

**GOVERNMENT OF THE DISTRICT OF COLUMBIA**

**DEPARTMENT OF REAL ESTATE SERVICES**

**CONSTRUCTION DIVISION**



**SPECIFICATIONS**

**District of Columbia Animal Shelter**

**22 July 2011**

**INVITATION NO.**

<b>PROJECT NO:</b>	<b>DOHAS1</b>
<b>PROJECT NAME:</b>	<b>DISTRICT OF COLUMBIA ANIMAL SHELTER</b>
<b>LOCATION:</b>	<b>1201 NEW YORK AVENUE NE. WASHINGTON DC. 20002</b>

TABLE OF CONTENTS

<u>SECTION NO.</u>	<u>TITLE</u>	<u>NO. OF PAGES</u>
011000	Summary	4
015000	Construction and Safety Signs	3
024119	Selective Structure Demolition	5
033000	Cast-in-Place Concrete	23
081113	Hollow Metal Doors and Frames	12
085100	Steel Windows	8
088000	Glazing	12
099113	Exterior Painting	7
321216	Asphalt Paving	9

## SECTION 011000 - SUMMARY

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
1. Work covered by the Contract Documents.
  2. Type of the Contract.
  3. Work phases.
  
  4. Use of premises.
  5. Owner's occupancy requirements.
  6. Work restrictions.
  7. Specification formats and conventions.

## 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Renovation of District of Columbia Animal Shelter
1. Project Location: 1201 New York Avenue, NE. Washington DC. 20002
- B. Owner: District of Columbia
1. Owner's Representative: Elvis Douglas, 2000 14th Street, NW – Eight Floor, Washington, DC 20009 Phone: 202-671-2702
- C. Architect: Elvis Douglas |In- House, 2000 – 14<sup>th</sup> Street NW, Washington, DC 20009 Phone: 202 671-2702
- D. Contractor: <Insert name and address of Contractor.>
- E. The Work consists of the following:
1. Briefly stated, the Work includes but is not limited to:
    - a. Resurfacing existing parking lot .
    - b. Repairing damaged CMU interior and exterior walls
    - c. Replacing acoustical ceiling tile
    - d. Replacing dog- run sewer lines

- e. Replacing existing doors
- f. Replacing existing windows
- g. Installation of epoxy floor
- h. Resurfacing dog-run walk ways
- i. Installation of floor drain
- j. Replacing of concrete slab on grade
- k. Replacing electrical lighting fixtures
- l. Replacing emergency lighting fixtures
- m. Painting exterior of building
- n. Relocating of computer equipment

#### 1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.
  - 1. [Type to be determined by the owner]

#### 1.5 WORK PHASES

- A. Before commencing Work of each phase, submit a schedule showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

#### 1.6 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B.
  - 1.

#### 1.7 USE OF PREMISES

- A. General: The Contractor shall have limited use of premises for construction .
- B. Use of Site: Limit use of premises to **areas within the Contract limits** indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Limits: Confine construction operations to areas as indicated on the Drawings. The public continue to have full use of site areas adjacent to, but outside of, the limits of construction.

2. Owner Occupancy: The building will be occupied throughout the construction period. Allow for Owner and the Public access of the Project site throughout the duration of the project. Portions of the exterior site and parking areas will be turned over to the Contractor for his unrestricted use
3. Driveways and Entrances: Keep driveways, private right-of-ways, alley, parking areas, and entrances serving employees and the public clear and available to Owner, Owner's employees and the Public, and emergency vehicles at all times.
  - a. Schedule deliveries to minimize use of driveways and entrances.
  - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Use of Existing Building: Maintain existing building in a weather tight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

## 1.8 WORK RESTRICTIONS

- A. On-Site Work Hours:
  1. Weekend Hours: Work on Saturdays and Sundays is discouraged, but may occur with advanced approval of the owner.
- B. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor air intakes.

## 1.9 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "Master Format" numbering system.
  1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
  2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
  - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

## CONSTRUCTION AND SAFETY SIGNS

SECTION 1.5

### PART I -- GENERAL

#### 1.01 -- DESCRIPTION OF WORK

- A. Documents referred to in SCOPES of WORK, Section C, Bid Forms, are part hereof, the same as if repeated herein.
- B. The Contractor shall furnish and erect a construction sign and a safety sign on the site of the project, as soon as practicable after commencement of the work, where directed by the Contracting Officer.

### PART II. -- PRODUCTS

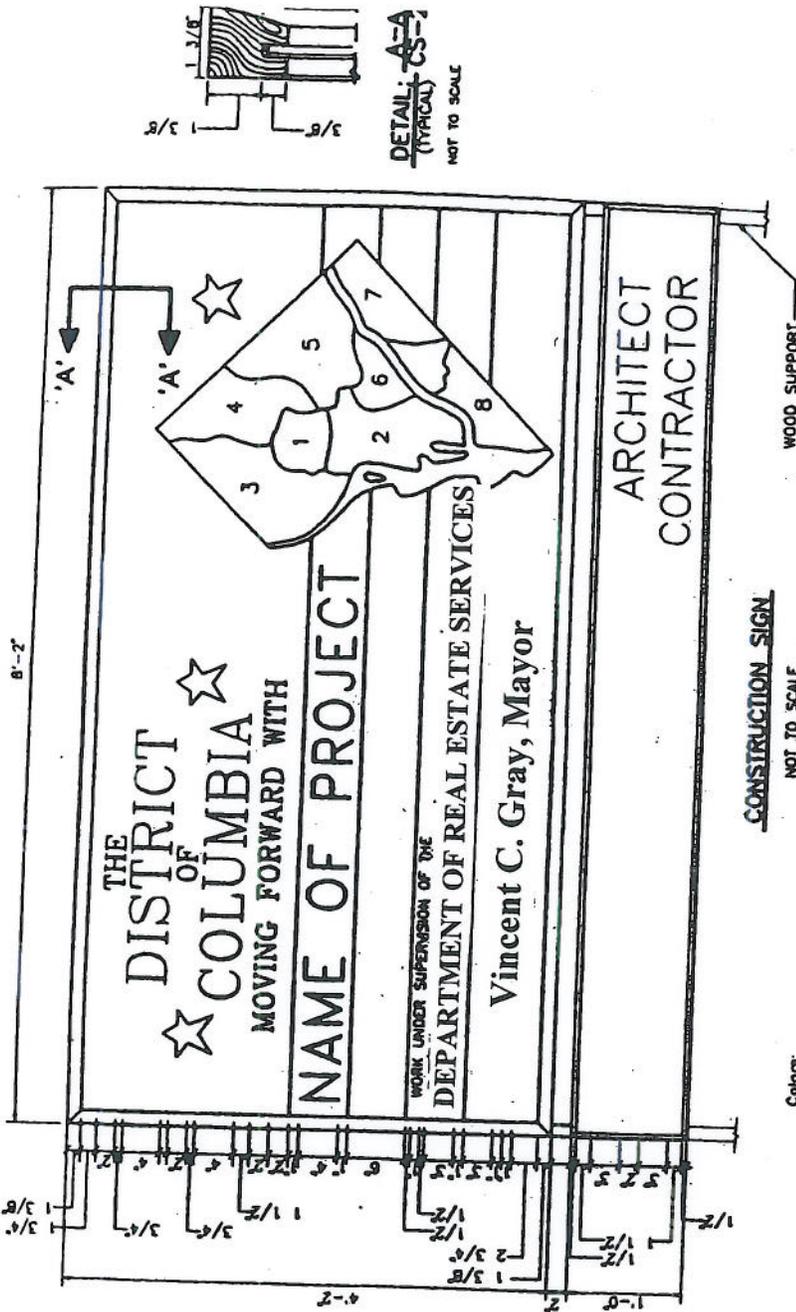
#### 2.01 -- MATERIALS

- A. Lumber shall conform to Fed. Spec. MM-L-751 H sized as shown and shaped as shown.
- B. Plywood shall conform to U.S. Product Standard PS 1-74 Exterior Type, AA or Overian surface.
- C. Paint shall conform to the following Federal Specification:
  - (1) For priming - TT-P-25a.
  - (2) For finishing and lettering - TT-E-489.

### PART III. -- EXECUTION

#### 3.01 -- CONSTRUCTION AND SAFETY SIGN

- A. Design and installation shall be as detailed on the drawings.
  - (1) All woodwork shall receive one (1) priming and one (1) finishing coat of paint.
  - (2) Paint supporting framework white; all other colors as noted on contract drawings.
  - (3) Lettering shall be as shown on drawings.
- B. The Contractor shall maintain the construction sign in good condition for the duration of project.



**NOTE:**  
SEE DRAWINGS 1.5-3 FOR  
DETAILS OF SIGN SUPPORTS  
& MOUNTING.

**CONSTRUCTION SIGN**  
NOT TO SCALE

**Colors:**  
Lettering on white background  
Black lettering on red background  
Red stars and two stripes  
Red map of D.C.  
Black lines and numbers  
Blue border

**PAINTING:**

D.C. FLAG STARS AND STRIPES RED, FIELD WHITE, OUTLINE OF FLAG BLACK

OUTSIDE FRAME DARK BLUE

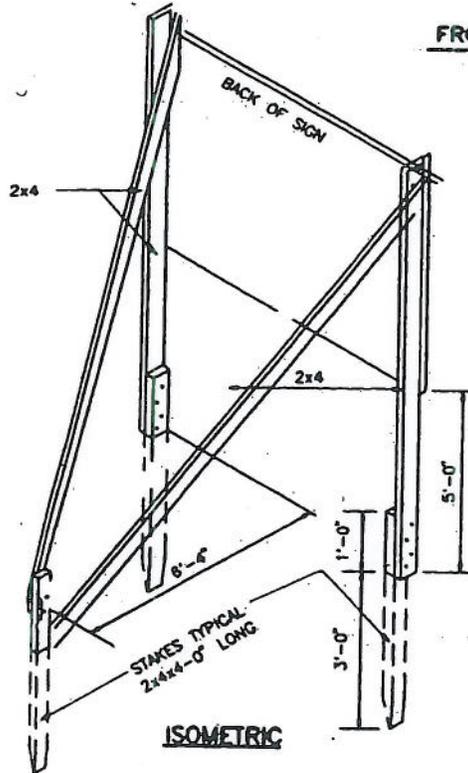
BACKGROUND WHITE

ALL LETTERING BLACK  
EMBLEM GREEN;  
CROSSGREEN ON  
WHITE CIRCLE  
BACKGROUND; LETTERING  
WHITE



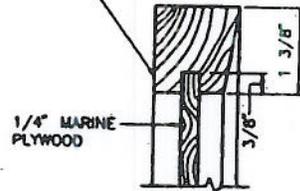
**FRONT ELEVATION**

NOT TO SCALE



**ISOMETRIC**

1 3/8" x 1 3/8" WOOD FRAME  
CORNERS MITERED



**SECTION A-A**  
(TYPICAL) CS-2

NOT TO SCALE

**SAFETY SIGN**

## SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure

## 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

## 1.4 MATERIALS OWNERSHIP

## 1.5 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Means of protection for items to remain and items in path of waste removal from building.

## 1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

- B. Standards: Comply with ANSI A10.6 and NFPA 241.

#### 1.7 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Notify the COTR of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Storage or sale of removed items or materials on-site is not permitted.
- D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

#### 1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to the COTR.

##### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
  - 1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."

- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  2. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
    - a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

### 3.3 PREPARATION

- A. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from the building.
  2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- B. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.
10. .

- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by COTR, 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.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch (19 mm) at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
  1. Do not allow demolished materials to accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

## SECTION 033000 – CAST-IN-PLACE CONCRETE

## PART 1 - GENERAL

## 1.01 GENERAL REQUIREMENTS

- A. Work of this section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

## 1.02 WORK INCLUDED

- A. Work of this section includes all labor, materials, equipment and services necessary to complete the concrete work as shown on the drawings and specified herein, including, but not limited to the following:
  - 1. Foundation systems including wall and spread footings, etc.
  - 2. Slabs on grade.
  - 3.
  - 4. Furnishing and installing all required anchors and inserts.
  - 5. Placing in the forms all inserts, anchors, anchor bolts, etc. furnished by other trades for casting into the concrete and cleaning of same after stripping of forms.
  - 6. Protection of all inserts, anchors, hangers, sleeves and supports furnished and set by others for the attachment of other work to the concrete, or required to permit the passage of other work through the concrete.
  - 7. Supply, fabricate and place all required reinforcing bars, mesh and other reinforcement for concrete where shown, called for, and/or required complete with proper supporting devices.
  - 8. Erection and removal of all formwork required to properly complete the work.
  - 9. Finishing of all concrete work as hereinafter specified.
  - 10. Curing and protection of all concrete work.
  - 11. Floor sealers and dustproofing of all areas exposed and/or covered with carpet.
  - 12. Cutting, patching, grouting, repairing and pointing up as required.

13. Vapor retarder system below slabs on grade.
14. Crushed Stone (Under slab drainage course).
15. All other work and materials as may be reasonably inferred and needed to make the work of this section complete.

#### 1.03 RELATED WORK

- A. Masonry work.
- B. Structural steel.
- C. Miscellaneous metal work.
- D. Earthwork.
- E. Carpentry.

#### 1.04 SUBMITTALS

- A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by Architect.
- B. Shop Drawings; Reinforcement: Submit original shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "ACI Detailing Manual" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures. The shop drawings shall be prepared only by competent detailers, checked by the contractor prior to submission.
  1. The shop drawings shall show all construction joint locations and the added reinforcement required at same.
  2. Obtain and coordinate information for sleeves and openings in concrete, which are required for the work of other trades. Make coordinated drawings showing size and location of openings, sleeves, and additional reinforcing, and incorporate this information on the reinforcing drawings.
  3. Only those splices indicated on the approved shop drawings will be permitted.
  4. Provide elevations of all structural elements to a minimum 1/4" scale.

- C. Samples: Submit samples of materials as requested by Architect, including names, sources and descriptions.
- D. Laboratory Test Reports: Submit laboratory test reports for concrete materials, mix design test and microwave test.
- E. Material Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Architect. Manufacturer and Contractor shall sign material certificates, certifying that each material item complies with, or exceeds, specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

#### 1.05 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
  - 1. Governing Building Codes having jurisdiction over the project.
  - 2. ACI 117-90 "Standard Specifications for Tolerances for Concrete Construction and Materials".
  - 3. ACI Manual of Concrete Practice (Latest Edition)
  - 4. CRSI-WCRSI, "Placing Reinforcing Bars".
  - 5. AWS D1.4, "Structural Welding Code - Reinforcing Steel".
  - 6. The ACI Field Reference Manual, SP-15 shall be kept at the job site, and the practices set forth therein shall be strictly adhered to.
  - 7. ASTM C 494 Standard Specification for Chemical Admixtures for Concrete.
  - 8. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice".
- B. Should materials and installed work require testing and retesting at anytime during progress of work, tests, including retesting of rejected materials for installed work, shall be performed at Contractor's expense.
- C. Sample Panels: Provide field sample panels to demonstrate the concrete floor pattern. Produce a minimum of 3 full-scale panels, concrete flooring pattern. Produce a minimum of 3 full-scale panels, cast horizontally, approximately 48 by 48 by 6 inches (1200 by 1200 by 150 mm) minimum, to demonstrate the expected range of finish, color, and texture variations.
  - 1. Demonstrate methods of curing, aggregate exposure, sealers and coatings, as applicable.
  - 2. Demolish and remove field sample panels when directed.

#### 1.06 PROJECT CONDITIONS:

- A. The contractor, before commencing work, shall examine all adjoining work on which this work is in any way dependent for proper installation and workmanship

according to the intent of this specification, and shall report to the Architect/Engineer, any condition, which prevents this contractor from properly performing their work.

- B. Protection of Footings Against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.
- C. Protect adjacent finish materials against spatter during concrete placement.
- D. Provide all barricades and safeguards at all pits, holes, shaft and stairway openings, etc., to prevent injury to workmen and others within and about the premises. Also provide all safeguards as required by the Building Code, OSHA, or any other departments having jurisdiction. Take full responsibility for all safety precautions and methods.

## PART 2 - PRODUCTS

### 2.01 FORM MATERIALS

- A. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- B. Form Coatings: Provide VOC compliant commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- C. Form Ties: Form ties and spreaders: prefabricated assemblies by Richmond; Superior, Dayton or approved equal. Wire ties shall not be used for formwork support. Ties for foundation work shall be of snap design with removal cones and water seal washer.
- D. Load Bearing Foam Formwork: Dow High Load 60 Styrofoam or equal.

### 2.02 REINFORCING MATERIALS

- A. Deformed Reinforcing Bars: ASTM A615, Grade 60.
- B. Epoxy-Coated Reinforcing Bars: ASTM A775 (as noted on plan and/or in section).
- C. Welded Wire Fabric: ASTM A185, welded steel wire fabric.

- D. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.

1. For epoxy coated reinforcement provide plastic protected chairs and plastic ties. All imperfections in the epoxy coating are to be repaired prior to placement of concrete.

## 2.03 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I or I/II.

Use one brand of cement throughout project, unless otherwise acceptable to Architect.

- B. Blended Cements: Comply with ASTM C595

- C. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

1. Normal weight Fine Aggregate: washed, inert, natural or manufactured or combination thereof, sand conforming ASTM C33 gradation.
2. Normal weight Coarse Aggregate: well graded crushed stone or washed gravel conforming to ASTM C33, sizes #57 for foundations and #67 for slabs and structure.

- D. Water: Drinkable.

- E. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

Products: Subject to compliance with requirements, provide one of the following:

"Air-Mix":	Euclid Chemical Co.
"MB-VR or MB-AE":	Master Builders.
"Sika Aer":	Sika Corp.
"Darex AEA" or "Daravair":	W.R. Grace.

- F. Water-Reducing Admixture: ASTM C 494, Type A, and containing not more than 0.05 percent chloride ions.

Products: Subject to compliance with requirements, provide one of the following:

"Eucon WR-75 or WR-89":	Euclid Chemical Co.
"Pozzolith Normal":	Master Builders.
"Plastocrete 160":	Sika Chemical Corp.
"WRDA Hycol":	W.R. Grace.

- G. High-Range Water-Reducing Admixture (Superplasticizer): ASTM C 494, Type F or Type G and containing not more than 0.05 percent chloride ions.

Products: Subject to compliance with requirements, provide one of the following:

"Eucon 37":	Euclid Chemical Co.
"Rheobuild 1000":	Master Builders
"Sikament 300":	Sika Chemical Corp.
"Daracem-100":	W. R. Grace

- H. Prohibited Admixtures: Calcium chloride, thycyanates or admixtures containing more than 0.05 percent chloride ions are not permitted.
- I. Certification: Written conformance to the above-mentioned requirements and the chloride ion content of admixtures will be required from the admixture manufacturer prior to mix design review by the Engineer.
- J. Contractor will be required to provide information demonstrating successful use in prior placement involving all admixtures.
- K. Corrosion Inhibiting Admixtures: At floor slabs subject to de-icing salts, provide corrosion inhibiting admixture. Provide admixture at manufacturer's prescribed rate based on a 50-year design service life along with detailing and mix design requirements as described in the contract documents.

Products: Subject to compliance with requirements, provide the following or approved equal:

"Rheocrete CNI or 222+":	Master Builders, Inc.
"DCI":	W.R. Grace
"Eucon CIA":	Euclid Chemical Co.

## 2.04 RELATED MATERIALS

- A. Waterstops: Provide flexible PVC waterstops for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.
1. Profile at movement joints: Flat dumbbell with center bulb or ribbed with center bulb. Sized to suit joint.
  2. Profile at construction joints: Flat dumbbell without center bulb or ribbed without center bulb.
  3. Alternate: In addition to those locations specifically shown, self-expanding strip waterstops may be provided at structures not permanently exposed to moisture conditions.

- B. Crushed Stone (Underslab drainage course): Minimum ¾" diameter crushed blue stone to provide, when compacted, a smooth and even surface below slabs on grade and mud slabs that are being placed below hydrostatic slabs.
- C. Non-Shrink, Non-Metallic Grout: The non-shrink grout shall be a factory pre-mixed grout and shall conform to ASTM C1107, "Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-Shrink)."

Products: Subject to compliance with requirements, provide one of the following:

"Euco-NS":	Euclid Chemical Co.
"Five Star Grout":	U.S. Grout Corp.
"Masterflow 713":	Master Builders.

- D. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- E. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
1. Waterproof paper.
  2. Polyethylene film.
  3. Polyethylene-coated burlap.
- F. Curing Compounds: Clear Curing and Sealing Compound (VOC Compliant): The compound shall have 30% solids content minimum, and will not yellow under ultra violet light after 500 hours of test in accordance with ASTM D4887 and will have a maximum moisture loss of 0.039 grams per sq. cm. when applied at a coverage rate of 250 sq. ft. per gallon.

Products: Subject to compliance with requirements, provide one of the following:

"Super Aqua Cure":	Euclid Chemical Co.
"Super Diamond Clear VOX":	Euclid Chemical Co.
"MasterKure 200W":	Master Builders

Curing/Hardening Compound: The product shall be a sodium silicate based compound which reacts with concrete constituents to harden the surface. The film is gone in seven (7) days.

"Eucosil":	Euclid Chemical Company
"Sonosil":	Sonneborn

- G. Crack Sealer: Elastomeric liquid crack sealer resistant to water, gasoline, oil and salts.

Products: Subject to compliance with requirements, provide one of the following:

"Plasti-seal":	Euclid Chemical Co.
----------------	---------------------

"Sikadur 35, Hi Mod LV LPL": Sika

- H. Evaporation Retardant: Products Subject to compliance with requirements, provide one of the following:

"Eucobar":

Euclid Chemical Co.

"Confilm":

Master Builders

- I. Vapor Retarder: Provide vapor retarder cover over prepared base material where indicated below slabs on grade. Use only materials, which are resistant to decay when tested in accordance with ASTM E 154, as follows:

10 mil thickness polyethylene sheet.

## 2.05 PROPORTIONING AND DESIGN OF MIXES

- A. Preparation of Design Mixes:

All mix designs shall be proportioned in accordance with ACI 318, ACI 301, and prepared by the Ready-Mix supplier who will be supplying concrete to the project. Submit separate mix designs on each class of concrete for review.

If previously used mixes are submitted, all materials shall be from the same sources and with the same brand names as the previously utilized mix.

If trial batches are used, the mix design shall be prepared by an independent testing laboratory and shall achieve an average compressive strength 1200 psi higher than the specified strength. This over-design shall be increased to 1400 psi when concrete strengths of 5000 or more are used.

The proposed mix designs shall be accompanied by complete standard deviation analysis or trial mixture test data.

