

## **SECTION 095133**

### **METAL CEILING SYSTEM**

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Drawings and general conditions of contract, including general and supplementary conditions and Division 1 specification sections, apply to work of this section.

##### **1.02 SUMMARY**

- A. Sections includes:
  - 1. Metal ceilings panels
  - 2. Grid suspension system
  - 3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings
  - 4. LEED Data
  - 5. Perforated and non-perforated metal ceiling panels
  - 6. Acoustical backing
  - 7. Suspension systems
  - 8. Accessories; provide other necessary items including devices for attachment overhead construction, secondary members, splines, splices, connecting clips, wall connectors, wall angles, and other devices required for a complete installation.
  - 9. Supplemental support framing: Provide fully engineered secondary framing as required to meet code, conforming to layout shown in drawings, to support direct-hung metal ceilings suspension system.
- B. Related Sections
  - 1. Sections 05 40 00 – Cold-Formed Metal Framing
  - 2. Sections 09 20 00 – Plaster and Gypsum Board
  - 3. Sections 09 50 00 – Acoustical Ceilings
  - 4. Sections 09 90 00 – Paintings and Coatings
  - 5. Division 23 – Heating, Ventilating and Air Conditioning
  - 6. Division 26 – Electrical Alternates

C. This Section covers the general requirements only for Acoustical Metal Ceilings as shown on the drawings. The supplying and installation of additional accessory features and other items not specifically mentioned herein, but which are necessary to make a complete installation, shall also be included or clarified accordingly.

D. Qualification Data:

1. Test Reports: Certified reports from independent agency substantiating structural compliance to wind loads and other governing requirements.
2. Certificates: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.
3. Data substantiating manufacturer and installer qualifications.
4. Certified data attesting fire rated materials comply with specifications.
5. Manufacturer's Instructions: Detailed installation instructions and maintenance data.

### 1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. E 84 – “Standard Test Method for Surface Burning Characteristics of Building Materials”
2. A 366 “Standard Specification for Steel, Carbon Cold-Rolled Sheet, Commercial Quality”
3. E 488 – “Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements”
4. B 209 – “Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate”
5. C 423 – “Sound Absorption and Sound Absorption Coefficients by Reverberation Room Method”
6. C 635 – “Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings”
7. C 636 – “Recommended Practice for Installation of Metal Ceiling Suspensions Systems for Acoustical and Lay-in Panels”
8. A 641 – “Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire”
9. A 653 – “Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip process”

## 10. E 1264 – “Classification for Acoustical Ceiling Products”

### B. LEED 4.1: Applicable LEED Environmental Categories and Credits and performance requirements as indicated in LEED 4.1 for Commercial Interiors:

#### 1. Material and Resources (MR)

- a) MRc4 – Recycled Content
- b) VOC - Volatile Organic Compounds
- c) EPD – Environmental Product Declaration

### 1.04 SUBMITTALS

- A. Product Data: Manufacturer’s published literature, including specifications.
- B. LEED Submittal Data: Manufacturer’s product data for each product specified in this section.
- C. Product Certification: Manufacturer’s certifications that products comply with specified requirements and governing codes including product data, laboratory test reports and research reports showing compliance with specified standards.
- D. Shop Drawings: Submit shop drawings for reflected ceiling plans (RCP’s), drawn to scale, and indicating penetrations and ceiling mounted items. Show the following details:
  - 1. Reflected Ceiling Plan(s): Indicating metal ceiling layout, ceiling mounted items and penetrations.
  - 2. Suspension System, Carrier and Component Layout.
  - 3. Details of system assembly and connections to building components.
- E. Samples for Verification: Full-size units (or as specified below) of each type of ceiling assembly indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics. Submit samples for each type specified.
  - 1. Min. Size of 3" square metal flat metal panel samples showing specified color.
  - 2. 8" long samples of each exposed molding or trim.
  - 3. 8" long samples of the primary suspension components, if applicable.

### 1.05 QUALITY ASSURANCE

- A. Single Source Responsibility: To ensure proper interface and color match, all acoustical panel units and grid components shall be produced or supplied by a single manufacturer. Materials supplied by more than one manufacturer are not permissible.

## **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Deliver materials in manufacturer's unopened packages; suitably store to protect against exposure to moisture, sunlight, surface contamination, and other unacceptable conditions.

## **1.07 PROJECT CONDITIONS**

- A. Environmental Requirements at installation
  - 1. The building shall be enclosed, the air conditioning system shall be operating with proper filters in place and the proper temperature and humidity conditions shall be stabilized before, during and following installation until Substantial Completion. Building areas to receive ceilings shall be free of construction dust and debris.
  - 2. Coordination: Coordinate acoustical ceilings work with installers of related work including, but not necessarily limited to, building insulation, gypsum drywall, mechanical systems and electrical systems.
- B. Dimensional Stability:
  - 1. Metal Ceiling Panels: Installation shall be carried out in temperature conditions up to 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating.

## **1.08 WARRANTY (LIMITED)**

- A. Metal Ceiling Panels: Submit a written warranty executed by the manufacturer, agreeing to repair or replacement of acoustical panels that fail within the warranty period. Failures include, but are not necessarily limited to:
  - 1. Metal Ceiling Panels: Sagging, warping, rusting and manufacturer's defects according to the TAIM Standards.
  - 2. Grid System: Rusting and manufacturer's defects.
- B. Warranty period for Metal Ceiling Panels and grid systems supplied by one source manufacturer is one (1) year from date of Substantial Completion.
- C. The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents. Set out in full.

