- A. Stockpile, haul from site daily and legally dispose of waste materials and debris. Accumulation not permitted.
- B. On-site burning of combustible, cleared materials is not permitted.

3.04 CLEANING

- A. At completion of work, clean site within Contract limits and leave site clear, clean and free of rubbish and debris and suitable for site work operations.

3.05 REPLACEMENT OF MISCELLANEOUS ITEMS

- A. Replace with existing material previously removed and stored.
- B. If damaged, repair to Architect's satisfaction or replace with new material.

END OF SECTION