- B. Submit each proposed mix to the Architect and Structural Engineer for review at least 5 days prior to the pre-concrete conference. Do not begin concrete production until Architect has reviewed and approved mixes.
- C. Design mixes to provide normal weight concrete with the following properties, unless indicated on drawings and schedules:
1. Concrete for foundations, including basement walls and slabs on grade, shall have a compressive strength of 4000 psi at 28 days and a water cement ratio not greater than 0.40. All concrete for foundations, including basement walls, shall be watertight with high range water reducing agent.
- D. Adjustment to Concrete Mixes: Mix design adjustments may be requested in writing by Contractor when characteristics of materials, job conditions, weather,

test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

- E. Admixtures:
1. Use water-reducing admixture or high range water-reducing admixture (super plasticizer) in all concrete as required for placement and workability.
  2. Use non-corrosive, non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50°F (10°C).
  3. Use high-range water-reducing admixture in pumped concrete, concrete for industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, concrete with ultimate strength of 5,000 psi or more, and concrete with water/cement ratios below 0.50.
  4. Use air-entraining admixture in exterior concrete exposed to freeze/thaw conditions, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 6 percent with a tolerance of plus-or-minus 1-1/2 percent. Otherwise, provide air-entrainment as follows:
    - a. Other Concrete: (not exposed to freezing, thawing, or hydraulic pressure): 2 percent to 4 percent air.
  5. Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions.
- F. Water-Cementitious Materials Ratio: Provide concrete for following conditions with maximum water-cementitious materials (W/C) ratios as follows:
1. Reinforced concrete subjected to salt spray or deicers; W/C 0.40.
  2. All other concrete; W/C 0.45.
- G. Slump Limits: Proportion and design mixes to result in concrete slump as follows:
1. 2" to 3" slump prior to addition of water-reducing admixtures. 8" maximum slump after addition of water-reducing admixtures.
- H. Chloride Ion Level: Chloride ion content of aggregate shall be tested by the laboratory making the trial mixes. The total chloride ion content of the mix including all constituents shall not exceed the limitations set forth in Table 4.4.1 of ACI 318 for concrete subjected to deicers or exposed to chloride in service (0.15 chloride ions by weight of cement).

- I. Aggregate Gradation: Well graded from coarsest to finest in accordance with ASTM C33 for normal weight course and fine aggregate and ASTM C330 for lightweight course aggregate.

## 2.06 CONCRETE MIXING

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
- B. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
- C. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required. When air temperature is between 85°F (30°C) and 90°F (32°C), reduce maximum mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90°F (32°C), reduce maximum mixing and delivery time to 60 minutes.
- D. No water shall be added after mixing to concrete containing HRWR (Superplasticizer). If loss of slump occurs, the concrete treated with HRWR may be retempered as long as a "flash set" has not occurred. Retempering procedures must be discussed and approved by the Engineer and the manufacturer at the Pre-Concrete Conference. Water shall not be added to concrete at the site.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Coordinate the installation of joint materials, embedded items and vapor retarders with placement of forms and reinforcing steel.

### 3.02 INSPECTION

- A. Examine all work prepared by others to receive work of this section and report any defects affecting installation to the contractor for correction. The contractor's commencement of work will be interpreted as their complete acceptance of preparatory work by others.

### 3.03 CONCRETE STRENGTH

- A. Concrete shall develop the minimum compressive strengths shown on drawings at 28 days when sampled and tested in accordance with ASTM C31 and C39.

### 3.04 FORMS

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shapes, alignment, elevation and position. Maintain formwork construction tolerances complying with ACI 117. Provide Class A tolerances for concrete exposed to view. Provide Class C tolerances for other concrete surfaces.
- B. Design formwork to be readily removable without impact, shocks or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms to size shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, recesses, and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.
- F. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retightening forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

### 3.05 VAPOR RETARDER INSTALLATION

- A. Following leveling and compaction of granular base for slabs on grade, place vapor retarder sheeting with longest dimension parallel with direction of pour.

- B. Lap joints 6" and seal with appropriate tape in accordance with manufacturer's requirements.
- C. Avoid cutting or puncturing vapor retarder during reinforcement placement and concreting operations.

### 3.06 PLACING REINFORCEMENT

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for placing reinforcing bars, for details and methods of reinforcement placement and supports, and as herein specified.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials, which reduce or destroy bond with concrete.
- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing using metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverage's for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh increment and lace splices with tie wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

### 3.07 JOINTS

- A. Construction Joints: Locate and install construction joints as indicated, or if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.
- B. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints, except as otherwise indicated.
- D. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions, using manufacturer's specified welding irons.

- E. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, and elsewhere as indicated.
  - 1. Joint filler and sealant materials are specified in Division-7 sections of these specifications.
- F. Contraction (Control) Joints in Slabs-on-Ground: Maximum joint spacing shall be 36 times the slab thickness unless otherwise noted on the drawings. The dry cut saw shall be used immediately after final finishing and to a depth of 1-1/4". A conventional saw shall be used as soon as possible without dislodging aggregate and to a depth of 1/4 slab thickness.

### 3.08 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.

### 3.09 PREPARATION OF FORM SURFACES

- A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- C. Thin form-coating compounds only with thinning agent of type, and amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

### 3.10 CONCRETE PLACEMENT

- A. Ready-mix concrete shall comply with the requirements of ASTM C94 and ACI 304. All plant and transporting equipment shall comply with the concrete plant standards and truck mixer and agitator standards of the National Ready Mix Concrete Association.
- B. Cold and hot weather mixing procedures shall be submitted to the architect for approval.

- C. Notify architect and testing organization at least 36 hours (1 1/2 regular working days) before each pour so that forms and reinforcing may be examined. Do not place concrete until inspection has been made by the owner provided independent testing agency.
- D. **Preplacement Inspection:** Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
1. Apply temporary protective covering to lower 2' of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.
- E. **General:** Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified.
- Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- F. **Placing Concrete in Forms:** Deposit concrete in forms in horizontal layers not deeper than 18" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints. Use internal vibrators penetrating both the top and preceding layers.
- G. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
- H. Use and type of vibrators shall conform to ACI 309 "Recommended Practice for Consolidation of Concrete". Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- I. **Placing Concrete Slabs:** Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

- J. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- K. Bring slab surfaces to correct level with straightedge and strikeoff. Use highway straightedge, bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations. See also "MONOLITHIC SLAB FINISHES" below.
- L. Maintain reinforcing and embedded items in proper position during concrete placement operations. All reinforcement and embedded items shall be tied or secured in position prior to concrete placement. "Wet-Setting" of reinforcement or embedded items is not permitted.
- M. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
1. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C) at point of placement.
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Use only a non-corrosive, non-chloride accelerator. Calcium chloride, thiocyanates or admixtures containing more than 0.05% chloride ions are NOT permitted.
- N. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F (32°C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
  2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
  3. Fog spray forms, reinforcing steel and subgrade just before concrete is placed.

4. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.
- O. Deflection: The concrete subcontractor shall provide additional concrete required to accommodate expected deflection of building structure and/or formwork occurring during concrete placement.

### 3.11 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surface not exposed to view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, damp-proofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed. Follow all requirements in ACI 301, Chapter 10 for smooth form finish. Surface preparation for surfaces receiving waterproofing must be approved by the waterproofing manufacturer prior to construction.

### 3.12 MONOLITHIC SLAB FINISHES

- A. Float Finish: Apply float finish to slabs at crawl spaces or horizontal surfaces to be waterproofed or covered with concrete toppings or drainage courses, unless otherwise noted. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- B. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system, unless otherwise noted.

After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance. Grind smooth surface defects, which would telegraph through applied floor covering system.

- C. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, and slab surfaces which are to be covered with membrane or elastic waterproofing, or sand-bed terrazzo, and as otherwise indicated, apply single trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming. Surface preparation for surfaces receiving waterproofing must be approved by the waterproofing manufacturer prior to construction
- D. Liquid Densifier: Apply a coat of the specified liquid densifier to all exposed interior concrete floors where indicated on the drawings. This surface must be continuously moist cured by a method satisfactory to the Architect. Apply and mechanically scrub compound into the floor in strict accordance with the manufacturer's printed instructions.

### 3.13 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Submit for approval, the contractor's proposed curing and protection method.
  - 1. 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.
  - 2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
  - 3. In order to avoid plastic or drying shrinkage cracks during warm, dry or windy weather, ACI 302 and ACI 308 shall be followed using wind breaks and sun shades when recommended. Evaporation retardant shall be as specified in Section 2.04.
- B. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
  - 1. Provide moisture curing by following methods.
    - a. Keep concrete surface continuously wet by covering with water.
    - b. Continuous water-fog spray.
    - c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

2. Provide moisture-cover curing as follows:  
Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
  3. Provide curing and sealing compound to exposed interior slabs not receiving a liquid densifier application, and to all troweled slabs receiving mastic applied adhesives or "shake-on" hardeners. Curing compounds shall be compatible with floor finishes and/or adhesives to be applied. This compound shall also be used on exterior slabs, sidewalks and curbs not receiving a penetrating sealer.
  4. Provide curing and hardening compound to walls receiving the specified waterproofing system. The compound must be applied immediately after form removal, unless the forms are left on for seven (7) days.
- C. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- D. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of the specified curing compound or a continuous moist curing method approved by the architect.
- E. Sealer and Dustproofer: Apply a second coat of the specified curing and sealing compound to exposed interior slabs not subjected to vehicular traffic, noted on the drawings. These slabs must have received an initial coat of the curing and sealing compound.

### 3.14 REMOVAL OF FORMS

- A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F (10°C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 7 days or until concrete has attained 75 % of the specified compressive strength. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members. The contractor shall notify the quality control testing agency 24 in advance in the event that field-cured specimens are required.

- C. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

### 3.15 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.
- B. When forms are intended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

### 3.16 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

### 3.17 CONCRETE SURFACE REPAIRS

Prior to all repairs, an as-built condition sketch and method of repair must be submitted to the architect and engineer for review and approval.

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.
- B. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with a bonding grout containing the specified bonding admixture. Place patching mortar after while bonding grout is still tacky.
- C. For exposed-to-view surfaces, blends white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- D. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles,

- honeycomb, rock pockets; fins and other projections on surface; and stains and other discoloration's that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or pre-cast cement cone plugs secured in place with bonding agent.
- E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- F. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for tolerances of slope, in addition to smoothness, using a template having required slope.
- G. Repair finished unformed surfaces that contain defects, which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions shall be repaired.
- H. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days, except at hydrostatic slabs.
- I. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. The specified underlayment compound or repair topping may be used when acceptable to Architect.
- J. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
- K. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cutout holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

- L. Structural Repair: All structural repairs shall be made with prior approval of the Engineer as to method and procedure, using the specified polymer repair mortar and/or specified epoxy adhesive. Where epoxy injection procedures must be used, an approved low viscosity epoxy made by the manufacturers previously specified shall be used. In addition, all cracks shall be filled with the specified crack sealer or other method as approved by the Engineer.
- M. Specified Polymer Horizontal Repair Mortar: All exposed floors shall be leveled, where required, with the specified self-leveling repair topping.
- N. Repair Methods not specified above may be used, subject to acceptance of Architect.

### 3.18 FOUNDATION WALLS

- A. This contractor shall form and leave openings in walls as shown on drawings and approved shop drawings for work of other contractors. These openings shall be temporarily closed and when so directed, the contractor shall point up in solid and neat manner with waterproofed cement.

### 3.19 WORK IN CONNECTION WITH OTHER TRADES AND CONTRACTS

- A. Sleeves, pockets, openings, etc., shall be set in the concrete walls and arches as required for the mechanical trades as shown on approved shop drawings; these shall be encased or built into the concrete work and shall be properly placed and secured in position in the forms before concrete is placed. Provide additional reinforcing around all penetrations in walls and slabs as shown on the contract drawings.
- B. Provide all chases, pipe slots, etc., required for the mechanical trades (see mechanical drawings), constructed as shown on the approved shop drawings.
- C. Leave temporary access panels where required to install mechanical equipment as required by trade affected. Panels shall be formed with construction joints as specified. Details for such panels shall be submitted to Architect for approval.
- D. Coordinate all penetrations, cutting, and patching with waterproofing contractor.
- E. Moisture Vapor Emission Rates (MVER): Concrete slabs to receive specialty floor finishes shall meet all moisture vapor emission rates and curing requirements necessary for satisfactory installation of the floor systems indicated. Acceptable values for MVER and testing methods for determining acceptability of MVER shall be in accordance with the flooring manufacturer's requirements.

### 3.20 CUTTING AND PATCHING

- A. Contractor for concrete work shall be responsible for all cutting, removing and patching work where concrete surfaces are not installed within the limits shown on

the drawings or specified herein. All such work shall meet with the approval of the Architect/Engineer.

- B. Where cutting and patching is required to accommodate the work of other subcontractors, such cutting shall be done at the expense of said subcontractors but shall be performed by the contractor for concrete work.
- C. The location and extent of cutting in completed concrete work and the patching thereof shall meet with the approval of the Architect/Engineer.

### 3.21 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. The Owner will employ a third party testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
  - 1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
  - 2. Slump: ASTM C 143; one test at point of discharge for each truck; additional tests when concrete consistency seems to have changed.
  - 3. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete, measured at point of placement.
  - 4. Concrete Temperature: Test hourly when air temperature is 40°F (4°C) and below, and when 80°F (27°C) and above; and each time a set of compression test specimens made.
  - 5. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
  - 6. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yds. (for each class of concrete) plus additional sets for each 100 cu. yds. over and above the first 5 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen tested at 56 days or to be withheld at the direction of the architect.
    - a. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.

- b. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
  - c. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
5. Water Cement Ratio Test: Check water content of concrete in accordance with 'Standard Method of Test for Water Content of Freshly Mixed Concrete Using Microwave Oven Drying, AASHTO DESIGNATION: TP 23, SHRP DESIGNATION: 2027'.
6. Unit Weight Test: In accordance with ASTM C138
9. Test results will be reported in writing to Architect, Structural Engineer and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

Non Compliance: All test reports indicating non-compliance shall be faxed immediately to all parties on the test report distribution list and the hard copies submitted on different colored paper.

Nondestructive Testing: Windsor probes, rebound hammer, sonoscope, or other non-destructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

10. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests and retesting when unacceptable concrete is verified.

END OF SECTION 03300

## SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

- 1. Standard hollow metal **doors and frames**.
- 2. Custom hollow metal **doors and frames**.

## B. Related Sections:

- 1. Division 04 Section "Maintenance of Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
- 2. Division 08 Section "**Door Hardware**" for door hardware for hollow metal doors.
- 3. Division 09 painting Sections for field painting hollow metal doors and frames.

## 1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.

- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

- C. Custom Hollow Metal Work: Hollow metal work fabricated according to ANSI/NAAMM-HMMA 861.

## 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, **fire-resistance rating**, and finishes.

- B. Shop Drawings: Include the following:

- 1. Elevations of each door design.
- 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
- 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
- 4. Locations of reinforcement and preparations for hardware.
- 5. Details of each different wall opening condition.
- 6. Details of anchorages, joints, field splices, and connections.
- 7. Details of accessories.

8. Details of moldings, removable stops, and glazing.
  9. Details of conduit and preparations for power, signal, and control systems.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification:
1. For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches (75 by 125 mm).
  2. For the following items, prepared on Samples about **12 by 12 inches (305 by 305 mm)** to demonstrate compliance with requirements for quality of materials and construction:
    - a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.
    - b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow metal panels and glazing if applicable.
- E. Other Action Submittals:
1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.
- F. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.
- 1.5 QUALITY ASSURANCE
- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at **[positive pressure] [as close to neutral pressure as possible]** according to **[NFPA 252] [UBC Standard 7-2] [or] [UL 10B] [UL 10C]**.
1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
- C. Preinstallation Conference: Conduct conference at **[Project site] <Insert location>**.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

1. Provide additional protection to prevent damage to finish of factory-finished units.
  - B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
  - C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood blocking. Do not store in a manner that traps excess humidity.
    1. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air circulation.
- 1.7 PROJECT CONDITIONS
- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.
- 1.8 COORDINATION
- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, **available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:**
  1. Amweld Building Products, LLC.
  2. Benchmark; a division of Therma-Tru Corporation.
  3. Ceco Door Products; an Assa Abloy Group company.
  4. Curries Company; an Assa Abloy Group company.
  5. Deansteel Manufacturing Company, Inc.
  6. Firedoor Corporation.
  7. Fleming Door Products Ltd.; an Assa Abloy Group company.
  8. Habersham Metal Products Company.
  9. Karpen Steel Custom Doors & Frames.
  10. Kewanee Corporation (The).
  11. Mesker Door Inc.
  12. Pioneer Industries, Inc.
  13. Security Metal Products Corp.
  14. Steelcraft; an Ingersoll-Rand company.
  15. Windsor Republic Doors.

## 2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum [A40 (ZF120)] [G60 (Z180) or A60 (ZF180)] metallic coating.
- D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.
  - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. (96- to 192-kg/cu. m) density; with maximum flame-spread and smoke-development indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- I. Glazing: Comply with requirements in Division 08 Section "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

## 2.3 STANDARD HOLLOW METAL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8.
  - 1. Design: **Flush panel.**
  - 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
    - a. Fire Door Core: As required to provide fire-protection ratings indicated.

- b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than **12.3 deg F x h x sq. ft./Btu (2.166 K x sq. m/W)** when tested according to ASTM C 1363.
    - 1) Locations: **Exterior doors and interior doors where indicated.**
  - 3. Vertical Edges for Single-Acting Doors: **Manufacturer's standard.**
    - a. Beveled Edge: 1/8 inch in 2 inches (3 mm in 50 mm).
  - 4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch (54-mm) radius.
  - 5. Top and Bottom Edges: Closed with flush or inverted 0.042-inch- (1.0-mm-) thick, end closures or channels of same material as face sheets.
  - 6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
  - B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
    - 1. Level 4 and Physical Performance Level A (Maximum Duty), **Model 2 (Seamless).**
  - C. Interior Doors: Face sheets fabricated from cold-rolled steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
    - 1. Level 3 and Physical Performance Level A (Extra Heavy Duty) **Model 2 (Seamless)**
  - D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
  - E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.
- 2.4 STANDARD HOLLOW METAL FRAMES
- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
  - B. Exterior Frames: Fabricated from metallic-coated steel sheet.
    - 1. Fabricate frames with mitered or coped corners.
    - 2. Fabricate frames as **full profile welded** unless otherwise indicated.
    - 3. Frames for Level 3 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
  - C. Interior Frames: Fabricated from cold-rolled steel sheet.
    - 1. Fabricate frames with mitered or coped corners.
    - 2. Fabricate frames as **full profile welded** unless otherwise indicated.
    - 3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
    - 4. Frames for Level 3 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
    - 5. Frames for Wood Doors: **0.042-inch- (1.0-mm-)** thick steel sheet.

- D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.

## 2.5 CUSTOM HOLLOW METAL DOORS

- A. General: Provide doors not less than 1-3/4 inches (44.5 mm) thick, of seamless hollow construction unless otherwise indicated. Construct doors with smooth surfaces without visible joints or seams on exposed faces. Comply with ANSI/NAAMM-HMMA 861.
- B. Exterior Door Face Sheets: Fabricated from metallic-coated steel sheet, minimum 0.053 inch (1.3 mm) thick.
- C. Interior Door Face Sheets: Fabricated from cold-rolled steel sheet, minimum 0.042 inch (1.0 mm) thick.
- D. Vertical Edges for Single-Acting Doors: Beveled 1/8 inch in 2 inches (3 mm in 50 mm).
- E. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch (54-mm) radius.
- F. Top and Bottom Channels: Closed with continuous channels, minimum 0.053 inch (1.3 mm) thick, of same material as face sheets and spot welded to both face sheets.
- G. Hardware Reinforcement: Fabricate according to ANSI/NAAMM-HMMA 861 with reinforcing plates from same material as door face sheets.

## 2.6 CUSTOM HOLLOW METAL FRAMES

- A. General: Fabricate frames of construction indicated. Close contact edges of corner joints tight with faces mitered and stops butted or mitered. Continuously weld faces and soffits and finish faces smooth. Comply with ANSI/NAAMM-HMMA 861.
  - 1. Door Frames for Openings 48 Inches (1219 mm) Wide or Less: Fabricated from 0.053-inch- (1.3-mm-) thick steel sheet.
  - 2. Door Frames for Openings More Than 48 Inches (1219 mm) Wide: Fabricated from 0.067-inch- (1.7-mm-) thick steel sheet.
- B. Exterior Frames: Formed from metallic-coated steel sheet.
- C. Interior Frames: Fabricated from cold-rolled steel sheet.
- D. Hardware Reinforcement: Fabricate according to ANSI/NAAMM-HMMA 861 with reinforcing plates from same material as frame.
- E. Head Reinforcement: Provide minimum 0.093-inch- (2.3-mm-) thick, steel channel or angle stiffener for opening widths more than 48 inches (1219 mm).

## 2.7 FRAME ANCHORS

## A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.
3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch- (9.5-mm-) diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

## B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch (50-mm) height adjustment. Terminate bottom of frames at finish floor surface.

## 2.8 ACCESSORIES

A. Ceiling Struts: Minimum 1/4-inch-thick by 1-inch- (6.4-mm-thick by 25.4-mm-) wide steel.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

## 2.9 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in [SDI 117] [ANSI/NAAMM-HMMA 861].

## C. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch (19 mm) beyond edge of door on which astragal is mounted.

- D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
  2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
  4. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
  5. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Masonry Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:
      - 1) Two anchors per jamb up to 60 inches (1524 mm) high.
      - 2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
      - 3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
      - 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.
    - b. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:
      - 1) Three anchors per jamb up to 60 inches (1524 mm) high.
      - 2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
      - 3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
      - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
      - 5) Two anchors per head for frames above 42 inches (1066 mm) wide and mounted in metal-stud partitions.
    - c. Compression Type: Not less than two anchors in each jamb.
    - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.
  6. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.

- F. **Hardware Preparation:** Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
1. Locate hardware as indicated, or if not indicated, according to [ANSI/SDI A250.8] [ANSI/NAAMM-HMMA 861].
  2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
  3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
  4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.
- G. **Stops and Moldings:** Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. **Single Glazed Lites:** Provide fixed stops and moldings welded on secure side of hollow metal work.
  2. **Multiple Glazed Lites:** Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
  3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
  4. Provide loose stops and moldings on inside of hollow metal work.
  5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

## 2.10 STEEL FINISHES

- A. **Prime Finish:** Apply manufacturer's standard primer immediately after cleaning and pretreating.
1. **Shop Primer:** Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
- B. **Factory-Applied Paint Finish:** Manufacturer's standard, complying with ANSI/SDI A250.3 for performance and acceptance criteria.

- 2.11 **Color and Gloss:** **As selected by COTR from manufacturer's full range.**

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
  - 1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
  - 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

### 3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with [ANSI/SDI A250.11] [HMMA 840].
  - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-protection-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    - c. Install frames with removable glazing stops located on secure side of opening.
    - d. Install door silencers in frames before grouting.
    - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.

- f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
  - g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
    - a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
  3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
  4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
  5. Concrete Walls: Solidly fill space between frames and concrete with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
  6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  7. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  8. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.
  9. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
    - a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    - b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
  3. Smoke-Control Doors: Install doors according to [NFPA 105] [UBC Standard 7-2].
- D. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

#### 3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

## SECTION 08510 - STEEL WINDOWS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes heavy steel non-operable windows.
- B. Related Sections: The following sections contain requirements that relate to this Section:
  - 1. Glazing requirements, including windows specified to be factory glazed, are specified in Division 8 Section "Glass and Glazing."
  - 2. Field painting of factory prime coated windows is specified in Division 9 Section "Painting."

