DetentionGRADE™ SPECIFICATION

Section 09546 - Metal Plank Acoustical Security Ceiling System

1.0 SCOPE OF WORK

1.1 WORK INCLUDED: This specification covers the material, installation, and related requirements for the Metal Plank Ceiling System - including all necessary acoustical insulation, suspension systems, and fasteners.

1.2 RELATED WORK: The following items of related work are not included in this Section of the specifications.

1.2.1 Ceiling Lighting Systems; their components, layout, coordination, installation, or support systems. Compatible recessed Security Lighting Fixtures are to be furnished and installed by Division 16 Electrical.

1.2.2 Ceiling Air Supply and Return Systems; their components, layout, coordination, installation, or support systems. Compatible air supply and return systems are to be furnished and installed by Division 15 Mechanical.

2.0 SUBMITTALS

2.1 A manufacturer's certification of compliance with the acoustical performance required under Section 6.2 of this specification.

2.2 After award of contract, Shop drawings shall be submitted and approved prior to fabrication of the ceiling panels or their structural supports.

2.3 A 1' x 1' assembled sample of each ceiling panel and its suspension system shall be submitted for approval.

2.4 Manufactures' Product Data and Installation Instructions.

3.0 FIELD CONDITIONS: The ceiling contractor shall verify all dimensions, elevations, and job site conditions before fabrication commences.

4.0 PRODUCT COMPONENTS

4.1 METAL PLANK CEILINGS: The Metal Plank Ceiling System is to be fabricated and installed in accordance with the manufacturers approved shop drawings. Metal planks shall be factory formed from **(14) (16) gauge perforated (non-perforated) galvannealed A60 steel** as indicated on the drawings. Planks shall be formed (12") (18") (24") wide in lengths of up to 12'-0" as shown on reflected ceiling plans. **Vertical legs of metal planks are to be factory formed so that panels interlock tightly to provide positive self-alignment with adjacent panels.**

4.2 METAL PLANK SUSPENSION: Perimeter angles and main tee runners shall be factory fabricated from **(12) gauge factory finished galvannealed (min. A60) steel.** Angles and tees shall be factory prepunched to receive fasteners. Angles shall be fastened to all abutting vertical surfaces through the use of **drilled in anchors** or other approved fasteners at a **minimum of 24" O/C.** Tee sections shall be suspended by **3/8" dia threaded rods with adjustable yokes** pinned to main tees **at minimum of 3'-0" O.C.,** hung from structural members as approved by the architect. Panels shall be securely fastened to all angles and tee sections with **(steel pop rivets or security fasteners)** of appropriate dimension (painted to match panels) **minimum 12" on center**.

4.3 ACOUSTICAL MATERIAL: The inside surface of all perforated ceiling panels shall be covered with **Class "A"** fiberglass insulation wrapped in black Fire Retardant Poly. Insulation shall be of sufficient thickness and density to provide the acoustical requirements as outlined in Section 6.2 of this specification.

4.4 LIGHTS AND AIR: Although not furnished by the ceiling system manufacturer, all light and air units are to be system compatible and sized so as to fit into and trim off full module opening in ceiling system and shall be independently supported from above by installing trade.

4.5 ACCESS DOORS: All security access doors to be installed in the Metal Plank Ceiling System shall be supplied by the Metal Plank Ceiling System manufacturer in quantities indicated on the architectural drawings or as approved by the architect. Access Doors shall have the following characteristics:

1. Door: 14 gauge steel.
2. Size: 12" x 12", 18" x 18", 18" x 24" or 24" x 24"
3. Frame: 12 gauge steel.
4. Hinge: Full-length semi-concealed piano hinge. Opens 180 degrees.
5. Anchors: ¼-20 Torx fasteners.
6. Lock: 1/4-20 Torx fasteners (or optional keyed deadlock).
7. Finish: factory White Polyester **Powder Coated Paint finish**

4.6 FASTENERS: All exposed fasteners shall be tamper proof and shall be a minimum #10 size. Fasteners for securing the wall molding to the wall are to be selected and furnished by the contractor and approved by the architect/engineer.