## **1.09 MAINTENANCE**

- A. Extra Materials: Deliver and furnish extra material to owner, as described below, to match products installed. Package with protective covering for storage and identify with appropriate labels.
  - 1. Metal Ceiling Panels: Furnish quantity of full-size units equal to 5% of the amount installed.

2. Suspension System Components: Furnish quantity of each suspension component equal to 2% of the amount installed.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURER**

- A. The materials are either manufactured by or for **Durlum USA LLC**.

### **2.02 MATERIALS**

- A. Suspension System: Type – LIVA Open Cell
- B. Product: Durlum Multidirectional Baffle Louvre System
  1. Components: Primary Steel L-Shaped Carrier Item U-1040. Exposed surfaces chemically cleansed.
  2. Main Secondary Aluminum Carrier Item U-94 with notches to match the blade pitch spacing and slotted for Torsion Springs.
  3. Hangers or Holes in Primary L-Shaped Carrier Grid for Threaded Rod or Hanger Wire
  4. Torsion Springs for attachment of panels to the Secondary carrier.
  5. Perimeter Trim: None Required
  6. Finish: All steel or aluminum parts shall be chemically cleansed and steel components shall be electro-galvanized or hot dipped galvanized.
- C. Hanger Wire: Hanger wire shall be galvanized carbon steel per ASTM A 641, soft temper, pre-stretched, with a yield stress load of at least three (3) times design load, but not less than 12-gauge (0.106") diameter.
- D. Threaded Rod: Use 1/4" Threaded Rod that has been electro-galvanized in lieu of Hanger Wire where indicated on the drawings or as detailed by the ceiling manufacturer in the shop drawings.

### **2.03 MANUFACTURER**

- A. The materials are either manufactured by or for **Durlum USA LLC**.

### **2.04 MATERIALS**

- A. Metal Ceiling: Type **MP-1**
- B. Type: Durlum Multidirectional Baffle Louvre System – Non perforated blades with rotational clip.
- C. Performance Characteristics:
  1. Sound Control for the Primary Baffles:

a. Noise Reduction Coefficient: NRC of **.00**

**2. Optional Sound Control:**

a. **Use of Plenum Installed dur-Sonic Cubes.**

b. **Noise Reduction Coefficient: NRC of 0.85 in compliance with ASTM C 423 with perforated cubes and an acoustical insert of mineral wool with optimized flow resistance in a seal PE-bag.**

c. **dur-Sonic Cube Dimensions: 160mm x 160mm. Lengths are 400mm, 600mm or 800mm.**

d. **Color: Standard Black or TBD**

**3. Flame Spread**

a. £25, per ASTM E 84

b. Class A, per ASTM E 1264

**4. Light Reflectance:**

a. Standard range for color selected.

**D. Surface Texture, Substrate, Size and Edges of Baffles:**

1. Surface Texture: Non-Perforated metal texture.

2. Surface Finish: Pre-Coated Painted Finish

3. **Color: White, Black or TBD based on factory standard colors.**

4. Substrate: Aluminum

5. Module Length: 1200mm

6. Baffle Width: 98mm

7. Baffle Height: **100mm / 150mm or 200mm (or a combination of different heights)**

8. Pitch (On Center Spacing Between the Baffles): **100mm or 120mm**

E. Contact: Mark Paternostro – [mark.paternostro@durlum.com](mailto:mark.paternostro@durlum.com) – 954-225-9855

**F. Lead Time and Material Management**

1. This material is a long lead time product. It is the responsibility of the General Contractor to make sure that submittals are made in the proper amount of time to conform to the construction schedule. Material Management includes the preparation of shop drawings, samples, engineering calculations, approval time and the time it takes to manufacturer, deliver and install the material outlined above. Careful

attention to this lead time must be considered and managed by the General Contractor.

**A. Purpose and limitations:**

1. This information/data is provided by durlum to better describe the product(s) and/or subject installation, solely for further evaluation by the Specifier. The Manufacturer makes no representations, nor provides any warranty for the data provided except to the extent where it is applicable that it was prepared by an independent licensed professional engineer. This information is not provided in lieu of the separate and independent evaluation and determination of suitability of these materials for the subject installation that is the responsibility of the specifier of their agents.

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Examine construction and conditions under which system will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.02 INSTALLATION**

- A. General: All metal ceiling panels, and suspension systems, shall be installed in strict accordance with the manufacturer's printed instructions and current recommendations, and in compliance with ASTM C 636 and the governing code of jurisdiction.
- B. Application Consideration: Cutouts and apertures available. They are intended for use with audio speakers, air diffusers, sprinklers and certain light fixtures. Not intended for use with smoke detectors.
- C. Installed panels should be free from damaged edges or other defects detrimental to appearance and function.
- D. Install partial panels as shown on reflected ceiling plans, but not less than one-half full size.

**3.03 FIELD QUALITY CONTROL**

- A. Deflection of any grid components shall not exceed 1/360 of the span.

**3.04 ADJUSTING AND CLEANING**

- A. Clean metal ceiling panels, including trim, edge moldings and suspension members, pursuant to manufacturer's recommendations. Remove and replace damaged components that cannot be successfully restored.

**END OF SECTION 095133**