## 1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide steel window units that comply with performance requirements specified, as demonstrated by testing manufacturer's corresponding stock windows according to test methods indicated.
- B. Design Requirements: Comply with structural performance, air infiltration, and water penetration requirements indicated.
  - 1. Testing: Test each type and size of required window unit through a recognized independent testing laboratory or agency for compliance with specified performance requirements.
  - 2. Structural Performance: Provide window units with no failure or permanent deflection for positive (inward) and negative (outward) test pressure of 30 lbf per sq. ft. (1436 Pa), when tested in accordance with ASTM E 330.
  - 3. Air Infiltration: Provide units with an air infiltration rate of not more than 0.50 cfm per ft. (0.8 L/s per m) of operable sash joint, for an inward test pressure of 1.56 lbf per sq. ft. (75 Pa), when tested in accordance with ASTM E 283.
  - 4. Air Infiltration: Provide units with an air infiltration rate of not more than 1.0 cfm per ft. (1.6 L/s per m) of operable sash joint, for an inward test pressure of 1.56 lbf per sq. ft. (75 Pa), when tested in accordance with ASTM E 283.
  - 5. Water Penetration: Provide units with no water penetration as defined in the test standard at an inward test pressure of 2.86 lbf per sq. ft. (136 Pa), when tested in accordance with ASTM E 331.
- C. Crack Tolerances: Before leaving the factory, test each type and size of required window units with ventilators closed and locked, for compliance with the following tolerances specified by the Steel Window Institute (SWI):

1. Non-operable Units: It shall not be possible to insert freely a steel feeler gage 2 inches (51 mm) wide by 0.020 inch (0.5 mm) thick between more than 40 percent of the inside metal to metal contacts between frames and ventilators without forcing.

#### 1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.

1. Product data for each type of window are required, including:
  - a. Construction details and fabrication methods.
  - b. Profiles and dimensions of individual components.
  - c. Data on hardware, accessories, and finishes.
  - d. Weight per foot of each steel section.
  - e. Recommendations for maintenance and cleaning of exterior surfaces.
2. Shop drawings for each type of window are required. Include information not fully detailed in manufacturer's standard product data and the following:
  - a. Layout and installation details, including anchors.
  - b. Elevations of continuous work at 1/4 inch = 1 foot (1:50) scale and typical window unit elevations at 3/4 inch = 1 foot (1:20) scale.
  - c. Full-size section details of typical composite members, including reinforcement.
  - d. Hardware, including operators.
  - e. Accessories.
  - f. Glazing details.
3. Samples for Initial Color Selection: Submit samples of each specified finish on 12-inch (300-mm) long sections of window members.
4. Samples for Verification Purposes: The Architect reserves the right to require additional samples that show fabrication techniques and workmanship, and design of hardware and accessories.
5. Material Test Reports: Engage a recognized independent testing laboratory or agency to perform tests specified. Provide certified test results showing that each type, grade and size of window unit complies with performance requirements indicated.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed installation of steel window units similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance.
- B. Standards: Comply with applicable recommended specifications of the Steel Window Institute except to the extent more stringent requirements are indicated.
- C. Single Source Responsibility: Provide steel windows produced by a single manufacturer capable of showing prior production of units similar to those required.

- D. Design Concept: The drawings indicate the size, profiles and dimensional requirements of the steel window types required and are based on the specific types and models indicated. Steel window units by other manufacturers may be considered provided deviations from dimensions and profiles indicated are minor and do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

## 1.6 PROJECT CONDITIONS

- A. Field Measurements: Check actual window openings by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the work.

## 1.7 SEQUENCING AND SCHEDULING

- A. Scheduling: Except where steel window units have been pre-glazed before installation, complete field painting of window units before installation of glass.

## 1.8 WARRANTY

- A. Steel Window Warranty: Submit a written warranty, executed by the window manufacturer, agreeing to repair or replace window units that fail in materials or workmanship within the specified warranty period. Failures include, but are not necessarily limited to:
1. Structural failures including excessive deflection, excessive leakage or air infiltration.
  2. Faulty operation of ventilators and hardware.
  3. Deterioration of metals, metal finishes and other materials beyond normal weathering.
- B. Warranty Period: 3 years after the date of Substantial Completion.
- C. The warranty shall not deprive the Owner of other rights or remedies that the Owner may have under other provisions of the Contract Documents and is in addition to and runs concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
1. A & S Window Associates, Inc.
  2. William Bayley Company.
  3. Bliss-Cashier Metal Products, Inc.
  4. Coast to Coast Manufacturing Co.

5. Hope's Architectural Products, Inc.
6. Torrance Steel Window Co., Inc.

## 2.2 MATERIALS

- A. Steel Window Members: Provide frame and ventilator members formed from hot-rolled new billet steel sections. Size and weight of principal frame and ventilator members shall conform to the following requirements:
  1. Heavy steel non-operable Windows: Combined weight of frame and ventilator members shall not be less than 3.5 lb per lineal ft. (5.2 kg per linear m). Front to back depth of frame or ventilator section shall not be less than 1-5/16 inches (33 mm).
    - a. Applied weathering members, where indicated, shall be 0.074-inch (1.9-mm) minimum thickness.
- B. Trim members, including glazing beads, screen frames, retainers for weatherstripping, flashing and similar items shall be extruded aluminum, formed sheet aluminum or stainless steel. Trim located entirely on the interior face of windows may be of formed steel.
- C. Fasteners: Provide bronze, brass, stainless steel or other metal fasteners warranted by the manufacturer to be noncorrosive and compatible with steel window members, trim, hardware, anchors and other components.
  1. Exposed Fasteners: If exposed fasteners are used, provide Phillips, flat-head machined screws that match the finish of the member or hardware being fastened, as appropriate.
- D. Anchors, Clips and Window Accessories: Provide units of stainless steel, hot-dip zinc coated steel or iron complying with ASTM A 123, or bronze/brass. Provide units with sufficient strength to withstand design pressure indicated.
- E. Compression-Type Glazing Strips and Weatherstripping: Provide compressible stripping for glazing and weatherstripping such as molded EPDM or neoprene gaskets complying with ASTM D 2000, Designation 2BC415 to 3BC620, or molded PVC gaskets complying with ASTM D 2287, or molded expanded EPDM or neoprene gaskets complying with ASTM C 509, Grade 4.
- F. Sealant: For sealants required within fabricated window units, provide type recommended by the manufacturer for joint size and movement. Sealant shall remain permanently elastic, nonshrinking, and nonmigrating. Normally retain only one of the five choices below for insect screens. Delete all choices if no screens are required.
- G. Glass and Glazing Materials: Refer to the "Glass and Glazing" sections of these specifications.

## 2.3 ACCESSORIES

- A. General: Provide the manufacturer's standard accessories that comply with indicated standards.
- B. Window Cleaner's Bolts: Provide window cleaner's bolts of standard design, complying with governing regulations and ANSI A39.1. Fabricate bolts of stainless steel or bronze. Reinforce

window units or mullions to receive bolts, and provide additional anchorage of units at locations of bolts.

- C. Weatherstripping: Provide the manufacturer's standard weatherstripping, of materials specified, applied to inside metal contact line of each operating sash or vent.
- D. Non-operable windows: All windows shall have fixed glazing and shall be non-operable

## 2.4 FABRICATION

- A. General: Fabrication steel window units to comply with indicated standards. Include a complete system for assembly of components and anchorage of window units.
  - 1. Provide units that are reglazable without dismantling ventilator framing.
  - 2. Prepare window ventilators for glazing except where preglazing at the factory is indicated.
- B. Provide weepholes and internal water passages to conduct infiltrating water to the exterior.
- C. Provide mullions and cover plates formed of hot-rolled or cold-rolled steel matching window units, complete with anchors for support to structure and for installation of window units. Provide mullions of profile indicated. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, in the manner indicated.
- D. Glazing Stops: Provide screw-applied or snap-on glazing stops coordinated with glass selection and glazing system as indicated. Finish glazing stops to match window units, if fabricated of steel; otherwise provide the manufacturer's standard finish as selected by the Architect.
- E. Glazing Clips: Where face glazing (without stops) is indicated, furnish glazing clips for concealment in glazing compound.
- F. Preglazed Fabrication: Preglaze window units at the factory where possible and practical for applications indicated. Comply with glass and glazing requirements of the "Glass and Glazing" sections of these specifications.

## 2.5 FINISHES

- A. General: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- B. Surface Preparation: Before fabrication clean surfaces of dirt, oil, grease, and other contaminants followed by a zinc-phosphate pretreatment applied in accordance with the window manufacturer's recommendations.
- C. Galvanized Windows: After fabrication, provide galvanize treatment consisting of chemical cleaning complying with SSPC-SP 1 and pickling treatment complying with SSPC-SP 8, followed by a hot-dip galvanizing complying with ASTM A 123.
  - 1. After galvanizing provide a 1.0-mil (0.03 mm) dry film thickness, shop-applied finish consisting of a hot-phosphate solution treatment followed by a chromic-acid rinse, drying

and a special dip-metal primer coating and oven drying for 30 minutes at 300 deg F (150 deg C).

- D. Shop Prime Coat Finish: After fabrication provide 1.0-mil (0.03 mm) dry film thickness shop prime coat finish consisting of a hot alkali solution cleaning, followed by a rinse and hot-phosphate solution treatment, then a chromic-acid rinse, drying and a special-dip metal primer coating, and oven drying for 30 minutes at 300 deg F (150 deg C).
- E. Shop-Applied Special Coating: Provide the manufacturer's special, 1.5-mil (0.04 mm) dry film thickness, electrostatically applied baked-on coating of acrylic or polyester enamel.
1. Provide color selected by the Architect from the manufacturer's standard colors.
  2. Provide color matching the Architect's sample.
- F. Baked Enamel Finish: Immediately after cleaning and pretreatment, apply manufacturer's standard 2-coat baked enamel finish consisting of prime coat and thermosetting topcoat, with not less than 1.0-mil (0.03 mm) dry film thickness for topcoat. Comply with paint manufacturer's instructions for application and baking to achieve a minimum dry film thickness of 2.0 mils (0.05 mm).
1. Color and Gloss: As indicated by reference to manufacturer's standard color and sheen designations.
  2. Color and Gloss: Match Architect's sample.
  3. Color and Gloss: As selected by Architect from manufacturer's standard choices for color and gloss.
- G. High Performance Organic Coating: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.
1. Fluorocarbon 2-Coat Coating System: Manufacturer's standard 2-coat, thermo-cured system composed of specially formulated inhibitive primer and fluorocarbon color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; comply with AAMA 605.2.
  2. Color and Gloss: As indicated by reference to manufacturer's standard color and sheen designations.
  3. Color and Gloss: Match Architect's sample.
  4. Color and Gloss: As selected by Architect from manufacturer's standard colors and gloss.
- H. Protect shop finishes from damage due to shipping, handling, and exposures prior to application of field finish or prior to time of substantial completion where shop finish is the final finish.

### PART 3 - EXECUTION

#### 3.1 INSPECTION

- A. Inspect openings before beginning installation. Verify that rough or masonry openings are correct and the sill plate is level.

1. Masonry surfaces shall be visibly dry and free of excess mortar, sand and other construction debris.
2. Wood frame walls shall be dry, clean, sound, and well-nailed, free of voids and without offsets at joints. Ensure that nail heads are driven flush with surfaces in the opening and within 3 inches (75 mm) of the opening.
3. Metal surfaces shall be dry, clean, free of grease, oil, dirt, rust and corrosion, and welding slag, and shall be without sharp edges or offsets at joints.

### 3.2 INSTALLATION

- A. Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators, and other components of the work.
- B. Set window units plumb, level and true to line, without warp or rack of frames or ventilators. Provide proper support and anchor securely to surrounding construction with approved fasteners.
  1. Separate zinc-coated steel and other corrodible surfaces from sources of corrosion of electrolytic action at points of contact with other materials, by inserting a bituminous coating or plastic sheet materials.
- C. Set sill members and other members in a bed of compound or with joint fillers or gaskets, as shown, to provide weathertight construction. Refer to the "Joint Sealer" Section of Division 7 for compounds, fillers, and gaskets to be installed concurrently with window units. Coordinate installation with wall flashings and other components of the work.
  1. Seal exterior joints between sash, trim and mullions watertight with sealant.
  2. Compounds, joint fillers, and gaskets to be installed after installation of window units are specified as work in another Section in Division 7.
  3. Repair abraded areas of factory applied finishes.

### 3.3 ADJUSTING

- A. Adjust operating ventilators and hardware to provide a tight fit at contact points and weatherstripping, for smooth operation and a weathertight closure.

### 3.4 CLEANING

- A. Clean surfaces promptly after installation of windows. Exercise care to avoid damage to the finish. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.
- B. Clean glass of preglazed units promptly after installation of windows. Comply with requirements of the "Glass and Glazing" Section for cleaning and maintenance.

### 3.5 PROTECTION

- A. Initiate and maintain protection and other precautions required through the remainder of the construction period, to ensure that, except for normal weathering, window units will be free of damage or deterioration at the time of Substantial Completion.

END OF SECTION 08510

## SECTION 088000 - GLAZING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
  - 1. Windows, exterior.
  - 2. Doors, exterior
- B. Related Sections:
  - 1. Division 08 Section " Hollow Doors
  - 2. Division 08 Section " Steel Windows

## 1.3 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Interspace: Space between lites of an insulating-glass unit.

## 1.4 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Design glass, including comprehensive engineering analysis according to [ASTM E 1300] [ICC's 2003 International Building Code] by a qualified professional engineer, using the following design criteria:
  - 1. Design Wind Pressures: 100 mph.

2. Design Snow Loads: As indicated on Drawings.
  3. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.
  4. Sloped Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass to resist each of the following combinations of loads:
    - a. Outward design wind pressure minus the weight of the glass. Base design on glass type factors for short-duration load.
    - b. Inward design wind pressure plus the weight of the glass plus half of the design snow load. Base design on glass type factors for short-duration load.
    - c. Half of the inward design wind pressure plus the weight of the glass plus the design snow load. Base design on glass type factors for long-duration load.
  5. Glass Type Factors for Wired, Patterned, and Sandblasted Glass:
    - a. Long-Duration Glass Type Factor for Wired Glass: 0.3.
  6. Probability of Breakage for Sloped Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass for a probability of breakage not greater than 0.001.
  7. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch (25 mm), whichever is less.
  8. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

## 1.5 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
1. Testing will not be required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
  2. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
  3. Test no fewer than eight Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
  4. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
  5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

## 1.6 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Glass Samples: For each type of the following products; 12 inches (300 mm) square.
  - 1. Coated glass.
  - 2. Wired glass.
- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- D. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Qualification Data: For installers.
- F. Product Certificates: For glass and glazing products, from manufacturer.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for tinted glass, coated glass, and insulating glass,.
- H. Preconstruction adhesion and compatibility test report.
- I. Warranties: Sample of special warranties.

## 1.7 QUALITY ASSURANCE Retain option in first paragraph below only if products listed in Part 2 for sputter-coated, low-e-coated, insulating-glass units are those of a manufacturer with a certified fabricator program. When this Section was updated, Guardian and PPG had certified fabricator programs.

- A. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- B. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
- D. Source Limitations for Glass: Obtain clear float glass, tinted float glass, coated float glass, laminated glass, and from single source from single manufacturer for each glass type.
- E. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.
- F. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
  2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."
  3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
  4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- G. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F (250 deg C), and the fire-resistance rating in minutes.
- H. Mockups: Refer to "Submittals" in Section 085215 "Rehabilitation of Wood Windows."
- I. Preinstallation Conference: Conduct conference at Project site.
1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  2. Review temporary protection requirements for glazing during and after installation.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
  - B. Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.
- 1.9 PROJECT CONDITIONS
- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
    1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F (4.4 deg C).
- 1.10 WARRANTY
- A. Manufacturer's Special Warranty for Tinted-Glass or Coated-Glass Products: Manufacturer's standard form in which coated-glass manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and

cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer's Special Warranty on Laminated Glass: Manufacturer's standard form in which laminated-glass manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1. Warranty Period: 10 years from date of Substantial Completion.

C. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulating-glass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 GLASS PRODUCTS, GENERAL

A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.

1. Minimum Glass Thickness for Exterior Lites: Not less than 1/8 inch.

2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.

C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites 1/8 inch thick.

2. For laminated-glass lites, properties are based on products of construction indicated.

3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

## 2.2 GLASS PRODUCTS

- A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.
- B. Uncoated Tinted Float Glass (Type A – Light warm tint): Class 2, complying with other requirements specified.
  1. Products: Subject to compliance with requirements, provide the following:
    - a. PPG Industries, Inc.;
    - b. Vericon, Inc.
    - c. Old Castle.
  2. Thickness: 1/8 inch (3 mm)
  3. Tint Color: Bronze.
  4. Properties at 6.0 mm thickness:
    - a. U Value: 1.02 Winter Night; 0.93 Summer Daytime
    - b. Visible Light Transmittance: 53%
    - c. Ultraviolet light transmittance: 26%
    - d. Solar Heat Gain Coefficient: 0.63
    - e. Shading coefficient: 0.73
- C. Uncoated Tinted Float Glass (Type B – Medium warm tint): Class 2, complying with other requirements specified.
  1. Products: Subject to compliance with requirements, provide the following:
    - a. PPG Industries, Inc.;
    - b. Vericon, Inc.
    - c. Old Castle.
  2. Thickness: 1/8 inch (3 mm)
  3. Tint Color: Bronze.
  4. Properties at 6.0 mm thickness:
    - a. U Value: 1.04 Winter night, 0.94 Summer daytime.
    - b. Visible Light Transmittance: 21%
    - c. Ultraviolet light transmittance: 7%
    - d. Solar Heat Gain Coefficient: 0.40
    - e. Shading coefficient: 0.46
- D. Obscured Glass:

1. Clear float glass units with uniform acid-etched surface to provide translucent panel, matching Architect's sample.
  2. Temper glass panel after etching.
- E. Patterned Wired Glass: ASTM C 1036, Type II, Class 1 (clear), Form 2, Quality-Q6, Finish F1 (patterned one side), Mesh M1 (diamond).
1. Match existing adjacent pattern and mesh.
  2. Thickness: 1/4 inch (6 mm).

### 2.3 LAMINATED GLASS

- A. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
1. Construction: Laminate glass with polyvinyl butyral interlayer or cast-in-place and cured-transparent-resin interlayer to comply with interlayer manufacturer's written recommendations.
  2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
  3. Interlayer Color: Clear unless otherwise indicated.
- B. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Laminated-Glass Types" Article.

### 2.4 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.
1. Match existing – Basis of Design: Velux "VS" Skylight Unit, Model Number 304, manufactured by Velux-America, or accepted equal. Where applicable, use Velux EKL Combi-Flashing.
- B. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Insulating-Glass Types" Article.

### 2.5 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
1. EPDM complying with ASTM C 864.
  2. Silicone complying with ASTM C 1115.
  3. Thermoplastic polyolefin rubber complying with ASTM C 1115.

- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned EPDM, silicone, or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing..

## 2.6 GLAZING SEALANTS

### A. General:

1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. VOC Content: For sealants used inside of the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D.
4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

### B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Products: Subject to compliance with requirements, [provide the following] [provide one of the following] [available products that may be incorporated into the Work include, but are not limited to, the following]:
  - a. BASF Building Systems; Omniseal 50.
  - b. Dow Corning Corporation; [791] [795].
  - c. GE Advanced Materials - Silicones; [SilPruf NB SCS9000] [UltraPruf II SCS2900].
  - d. May National Associates, Inc.; Bondaflex Sil 295.
  - e. Pecora Corporation; [864] [895] [898].
  - f. Polymeric Systems, Inc.; PSI-641.
  - g. Sika Corporation, Construction Products Division; SikaSil-C995.
  - h. Tremco Incorporated; [Spectrem 2] [Spectrem 3].

## 2.7 GLAZING PUTTY

- A. Glazing Putty: Oil-based conventional putty.

## 2.8 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

## 2.9 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

## 2.10 MONOLITHIC-GLASS TYPES

- A. Glass Type G1: Tinted float glass.
  - 1. Type A or Type B, as selected by mockup
- B. Glass Type G3 (for Windows 119, 120, 121, 122, and 123): Obscured glass.
  - 1. Thickness: 1/8 inch (3 mm).
- C. Glass Type G4: Clear float glass.
  - 1. Basis-of-Design Product (for interior applications): Subject to compliance with requirements, provide Bendheim Light Restoration Glass or comparable product.
- D. Glass Type G5 (for Skylight over Stair 1): Patterned wired glass.
  - 1. Thickness: 6.0 mm.

## 2.11 LAMINATED-GLASS TYPES

- A. Glass Type [G2]: Tinted laminated glass with two plies of float glass with outer ply Class 2 (tinted) and inner ply Class 1 (clear).
  - 1. Thickness of Each Glass Ply: 3.0 mm.
  - 2. Interlayer Thickness: [0.060 inch (1.52 mm)] [0.090 inch (2.29 mm)].
  - 3. Provide safety glazing labeling.

## 2.12 INSULATING-GLASS TYPES

- A. Glass Type [for Skylight above Room 204]: Low-e-coated, clear insulating glass.

1. Overall Unit Thickness: 5/8 inch (16 mm).
2. Thickness of Each Glass Lite: 1/8 inch (6.0 mm).
3. Outdoor Lite: Fully tempered float glass.
4. Interspace Content: Argon.
5. Indoor Lite: Fully tempered float glass.
6. Low-E Coating: Pyrolytic or sputtered on second surface.
7. Provide safety glazing labeling.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
  1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  2. Presence and functioning of weep systems.
  3. Minimum required face and edge clearances.
  4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

#### 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- H. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

#### 3.4 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces. Purpose is to anchor glass lite into wooden frame. Allow sealant to cure before proceeding.
- C. Cut or trim excess sealant.
- D. Place glazing putty and tool exposed surfaces of putty to provide a substantial wash away from glass.

#### 3.5 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 088000

## SECTION 099113 - EXTERIOR PAINTING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
  - 1. Steel and iron railings and hardware.
  - 2. Sheet metal roofing
  - 3. Galvanized metal cornice, belt course, pilaster caps, and brackets.
  - 4. Stone pilaster caps.
  - 5. Wood eaves, trim, and bracket ends.
  - 6. Wood windows and doors.
- B. Related Sections include the following:
  - 1. Division 05 Sections for shop priming of metal substrates with primers specified in this Section.
  - 2. Division 07 "Sheet Metal Roofing" for surface preparation and shop coating of sheet metal roofing.

## 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
  - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

## 1.4 QUALITY ASSURANCE

## A. MPI Standards:

1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

## 1.5 DELIVERY, STORAGE, AND HANDLING

## A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

## 1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
  1. Quantity: Furnish an additional **5** percent, but not less than **1 gal. (3.8 L)** of each material and color applied.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Benjamin Moore & Co.
  2. Columbia Paint & Coatings.
  3. Duron, Inc.

4. McCormick Paints.
5. Sherwin-Williams Company (The).

## 2.2 PAINT, GENERAL

### A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

### B. Colors: **As indicated on drawings.**

## 2.3 METAL PRIMERS

- A. Quick-Drying Alkyd Metal Primer: MPI #76.
- B. Cementitious Galvanized-Metal Primer: MPI #26.
- C. Zinc-Tin Alloy-Coated Steel Primer

## 2.4 WOOD PRIMERS

- A. Exterior Latex Wood Primer: MPI #6.

## 2.5 EXTERIOR LATEX PAINTS

- A. Exterior Latex (Semigloss): MPI #11 (Gloss Level 5).

## 2.6 EXTERIOR ZINC-TIN ALLOY-COATED STEEL PAINTS

- A. Zinc-Tin Alloy-Coated Steel finish coat, red oxide color.

## 2.7 QUICK-DRYING ENAMELS

- A. Quick-Drying Enamel (Semigloss): MPI #81 (Gloss Level 5).