5.0 FINISH

5.1 METAL PLANKS AND RELATED SUSPENSION:: The metal planks shall have a factory White Polyester Powder Coated Paint finish. Finish to be applied after perforation to insure coating of perforated holes. Panels shall be coated with white polyester powder to a finish side thickness min. 2.0 mil. Prior to painting, galvanealled steel or aluminum surfaces shall be cleaned, rinsed, and properly treated to receive the powder finish. Finish to achieve the following performance characteristics: Salt Spray per ASTM B-117 - 1000 hours PASS at less than 1/8" from score; Humidity Resistance per ASTM D-2247 - 1000 hours PASS at less than 1/8" from score.

6.0 PERFORMANCE

6.1 ACCESSIBILITY: Suspended metal plank ceiling systems shall be designed and installed to resist access to the plenum area. System compatible hinged locking downward accessible doors are to be provided in locations indicated on architectural reflected ceiling plans. Access Doors are to be sized so as to fit into and trim off full module opening in ceiling system.

6.2 ACOUSTICAL REQUIREMENTS: The perforated ceiling systems shall provide a noise reduction co-efficient (NRC) of no less than 0.80 when tested in accordance with ASTM C423-84a in an E-400 mounting as defined in ASTM E795-83.

7.0 MATERIAL PROTECTION AND INSTALLATION

7.1 MATERIAL PROTECTION: Material shall not be delivered to the job site, nor installed, until all exterior openings have been closed in and all concrete and other wet work is completed and dry.

7.2 SITE INSPECTION: Prior to installation of the ceiling systems, the general contractor shall verify that the structure and surfaces provided by other trades are properly built to the dimensions shown on the approved ceiling shop drawings and that the structure is ready to receive the ceiling system. All discrepancies shall be corrected prior to commencing installation.

7.3 INSTALLATION: The ceiling systems shall be installed in accordance with ASTM C636, and CISCA guidelines, in layouts as reflected on the approved shop drawings, all in compliance with the manufacturer's installation instructions. The suspension system and wall moldings shall be installed plumb and level. Start installation of Metal Plank at location as shown on reflected ceiling plans. Slide Metal Plank along perimeter angle to create a interlocking joint between adjoining panels. Insure self-aligning legs overlap each other. Side stitch panels together along interlocked panel joins with self tapping fasteners per approved shop drawings or at a minimum of 24" **o/c.** In order to achieve secure and tightly engaged panel joint details, panels must be installed progressively from the start panel through the closure panel. Except for the openings for light, air, fire protection, or access shown on the reflected ceiling plans, all openings or cut outs required in the ceiling planks shall be field cut by the trades requiring the openings.

8.0 QUALITY ASSURANCE

8.1 MANUFACTURER QUALIFICATIONS: Company specializing and regularly engaged in the domestic manufacture of metal plank security ceilings with a **minimum of ten (10) years experience** in the manufacture of correctional ceiling systems.

8.2 ERECTOR QUALIFICATIONS: Company specializing in the installation of metal plank security ceilings, approved by the manufacturer, and having a **minimum of three (3) years experience** in the installation of correctional ceiling systems.

8.3 SINGLE SOURCE RESPONSIBILITY. To insure proper compatibility, all ceiling components listed in Section 4.0 Product Components, shall be provided by a **single source.**

9.0 ACCEPTABLE MANUFACTURERS

9.1 SUSPENDED METAL SECURITY PLANK CEILING SYSTEM: Shall be **DetentionGRADE**™ as manufactured by **Detention Device Systems, Hayward, California 94545 510 7830771** or as approved by architect in accordance with Paragraph 9.2 below.

9.2 SUBSTITUTIONS: Ceiling systems by other manufacturers may be substituted only after written approval of the architect, such approval being received ten (10) calendar days prior to the bid opening. The proposed system shall meet all the requirements of this specification.