SECTION 11199
HOLLOW METAL CEILING PANELS (FIXED OVERHEAD HORIZONTAL BARRIERS)

A. General

1. Factory fabrication of ceiling panel system, mounting channels, hanger angles and plates. Ceiling panels shall be factory prepared and reinforced to receive templated, specified equipment.

2. Furnish, for installation by approved DEC the following:

   a. Built-in conduit, electrical back-boxes (standard and special), pull and junction boxes for light fixtures and other ceiling mounted electrical fixtures and associated power wiring as required and as indicated on the drawings.
   b. Prime paint exposed surfaces of ceiling panels.
   c. Mounting wall angles, seam joint hanger plates and angles, as necessary for sub-contractor to install ceiling panel system. Attachments to existing structure shall be supplied by the DEC as indicated on the submittal drawings.

B. Ceiling Panel Materials and Accessories

1. Ceiling panels shall be 24 in. (610 mm) wide and shall be furnished in lengths in accordance with the contract documents and the approved submittal drawings. Ceiling panels shall have overlapping rabetted edges in accordance with the manufacturer's design.

2. As an option, where required by contract documents, ceiling pans shall be perforated with 0.125 in. (3.2 mm) diameter holes, staggered 0.250 in. (6.3 mm) maximum O.C. with 6 in. (152 mm) non-perforated borders on all four (4) sides.

3. Ceiling panel face sheets, shall be constructed of 12 Ga., 0.093 in. (2.3 mm) minimum thickness steel and shall have a zinc coating applied by the hot-dip process conforming to ASTM A 653/A 653M Commercial Steel (CS), coating designation A60 (Z180). The steel shall be free of scale, pitting, coil breaks or other irregularities with the exception of minor spot welding marks. It shall also be free of buckles, waves or any other defects.

4. Wall mounting angles shall be constructed of 7 Ga., 0.167 in. (4.2 mm) minimum thickness, galvanized steel meeting ASTM A653/A 653M, A60, and shall be fastened to the walls using 3/8 in., Grade #8 (M10, Class 10.9) bolts located a maximum spacing of 18 in. (457 mm) O.C.

5. Suspension Tee supports shall be two (2) wall perimeter angles bolted back-to-back with 3/8 in., Grade #3 - 5 (M10, Class 8.8) bolts located at 18 in. (457 mm) O.C. Suspension for the Tee supports shall be 3/8 in., Grade #3 - 5 (M10, Class 8.8) galvanized threaded rod bolted to the structure above and spaced a maximum of 36 in. (914 mm) O.C.

6. Ceiling panels shall be laid in on top of the wall perimeter angles such that the edge rabbets overlap, and then shall be welded to the wall mounting angles with 1 in. (25 mm) welds evenly spaced over the panel seams and one (1) 1 in. (25 mm) weld centered in the width of each panel. The resulting weld pattern shall be 1 in. (25 mm) welds spaced 12 in. (305 mm) O.C., every other weld being located on a panel-to-panel seam. This weld pattern shall be consistent on all perimeter sides and at all suspension tees within the space covered by the ceiling.

7. For severely corrosive conditions, and where specified and indicated on drawings, ceiling panel face sheets shall be constructed of stainless steel meeting ASTM A666, Type 304.

8. Furnish and install conduit for light fixtures and other ceiling mounted electrical fixtures as indicated on the contract drawings. Conduit from electrical components to the J-box inside chases shall be concealed and built into the ceiling panels when appropriate.

9. Furnish a penetration through cell ceiling for fire protection sprinkler head, where indicated in the drawings. Location shall be coordinated with sprinkler contractor.

D. Fabrication:

Methods and product quality shall meet standards set by the Hollow Metal Manufacturers Association (HMMA), a Division of the National Association of Architectural Metal Manufacturers (NAAMM).

1. Ceiling panel face sheets shall be joined at their horizontal edges by a continuous rabbeted joint extending the full length of the panel. The rabbeted panel edge joints shall be continuously factory welded together over their entire length. Edge seam continuous welding shall comply with the definitions in the Glossary of Terms for Hollow Metal Doors and Frames, ANSI/NAAMM/HMMA-801. See "weld, continuous" and "welded, continuously".

2. Ceiling panel thickness shall be 2 in. (50 mm) minimum and furnished with provisions for grouting in the field as required. Panels shall be neat in appearance and free from warpage or buckle. Edge bends shall be true and straight and of minimum radius for the thickness of material used.

3. The ends of the ceiling panels shall be closed with a continuous steel channel not less than 12 Ga., 0.093 in. (2.3 mm) material thickness. The closing end channel shall be spot welded to both ceiling panel face sheets 3 in. (76 mm) O.C. maximum

3. Ceiling panels shall be stiffened as follows:

   a. Rolled or formed 18 Ga., 0.053 in., 1.3 mm steel "hat" channels extending from top to bottom of panel and continuous from one face to the other, spaced horizontally not more than 4 in. (102 mm) apart, and shall be spot welded to both panel faces not more than 3 in. (76 mm) O.C. vertically. The use of rolled or formed steel shapes or other core material composed of less than 18 Ga., 0.053 in., 1.3 mm steel is not permitted.

   b. Hat channels shall be internally welded together on both sides, over their entire length, using tack welds or spot welds, spaced 16 in. (406 mm) O.C. maximum. Spaces between stiffeners shall be filled with fiberglass or mineral rock wool batt-type insulation material

4. Manufacturing tolerance shall be maintained within the following limits:
   Width ..... +/- 3/64 in. (1.1 mm)
   Height ..... +/- 3/64 in. (1.1 mm)

Thickness ..... +/- 1/16 in. (1.6 mm)
Cutout Dimensions -Template Dimensions + 0.015 (0.38 mm), "-0"
Cutout Location ..... +/- 1/32 in. (0.8 mm)
Edge Flatness ..... +/- 1/16 in. (1.6 mm)
Surface Flatness …… +/- 1/8 in. (3.1 mm)

5. Finish: After fabrication, all tool marks and surface imperfections shall be filled and sanded as required to make exposed surfaces smooth and free from irregularities. After appropriate metal preparation, all exposed surfaces of ceiling panels shall receive a factory applied rust inhibitive primer which meets or exceeds the performance requirements of ANSI A250.10. Primer must be fully cured prior to shipment.