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
  - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

## 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
  - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Stone Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.
- E. Steel or Iron Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

## G. Wood Substrates:

1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

## 3.3 APPLICATION

## A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

## B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

## C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

## D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

## 3.4 FIELD QUALITY CONTROL

## A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance of paint materials with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

## 3.5 CLEANING AND PROTECTION

## A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by COTR, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 EXTERIOR PAINTING SCHEDULE

- A. Stone Substrates:
  - 1. Latex System: MPI EXT 4.1A.
    - a. Topcoat: (2) layers of Exterior latex **semigloss**.
- B. Steel or Iron Substrates:
  - 1. Quick-Drying Enamel System: MPI EXT 5.1A.
    - a. Prime Coat: Quick-drying alkyd metal primer.
    - b. Intermediate Coat: Quick-drying enamel matching topcoat.
    - c. Topcoat: Quick-drying enamel **semigloss**.
- C. Zinc-Tin Alloy-Coated Steel Roofing Substrates:
  - 1. Zinc-Tin Alloy-Coated Steel System:
    - a. Prime Coat: Zinc-Tin Alloy-Coated Steel primer.
    - b. Topcoat: Zinc-Tin Alloy-Coated Steel finish coat, red oxide color.
  - 2. Field Painting:
    - a. As soon as possible after installation of zinc-tin alloy-coated steel roofing, paint exposed surfaces of zinc-tin alloy-coated steel with one coat of zinc-tin alloy-coated steel primer and one coat of zinc-tin alloy-coated steel finish coat, red oxide color.
    - b. Apply each coat at a dry film thickness of not less than 2.5 mils (0.06 mm).
    - c. Comply with manufacturer's written instructions.
- D. Galvanized-Metal Substrates:
  - 1. Latex System: MPI EXT 5.3A.
    - a. Prime Coat: Cementitious galvanized-metal primer.
    - b. Intermediate Coat: Exterior latex matching topcoat.
    - c. Topcoat: Exterior latex **semigloss**.
- E. Dressed Lumber Substrates: Including **architectural woodwork, windows and doors**.
  - 1. Latex System: MPI EXT 6.3L.

- a. Prime Coat: Exterior latex wood primer.
- b. Intermediate Coat: Exterior latex matching topcoat.
- c. Topcoat: Exterior latex **semigloss**.

END OF SECTION 099113

## SECTION 321216 - ASPHALT PAVING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Hot-mix asphalt paving.
2. Hot-mix asphalt patching.
3. Hot-mix asphalt paving overlay.
4. Asphalt surface treatments.
5. Pavement-marking paint.
6. Cold milling of existing hot-mix asphalt pavement.

- B. Related Sections include the following:

1. Division 32 Section "Concrete Paving Joint Sealants" for joint sealants and fillers at paving terminations.

## 1.3 DEFINITIONS

- A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

- B. DOT: Department of Transportation.

## 1.4 SYSTEM DESCRIPTION

- A. Provide hot-mix asphalt paving according to materials, workmanship, and other applicable requirements of standard specifications of state or local DOT.

1. Standard Specification: DDOT

## 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

- B. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.

- C. Job-Mix Designs: For each job mix proposed for the Work.
- D. Shop Drawings: Indicate pavement markings, lane separations, and defined parking spaces. Indicate, with international graphics symbol, spaces dedicated to people with disabilities.
- E. Samples: For each paving fabric, 12 by 12 inches minimum.
- F. Qualification Data: For manufacturer.
- G. Material Test Reports: For each paving material.
- H. Material Certificates: For each paving material, signed by manufacturers.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer.
  - 1. Manufacturer shall be a paving-mix manufacturer registered with and approved by authorities having jurisdiction or the DOT of the state in which Project is located.
- B. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated, as documented according to ASTM E 548.
- C. Regulatory Requirements: Comply with DDOT standards for asphalt paving work.
- D. Asphalt-Paving Publication: Comply with AIMS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."
- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
  - 1. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
  - 2. Review condition of subgrade and preparatory work.
  - 3. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
  - 4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

## 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
  - 1. Prime and Tack Coats: Minimum surface temperature of 60 deg F.
  - 2. Slurry Coat: Comply with weather limitations of ASTM D 3910.
  - 3. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
  - 4. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F.

## PART 2 - PRODUCTS

### 2.1 AGGREGATES

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or properly cured, crushed blast-furnace slag.
- C. Fine Aggregate: ASTM D 1073, sharp-edged natural sand or sand prepared from stone, gravel, properly cured blast-furnace slag, or combinations thereof.
  - 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.
- D. Mineral Filler: ASTM D 242, rock or slag dust, hydraulic cement, or other inert material.

### 2.2 ASPHALT MATERIALS

- A. Asphalt Binder: AASHTO MP 1, PG 64-22.
- B. Asphalt Cement: ASTM D 3381 for viscosity-graded material.
- C. Tack Coat: ASTM D 977 or AASHTO M 140, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- D. Water: Potable.

## 2.3 AUXILIARY MATERIALS

- A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.
- B. Sand: ASTM D 1073, Grade Nos. 2 or 3.
- C. Paving Geotextile: AASHTO M 288, nonwoven polypropylene; resistant to chemical attack, rot, and mildew; and specifically designed for paving applications.
- D. Joint Sealant: ASTM D 3405, hot-applied, single-component, polymer-modified bituminous sealant.
- E. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, with drying time of less than 3 minutes.
  - 1. Color: As indicated.
- F. Wheel Stops: Precast, air-entrained concrete, 2500-psi minimum compressive strength, 4-1/2 inches high by 9 inches wide by 72 inches long. Provide chamfered corners and drainage slots on underside and holes for anchoring to substrate.
  - 1. Dowels: Galvanized steel, 3/4-inch diameter, 10-inch minimum length.

## 2.4 MIXES

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and designed according to procedures in AIMS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types."
  - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
  - 2. Provide mixes complying with composition, grading, and tolerance requirements in ASTM D 3515 for the following nominal, maximum aggregate sizes:
    - a. Base Course: 1 inch.
    - b. Surface Course: 1/2 inch.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.

### 3.2 COLD MILLING

- A. Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.
1. Mill to a depth of 2 inches.
  2. Mill to a uniform finished surface free of gouges, grooves, and ridges.
  3. Control rate of milling to prevent tearing of existing asphalt course.
  4. Repair or replace curbs, manholes, and other construction damaged during cold milling.
  5. Excavate and trim unbound-aggregate base course, if encountered, and keep material separate from milled hot-mix asphalt.
  6. Transport milled hot-mix asphalt to asphalt recycling facility.
  7. Keep milled pavement surface free of loose material and dust.

### 3.3 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompress existing unbound-aggregate base course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.
1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

### 3.4 REPAIRS

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.
1. Clean cracks and joints in existing hot-mix asphalt pavement.
  2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
  3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

### 3.5 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
1. Mix herbicide with prime coat if formulated by manufacturer for that purpose.
- C. Prime Coat: Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal./sq. yd. Apply enough material to penetrate and seal but not flood surface. Allow prime coat to cure for 72 hours minimum.
1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
  2. Protect primed substrate from damage until ready to receive paving.
- D. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.
1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

### 3.6 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
  2. Place hot-mix asphalt surface course in single lift.
  3. Spread mix at minimum temperature of 250 deg F.
  4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise indicated.
  5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.

- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

### 3.7 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
  - 1. Clean contact surfaces and apply tack coat to joints.
  - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
  - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
  - 4. Construct transverse joints as described in AIMS-22, "Construction of Hot Mix Asphalt Pavements."
  - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
  - 6. Compact asphalt at joints to a density within 2 percent of specified course density.

### 3.8 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
  - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
  - 1. Average Density: 96 percent of reference laboratory density according to AASHTO T 245, but not less than 94 percent nor greater than 100 percent.
  - 2. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

### 3.9 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
  - 1. Base Course: Plus or minus 1/2 inch.
  - 2. Surface Course: Plus 1/4 inch, no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
  - 1. Base Course: 1/4 inch.
  - 2. Surface Course: 1/8 inch.
  - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

### 3.10 SURFACE TREATMENTS

- A. Fog Seals: Apply fog seal at a rate of 0.10 to 0.15 gal./sq. yd. to existing asphalt pavement and allow to cure. With a fine sand, lightly dust areas receiving excess fog seal.
- B. Slurry Seals: Apply slurry coat in a uniform thickness according to ASTM D 3910 and allow to cure.
  - 1. Roll slurry seal to remove ridges and provide a uniform, smooth surface.

### 3.11 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow paving to age for 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.
  - 1. Broadcast glass spheres uniformly into wet pavement markings at a rate of 6 lb/gal.

## 3.12 WHEEL STOPS

- A. Securely attach wheel stops into pavement with not less than two galvanized steel dowels embedded at one-quarter to one-third points. Securely install dowels into pavement and bond to wheel stop. Recess head of dowel beneath top of wheel stop.

## 3.13 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
  1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- D. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- E. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
  1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
  2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
    - a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
    - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

## 3.14 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
  1. Do not allow excavated materials to accumulate on-site.

END OF SECTION 321216

**ATTACHMENT J.1.4**

**STANDARD CONTRACT PROVISIONS  
FOR USE WITH SPECIFICATIONS  
FOR DISTRICT OF COLUMBIA GOVERNMENT  
CONSTRUCTION PROJECTS, REVISED MARCH 2011**

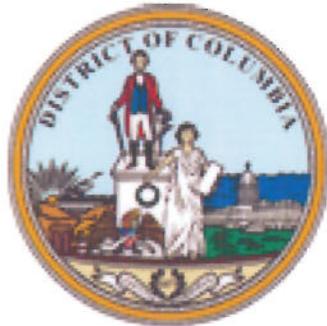
**ATTACHMENT J.1.4**

**STANDARD CONTRACT PROVISIONS  
FOR USE WITH SPECIFICATIONS  
FOR DISTRICT OF COLUMBIA GOVERNMENT  
CONSTRUCTION PROJECTS, REVISED MARCH 2011**

Government of the District of Columbia

# **STANDARD CONTRACT PROVISIONS**

For Use With  
Specifications for  
District of Columbia Government  
Construction Projects  
(Revised March 2011)



PLEASE RETAIN FOR YOUR REFERENCE

**INDEX**

**INSTRUCTIONS TO BIDDERS**

	<b>PAGE</b>
Qualification of Bidders .....	5
Bid Documents .....	5
Examination of Bid .....	5
Preparation for Bids.....	5
Error in Bids .....	5
Labor and Material Not Furnished by District .....	5
Addenda and Interpretations .....	6
Alternate Bids .....	6
Bids for All or Part .....	6
Price Schedule Interpretation .....	6
Corrections .....	6
Bond Requirements.....	6
A. Bid Guaranty .....	6
B. Performance Bond .....	7
C. Payment Bond .....	7
D. Bond Source .....	7
Signature to Bids.....	7
Marking and Mailing Bids .....	8
Receiving Bids, Modifications or Withdrawals .....	8
Withdrawal of Bids .....	8
Opening of Bids .....	8
Award or Rejection.....	8
Cancellation of Award.....	9
Contract and Bond .....	9

**GENERAL PROVISIONS**

Definitions .....	10
Specifications and Drawings .....	10
Changes .....	11
A. Designated Change Orders .....	11
B. Other Change Orders .....	11
C. General Requirements .....	11
D. Change Order Breakdown .....	11

**EQUITABLE ADJUSTMENT OF CONTRACT TERMS**

Differing Site Conditions .....	12
Suspension of Work .....	13

## INDEX (Continued)

	PAGE
Significant Changes in Character of Work .....	13
Termination-Delays.....	14
Termination for Convenience.....	15
Disputes.....	19
Payments to Contractor.....	21
Transfer or Assignment.....	21
Material and Workmanship.....	21
Surplus Material Use.....	22
District Material.....	22
Plant.....	22
Capability of Workers.....	22
Conformity of Work and Materials.....	23
Unauthorized Work and Materials.....	23
Inspection and Acceptance .....	23
Superintendence by Contractor .....	24
Permits and Responsibilities .....	24
Indemnification .....	24
Protection Against Trespass .....	24
Conditions Affecting the Work .....	24
A. General .....	24
B. Work and Storage Space .....	24
C. Work on Sundays, Legal Holidays and at Night .....	24
D. Existing Features .....	24
E. Utilities and Vaults .....	25
F. Site Maintenance .....	25
G. Private Work .....	25
H. District of Columbia Noise Control Act of 1977.....	25
Other Contracts .....	25
Patent Indemnity.....	26
Additional Bond Security .....	26
Covenant Against Contingency Fees.....	26
Appointment of Attorney.....	26
District Employees Not to Benefit.....	26
Waiver.....	27
Buy American.....	27
A. Agreement.....	27
B. Domestic Construction Material .....	27
C. Domestic Component .....	27

D. Foreign Material.....	27
Taxes	
A. Federal Excise Taxes .....	27
B. Sales and Use Taxes .....	27
Suspension of Work .....	28
Safety Program.....	28
A. General .....	28
B. Contractor's Program Submission .....	29
Retention of Records .....	29
Recovery of Debts Owed the District .....	29
LABOR PROVISIONS Davis-Bacon Act.....	30
Minimum Wages .....	30
B. Withholding .....	30
C. Payroll and Basic Records .....	30
Convict Labor .....	31
Apprentices and Trainees .....	31
A. Apprentices .....	31
B. Trainees .....	31
C. Requirements.....	31
Contract Work Hours and Safety Standards Act .....	32
A. Overtime Basis .....	32
B. Liability for Unpaid Wages .....	33
C. Disputes .....	33
D. Violation Penalty .....	34
E. Health and Safety Standards .....	34
Copeland Act — .....	34
A. Definition .....	34
B. Weekly Compliance Statement .....	34
C. Payrolls and Records .....	34
D. Payroll Deductions Not Subject to Secretary of Labor Approval .....	35
E. Payroll Deductions Subject to Secretary of Labor Approval .....	36
F. Applications for Secretary of Labor Approval .....	36
G. Action by Secretary of Labor Upon Applications .....	36
H. Prohibited Payroll Deductions .....	36
I. Methods of Payment of Wages .....	37
Non-segregated Facilities — Termination and Debarment .....	37
Form - Weekly Statement of Compliance.....	38
Form – Fringe Benefits Statement .....	39

## INSTRUCTIONS TO BIDDERS

### (Construction)

**ARTICLE 1. QUALIFICATIONS OF BIDDERS**—Bidders shall have the capability to perform classes of work contemplated, have the necessary plant and sufficient capital to execute the work properly within specified time.

Any Bidder who has not performed comparable work for the District within the last 5 years shall submit, at the Contracting Officer's discretion, a certified statement of his organization, plant, manpower, financial resources, and construction experience that he considers will qualify him for proposed contract. This information shall be certified by a Certified Public Accountant for contracts over \$25,000 and submitted on the AGC Form "Standard Questionnaires and Financial Statement for Bidders", obtainable from the Associated General Contractors of America, Inc., at 1957 "B" Street, N. W., Washington, D. C., 20008, or on an approved equivalent form. This requirement is not needed if the bidder has submitted such a statement to the District within a year prior to bid opening date, but will be required if bidder has previously submitted such a statement under one company name or organization or joint venture and is now bidding under another company name or organization or joint venture. A certified statement of prequalification approval by another jurisdiction may be considered as an alternative to foregoing procedure. A bidder shall submit a supplemental statement if requested by the District.

**ARTICLE 2. BID DOCUMENTS**—The Specifications (including all documents referenced therein and all documents attached thereto), drawings and addenda which form the basis of any bid shall be considered as part thereof and will form part of the bid. Copies of these documents will be furnished to or made available for the inspection of prospective bidders by that office indicated in the advertisement or invitation.

**ARTICLE 3. EXAMINATION OF BID DOCUMENTS AND SITE OF WORK**—Each Bidder shall carefully examine the site of the proposed work and the bid documents and fully acquaint himself with conditions relating to construction and labor so that he may fully understand the facilities, difficulties and restrictions attending the execution of the work under the bid documents, and he shall judge for and satisfy himself as to conditions to be encountered affecting the character, quality and quantity of the work to be performed and materials to be furnished and to the requirements of the bid documents. Failure to do so will be at the Bidder's own risk and shall not relieve him from any obligation under his bid or contract.

**ARTICLE 4. PREPARATION FOR BIDS**—The bid form furnished in the bid proposal and specifications shall be used in strict compliance with the requirements of the Invitation and Supplemental Instructions to Bidders in the specifications. Special care shall be exercised in the preparation of bids. Bidders must make their own estimates of the facilities and difficulties to be anticipated upon execution of the contract, including local conditions, uncertainty of weather and all other contingencies. All designations and prices shall be fully and clearly set forth in the bid submission. ALL PRICES SHALL BE INSERTED IN FIGURES TYPED OR PRINTED LEGIBLY ON THE BID FORM. All corrections on the bid documents must be initialed by the person signing the bid form.

**ARTICLE 5. ERROR IN BIDS**—Bidders or their authorized agents are expected to examine all bid documents and any addenda thereto, and all other instructions pertaining to the work which will be open to their inspection. Failure to do so will be at the bidder's own risk, and will not constitute reason for relief on plea of error in the bid. IN CASE OF ERROR IN THE EXTENSION OF PRICES IN THE BID, UNIT PRICES WILL GOVERN.

The bidder must submit his plea of error in writing to the Contracting Officer and must be prepared to document and prove his error.

**ARTICLE 6. LABOR AND MATERIAL NOT FURNISHED BY DISTRICT**—The District will not furnish any labor, material or supplies unless a provision to do so is included in the contract documents.

**ARTICLE 7. ADDENDA AND INTERPRETATIONS**—No oral interpretations of the meaning of the drawings, specifications or other bid documents will be made to any bidder. Verbal clarification will not be binding on the District. All requests must be in writing and addressed to the Contracting Officer responsible for administering the contract. Requests for interpretations of bid documents must be received by the Contracting Officer not later than 10 days prior to bid opening date. All changes to the bid documents will be made by addenda mailed to all prospective bidders, who have obtained copies of the bid documents, not later than 7 days before bid opening date. In case of discrepancy among addenda, a later dated addendum has priority over earlier dated addenda. It shall be the bidder's responsibility to make inquiry as to any or all addenda issued, and failure of any prospective bidder to receive any such addenda issued by the Contracting Officer shall not relieve the bidder from any obligation under his bid as submitted. Bidders must acknowledge receipt of all addenda on the Bid Form; failure to do so may result in rejection of bid.. All addenda issued shall become part of the bid and contract documents. -

**ARTICLE 8. ALTERNATE BIDS**—Alternate bids will not be considered unless called for in the Bid Form.

**ARTICLE 9. BIDS FOR ALL OR PART**—Where bids are not qualified by specific limitations, the District reserves the right to award all or any of the items according to its best interests.

**ARTICLE 10. PRICE SCHEDULE INTERPRETATION**—Quantities appearing in the Price Schedule are approximate only and are prepared for the comparison of bids. Payment will be made only for actual material requirements accepted and for work performed and accepted. Schedule quantities may be increased., decreased or omitted and there shall be no adjustment in contract unit prices except as provided, and except for such materials actually purchased or work actually performed prior to notification of the change in items affected.

The price for any item, unless otherwise specified, shall include full compensation for all materials, tests, samples, manufacturers' guaranties, tools, equipment, labor and incidental work needed to complete specified items. Prices without exception shall be net, not subject to discount, and shall include all royalties and costs arising from patents, proprietary items, trademarks and copyrights.

**ARTICLE 11. CORRECTIONS**—Erasures and other changes in bids must be explained or noted over the signature of the bidder.

**ARTICLE 12. BOND REQUIREMENTS**

- A. BID GUARANTY**—On all bids of \$100,000.00 or more, security is required to insure the execution of the contract. No bid will be considered unless it is so guaranteed. Each bidder must furnish with his bid either a Bid Bond (Form No. DC 2640-5), with good and sufficient sureties, a certified check payable to the order of the Treasurer of the District of Columbia (uncertified check will not be accepted), negotiable United States bonds (at par value), or an irrevocable letter of credit in an amount not less than five percent (5%) of the amount of his bid, as a guaranty that he Will not withdraw said bid within the period specified therein after the opening of the same; or, if no period be specified, within ninety (90) days after said opening, and will, within the period specified therefore, or, if no period be specified, within ten (10) days, after the prescribed forms are forwarded to him for execution (or within any extension of time which may be granted by the officer to whom the bid was addressed) execute and deliver a written contract on the standard District form in accordance with bid as accepted and give bond with good and sufficient sureties, as specified below for the faithful performance and proper fulfillment of such contract and payment of laborers and material men as required by law or, in the event of the withdrawal of said bid within the period above stated, or the failure to enter into such contract and give such bond within the time above stated, that he will pay to the District the difference between the amount specified in said bid and the amount for which the District may procure the required work, if the latter amount be in excess of the former.

In case security is in the form of a certified check or United States bonds, the District may make such disposition of the same as will accomplish the purpose for which

submitted. Certified checks may be held uncollected at the bidder's risk. Certified checks and United States bonds will be returned to the unsuccessful bidders after award of contract and to successful bidders after the signing of prescribed forms of contract and bonds. Guaranty bonds will be returned only upon written application.

**B. PERFORMANCE BOND**—For any construction contract exceeding \$100,000.00, a Performance Bond (Form No. DC 2640-7) shall be required in a penal amount equal to one hundred percent (100%) of the contract price at time of award. Additional performance bond protection shall be required in connection with any modification effecting an increase in price under any contract for which a bond is required pursuant to the above if:

1. The modification is for new or additional work which is beyond the scope of the existing contract; or,
2. The modification is pursuant to an existing provision of the contract and is expected to increase the contract price by \$50,000 or twenty-five percent (25%) of the original total contract price, whichever is less.

The penal amount of the bond protection shall be increased so that the total performance bond protection is one hundred percent (100%) of the contract price as revised by both the modification requiring such additional protection and the aggregate of any previous modification. The increased penal amount may be secured either by increasing the bond protection provided by existing surety or sureties or by obtaining an additional performance bond from a new surety.

**C. PAYMENT BOND**— In accordance with the provisions of Section 504(b) of the District of Columbia Procurement Practices Act of 1985, payment bonds shall be required in an amount not less than fifty percent (50%) of the total amount payable by the terms of the contract.

Additional payment protection shall be required in connection with any notification effecting an increase in price under any contract for which a bond is required pursuant to the above if —

1. The modification is for new or additional work which is beyond the scope of the existing contract; or
2. The modification is pursuant to an existing provision of the contract and is expected to increase the contract price by \$50,000 or twenty-five percent (25%) of the original total contract price, whichever is less.

The penal amount of the additional bond protection shall generally be such that the total payment bond protection is fifty percent (50%) of the contract price as revised by both the modification requiring such additional protection, and the aggregate of any previous modifications. The additional protection may be secured either by increasing the bond protection provided by the existing surety or sureties or by obtaining an additional payment bond from a new surety.

**D. BOND SOURCE**—The bonds may be obtained from any surety company authorized by the U.S. Treasury Department as acceptable sureties on Federal Bonds and authorized to transact business in the District of Columbia by the Director, Department of Insurance, Securities and Banking.

**ARTICLE 13. SIGNATURE TO BIDS**—Each bid must show the full business address of the bidder and be signed by him with his usual signature. Bids by partnerships must be signed with the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the person signing. Bids by corporations must be signed with the name of the corporation, followed by the signature and

designation of the President or Vice President and attested by the Secretary of the corporation or other persons authorized to bind the corporation and the corporate seal affixed thereto. If bid is signed by other than the President or Vice President, evidence of authority to so sign must be furnished in the form of an extract of minutes, of a meeting of the Board of Directors or extract of bylaws certified by the Corporate Secretary and corporate seal affixed thereto. The names of all persons signing shall be typed or printed below the signatures. A bid by a person who affixes to his signature the word "President", "Vice President", "Secretary", "Agent", or other designation, without disclosing his principal, may be held personally to the bid. Bids submitted by a joint venture must be signed by all authorized parties to the joint venture.

