

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 include
 - 1. Acoustical metal ceiling rafts
 - 2. Crossbar suspension system
 - 3. Threaded rods
- B. Related sections
 - 1. Division 26 – “Electrical” for additional or larger size wires, as required to properly support lighting fixtures, shall be furnished and installed by the Electrical Work installer.
 - 2. Division 23 - Heating, Ventilating and Air Conditioning (HVAC).
- C. Alternates
 - 1. Prior Approval: Unless otherwise provided for in the Contract Documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Approval of a proposed substitution is contingent upon the Architect’s review of the proposal for acceptability, and approved products will be set forth by Addenda.
 - a. If substitute products that have not been approved by Addenda are included in a Bid, the specified products shall be provided without additional compensation.
 - 2. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this Section, including but not necessarily limited to the following: Single source materials supplier (if specified in Section 1.05); Panel design, size, composition, color and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.03 REFERENCES

- A. ASTM A 366 “Standard Specification for Steel, Carbon Cold-Rolled Sheet, Commercial Quality”
- B. ASTM A 653 “Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process”
- C. ASTM C 635 “Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings”
- D. ASTM C 636 “Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical and Lay-in Panels”
- E. EN ISO 354 “Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method”
- F. ASTM C423 "Evaluation of Noise Reduction Coefficients"
- G. ASTM E 84 “Standard Test Method for Surface Burning Characteristics of Building Materials”

1.04 SUBMITTALS

- A. Product Data: Manufacturer’s technical literature and installation instructions
- B. Samples: Minimum 4” x 4” samples of specified acoustical metal panel; 8” long samples of exposed wall molding and suspension system
- C. Certifications: Manufacturer’s certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards

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 apart from threaded rods and fasteners 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.
- B. Handle components to prevent panel edge damage or any other damage to components.

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. **durlum** Acoustical Metal 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. **durlum** acoustical metal 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. **durlum** Acoustical Metal Rafts: Sagging, warping, rusting and manufacturer's defects according to the TAIM Standards.
 - 2. Grid System: Rusting and manufacturer's defects.
- B. Warranty period for **durlum** acoustical metal 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. Acoustical 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 GmbH**. (the "Manufacturer")

2.02 MATERIALS

- A. Suspension System: Type - Non-visible crossbars.
- B. Product: **durlum SOLO 1.1 and 1.3** Raft System with 90° or 55° folded up sides.
- C. Components: Crossbars shall be commercial-quality galvanized steel coating. Exposed surfaces chemically cleansed. Crossbars shall be suspended from raw ceiling.
 - 1. Crossbars (customized to fit raft) suspended from raw ceiling by threaded rods.
 - 2. Rafts to be hooked onto crossbars.
- D. Finish: All steel parts shall be chemically cleansed hot dipped galvanized steel or electrolytically zinc plated.
- E. Metal Ceiling: **durlum SOLO 1.1 and 1.3**
- F. Type: Perforated raft with Black Acoustical Fleece Backing
- G. Performance Characteristics:
 - 1. Sound Control:
 - a. Noise Reduction Coefficient: NRC of 0.80 in compliance with ASTM C 423 with factory-adhered black acoustical fleece
 - 2. Flame Spread
 - a. ≤ 25, per ASTM E 84
 - b. Class A, per ASTM E 1264
 - 3. Light Reflectance:
 - a. Standard range for color selected.
- H. Surface Texture, Substrate, Size and Edges:
 - 1. Surface Texture: Perforated metal texture.
 - 2. **Pattern: Visit this web site for standard factory options:**
http://www.durlum.de/E/01_metaldecken/perforationen.shtml
 - 3. Surface Finish: Scrubbable, architectural-quality, electrostatically applied polyester powder coat paint applied to entire panel after forming (post coat). Pre-Coated Material will NOT be accepted as an alternate.
 - 4. Color: **Standard:** pure white, RAL 9010 or traffic white RAL 9016, other RAL colors on request.
 - 5. Substrate: Panels shall have manufacturer's standard, 25 gauge (0.455 mm) minimum, galvanized steel substrate.
 - 6. Size: Refer To Architectural Plans
 - 7. Edge Details: Long edges folded up 90° (Type 1.1) or 55° - sharp edge (Type 1.3). Long edges with further fold to hook onto crossbars.
Short edges folded up 90° (Type 1.1) or 55° - sharp edge (Type 1.3).
 - 8. Lead Times: 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. Submittals may include 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.

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 acoustical metal 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

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

Purpose and limitations:

This information/data is provided by the manufacturer 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.

END OF SECTION 09 51 33

MOUNTING INSTRUCTIONS

Visit this web site for latest version of standard mounting instructions for durlum System dur-SOLO Type 1.1 and 1.3:
<http://www.durlum.us>