**ARTICLE 14. MARKING AND MAILING BIDS**—Bids, addenda acknowledgment, and bid guaranty must be securely sealed in suitable envelopes, addressed and marked on the outside with the name of the bidder, invitation number and date of opening.

**ARTICLE 15. RECEIVING BIDS, MODIFICATIONS OR WITHDRAWALS**—Bids received prior to the time set for opening will be securely kept unopened. The officer whose duty it is to open them will decide when the specified time has arrived and no bid received thereafter will be considered unless: (1) they are sent by registered mail or by certified mail for which an official dated post office stamp (postmark) on the original Receipt for Certified Mail has been obtained and it is determined by the District that the late receipt was due solely to delay in the mails for which the bidder was not responsible; or (2) if submitted by mail (or by telegram if authorized by the Contracting Officer), it is determined by the District that the late receipt was due solely to mishandling by the District after receipt at the District agency: Provided, that timely receipt at such agency is established upon examination of an appropriate date or time stamp or other documentary evidence of receipt within the control of such agency.

Bidders using certified mail are cautioned to obtain a receipt for certified mail showing legible, dated postmark and to retain such receipt against the chance that it will be required as evidence that a late bid was timely mailed. The only evidence acceptable in this matter is as follows: (1) where the Receipt of Certified Mail identifies the post office station of mailing, evidence furnished by the bidder which establishes, that the business day of the station ended at an earlier time, in which case the time of mailing shall be deemed to be last minute of the business day; or (2) an entry in ink on the Receipt for Certified Mail showing the time of mailing and the initials of postal employee receiving the item and making the entry, with appropriate written verification of such entry from the post office station of mailing, in which case the time of mailing, shall be the time shown in the entry. If the postmark on the original Receipt for Certified Mail does not show a date, the bid shall not be considered.

The time of mailing of late bids submitted by registered or certified mail shall be deemed to be the last minute of the date shown in the postmark on the registered mail receipt or registered mail wrapper or on the Receipt for Certified Mail unless the bidder furnishes evidence from the post office station of mailing which establishes an earlier time.

No responsibility will attach to the District or any of its officers or employees for the premature opening of a bid not properly addressed and identified. Unless specifically authorized, telegraphic bids will not be considered, but modifications, by telegram, of bids already submitted will be considered if received prior to the hour set for opening, but should not reveal the amount of the original or revised bid.

**ARTICLE 16. WITHDRAWAL OF BIDS**—Bids may be withdrawn on written or telegraphic request received from bidders prior to the time fixed for opening, provided the name of the bidder appears on the outside of the envelope containing the bid. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

**ARTICLE 17. OPENING OF BIDS**—At the time fixed for the opening of bids, their contents will be made public by the Office of Contracting and Procurement for the information of bidders and other properly interested persons.

**ARTICLE 18. AWARD OR REJECTION**—The Contract will be awarded to the lowest responsible Bidder complying with conditions of the bid documents, provided his bid is reasonable and it is in the best interest of the District to accept it. The Bidder, to whom award is made, will be notified by

the Contracting Officer at the earliest possible date. The District, however, reserves the right to reject any and all bids and to waive any informality in bids received whenever such rejection or waiver is in the best interest of the District.

If more than one bid be offered by any one party, by or in the name of his or their clerk, partner, or other person, all such bids may be rejected. This shall not prevent a Bidder from proceeding under Article 8 hereof, nor from quoting different prices on different qualities of material or different conditions of delivery. A supplier or material man who has quoted prices on materials to a Bidder is not thereby disqualified from quoting to other bidders or from submitting a bid directly for the materials or work.

Each Bidder shall submit a bid on all items in the Price Schedule; failure to bid on all items may result in bid rejection.

In addition to requirements for qualification of bidders as set forth in Article 1 hereof, and as determined by the District, proposals will be considered irregular and may be rejected by the Contracting Officer for any of, but not limited to, the following reasons:

- A. Incompetency, inadequate plant or insufficient capital as revealed by Bidder's statement on AGC or equivalent form.
- B. Evidence of collusion.
- C. Uncompleted work which might hinder or prevent proper and prompt execution and completion of work contemplated.
- D. Evidence that Bidder has not adequately considered all aspects of contemplated work.
- E. Failure to settle bills satisfactorily, claims and judgments due for labor and material on Bidder's contracts in force on bid opening date.
- F. Default under previous contracts.
- G. Unacceptable rating as listed on published government lists.
- H. Proposal submission on form other than that form furnished by District, or altered or partially detached form.
- I. Unauthorized additions, deletions, omissions, conditional bids, or irregularities which may make proposal incomplete or ambiguous in meaning.
- J. Failure to acknowledge all addenda issued.
- K. Failure to submit bid in the properly labeled receptacle at that location designated as the Office of Contracting and Procurement, Bid Room, Suite 700, 441 4<sup>th</sup> St., N.W., Washington, D.C. 20001 and prior to the time set for opening as governed by the Official Clock designated as such in that Bid Room.

**ARTICLE 19. CANCELLATION OF AWARDS**—The right is reserved to the District, without any liability upon the District, to cancel the award of any contract at any time prior to approval of a formal written contract signed by the Contractor and the Contracting Officer.

**ARTICLE 20. CONTRACT AND BOND**—The Bidder to whom award is made must, when required, enter into a written contract on the standard District form, with satisfactory security in the amount required (see Article 12) within the period specified, or no period be specified, within 10 days alter the prescribed forms are presented to him for signature.

**GENERAL PROVISIONS  
(Construction Contract)**

**ARTICLE 1. DEFINITIONS**

- A. "District" as used herein means the District of Columbia, a municipal corporation.
- B. "Mayor" as used herein means the elected head of the District as set forth in Public Law 93-198 dated December 24, 1973, Title 4, Part B, Section 422(1).
- C. "Contracting Officer" as used herein means the District official authorized to execute and administrate the Contract on behalf of the District.
- D. "Contract Documents" or "Contract" as used herein means Addenda, Contract Form, Instructions to Bidders, General Provisions, Labor Provisions, Performance and Payment Bonds, Specifications, Special Provisions, Contract Drawings, approved written Change Orders and Agreements required to acceptably complete the Contract, including authorized extensions thereof.

**ARTICLE 2. SPECIFICATIONS AND DRAWINGS**—The Contractor shall keep on the work site a copy of Contract drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the Contract drawings, or shown on the Contract drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both.

All Contract requirements are equally binding. Each Contract requirement, whether or not omitted elsewhere in the Contract, is binding as though occurring in any or all parts of the Contract. In case of discrepancy:

1. The Contracting Officer shall be promptly notified in writing of any error, discrepancy or omission, apparent or otherwise.
2. Applicable Federal and D. C. Code requirements have priority over: the Contract form, General Provisions, Change Orders, Addenda, Contract drawings, Special Provisions and Specifications.
3. The Contract form, General Provisions and Labor Provisions have priority over: Change Orders, Addenda, Contract drawings, Special Provisions and Specifications.
4. Change Orders have priority over: Addenda, Contract drawings and Specifications.
5. Addenda have priority over: Contract drawings, Special Provisions and Specifications. A later dated Addendum has priority over earlier dated Addenda.
6. Special Provisions have priority over: Contract drawings and other specifications.
7. Shown and indicated dimensions have priority over scaled dimensions.
8. Original scale drawings and details have priority over any other different scale drawings and details.
9. Large scale drawings and details have priority over small scale drawings and details.
10. Any adjustment by the Contractor without a prior determination by the Contracting Officer shall be at his own risk and expense. The Contracting Officer will furnish from time to time such detail drawings and other information as he may consider necessary, unless otherwise provided.

### ARTICLE 3. CHANGES

- A. DESIGNATED CHANGE ORDERS**—The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make any change in the work within the general scope of the Contract, including but not limited to changes
1. In the Contract drawings and specifications;
  2. In the method or manner of performance of the work;
  3. In the District furnished facilities, equipment, materials or services; or
  4. Directing acceleration in the performance of the work.

Nothing provided in this Article shall excuse the Contractor from proceeding with the prosecution of the work so changed.

- B. OTHER CHANGE ORDERS**—Any other written order or an oral order (which term as used in this Section (B) shall include direction, instruction, interpretation, or determination) from the Contracting Officer which causes any such change, shall be treated as a Change Order under this Article, provided that the Contractor gives the Contracting Officer written notice stating the date, circumstances and sources of the order and that the Contractor regards the order as a Change Order.
- C. GENERAL REQUIREMENTS**—Except as herein provided, no order, statement or conduct of the Contracting Officer shall be treated as a change under this Article or entitle the Contractor to an equitable adjustment hereunder. If any change under this Article causes an increase or decrease in the Contract's cost of, or the time required for, the performance of any part of the work under this Contract whether or not changed by any order, an equitable adjustment shall be made and the Contract modified in writing accordingly; provided, however, that except for claims based on defective specifications, no claim for any change under (B) above shall be allowed for any cost incurred more than 20 days before the Contractor gives written notice as therein required unless this 20 days is extended by the Contracting Officer and provided further, that in case of defective drawings and specifications, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with such defective drawings and specifications.

If the Contractor intends to assert a claim for an equitable adjustment under this Article, he must, within 30 days after receipt of a written Change Order under (A) above or the furnishing of a written notice under (B) above, submit to the Contracting Officer a written statement setting forth the general nature and monetary extent of such claim, unless this period is extended by the Contracting Officer. The statement of claim hereunder may be included in the notice under (B) above.

No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under the Contract.

- D. CHANGE ORDER BREAKDOWN**—Contract prices shall be used for Change Order work where work is of similar nature; no other costs, overhead or profit will be allowed.

Where Contract prices are not appropriate and the nature of the change is known in advance of construction, the parties shall attempt to agree on a fully justifiable price adjustment and/or adjustment of completion time.

When Contract prices are not appropriate, or the parties fail to agree on equitable adjustment, or in processing claims, equitable adjustment for Change Order work shall be per this Article and Article 4 and shall be based upon the breakdown shown in following

subsections 1. through 7. The Contractor shall assemble a complete cost breakdown that lists and substantiates each item of work and each item of cost.

1. **Labor**—Payment will be made for direct labor cost plus indirect labor cost such as insurance, taxes, fringe benefits and welfare provided such costs are considered reasonable. Indirect costs shall be itemized and verified by receipted invoices. If verification is not possible, up to 18 percent of direct labor costs may be allowed. In addition, up to 20 percent of direct plus indirect labor costs may be allowed for overhead and profit.
2. **Bond**—Payment for additional bond cost will be made per bond rate schedule submitted to the Office of Contracting and Procurement with the executed Contract.
3. **Materials**—Payment for cost of required materials will be F.O.B. destination (the job site) with an allowance for overhead and profit.
4. **Rented Equipment**—Payment for required equipment rented from an outside company that is neither an affiliate of, nor a subsidiary of, the Contractor will be based on receipted invoices which shall not exceed rates given in the current edition of the Rental Rate Blue Book for Construction Equipment published by Data Quest. If actual rental rates exceed manual rates, written justification shall be furnished to the Contracting Officer for consideration. No additional allowance will be made for overhead and profit. The Contractor shall submit written certification to the Contracting Officer that any required rented equipment is neither owned by nor rented from the Contractor or an affiliate of or subsidiary of the Contractor.
5. **Contractor's Equipment**— Payment for required equipment owned by the Contractor or an affiliate of the Contractor will be based solely on an hourly rate derived by dividing the current appropriate monthly rate by 176 hours. No payment will be made under any circumstances for repair costs, freight and transportation charges, fuel, lubricants, insurance, any other costs and expenses, or overhead and profit. Payment for such equipment made idle by delays attributable to the District will be based on one-half the derived hourly rate under this subsection.
6. **Miscellaneous**—No additional allowance will be made for general superintendence, use of small tools and other costs for which no specific allowance is herein provided.
7. **Subcontract Work**—Payment for additional necessary subcontract work will be based on applicable procedures in 1. through 6., to which total additional subcontract work up to an additional 10 percent may be allowed for the Contractor's overhead and profit.

#### **ARTICLE 4. EQUITABLE ADJUSTMENT OF CONTRACT TERMS**

The Contractor is entitled to an equitable adjustment of the contract terms whenever the following situations develop:

##### *Differing Site Conditions:*

- (1) During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the Contractor, upon discovering such conditions, shall promptly notify the Contracting Officer in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

- (2) Upon written notification, the Contracting Officer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly. The Contracting Officer will notify the Contractor of his/her determination whether or not an adjustment of the contract is warranted.
- (3) No contract adjustment which results in a benefit to the Contract will be allowed unless the Contractor has provided the required written notice.
- (4) No contract adjustment will be allowed under this clause for any effects caused on unchanged work.

*Suspension of Work Ordered by the Contracting Officer:*

- (1) If the performance of all or any portion of the work is suspended or delayed by the Contracting Officer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Contracting Officer in writing a request for equitable adjustment within seven (7) calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.
- (2) Upon receipt, the Contracting Officer will evaluate the Contractor's request. If the Contracting Officer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control or and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Contracting Officer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The Contracting Officer will notify the Contractor of his/her determination whether or not an adjustment of the contract is warranted.
- (3) No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.
- (4) No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term of condition of this contract.

*Significant Changes in the Character of Work:*

- (1) The Contracting Officer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the Contractor agrees to perform the work as altered.
- (2) If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Contracting Officer may determine to be fair and reasonable.

- (3) If the alterations or changes in quantities significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract.
- (4) The term "significant change" shall be construed to apply only to the following circumstances:
  - (a) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or
  - (b) When an item of work is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in the case of a decrease below 75 percent, to the actual amount of work performed.

**ARTICLE 5. TERMINATION-DELAYS**—If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in the Contract, or any extension thereof, or fails to complete said work within specified time, the District may, by written notice to the Contractor, terminate his right to proceed with the work or such part of the work involving the delay. In such event the District may take over the work and prosecute the same to completion, by contract or otherwise, and may take possession of and utilize in completing the work such materials, appliances, and plant as may have been paid for by the District or may be on the site of the work and necessary therefore. Whether or not the Contractor's right to proceed with the work is terminated, he and his sureties shall be liable for any liability to the District resulting from his refusal or failure to complete the work within the specified time.

If fixed and agreed liquidated damages are provided in the Contract and if the District does not so terminate the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until the work is completed or accepted.

The Contractor's right to proceed shall not be so terminated nor the Contractor charged with resulting damage if:

1. The delay in the completion the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to acts of God, acts of the public enemy, acts of the District in either its sovereign or contractual capacity, acts of another contractor in the performance of a contract with the District, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, climatic conditions beyond the normal which could be anticipated, or delays of subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and such subcontractors or suppliers (the term subcontractors or suppliers shall mean subcontractors or suppliers at any tier); and
2. The Contractor, within 10 days from the beginning of any such delay, (unless the Contracting Officer grants a further period of time before the date of final payment under the Contract) notifies the Contracting Officer in writing of the causes of delay.

The Contracting Officer shall ascertain the facts and the extent of the delay and extend the time for completing the work when, in his judgment, the findings of fact justify such an extension, and his findings of fact shall be final and conclusive on the parties, subject only to appeal as provided in Article 7 herein.

If, after notice of termination of the Contractor's right to proceed under the provisions of this Article, it is determined for any reason that the Contractor was not in default under the provisions of this Article, or that the delay was excusable under the provisions of this Article, the rights and

obligations of the parties shall be in accordance with Article 6 herein. Failure to agree to any such adjustment shall be a dispute concerning a question of fact within the meaning of Article 7 herein.

The rights and remedies of the District provided in this Article are in addition to any other rights and remedies provided by law or under the Contract.

The District may, by written notice, terminate the Contract or a portion thereof as a result of an Executive Order of the President of the United States with respect to the prosecution of war or in the interest of national defense. When the Contract is so terminated, no claim for loss of anticipated profits will be permitted.

#### **ARTICLE 6. TERMINATION FOR CONVENIENCE OF THE DISTRICT**

- A. The performance of work under the Contract may be terminated by the District in accordance with this Article in whole, or in part, whenever the Contracting Officer shall determine that such termination is in the best interest of the District. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.
- B. After receipt of a Notice of Termination, and except as otherwise directed by the Contracting Officer, the Contractor shall:
  1. Stop work under the Contract on the date and to the extent specified in the Notice of Termination.
  2. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the work under the Contract as is not terminated.
  3. Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination.
  4. Assign to the District, in the manner, at the times, and to the extent directed by the Contracting Officer, all of the right, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the District shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.
  5. Settle all outstanding liabilities and all claims arising out of such termination of orders or subcontracts, with the approval or ratification of the Contracting Officer to the extent he may require, which approval or ratification shall be final for all purposes of this Article.
  6. Transfer title to the District and deliver in the manner, at the times, and to the extent, if any, directed by the Contracting Officer
    - a. The fabricated or unfabricated parts, work in progress, completed work, supplies, and other material procured as a part of, or acquired in connection with, the performance of the work terminated by the Notice of Termination, and
    - b. The completed, or partially completed plans, drawings information and other property which, if the Contract had been completed, would have been required to be furnished to the District.
  7. Use his best efforts to sell, in the manner, at the terms, to the extent, and at the price or prices directed or authorized by the Contracting Officer, any property of the types referred to in 6 above provided, however, that the Contractor:
    - a. Shall not be required to extend credit to any purchaser, and

- b. May acquire any property under the conditions prescribed and at a price or prices approved by the Contracting Officer, and
  - c. Provided further, that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the District to the Contractor under the Contract or shall otherwise be credited to the price or cost of the work covered by the Contract or paid in such other manner as the Contracting Officer may direct.
- 8. Complete performance of such part of the work as shall not have been terminated by the Notice of Termination.
  - 9. Take such action as may be necessary, or as the Contracting Officer may direct, for the protection and preservation of the property related to the Contract which is in the possession of the Contractor and in which the District has or may acquire an interest.
  - 10. The Contractor shall proceed immediately with the performance of the above obligations notwithstanding any delay in determining or adjusting the cost, or any item of reimbursable cost, under this Article.
  - 11. "Plant clearance period" means, for each particular property classification (such as raw materials, purchased parts and work in progress) at any one plant or location, a period beginning with the effective date of the termination for convenience and ending 90 days after receipt by the Contracting Officer of acceptable inventory schedules covering all items of that particular property classification in the termination inventory at that plant or location, or ending on such later date as may be agreed to by the Contracting Officer and the Contractor. Final phase of a plant clearance period means that part of a plant clearance period which occurs after the receipt of acceptable inventory schedules covering all items of the particular property classification at the plant or location.

At any time after expiration of the plant clearance period, as defined above, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Contracting Officer, and may request the District to remove such items or enter into a storage agreement covering them. Not later than 15 days thereafter, the District will accept title to such items and remove them or enter into a storage agreement covering the same; provided, that the list submitted shall be subject to verification by the Contracting Officer upon removal of the items or, if the items are stored, within 45 days from the date of submission of the list, and any necessary adjustments to correct the list as submitted, shall be made prior to final settlement.

- C. After receipt of a Notice of Termination, the Contractor shall submit to the Contracting Officer his termination claim, in the form with the certification prescribed by the Contracting Officer. Such claim shall be submitted promptly but in no event later than one year from the effective date of termination, unless one or more extensions in writing are granted by the Contracting Officer upon request of the Contractor made in writing within such one year period or authorized extension thereof. However, if the Contracting Officer determines that the facts justify such action, he may receive and act upon any such termination claim at any time after such one year period or extension thereof. Upon failure of the Contractor to submit his termination claim within the time allowed, the Contracting Officer may, subject to any review required by the District's procedures in effect as of the date of execution of the Contract, determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

- D. Subject to the provisions of C above, and subject to any review required by the District's procedures in effect as of the date of execution of the Contract, the Contractor and Contracting Officer may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this Article, which amount or amounts may include a reasonable allowance for profit on work done; provided, that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total Contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract price of work not terminated. The Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount. Nothing in E below prescribing the amount to be paid to the Contractor in the event of failure of the Contractor and the Contracting Officer to agree upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this Article, shall be deemed to limit, restrict or otherwise determine or effect the amount or amounts which may be agreed upon to be paid to the Contractor pursuant to this paragraph.
- E. In the event of the failure of the Contractor and the Contracting Officer to agree as provided in D above upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this Article, the Contracting Officer shall, subject to any review required by the District's procedures in effect as of the date of execution of the Contract, determine, on the basis of information available to him, the amount, if any, due the Contractor by reason of the termination and shall pay to the Contractor the amounts determined by the Contracting Officer, as follows, but without duplication of any amounts agreed upon in accordance with D above:
1. With respect to all Contract work performed prior to the effective date of the Notice of Termination, the total (without duplication of any items) of:
    - a. The cost of such work;
    - b. The cost of settling and paying claims arising out of the termination of work under subcontracts or orders as provided in B 5. above, exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the subcontractor prior to the effective date of the Notice of Termination of work under the Contract, which amounts shall be included in the cost on account of which payment is made under E1.a. above; and
    - c. A sum, as profit on E.1.a. above, determined by the Contracting Officer to be fair and reasonable; provided however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, no profit shall be included or allowed under this subparagraph and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss; and provided further that profit shall be allowed only on preparations made and work done by the Contractor for the terminated portion of the Contract but may not be allowed on the Contractor's settlement expenses. Anticipatory profits and consequential damages will not be allowed. Any reasonable method may be used to arrive at a fair profit, separately or as part of the whole settlement.
  2. The reasonable cost of the preservation and protection of property incurred pursuant to B.9; and any other reasonable cost incidental to termination of work under the Contract including expense incidental to the determination of the amount due to the Contractor as the result of the termination of work under the Contract.

- F. The total sum to be paid to me Contractor under E.1. above shall not exceed the total Contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract price of work not terminated. Except for normal spoilage, and except to the extent that the District shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor under E.1. above, the fair value, as determined by the Contracting Officer, of property which is destroyed, lost, stolen or damaged so as to become undeliverable to the District, or to a buyer pursuant to B.7 above.
- G. The Contractor shall have the right of appeal, under Article 7 herein, from any determination made by the Contracting Officer under C. or E. above, except that, if the Contractor has failed to submit his claim within the time provided in C above and has failed to request extension of such time, he shall have no such right of appeal. In any case where the Contracting Officer has made a determination of the amount due under C. or E. above, the District shall pay to the Contractor the following:
1. If there is no right of appeal hereunder or if no timely appeal has been taken, the amount so determined by the Contracting Officer, or
  2. If an appeal had been taken, the amount finally determined on such appeal.
- H. In arriving at the amount due the Contractor under this Article there shall be deducted:
1. all unliquidated advance or other payments on account theretofore made to the Contractor, applicable to the terminated portion of the Contract;
  2. any claim which the District may have against the Contractor in connection with the Contract; and
  3. the agreed price for, or the proceeds of sale of, any materials, supplies or other things kept by the Contractor or sold, pursuant to the provisions of this Article and not otherwise recovered by or credited to the District.
- I. If the termination hereunder be partial, prior to the settlement of the terminated portion of the Contract, the Contractor may file with the Contracting Officer a request in writing for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the Notice of Termination), and such equitable adjustment as may be agreed upon shall be made at such price or prices; however, nothing contained herein shall limit the right of the District and the Contractor to agree upon the amount or amounts to be paid to the Contractor for the completion of the continued portion of the Contract when said Contract does not contain an established Contract price for such continued portion.
- J. The District may from time to time, under such terms and conditions as it may prescribe, make partial payments against costs incurred by the Contractor in connection with the terminated portion of the Contract whenever in the opinion of the Contracting Officer the aggregate of such payments shall be within the amount to which the Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally agreed or determined to be due under this Article, such excess shall be payable by the Contractor to the District upon demand, together with interest computed at the rate of 6 percent per annum for the period from the date such excess is received by the Contractor to the date on which such excess is repaid to the District; provided however, that no interest shall be charged with respect to any such excess payment attributable to a reduction in the Contractor's claim by reason of retention or other disposition of termination inventory until ten days after the date of such retention or disposition, or such later date as determined by the Contracting Officer by reason of the circumstances.

- K. Unless otherwise provided in the Contract or by applicable statute, the Contractor, from the effective date of termination and for a period of three years after final settlement under the Contract, shall preserve and make available to the District at all reasonable times at the office of the Contractor, but without direct charge to the District, all his books, records, documents and other evidence bearing on the costs and expenses of the Contractor under the Contract and relating to the work terminated hereunder, or, to the extent approved by the Contracting Officer, photographs and other authentic reproductions thereof.

#### ARTICLE 7. DISPUTES

- A. All disputes arising under or relating to this contract shall be resolved as provided herein.
- B. Claims by a Contractor against the District.

"Claim", as used in Section B of this clause, means a written assertion by the Contractor seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. A claim arising under a contract, unlike a claim relating to that contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant.

- (a) All claims by a Contractor against the District arising under or relating to a contract shall be in writing and shall be submitted to the Contracting Officer for a decision. The contractor's claim shall contain at least the following:

- (1) A description of the claim and the amount in dispute;
- (2) Any data or other information in support of the claim;
- (3) A brief description of the Contractor's efforts to resolve the dispute prior to filing the claim; and
- (4) The Contractor's request for relief or other action by the Contracting Officer.

(b) The Contracting Officer may meet with the Contractor in a further attempt to resolve the claim by agreement.

November (2004)  
SCP. 9

(c) For any claim of \$50,000 or less, the Contracting Officer shall issue a decision within sixty (60) days from receipt of a written request from a Contractor that a decision be rendered within that period.

(d) For any claim over \$50,000, the Contracting Officer shall issue a decision within ninety (90) days of receipt of the claim. Whenever possible, the Contracting Officer shall take into account factors such as the size and complexity of the claim and the adequacy of the information in support of the claim provided by the Contractor.

(e) The Contracting Officer's written decision shall do the following:

- (1) Provide a description of the claim or dispute;
- (2) Refer to the pertinent contract terms;
- (3) State the factual areas of agreement and disagreement;
- (4) State the reasons for the decision, including any specific findings of fact, although specific findings of fact are not required and, if made, shall not be binding in any subsequent proceeding;
- (5) If all or any part of the claim is determined to be valid, determine the amount of monetary settlement, the contract adjustment to be made, or other relief to be granted;
- (6) Indicate that the written document is the contracting officer's final decision; and
- (7) Inform the Contractor of the right to seek further redress by appealing the decision to the Contract Appeals Board.

(f) Any failure by the Contracting Officer to issue a decision on a contract claim within the required time period will be deemed to be a denial of the claim, and

will authorize the commencement of an appeal to the Contract Appeals Board as authorized by D.C. Official Code § 2-309.04.

(g) (1) If a Contractor is unable to support any part of his or her claim and it is determined that the inability is attributable to a material misrepresentation of fact or fraud on the part of the Contractor, the Contractor shall be liable to the District for an amount equal to the unsupported part of the claim in addition to all costs to the District attributable to the cost of reviewing that part of the Contractor's claim.

(2) Liability under paragraph (g)(1) shall be determined within six (6) years of the commission of the misrepresentation of fact or fraud.

(h) The decision of the Contracting Officer shall be final and not subject to review unless an administrative appeal or action for judicial review is timely commenced by the Contractor as authorized by D. C. Official Code § 2-309.04.

(i) Pending final decision of an appeal, action, or final settlement, a Contractor shall proceed diligently with performance of the contract in accordance with the decision of the Contracting Officer.

November (2004)

SCP. 10

C. Claims by the District against a Contractor

(a) Claim as used in Section C of this clause, means a written demand or written assertion by the District seeking, as a matter of right, the payment of money in a sum certain, the adjustment of contract terms, or other relief arising under or relating to this contract. A claim arising under a contract, unlike a claim relating to that contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant.

(b) (1) All claims by the District against a Contractor arising under or relating to a contract shall be decided by the Contracting Officer.

(2) The Contracting Officer shall send written notice of the claim to the Contractor. The Contracting Officer's written decision shall do the following:

(a) Provide a description of the claim or dispute;

(b) Refer to the pertinent contract terms;

(c) State the factual areas of agreement and disagreement;

(d) State the reasons for the decision, including any specific findings of fact, although specific findings of fact are not required and, if made, shall not be binding in any subsequent proceeding;

(e) If all or any part of the claim is determined to be valid, determine the amount of monetary settlement, the contract adjustment to be made, or other relief to be granted;

(f) Indicate that the written document is the Contracting Officer's final decision; and

(g) Inform the Contractor of the right to seek further redress by appealing the decision to the Contract Appeals Board.

(3) The decision shall be supported by reasons and shall inform the Contractor of its rights as provided herein.

(4) The authority contained in this clause shall not apply to a claim or dispute for penalties or forfeitures prescribed by statute or regulation which another District agency is specifically authorized to administer, settle, or determine.

(5) This clause shall not authorize the Contracting Officer to settle, compromise, pay, or otherwise adjust any claim involving fraud.

(c) The decision of the Contracting Officer shall be final and not subject to review unless an administrative appeal or action for judicial review is timely commenced by the Contractor as authorized by D.C. Official Code §2-309.04.

(d) Pending final decision of an appeal, action, or final settlement, the Contractor shall proceed diligently with performance of the contract in accordance with the decision of the Contracting Officer.

**ARTICLE 8. PAYMENTS TO CONTRACTOR**—The District will pay the contract price or prices as hereinafter provided in accordance with District and Federal regulations.

The District will make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates approved by the Contracting Officer. The Contractor shall furnish a breakdown of the total Contract price showing the amount included therein for each principal category of the work, in such detail as requested, to provide a basis for determining progress payments. In the preparation of estimates the Contracting Officer, at his discretion, may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site may also be taken into consideration:

1. If such consideration is specifically authorized by the Contract;
2. If the Contractor furnishes satisfactory evidence that he has acquired title to such material, that it meets Contract requirements and that it will be utilized on the work covered by the Contract; and
3. If the Contractor furnishes to the Contracting Officer an itemized list.

The Contracting Officer at his/her discretion shall cause to be withheld retention in an amount sufficient to protect the interest of the District of Columbia. The amount shall not exceed ten percent (10%) of the partial payment. However, if the Contracting Officer, at any time after 50 percent of the work has been completed, finds that satisfactory progress is being made, he may authorize any of the remaining progress payments to be made in full or may retain from such remaining partial payments less than 10 percent thereof. Also, whenever work is substantially complete, the Contracting Officer, if he considers the amount retained to be in excess of the amount adequate for the protection of the District, at his discretion, may release to the Contractor all or a portion of such excess amount. Furthermore, on completion and acceptance of each separate building, public work, or other division of the Contract, on which the price is stated separately in the Contract, payment may be made therefore without retention of a percentage, less authorized deductions.

All material and work covered by progress payments made shall thereupon become the sole property of the District, but this provision shall not be construed as relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work, or as waiving the right of the District to require the fulfillment of all of the terms of the Contract.

Upon completion and acceptance of all work, the amount due the Contractor under the Contract shall be paid upon presentation at a properly executed voucher and after the Contractor shall have furnished the District with a release, if required, of all claims against the District arising by virtue of the Contract, other than claims in stated amounts as may be specifically excepted by the Contractor from the operation of the release.

**ARTICLE 9. TRANSFER OR ASSIGNMENT**—Unless otherwise provided by law, neither the Contract nor any interest therein may be transferred or assigned by the Contractor to any other party without the written consent of the Contracting Officer nor without the written acceptance by the surety on the performance and payment bond securing the Contract of the assignee as the Contractor and the principal on such bond; and any attempted transfer or assignment not authorized by this Article shall constitute a breach of the Contract and the District may for such cause terminate the right of the Contractor to proceed in the same manner as provided in Article 5 herein, and the Contractor and his sureties shall be liable to the District for any excess cost occasioned the District thereby.

**ARTICLE 10. MATERIAL AND WORKMANSHIP**

- A. **GENERAL**—Unless otherwise specifically provided in the Contract, all equipment, material and articles incorporated in the work covered by the Contract shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the Contract, reference to any equipment, material, article or patented

process, by trade name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition., and the Contractor may use any equipment, material, article or process which, in the judgment of the Contracting Officer, is equivalent to that named unless otherwise specified. The Contractor shall furnish to the Contracting Officer for his approval the name of the manufacturer, the model number, and other identifying data and information respecting the performance, capacity, nature and rating of the mechanical and other equipment which the Contractor contemplates incorporating in the work. Machinery and equipment shall be in proper condition. When required by the Contract or when called for by the Contracting Officer, the Contractor shall furnish to the Contracting Officer for approval full information concerning the material or articles which he contemplates incorporating in the work. When so directed, samples shall be submitted for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles installed or used without required approval shall be at the risk of subsequent rejection and subject to satisfactory replacement at Contractor's expense.

- B. SURPLUS MATERIALS USE**—Whenever specified in the Contract or authorized by the Contracting Officer that materials become the property of the Contractor, which by reference or otherwise shall include disposal of materials, it is understood that the Contractor accepts such materials "as is" with no further expense or liability to the District. If such material specified in the Contract will have a potential or real interest of value, the Contractor shall make allowance in the Contract to show such value.
- C. DISTRICT MATERIAL**—No materials furnished by the District shall be applied to any other use, public or private, than that for which they are issued to the Contractor. The full amount of the cost to the District of all materials furnished by the District to the Contractor and for which no charge is made, which are not accounted for by the Contractor to the satisfaction of the Contracting Officer, will be charged against the Contractor and his sureties and may be deducted from any monies due the Contractor, and this charge shall be in addition to and not in lieu of any other liabilities of the Contractor whether civil or criminal. Materials furnished by the District for which a charge is made at a rate mentioned in the specifications will be delivered to the Contractor upon proper requisitions therefore and will be charged to his account.
- D. Plant** —The Contractor shall at all times employ sufficient tools and equipment for prosecuting the various classes of work to full completion in the manner and time required. The Contractor shall at all times perform work in sufficient light and shall provide proper illumination, including lighting required for night work as directed, as a Contract requirement. All equipment, tools, formwork and staging used on the project shall be of sufficient size and in proper mechanical and safe condition to meet work requirements, to produce satisfactory work quality and to prevent injury to persons, the project or adjacent property. When methods and equipment are not prescribed in the Contract, the Contractor is free to use tools, methods and equipment that he satisfactorily demonstrates will accomplish the work in conformity with Contract requirements.

If the Contractor desires to use a method or type of tool or equipment other than specified in the Contract, he shall request approval to do so; the request shall be in writing and shall include a full description of proposed methods, tools and equipment and reason for the change or substitution. Approval of substitutions and changed methods will be on condition that the Contractor will be fully responsible for producing work meeting Contract requirements. If after trial use of the substituted methods, tools and equipment, the Contracting Officer determines that work produced does not meet Contract requirements, the Contractor shall complete remaining work with specified methods, tools and equipment.

- E. CAPABILITY OF WORKERS**- All work under the Contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require the Contractor to remove from the work any such employees as the Contracting Officer deems incompetent, careless, insubordinate, or otherwise objectionable, or whose continued employment on the work is deemed by the Contracting Officer to be contrary to the public interest. Such request will be in writing:

- F. CONFORMITY OF WORK AND MATERIALS**—All work performed and materials and products furnished shall be in conformity, within indicated tolerances, with lines, grades, cross sections, details, dimensions, material and construction requirements shown or intended by the drawings and specifications.

When materials, products or work cannot be corrected, written notice of rejection will be issued. Rejected materials, products and work shall be eliminated from the project and acceptably replaced at Contractor's expense. The Contracting Officer's failure to reject any portion of the project shall not constitute implied acceptance nor in any way release the Contractor from Contract requirements.

- G. UNAUTHORIZED WORK AND MATERIALS**—Work performed or materials ordered or furnished for the project deviating from requirements without written authority, will be considered unauthorized and at Contractor's expense. The District is not obligated to pay for unauthorized work. Unauthorized work and materials may be ordered removed and replaced at Contractor's expense.

**ARTICLE 11. INSPECTION AND ACCEPTANCE**—Except as otherwise provided in the Contract, inspection and test by the District of material and workmanship required by the Contract shall be made at reasonable times and at the site of the work, unless the Contracting Officer determines that such inspection or test of material which is to be incorporated in the work shall be made at the place of production, manufacture or shipment of such material. To the extent specified by the Contracting Officer at the time of determining to make off-site inspection or test, such inspection or test shall be conclusive as to whether the material involved conforms to Contract requirements. Such off-site inspection or test shall not relieve the Contractor of responsibility for damage to or loss of the material prior to acceptance, nor in any way affect the continuing rights of the District after acceptance of the completed work under the terms of the last paragraph of this Article, except as herein above provided.

The Contractor shall, without charge, replace any material and correct any workmanship found by the District not to conform to Contract requirements, unless in the public interest the District consents to accept such material or workmanship with an appropriate adjustment in Contract price. The Contractor shall promptly segregate and remove rejected material from the premises at Contractor's expense.

If the Contractor does not promptly replace rejected material or correct rejected workmanship, the District:

1. May, by contract or otherwise, replace such material and correct such workmanship and charge the cost thereof to the Contractor, or
2. May terminate the Contractor's right to proceed in accordance with Article 5 herein.

The Contractor shall furnish promptly, without additional cost to the District, all facilities, labor and material reasonably needed for performing such safe and convenient inspection and test as may be required by the Contracting Officer. All inspections and tests by the District shall be performed in such manner as not unnecessarily to delay the work. Special, full size, and performance tests shall be performed as described in the Contract. The Contractor shall be charged with any additional cost of inspection when material and workmanship are not ready for inspection at the time specified by the Contractor.

Should it be considered necessary or advisable by the Contracting Officer at any time before acceptance of the work, either in part or in its entirety, to make an examination of work completed, by removing or tearing out same, the Contractor shall, on request, promptly furnish all necessary facilities, labor and material to do same. If such work is found to be defective or nonconforming in any material respect, due to the fault of the Contractor or his subcontractors, he shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, an equitable adjustment shall be made in the Contract price

to compensate the Contractor for the additional services involved in such examination and reconstruction and, if completion of the work has been delayed thereby, he shall, in addition, be granted an equitable extension of time.

Unless otherwise provided in the Contract, acceptance by the District will be made as promptly as practicable after completion and inspection of all work required by the Contract. Acceptance shall be final and conclusive except as regards to latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the District's rights under any warranty or guaranty.

**ARTICLE 12. SUPERINTENDENCE BY CONTRACTOR**—The Contractor shall give his personal superintendence to the performance of the work or have a competent foreman or superintendent, satisfactory to the Contracting Officer, on the work site at all times during progress, with authority to act for him.

**ARTICLE 13. PERMITS AND RESPONSIBILITIES**—The Contractor shall, without expense to the District, be responsible for obtaining any necessary licenses, certificates and permits, and for complying with any applicable Federal, State, and Municipal laws, codes and regulations, in connection with the prosecution of the work. He shall be similarly responsible for all damages to persons or property that occurs as a result of his fault or negligence. He shall take proper safety, health and environmental precautions to protect the work, the workers, the public, and the property of others. He shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire construction work, except for any completed unit of construction thereof which theretofore may have been accepted.

**ARTICLE 14. INDEMNIFICATION**—The Contractor shall indemnify and save harmless the District and all of its officers, agents and servants against any and all claims or liability arising from or based on, or as a consequence or result of, any act, omission or default of the Contractor, his employees, or his subcontractors, in the performance of, or in connection with, any work required, contemplated or performed under the Contract.

**ARTICLE 15. PROTECTION AGAINST TRESPASS**—Except as otherwise expressly provided in the Contract, the Contractor is authorized to refuse admission either to the premises or to the working space covered by the Contract to any person whose admission is not specifically authorized in writing by the Contracting Officer.

#### **ARTICLE 16. CONDITIONS AFFECTING THE WORK**

- A. GENERAL**—The Contractor shall be responsible for having taken steps reasonably necessary to ascertain the nature and location of the work, and the general and local conditions which can affect the work and the cost thereof. Any failure by the Contractor to do so will not relieve him from responsibility for successfully performing the work as specified without additional expense to the District. The District assumes no responsibility for any understanding or representation concerning conditions made by any of its officers or agents prior to the execution of the Contract, unless such understanding or representation by the District is expressly stated in the Contract.
- B. WORK AND STORAGE SPACE**—Available work and storage space designated by the District shall be developed as required by the Contract or restored at completion of the project by the Contractor to a condition equivalent to that existing prior to construction. No payment will be made for furnishing or restoration of any work and storage space. If no area is designated or the area designated is not sufficient for the Contractor's operations, he shall obtain necessary space elsewhere at no expense or liability to the District.
- C. WORK ON SUNDAYS, LEGAL HOLIDAYS AND AT NIGHT**—No work shall be done at any time on Sundays or legal holidays or on any other day before 7 a.m. or after 7 p.m., except with the written permission of the Contracting Officer and pursuant to the requirements of the Police Requirements of the District.
- D. EXISTING FEATURES**—Subsurface and topographic information including borings data, utilities data and other physical data contained in the Contract or otherwise available, are

not intended as representations or warranties but are furnished as available information. The District assumes no expense or liability for the accuracy of, or interpretations made from, existing features. The Contractor shall be responsible for reasonable consideration of existing features above and below ground which may affect the project.

- E. UTILITIES AND VAULTS**—The Contractor shall take necessary measures to prevent interruption of service or damage to existing utilities within or adjacent to the project. It shall be the Contractor's responsibility to determine exact locations of all utilities in the field.

For any underground utility or vault encountered, the Contractor shall immediately notify the Contracting Officer and take necessary measures to protect the utility or vault and maintain the service until relocation by owner is accomplished. No additional payment will be made for the encountering of these obstructions.

In case of damage to utilities by the Contractor, either above or below ground, the Contractor shall restore such utilities to a condition equivalent to that which existed prior to the damage by repairing, rebuilding or otherwise restoring as may be directed, at the Contractor's sole expense. Damaged utilities shall be repaired by the Contractor or, when directed by the Contracting Officer, the utility owner will make needed repairs at the Contractor's expense.

No compensation, other than authorized time extensions, will be allowed the Contractor for protective measures, work interruptions, changes in construction sequence, changes in methods of handling excavation and drainage or changes in types of equipment used, made necessary by existing utilities, imprecise utility or vault information or by others performing work within or adjacent to the project.

- F. SITE MAINTENANCE**—The Contractor shall maintain the project site in a neat and presentable manner throughout the course of all operations, and shall be responsible for such maintenance until final acceptance by the District. Trash containers shall be furnished, maintained and emptied by the Contractor to the satisfaction of the Contracting Officer. Excavated earthwork, stripped forms and all other materials and debris not scheduled for reuse in the project shall be promptly removed from the site.

The Contracting Officer may order the Contractor to clean up the project site at any stage of work at no added expense to the District. If the Contractor fails to comply with this order, the Contracting Officer may require the work to be done by others and the costs will be charged to the Contractor.

Upon completion of all work and prior to final inspection, the Contractor shall clean up and remove from the project area and adjacent areas all excess materials, equipment, temporary structures, and refuse, and restore said areas to an acceptable condition.

- G. PRIVATE WORK**—Except as specifically authorized by the Contracting Officer, the Contractor shall not perform any private work abutting District projects with any labor, materials, tools, equipment, supplies or supervision scheduled for the Contract until all work under the Contract has been completed. Contract materials used for any unauthorized purpose shall be subtracted from Contract amount.

- H. DISTRICT OF COLUMBIA NOISE CONTROL ACT OF 1977**—The contractor shall be in strict compliance with D.C. Law 2-53, District of Columbia Noise Control Act of 1977 and all provisions thereof. Effective March 16, 1978. 24 D.C. Register 5293.

**ARTICLE 17. OTHER CONTRACTS**—The District may undertake or award other contracts for additional work and the Contractor shall fully cooperate with such other contractors and District employees and carefully coordinate his own work with such additional work as may be directed by the Contracting Officer. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor or by District employees. The District assumes no liability, other than authorized time extensions, for Contract delays and damages resulting from delays and lack of progress by others.

**ARTICLE 18. PATENT INDEMNITY**—Except as otherwise provided, the Contractor agrees to indemnify the District and its officers, agents, and employees against liability, including costs and expenses, for infringement upon any Letters Patent of the United States (except Letters Patent issued upon an application which is now or may hereafter be, for reasons of national security, ordered by the Federal Government to be kept classified or otherwise withheld from issue) arising out of the performance of the Contract or out of the use or disposal, by or for the account of the District, of supplies furnished or construction work performed hereunder.

**ARTICLE 19. ADDITIONAL BOND SECURITY**—If any surety upon any bond furnished in connection with the Contract becomes unacceptable to the District, or if any such surety fails to furnish reports as to his financial condition from time to time as requested by the District, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interests of the District and of persons supplying labor or materials in the prosecution of the work contemplated by the Contract. Provided that upon the failure of the Contractor to furnish such additional security within ten (10) days after written notice so to do, all payments under the Contract will be withheld until such additional security is furnished.

**ARTICLE 20. COVENANT AGAINST CONTINGENT FEES**—The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the District shall have the right to terminate the Contract without liability or in its discretion to deduct from the Contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

**ARTICLE 21. APPOINTMENT OF ATTORNEY**—The Contractor does hereby irrevocably designate and appoint the Clerk of the Superior Court of the District of Columbia and his successors in office as the true and lawful attorney of the Contractor for the purpose of receiving service of all notices and processes issued by any court in the District, as well as service of all pleadings and other papers, in relation to any action or legal proceeding arising out of or pertaining to the Contract or the work required or performed hereunder.

The Contractor expressly agrees that the validity of any service upon the said Clerk as herein authorized shall not be affected either by the fact that the Contractor was personally within the District and otherwise subject to personal service at the time of such service upon the said Clerk or by the fact that the Contractor failed to receive a copy of such process, notice, pleading or other paper so served upon the said Clerk, provided that said Clerk shall have deposited in the United States mail, certified and postage prepaid, a copy of such process, notice, pleading or other papers addressed to the Contractor at the address stated in the Contract.

**ARTICLE 22. DISTRICT EMPLOYEES NOT TO BENEFIT** — Unless a determination is made as provided herein, no officer or employee of the District will be admitted to any share or part of this contract or to any benefit that may arise therefrom, and any contract made by the Contracting Officer or any District employee authorized to execute contracts in which they or an employee of the District will be personally interested shall be void, and no payment shall be made thereon by the District or any officer thereof, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit. A District employee shall not be a party to a contract with the District and will not knowingly cause or allow a business concern or other organization owned or substantially owned or controlled by the employee to be a party to such a contract, unless a written determination has been made by the head of the procuring agency that there is a compelling reason for contracting with the employee, such as when the District's needs cannot reasonably otherwise be met. (DC Procurement Practices Act of 1985, D.C. Law 6-85, D.C. Official Code, section 2-310.01, and Chapter 18 of the DC Personnel Regulations) The Contractor represents and covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants not to employ any person having such known interests in the performance of the contract.

**ARTICLE 23. WAIVER**—No waiver of any breach of any provision of the Contract shall operate as a waiver of such provision or of the Contract or as a waiver of subsequent or other breaches of the same or any other provision of the Contract; nor shall any action or non-action by the Contracting Officer or by the Mayor be construed as a waiver of any provision of the Contract or of any breach thereof unless the same has been expressly declared or recognized as a waiver by the Contracting Officer or the Mayor in writing.

#### **ARTICLE 24. BUY AMERICAN**

- A. AGREEMENT**—In accordance with the Buy American Act (41 USC 10a-10d), and Executive Order 10582, December 17, 1954 (3 CFR, 1954-58 Comp., p. 230), as amended by Executive Order 11051, September 27, 1962 (3 CFR, 1059—63 Comp., p. 635), the Contractor agrees that only domestic construction material will be used by the Contractor, subcontractors, material men and suppliers in the performance of the Contract, except for non-domestic material listed in the Contract.
- B. DOMESTIC CONSTRUCTION MATERIAL**—"Construction material" means any article, material or supply brought to the construction site for incorporation in the building or work. An unmanufactured construction material is a "domestic construction material" if it has been mined or produced in the United States. A manufactured construction material is a "domestic construction material" if it has been manufactured in the United States and if the cost of its components which have been mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. "Component" means any article, material, or supply directly incorporated in a construction material. -
- C. DOMESTIC COMPONENT**—A component shall be considered to have been "mined, produced, or manufactured in the United States" regardless of its source, in fact, if the article, material or supply in which it is incorporated was manufactured in the United States and the component is of a class or kind determined by the District to be not mined, produced or manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.
- D. FOREIGN MATERIAL** – When steel materials are used in a project a minimal use of foreign steel is permitted. The cost of such materials can not exceed on-tenth of one percent of the total project cost, or \$2,500,000, whichever is greater.

#### **ARTICLE 25. TAXES**

- A. FEDERAL EXCISE**—Materials, supplies and equipment are not subject to the Federal Manufacturer's Excise Tax, if they are furnished or used in connection with the Contract provided that title to such materials, supplies and equipment passes to the District under the Contract. The Contractor shall in such cases furnish his subcontractors and suppliers with a purchaser's certificate in the form prescribed by the U.S. Internal Revenue Service.
- B. SALES AND USE TAXES**—Materials which are physically incorporated as a permanent part of real property are not subject to District of Columbia Sales and Use Tax. The Contractor shall, when purchasing such materials, furnish his suppliers with a Contractor's Exempt Purchase Certificate in the form prescribed in the Sales and Use Tax Regulations of the District of Columbia. Where the Contractor, subcontractor or material man has already paid the Sales and Use Tax on material, as prescribed above, the Sales and Use Tax Regulations of the District of Columbia permit the Contractor, subcontractor or material man to deduct the sales or use tax on the purchase price of the same on his next monthly return as an adjustment. However, the Contractor, subcontractor or material man must satisfy the Chief Financial Officer for the District of Columbia that no sum in reimbursement of such tax was included in the Contract or else that the District has received a credit under the Contract in an amount equal to such tax.

District of Columbia Sales and Use Tax shall be paid on any material and supplies, including equipment rentals, which do not become a physical part of the finished project. (See District of Columbia Sales and Use Tax Administration Ruling No. 6).

The Contractor, subcontractor, or material supplier shall provide proof of compliance with the provisions of D.C. Law 9-260, as amended, codified in D.C. Code 46-103, Employer Contributions, prior to award.

Material and supplies required under contracts relating to Glenn Dale Hospital, Glenn Dale, Maryland, and Children's Center, Laurel, Maryland, are subject to the Maryland State Sales and Use Tax, effective July 1, 1968. BIDDERS SHALL INCLUDE SUCH TAX IN THEIR BIDS. Contracts relating to Department of Corrections, Lorton, Virginia, are subject to the Virginia Retail Sales and Use Tax, effective September 1, 1966, when incorporated in public works contracts of the District. BIDDERS SHALL INCLUDE SUCH TAX IN THEIR BIDS.

The Contractor, subcontractor, or material supplier shall provide proof of compliance with the applicable tax filing and licensing requirements set forth in D.C. Code, Title 47, Taxation and Fiscal Affairs, prior to contract award.

**ARTICLE 26. SUSPENSION OF WORK**—The Contracting Officer may order the Contractor in writing to suspend, delay or interrupt all or any part of the work for such period of time as he may determine to be appropriate for the convenience of the District.

If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed or interrupted by an act of the Contracting Officer in the administration of the Contract, or by his failure to act within the time specified in the Contract (or if no time is specified, within a reasonable time), an adjustment will be made for an increase in the cost of performance of the Contract (excluding profit) necessarily caused by such unreasonable suspension, delay or interruption and the Contract modified in writing accordingly. However, no adjustment will be made under this Article for any suspension, delay or interruption to the extent:

1. That performance would have been so suspended, delayed or interrupted by any other cause, including the fault or negligence of the contractor, or
2. For which an equitable adjustment is provided or excluded under any other provision of the Contract.

No claim under this Article shall be allowed:

1. For any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and
2. Unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption, but not later than the date of final payment under the Contract.

#### **ARTICLE 27. SAFETY PROGRAM**

- A. **GENERAL**—In order to provide safety controls for the protection of the life and health of District and Contract employees and the general public; prevention of damage to property, materials, supplies, and equipment; and for avoidance of work interruptions in the performance of the Contract, the Contractor shall comply with all applicable Federal and local laws governing safety, health and sanitation including the Safety Standards, Rules and Regulations issued by the American National Standards, U. S. Department of Labor, U. S. Department of Health and Human Services, D. C. Minimum Wage and Industrial Safety Board and the latest edition of "Manual of Uniform Traffic Control Devices" issued by the Federal Highway Administration.

The Contractor shall also take or cause to be taken such additional safety measures as the Contracting Officer may determine to be reasonably necessary.

The Contractor shall designate one person to be responsible for carrying out the Contractor's obligation under this Article.

The Contractor shall maintain an accurate record of all accidents resulting in death, injury, occupational disease, and/or damage to property, materials, supplies, and equipment incident to work performed under the Contract. Copies of these reports shall be furnished to the Contracting Officer within two working days after occurrence.

The Contracting Officer will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

This Article is applicable to all subcontractors used under the Contract and compliance with these provisions by the subcontractors will be the responsibility of the Contractor.

*(In Contracts involving work of short duration or of non-hazardous character, the following Section B. will be deleted by Special Provision)*

**B. CONTRACTOR'S PROGRAM SUBMISSION**—Prior to commencement of the work, the Contractor shall:

1. Submit in writing to the Contracting Officer for his approval his program for complying with this Article for accident prevention.
2. Meet with the Contracting Officer's Safety Representative after submission of the above program to develop a mutual understanding relative to the administration of the overall safety program.

**ARTICLE 28. RETENTION OF RECORDS**—Unless otherwise provided in the Contract, or by applicable statute, the Contractor, from the effective date of Contract completion and for a period of three years after final settlement under the Contract, shall preserve and make available to the District at all reasonable times at the office of the Contractor but without direct charge to the District, all his books, records, documents, and other evidence bearing on the costs and expenses of the Contractor under the Contract.

**ARTICLE 29. RECOVERY OF DEBTS OWED THE DISTRICT**—The Contractor hereby agrees that the District may use all or any portion of any consideration or refund due the Contractor under the Contract to satisfy, in whole or part, any debt due the District.

**LABOR PROVISIONS  
(Construction Contract)**

**ARTICLE 1. DAVIS-BACON ACT (40 USC 276a-276a 7)** —Each Contractor and subcontractor at any tier contracting for any part of Contract work in excess of \$2,000 for construction alteration, and/or repair, including painting and decorating of public buildings and public works and which requires or involves the employment of mechanics and/or laborers shall be subject to the Davis-Bacon Act provisions as follows:

**A. MINIMUM WAGES—**

1. All mechanics and laborers employed or working upon the site of the work or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the United States Department of Labor, hereinafter referred to as the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at wage rates not less than those contained in the wage determination decision of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such Laborers and mechanics; and the wage determination decision shall be posted by the contractor at the site of the work in a prominent place where it can be easily seen by the workers. For the purpose of this clause, contributions made or costs reasonably anticipated under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv). Also for the purpose of this clause; regular contributions made or costs incurred for more than a weekly period under plans, funds, or programs, but covering the particular weekly period, are deemed to be constructively made or incurred during such weekly period.
2. The contracting officer shall require that any class of laborers or mechanics, including apprentices and trainees, which is not listed in the wage determination and which is to be employed under the contract, shall be classified or reclassified conformably to the wage determination and a report of the action taken shall be sent by the Contracting Officer to the Secretary of Labor. In the event the interested parties cannot agree on the proper classification or reclassification of a particular class of laborers and mechanics, including apprentices and trainees, to be used, the question accompanied by the recommendation of the Contracting Officer shall be referred to the Secretary for final determination.
3. The Contracting Officer shall require, whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly wage rate and the contractor is obligated to pay a cash equivalent of such a fringe benefit, an hourly cash equivalent thereof to be established. In the event the interested parties cannot agree upon a cash equivalent of the fringe benefit, the question, accompanied by the recommendation of the Contracting Officer, shall be referred to the Secretary of Labor for determination.
4. If the Contractor does not make payments to a trustee or other third person, he may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing benefits under a plan or program of a type expressly listed in the wage determination decision of the Secretary of Labor which is a part of this contract: Provided, however, The Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the

contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

**B. WITHHOLDING.**—The Contracting Officer may withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices and trainees, employed by the contractor or any subcontractor on the work the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice or trainee, employed or working on the site of the work or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project, all or part of the wages required by the contract, the District may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

**C. PAYROLLS AND BASIC RECORDS. —**

1. Payrolls and basic records relating thereto will be maintained during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work, or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project. Such records will contain the name and address of each such employee, his correct classification, rates of pay. (including rates of contributions or costs anticipated of the types described in section 1(b)(2) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1) (iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing, to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.
2. The contractor will submit weekly a copy of all payrolls to the Contracting Officer if the agency is a party to the contract, but if the agency is not such a party the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Contracting Officer. The copy shall be accompanied by a statement signed by the employer or his agent indicating that the payrolls are correct and complete, that the wage rates contained therein are not less than those determined by the Secretary of Labor and that the classifications set forth for each laborer or mechanic conform with the work he performed. A submission of a "Weekly Statement of Compliance" which is required under this contract and the Copeland regulations of the Secretary of Labor (29 CFR, Part 3) and the filing with the initial payroll or any subsequent payroll of a copy of any findings by the Secretary of Labor under 29 CFR 5.5(a)(1)(iv) shall satisfy this requirement. The prime contractor shall be responsible for the submission of copies of payrolls of all subcontractors. The contractor will make the records required under the labor standards clauses of the contract available for inspection by authorized representatives of the District and the Department of Labor, and will permit such representatives to interview employees during working hours on the job. Contractors employing apprentices or trainees under approved programs shall include a notation on the first weekly certified payrolls submitted to the Contracting Officer that their employment is pursuant to an approved program and shall identify the program.

**ARTICLE 2. CONVICT LABOR (18 USC 438)**—Convict labor shall not be used on Contract work unless otherwise provided by law.

### ARTICLE 3. APPRENTICES AND TRAINEES

- A. APPRENTICES**—Apprentices shall be permitted to work as such only when they are registered, individually, under a bona fide apprenticeship program registered with the Apprenticeship Council, D.C. Department of Labor. The allowance ratio of apprentices to journeymen in any craft classification shall not be greater than the ratio permitted to the Contractor a to his entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not a trainee as defined in Section B. of this Article or is not registered as above, shall be paid the wage rate determined by the Secretary of Labor or the classifications of work he actually performed. The Contractor and Subcontractor shall furnish to the Contracting Officer written evidence of the registration of his appropriate ratios and wage rates for the areas of construction, prior to using any apprentice on the Contract.
- B. TRAINEES**—Trainees will be permitted to work as such when they are bona fide trainees employed pursuant to a program approved by the Contracting Officer and Apprenticeship Council, D.C. Department of Labor.
- C. REQUIREMENTS**—The Contractor agrees to hire for the performance of the Contract a number of apprentices or trainees or both, in each occupation, which bears to the average number of the journeymen in that occupation to be employed in the performance of the Contract the applicable ratios as determined by the Apprenticeship Council, O. C. Department of Labor.
1. The Contractor shall assure that 25 percent of such apprentices or trainees in each occupation are in their first year of training, when feasible. Feasibility here involves a consideration of:
    - a. The availability of training opportunities for first year apprentices;
    - b. The hazardous nature of the work for beginning workers;
    - c. Excessive unemployment of apprentices in their second and subsequent years of training.
  2. The Contractor shall maintain records of employment, by trade, of the number of apprentices and trainees, apprentices and trainees by first year of training, and of journeymen, and the wages paid and hours of work of such apprentices, trainees and journeymen. The Contractor shall make these records available for inspection upon request of the Contracting Officer and the Apprenticeship Council, O. C. Department of Labor.
  3. The Contractor who claims compliance based on the criterion stated in 29 CFR5.a. agrees to maintain records of employment as described in 29 CFR5.a..3(a)(2) on non-governmental and non-governmentally assisted construction work done during the performance of the Contract in the same labor market area. The Contractor shall make these records available for inspection upon request of the Contracting Officer and the Apprenticeship Council, D. C. Department of Labor.
  4. The Contractor agrees to supply one copy of the written notices as required in accordance with 29 CFR. 5 a.4(c) at the request of the Contracting Officer. The Contractor shall supply at 3 month intervals during performance of the Contract and after completion of the Contract performance a statement containing a breakdown by craft of hours worked and wages paid for first year apprentices and trainees, other apprentices and trainees, and journeymen. Two copies of the statement shall be submitted to the Contracting Officer, who will submit a copy to the Apprenticeship Council, D. C. Department of Labor.

5. Section 5, D. C. Law 2—156, ACJ 2—325, dated December 29, 1978, is hereby incorporated as part of this Amendment as follows:

“All prime contractors and subcontractors who contract with the District of Columbia Government to perform construction or renovation work with a single contract or cumulative contracts of at least \$500,000, let within a twelve (12) month period, shall be required to register an apprentice.—ship program with the District of Columbia Apprenticeship Council.” 25 D.C. Register 6991.

#### **ARTICLE 4. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (40 USC 327- 330)**

- A. OVERTIME BASIS**—Each Contractor and subcontractor at any tier contracting for any part of Contract work which may require or involve the employment of laborers, mechanics, watchmen or guards, apprentices or trainees shall not require or permit any laborer, mechanic, watchman or guard, apprentice or trainee in any workweek in which he is employed on such work, to work in excess of eight (8) hours in any calendar day or in excess of forty (40) hours in such workweek unless such laborer, mechanic, watchman or guard, apprentice or trainee receives compensation at a rate not less than one and one—half times his basic rate of pay for all hours worked in excess of eight (8) hours in any calendar day or in excess of forty (40) hours in such workweek, as the case may be.
- B. LIABILITY FOR UNPAID WAGES**—In the event of violation of the provisions of Section A, the Contractor and any subcontractor responsible therefore shall be liable to any affected employee for his unpaid wages. In addition, such Contractor and subcontractor shall be liable to the District for Liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman or guard, apprentice or trainee employed in violation of any provision of Section A, in the amount of \$10 for each calendar day on which such employee was required or permitted to work in excess of eight (8) hours or in excess of the standard workweek of forty (40) hours without payment of the overtime wages required by Section A.

The Contracting Officer may withhold or cause to be withheld from the Contractor such sums as administratively determined to satisfy any liability of the Contractor and subcontractors for unpaid wages and liquidated damages as herein provided. In the event of failure to pay any laborer, mechanic, watchman, or guard, apprentice or trainee employed or working on the work site, all or part of the wages required by the Contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

- C. DISPUTES**—Any Contractor or subcontractor aggrieved by the withholding of a sum as liquidated damages as provided shall have the right, within sixty (60) days thereafter, to appeal to the Contracting Officer in the case of liquidated damages withheld for the use and benefit of the District. The Contracting Officer shall have authority to review the administrative determination of liquidated damages and to issue a final order affirming such determination; or if it is found that the sum determined is incorrect or that the Contractor or subcontractor violated these Labor Provisions inadvertently notwithstanding the exercise of due care on his part and that of his agents, recommendations may be made to the Secretary of Labor that an appropriate adjustment in liquidated damages be made, or that the Contractor or subcontractor be relieved of liability for such liquidated damages. The Secretary will review all pertinent facts in the matter and may conduct such investigation as he deems necessary so as to affirm or reject the recommendation. The decision of the Secretary shall be final. In all such cases in which a Contractor or subcontractor may be aggrieved by a final order for the withholding of liquidated damages as herein before provided, the Contractor or subcontractor may, within sixty (60) days after such final order, file a claim per Article 7 of the General Provisions, provided, however, that final orders of the Contracting Officer or the Secretary of Labor as the case may be, shall be conclusive with respect to findings of fact if such findings are supported by substantial evidence.

- D. VIOLATION PENALTY**—If the Contractor or subcontractor who employs, directs & controls any laborer or mechanic employed in the performance of any work contemplated by the Contract, shall intentionally violate any provision herein, he shall be deemed guilty of a misdemeanor, and for each and every such offense shall, upon conviction, be punished by a fine of not to exceed \$1,000 or by imprisonment for not more than six (6) months, or by both such fine and imprisonment, in the discretion of the court having jurisdiction thereof (Section 106 Title 1, P.L. 87—851, 40 USC Sec. 332, 76 Stat. 359).
- E. HEALTH AND SAFETY STANDARDS**—It is a condition of the Contract, and shall be made a condition of each subcontract under the Contract, that the Contractor and any subcontractor shall not require any laborer or mechanic employed in performance of the Contract to work in surroundings or wider working condition which are unsanitary, hazardous, or dangerous to his health or safety, as determined under construction safety and health standards per 29 CFR Part 1518.

The Secretary of Labor is authorized to make such inspections, hold such hearings, issue such orders, and make such decisions based on findings of fact, as are deemed necessary to gain compliance with this Section and any health and safety standard promulgated by the Secretary. In the event that the Secretary of Labor determines non-compliance under the provisions of this Section after an opportunity for an adjudicatory hearing by the Secretary of any condition of the Contract, the District shall have the right to cancel the Contract, and to enter into other contracts for the completion of the Contract work, charging any additional cost to the Contractor.

**ARTICLE 5. COPELAND ACT (18 USC 874, and 40 USC 276c)** - Each Contractor and subcontractor at any tier contracting for any part of Contract work in excess of \$2,000.00 shall be subject to the Copeland Act provisions as follow:

- A. DEFINITION**—As used in this Article, the term "employee" shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervisors of such employees.
- B. WEEKLY COMPLIANCE STATEMENT**—The Contractor and each subcontractor engaged in the construction, prosecution, completion or repair of any public building or public work shall furnish each week a statement with respect to the wages paid each of his employees engaged on work covered by these Labor Provisions during the preceding weekly payroll period. The statement shall be executed by the Contractor or subcontractor, or by an authorized officer or employee of the Contractor or subcontractor, who supervises the payment of wages, and shall be on the form attached at the end of these Labor Provisions and entitled "Weekly Statement of Compliance" (Form No. DC 2640-11).

Each weekly statement required shall be delivered by the Contractor or subcontractor, within seven (7) days after regular payment date of the payroll period, to a representative of the Contracting Officer in charge at the site of the building or work. After each examination and check as may be made, such statement, or copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the US. Department of Labor.

Upon a written finding by the Contracting Officer, the Secretary of Labor may provide reasonable limitations, variations, tolerances and exemptions from the requirements of this Section subject to such conditions as the Secretary of Labor may specify.

- C. PAYROLLS AND RECORDS**—The Contractor and each subcontractor shall preserve his weekly payroll records for a period of three (3) years from date of completion of the Contract. The payroll records shall set out accurately and completely the name, address and Social Security Number of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the Contracting Officer, and by authorized representatives of the U.S. Department of Labor.

**D. PAYROLL DEDUCTIONS NOT SUBJECT TO SECRETARY OF LABOR APPROVAL—**

Deductions made under the circumstances or in the situations described in paragraphs of this Section may be made without application to and approval at the Secretary of Labor:

1. Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.
2. Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.
3. Any deduction of amounts required by court process to be paid to another, unless the deduction is in favor of the Contractor, subcontractor, or any affiliated person, or when collusion or collaboration exists.
4. Any deduction constituting a contribution on behalf of the person employed to funds established by the employer, or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities or retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, that the following standards are met:
  - a. The deduction is not otherwise prohibited by law;
  - b. it is either voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or provided for in a bona fide collective bargaining agreement between the Contractor or subcontractor and representatives of his employees;
  - c. No profit or other benefit is otherwise obtained, directly or indirectly, by the Contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and
  - d. The deductions - shall serve the convenience and interest of the employee.
5. Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.
6. Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal, State and District credit union statutes.
7. Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.
8. Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

9. Any deduction to pay regular union initiation fees and membership dues, not including fines or special assessments; provided, however, that a collective bargaining agreement between the Contractor or subcontractor and representatives of his employees provides for such deductions and the deductions are not otherwise prohibited by law.
10. Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of Section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of said title. When such a deduction is made the additional records required under 516.25(a) of this title shall be kept.

**E. PAYROLL DEDUCTIONS SUBJECT TO SECRETARY OF LABOR APPROVAL**—The Contractor and any subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under Section D. The Secretary may grant permission whenever he finds that:

1. The Contractor, subcontractor or any affiliated person does not make a profit or benefit directly from the deduction, either in the form of a commission, dividend or otherwise;
2. The deduction, is not otherwise prohibited by law;
3. The deduction is either:
  - a. voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or
  - b. provided for in a bona fide collective bargaining agreement between the Contractor or subcontractor and representatives of its employees; and
4. The deduction serves the convenience and interest of the employee.

**F. APPLICATIONS FOR SECRETARY OF LABOR APPROVAL**—Any application for the making of payroll deductions under Section E. shall comply with the requirements prescribed in Paragraphs 1 through 5:

1. The application shall be in writing and shall be addressed to the Secretary of Labor.
2. The application shall identify the Contract under which the work in question is to be performed. Permission will be given for deductions only on specific, identified contracts, except upon a showing of exceptional circumstances.
3. The application shall state affirmatively that there is compliance with the standards set forth in Section B. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.
4. The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages proposed deduction would be made.
5. The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

**G. ACTION BY SECRETARY OF LABOR UPON APPLICATIONS**—The Secretary will decide whether or not the requested deduction is permissible under provisions of Section B, and shall notify the applicant in writing of his decision.

**H. PROHIBITED PAYROLL DEDUCTIONS**—Deductions not elsewhere stipulated and which are not found to be permissible under Section B are prohibited.

- I. **METHODS OF PAYMENT OF WAGES**—The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible. No other methods of payment shall be recognized on work subject to the Copeland Act.

**ARTICLE 6. RESERVED**

**ARTICLE 7. NONSEGREGATED FACILITIES**—The Contractor certifies that he does not and will not maintain or provide for his employees any segregated facility at any of his establishments; that he does not and will not permit his employees to perform their services at any location under his control where segregated facilities are maintained; and that he will obtain and retain identical certifications from proposed subcontractors prior to award or subcontracts.

"Segregated facilities" shall mean any waiting room, work area, wash and rest rooms, restaurant and other eating area, time clock, locker room and other storage or dressing area, parking lot, drinking fountain, recreation or entertainment area, transportation and housing facility, provided for employees which is segregated by explicit directive or is segregated on the basis of race, color, age, sex, religion or national origin, because of habit, local custom or otherwise. Penalty for violation or making false statements is prescribed in 18 USC 1001.

**DISTRICT OF COLUMBIA  
WEEKLY STATEMENT OF COMPLIANCE  
(Construction)**

Project No. Invitation No.	Contract No.	Date
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<b>WAGES AND HOURS</b>		
	Total This Period	Total To Date
Straight Time Hours Worked		
Overtime Hours Worked		
Overtime and Straight Time Hours Combined		
Wages Earned		

I, \_\_\_\_\_, \_\_\_\_\_  
(Name of signatory party) (Title)

do hereby state

(1) That I pay or supervise the payment of the persons employed by \_\_\_\_\_  
(Contractor or Subcontractor) on the \_\_\_\_\_  
(Building or Work);  
that during the payroll period commencing on the \_\_\_\_\_ day of \_\_\_\_\_,  
19\_\_\_\_, and ending on the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, all persons  
employed on said project have been paid full weekly wages earned, that no rebates have been or will  
be made either directly or indirectly to or on behalf of said \_\_\_\_\_  
(Contractor or Subcontractor)

from the full weekly wages earned by any person and that no deductions have been made either di-  
rectly or indirectly from the full wages earned by any person, other than permissible deductions as  
defined in 29 CFR Part 3 issued by the Secretary of Labor under the Copeland Act as amended (48  
Stat. 948; 63 Stat. 108; 72 Stat. 967; 76 Stat. 537; 40 USC 276c), and described below:

(2) That any payroll otherwise under the Contract required to be submitted for the above period  
are correct and complete; that the wage rates for laborers or mechanics contained therein are not less  
than the applicable wage rates contained in any wage determination incorporated into the Contract;  
that the classifications set forth therein for each laborer or mechanic conform with the work he per-  
formed.

(3) That any apprentice employed in the above period is duly registered in a bona fide apprentice-  
ship program registered with the Bureau of Apprenticeship Training, U.S. Department of Labor.

**NOTE—Fringe Benefits Statement and Signature Block are on reverse.**

Form No. DC 2840-11



**ATTACHMENT J.1.6**

**THE LIVING WAGE ACT FACT SHEET**



## LIVING WAGE ACT FACT SHEET

The “Living Wage Act of 2006,” Title I of D.C. Law 16-18, (D.C. Official Code §§2-220.01-.11) became effective June 9, 2006. It provides that District of Columbia government contractors and recipients of government assistance (grants, loans, tax increment financing) in the amount of \$100,000 or more shall pay affiliated employees wages no less than the current living wage rate.

**Effective January 1, 2010, the living wage rate is \$12.50 per hour.**

Subcontractors of D.C. government contractors who receive \$15,000 or more from the contract and subcontractors of the recipients of government assistance who receive \$50,000 or more from the assistance are also required to pay their affiliated employees no less than the current living wage rate.

“Affiliated employee” means any individual employed by a recipient who receives compensation directly from government assistance or a contract with the District of Columbia government, including any employee of a contractor or subcontractor of a recipient who performs services pursuant to government assistance or a contract. The term “affiliated employee” does not include those individuals who perform only intermittent or incidental services with respect to the government assistance or contract, or who are otherwise employed by the contractor, recipient or subcontractor.

**Exemptions** – The following contracts and agreements are exempt from the Living Wage Act:

1. Contracts or other agreements that are subject to higher wage level determinations required by federal law (i.e., if a contract is subject to the Service Contract Act and certain wage rates are lower than the District’s current living wage, the contractor must pay the higher of the two rates);
2. Existing and future collective bargaining agreements, provided that the future collective bargaining agreement results in the employee being paid no less than the current living wage;
3. Contracts for electricity, telephone, water, sewer or other services provided by a regulated utility;
4. Contracts for services needed immediately to prevent or respond to a disaster or eminent threat to public health or safety declared by the Mayor;
5. Contracts or other agreements that provide trainees with additional services including, but not limited to, case management and job readiness services, provided that the trainees do not replace employees subject to the Living Wage Act;

6. An employee, under 22 years of age, employed during a school vacation period, or enrolled as full-time student, as defined by the respective institution, who is in high school or at an accredited institution of higher education and who works less than 25 hours per week; provided that he or she does not replace employees subject to the Living Wage Act;
7. Tenants or retail establishments that occupy property constructed or improved by receipt of government assistance from the District of Columbia; provided, that the tenant or retail establishment did not receive direct government assistance from the District of Columbia;
8. Employees of nonprofit organizations that employ not more than 50 individuals and qualify for taxation exemption pursuant to Section 501 (c) (3) of the Internal Revenue Code of 1954, approved August 16, 1954 (68A Stat. 163; 26. U.S.C. §501(c)(3));
9. Medicaid provider agreements for direct care services to Medicaid recipients, provided, that the direct care service is not provided through a home care agency, a community residence facility, or a group home for mentally retarded persons as those terms are defined in section 2 of the Health-Care and Community Residence Facility, Hospice, and Home Care Licensure Act of 1983, effective February 24, 1984 (D.C. Law 5-48; D.C. Official Code §44-501); and
10. Contracts or other agreements between managed care organizations and the Health Care Safety Net Administration or the Medicaid Assistance Administration to provide health services.

## **Enforcement**

The Department of Employment Services (DOES) and the D.C. Office of Contracting and Procurement (OCP) share monitoring responsibilities.

If you learn that a contractor subject to this law is not paying at least the current living wage you should report it to the Contracting Officer.

If you believe that your employer is subject to this law and is not paying you at least the current living wage, you may file a complaint with the DOES Office of Wage – Hour, located at 64 New York Ave., NE, Room 3105, (202) 671-1880.

For questions and additional information, contact the Office of Contracting and Procurement at (202) 727-0252 or the Department of Employment Services on (202) 671-1880.

**Please note:** *This fact sheet is for informational purposes only as required by Section 106 of the Living Wage Act. It should not be relied on as a definitive statement of the Living Wage Act or any regulations adopted pursuant to the law.*

## **ATTACHMENT J.1.7**

### **CONTRACTOR'S PERFORMANCE EVALUATION GUIDELINES**

# **CONSTRUCTION CONTRACTOR PERFORMANCE EVALUATION GUIDELINES**

## **1. INTRODUCTION**

### **DEFINITIONS**

The term “Contractor” means the Construction General Contractor.

The term “Administrator” means the Administrator of Construction in the Department of Real Estate Services (DRES) Construction Division.

The term “Deputy Director” means the Deputy Director of Construction in the Department of Real Estate Services Construction Division.

The term “Project Manager” means the Individual assigned to manage the Project by the Department of Real Estate Services Construction Division.

The term “Client” means the District agency for which the Department of Real Estate Services is managing the Project.

The term “Project” means a Department of Real Estate Services managed construction project.

The term “Representatives” means DRES’s third party professionals, such as architects and engineers.

The acronym “QA/QC” means Quality Assurance/Quality Control.

The acronym “SOV” means Schedule of Values.

The Contractor Performance Evaluation System has been developed to evaluate the performance of contractors on current construction projects. This system makes it possible for the Department of Real Estate Services to review the Contractor’s performance on DRES managed construction projects.

DRES will conduct construction contractor performance evaluations for all construction projects managed by DRES regardless of the method of procurement.

## **2. SCHEDULE OF EVALUATION**

- (A) DRES will evaluate a Contractor’s performance during the course of each Project. The minimum frequency of evaluations will be based on the percent of physical work completed, as shown in the following table:

<b>MINIMUM FREQUENCIES OF PERFORMANCE EVALUATIONS</b>	
<b>Contract Duration</b>	<b>Evaluation Frequency</b>
Up to 4 months	One: at final completion
Between 4 to 12 months	Two: at 50% and final completion
Beyond 12 months	Five: at 15%, 30%, 50%, 75% and final completion

(B) In addition to the above, DRES reserves the right to evaluate a Contractor’s performance at any time during a Project provided that no less than thirty (30) calendar days has elapsed since the last performance evaluation.

### **3. PERFORMANCE EVALUATION**

The DRES Project Manager (PM) will be responsible for ensuring that the Contractor Performance Evaluation Form (Exhibit A) is completed and submitted to the Administrator in accordance with the above Section 2. The Contractor Performance Evaluation Form consists of two parts: Part 1 Summary Report, and Part 2 DRES Project Manager Report. Upon completing Part 2, the PM will complete Part 1 Summary Report and calculate the Contractor’s overall performance rating for the project to-date. The PM will be responsible for completing and submitting its evaluation to the DRES Senior Project Manager (Senior PM) within 5 business days of Contractor’s completion of an evaluation milestone as set forth in the table in Section 2(A) above, and additionally will be responsible for completing and submitting its evaluation to the Senior PM at such other times as DRES deems appropriate, in its sole discretion, in accordance with Section 2(B) above.

The Senior PM will be responsible for submitting the completed Contractor Performance Evaluation Form to the Administrator for review approval. The Administrator will review the Contractor Performance Evaluation Form to ensure that ratings are fair, consistent, and accurate based on the underlying facts and supporting documentation.

Upon approval, the Administrator will forward the Contractor Performance Evaluation Form to the Deputy Director for approval and signature. The final evaluation form will be sent to the Contractor per Section 6 of these guidelines.

### **4. EVALUATION CRITERIA**

As identified on the Contractor Performance Evaluation Form, the evaluation criteria and sub-factors of each criteria are:

#### **QUALITY OF WORK**

- Quality of Workmanship
- Quality of Subcontractors’ Work
- Compliance with Plans and Specifications
- Adequacy of the QA/QC Plan
- Adequacy of the QA/QC Testing
- Implementation of the QA/QC Plan

- Quality of QA/QC Documentation
- Storage of Materials
- Adequacy of Materials
- Use of Specified Materials
- Quality of Submittals
- Timely Correction of Deficient Work

#### **COST CONTROL**

- Practices Change Order Avoidance and Minimization
- Change Order Documentation
- Change Order Pricing (based on the percentage calculated by dividing the total value of the change orders since the last evaluation by the total Project Budget applicable to the same period, the rating for this sub-factor shall be:  $\leq 3\% = 100$ ,  $\leq 10\% = 90$ ,  $\leq 15\% = 80$ ,  $\leq 20\% = 70$ ,  $\geq 20\% = 60$ )
- Timely Performs Change Order Work
- Subcontractor Change Order Review and Approval

#### **SCHEDULE/TIME MANAGEMENT**

- Adequacy of Initial Project Schedule
- Adherence to Approved Schedule
- Schedule Update Timeliness and Accuracy (Monthly)
- Timely Submittal of and Adherence to Recovery Schedule (If Applicable)
- Timely Notification of Conditions Impacting Schedule (such as, inspectors, material lead times, coordination with other city agencies)
- Timely Submission of Shop Drawings
- Timely Payments to Subcontractors and Vendors
- Timely Conducting of all Inspections, including, for example, inspections for permits (materials, mechanical systems, close-out, etc.)

#### **MANAGEMENT**

- Cooperation/Responsiveness with DRES Project Staff, Client and Representatives
- Coordination with Other Primes
- Coordination and Control of Subcontractors
- Professional Conduct
- Management of Personnel/Resources
- Adequate Amount of Workforce, Materials and Equipment to Meet Schedule
- Job-site Supervision
- Adequacy of Daily Work Log
- Review/Resolution of Subcontractor's Issues
- Compliance with Laws, Regulations, Permits, Inspections, Testing
- Housekeeping (i.e. cleanliness of job site, trailer, etc.)
- Invoices adhere to approved S.O.V./% Complete

#### **LABOR STANDARDS**

- Prompt Correction of Deficiencies
- Certified Payrolls Properly Completed and Submitted
- Compliance with Labor Laws
- Compliance with Prevailing Wage Laws

- Trained and Skilled Workforce

#### **SAFETY STANDARDS**

- Adequacy of Safety Plan
- Implementation of Safety Plan
- Minimizes Job-site Accidents
- On-site Safety Maintenance
- Compliance with Worker Exposure Requirements
- Compliance with Drug/Alcohol Abuse Requirements
- Adequacy of Regulatory Compliance Documentation

#### **CLOSE-OUT**

- Prompt Submission and Quality Completion of Punch List
- Prompt Submission and Quality Completion of As-built Drawings, O&M Manuals, Warranties, etc.
- Adequacy of User Training
- Supports Building Commissioning
- Demobilization and Site Clean-up

### **5. PERFORMANCE EVALUATION RATING SYSTEM**

In evaluating and rating each criteria and subfactor on the Contractor Performance Evaluation Form, the evaluator will use the following rating systems. The ratings reflect the District's satisfaction with the Contractor's performance of the requirements of the Project from the date of the last evaluation (or from Project commencement if it is a first Project evaluation) **to the date of the current evaluation).**

#### Excellent (100)

When applied to the individual evaluation sub-factor, a rating of excellent should be given if the contractor work far exceeds the contract requirements by consistently exhibiting excellent performance typically meets and regularly exceeds the contract requirements.

#### Good (90)

When applied to the individual evaluation sub-factor, a rating of good should be given if the Contractor often exceeds the contract requirements and frequently provides a high level of performance, typically meets, and often exceeds the contract requirements.

#### Satisfactory (80)

When applied to the individual evaluation sub-factor, a rating of satisfactory should be given if the Contractor provides an acceptable level of performance consistently meeting the contract requirements.

#### Marginal (70)

When applied to the individual evaluation sub-factor, a rating of satisfactory should be given if the Contractor performs slightly below the requirements of the contract, meeting the contract requirements on an intermittent basis.

### Unsatisfactory (60)

When applied to the individual evaluation sub-factor, a rating of unsatisfactory should be given if the Contractor fails to meet important contract requirements, resulting in a negative impact on the entire project.

For any performance evaluation rating value below Satisfactory (80.0), the evaluator must provide written comments with specific explanations of how and when a Contractor failed to meet the contract requirements.

## **6. NOTIFICATION TO CONTRACTOR**

DRES will notify the Contractor of the results of the most recent performance evaluation. The notification will include a cover letter, and a copy of the Contractor Performance Evaluation Form with supporting documents, if any. If the overall Performance Rating is below Satisfactory (80.0), the cover letter will set forth a timeframe in which the Contractor must correct deficiencies to achieve an overall performance rating of at least satisfactory (80.0). If the Contractor fails to remedy the deficiencies within this timeframe, DRES will input results into the DRES database and submit a copy of evaluation and supporting documents to the Office of Contracts and Procurement (OCP) for inclusion in the Contractor's OCP file.

## **7. CONTRACTOR CHALLENGES**

A Contractor who wishes to challenge a performance evaluation shall submit its challenge in writing to the Deputy Director, with a copy to the Administrator, postmarked within fifteen (15) calendar days of date of notice.

The written challenge must include a detailed explanation, and documentation, if any, of the specific grounds for the challenge.

Failure to timely challenge a performance evaluation in the manner required will be deemed to be a waiver of Contractor's right to challenge that performance evaluation.

If a challenge, in accordance with this Section 7, is given by a Contractor, the results of the Contractor's performance evaluation will not be final (entered into the DRES database) until the Deputy Director renders a final written decision. Upon arriving at a final decision, the Deputy Director, or his designee, will forward said decision to the Contractor. If the Deputy Director's final decision is to maintain the overall Performance Rating, the Deputy Director will forward a copy of the decision to OCP and the Contractor shall be added to the DRES database and a copy of evaluation and supporting documents will be provided to OCP for inclusion in the Contractor's OCP file.

## **8. MULTIPLE PERFORMANCE EVALUATION RATINGS**

At the completion of a Project, the Contractor will be given a Final Performance Evaluation Rating which will be calculated by averaging all Performance Ratings given in the course of the Project.

Exhibit A  
CONTRACTOR PERFORMANCE EVALUATION FORM

**Part 1**  
**Summary Report**

DATE 1/16/09 \_\_\_\_\_

CONTRACTOR \_\_\_\_\_

CONTACT NAME \_\_\_\_\_

PROJECT NUMBER \_\_\_\_\_

PROJECT NAME \_\_\_\_\_

PROJECT ADDRESS \_\_\_\_\_

**EVALUATION SCHEDULE (based on physical work):**

Circle One: 15% 30% 50% 75% Final Other \_\_\_\_\_

EVALUATOR \_\_\_\_\_

DATE \_\_\_\_\_

**INSTRUCTIONS:**

The Department of Real Estate Services (DRES) should complete a performance evaluation form for each prime contract according to the evaluation schedule set forth above. It is important to use the point ranking system specified on this form.

	SUMMARY RATING	N/A
QUALITY OF WORK		
COST CONTROL		
SCHEDULE/TIME MANAGEMENT		
MANAGEMENT		
COMPLIANCE WITH SAFETY STANDARDS		
CLOSEOUT (Final Only)		
OVERALL PERFORMANCE RATING*		

\*Sum of Summary Ratings divided by number of categories evaluated.

**PROJECT MANAGER/DATE**

**SR. PROJECT MANAGER/DATE**

**ADMINISTRATOR/DATE**

**DEPUTY DIRECTOR/DATE**

Exhibit A

CONTRACTOR PERFORMANCE EVALUATION FORM

**Part 2**

**Construction Inspection Supervisor Detailed Report**

DATE \_\_\_\_\_  
 CONTRACTOR \_\_\_\_\_  
 CONTACT NAME \_\_\_\_\_  
 PROJECT NUMBER \_\_\_\_\_  
 PROJECT NAME \_\_\_\_\_  
 PROJECT ADDRESS \_\_\_\_\_

**EVALUATION SCHEDULE**

Circle One: 15% 30% 50% 75% Final Other \_\_\_\_\_

EVALUATOR \_\_\_\_\_ DATE \_\_\_\_\_

QUALITY OF WORK	N/A	Excellent	Good	Satisfactory	Marginal	Unsatisfactory
Quality of Workmanship		100	90	80	70	60
Quality of Subcontractor's Work		100	90	80	70	60
Compliance with Plans and Specifications		100	90	80	70	60
Implementation of the QA/QC Plan		100	90	80	70	60
Adequacy of the QA/QC Plan		100	90	80	70	60
Adequacy of QA/QC Testing		100	90	80	70	60
Quality of QA/QC Documentation		100	90	80	70	60
Storage of Materials		100	90	80	70	60
Adequacy of Materials		100	90	80	70	60
Use of Specified Materials		100	90	80	70	60
Quality of Submittals		100	90	80	70	60
Identification and Timely Correction of Deficient Work		100	90	80	70	60
<b>Summary Rating</b> (Sum of values circled divided by number of sub-factors evaluated)						

Comments for Individual or Summary Ratings less than 80: \_\_\_\_\_

COST CONTROL	N/A	Excellent	Good	Satisfactory	Marginal	Unsatisfactory
Practices Change Order Avoidance and Minimization		100	90	80	70	60
Change Order Documentation		100	90	80	70	60
Change Order Pricing		100	90	80	70	60
Timely Performs Change Order Work		100	90	80	70	60
Subcontractor Change Order Review and Approval		100	90	80	70	60
<b>Summary Rating</b> (Sum of values circled divided by number of sub-factors evaluated)						

Comments for Individual or Summary Ratings less than 80: \_\_\_\_\_

Exhibit A  
CONTRACTOR PERFORMANCE EVALUATION FORM

SCHEDULE/TIME MANAGEMENT	N/A	Excellent	Good	Satisfactory	Marginal	Unsatisfactory
Adequacy of Initial Project Schedule		100	90	80	70	60
Adherence to Approved Schedule		100	90	80	70	60
Schedule Update Timeliness and Accuracy		100	90	80	70	60
Timely Submittal and Adherence to Recovery Schedule		100	90	80	70	60
Timely Notification of Conditions Impacting Schedule, Tie-ins, Shut-downs, etc.		100	90	80	70	60
Time Submission of Shop Drawings		100	90	80	70	60
Timely Payments to Subcontractors and Vendors (Compliance with Prompt Payment Act)		100	90	80	70	60
Timely in Obtaining Permits, Conducting Inspections, etc.		100	90	80	70	60
<b>Summary Rating</b> (Sum of values circled divided by number of sub-factors evaluated)						

Comments for Individual or Summary Ratings less than 80: \_\_\_\_\_

MANAGEMENT	N/A	Excellent	Good	Satisfactory	Marginal	Unsatisfactory
Cooperation/Responsiveness with DRES Project Staff, Client and Representatives		100	90	80	70	60
Coordination with Other Primes		100	90	80	70	60
Coordination and Control of Subcontractors		100	90	80	70	60
Professional Conduct		100	90	80	70	60
Management of Personnel/Resources		100	90	80	70	60
Provides Adequate Amount of Workforce, Materials and Equipment to Meet Schedule		100	90	80	70	60
Job-Site Supervision		100	90	80	70	60
Adequacy of Daily Work Log		100	90	80	70	60
Review/Resolution of Subcontractor's Issues		100	90	80	70	60
Practices Claim Avoidance and Minimization		100	90	80	70	60
Compliance with Laws, Regulations, Permits, Inspections, Testing		100	90	80	70	60
Housekeeping		100	90	80	70	60
Invoices adhere to approved S.O.V. % complete						
<b>Summary Rating</b> (Sum of values circled divided by number of sub-factors evaluated)						

Comments for Individual or Summary Ratings less than 80: \_\_\_\_\_

**Exhibit A**  
**CONTRACTOR PERFORMANCE EVALUATION FORM**

<b>LABOR STANDARDS</b>	<b>N/A</b>	<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Marginal</b>	<b>Unsatisfactory</b>
Correction of Noted Deficiencies		100	90	80	70	60
Payrolls Properly Completed and Submitted		100	90	80	70	60
Compliance with Labor Laws		100	90	80	70	60
Compliance with Prevailing Wage Law		100	90	80	70	60
Trained and Skilled Workforce		100	90	80	70	60
<b>Summary Rating</b> (Sum of values circled divided by number of sub-factors evaluated)						

Comments for Individual or Summary Ratings less than 80: \_\_\_\_\_  
\_\_\_\_\_

<b>SAFETY STANDARDS</b>	<b>N/A</b>	<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Marginal</b>	<b>Unsatisfactory</b>
Adequacy of Safety Plan		100	90	80	70	60
Implementation of Safety Plan		100	90	80	70	60
Minimizes Job-site Accidents		100	90	80	70	60
On-site Safety Maintenance		100	90	80	70	60
Compliance with Worker Exposure Requirements		100	90	80	70	60
Compliance with Drug/Alcohol Abuse Requirements		100	90	80	70	60
Adequacy of Regulatory Compliance Documentation		100	90	80	70	60

**Summary Rating**  
(Sum of values circled divided by number of sub-factors evaluated)

Comments for Individual or Summary Ratings less than 80: \_\_\_\_\_  
\_\_\_\_\_

<b>CLOSE-OUT</b>	<b>N/A</b>	<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Marginal</b>	<b>Unsatisfactory</b>
Promptness/Quality of Punch List		100	90	80	70	60
Promptness/Quality of As-built Drawings, O&M Manuals, Warranties, etc...		100	90	80	70	60
Adequacy of User Training		100	90	80	70	60
Supports Building Commissioning		100	90	80	70	60
Demobilization and Site Clean-up		100	90	80	70	60

**Summary Rating**  
(Sum of values circled divided by number of sub-factors evaluated)

Comments for Individual or Summary Ratings less than 80: \_\_\_\_\_  
\_\_\_\_\_

Exhibit A  
CONTRACTOR PERFORMANCE EVALUATION FORM

**INSTRUCTIONS:**

In the space provided below, if applicable, provide additional text to identify and to describe how specific individuals or firms exerted a positive or negative impact on the contractor's performance on this project. The text provided below is for informational purposes only and should already be factored into the evaluation ratings.

**Contractor's Personnel**

**Subcontractor's Personnel**