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**PART 1 GENERAL**

**1.1 REFERENCES**

- .1 ASTM International
  - .1 ASTM C635/C635M-13A, Standard Specifications for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
  - .2 ASTM C636/C636M-13, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
  - .3 ASTM E1477-98a(2017), Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .4 Underwriter's Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-2010, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for ceiling panels and ceiling suspension system and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings:
  - .1 Submit reflected ceiling plans for special grid patterns as indicated.
  - .2 Indicate lay-out, splicing method for main and cross runners, change in level details, and acoustical unit support at ceiling fixture and lateral bracing and accessories.

**1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:

- .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store materials inside, level, under cover. Protect from weather, damage from construction operations and other causes, in accordance with manufacturer's printed instructions.
- .3 Handle materials to prevent damage to edges or surfaces. Protect metal accessories and trim from being bent or damaged.
- .4 Store and protect acoustic ceiling materials from nicks, scratches, and blemishes.
- .5 Replace defective or damaged materials with new.

## **PART 2 PRODUCTS**

### **2.1 COMPONENTS**

- .1 Acoustic units for suspended ceiling system: to ASTM E1264.
  - .1 Type 111, Form 2
  - .2 Pattern C, E, Class A.
  - .3 Flame spread rating of 25 or less in accordance with CAN/ULC-S102.
  - .4 Smoke developed 50 or less in accordance with CAN/ULC-S102.
  - .5 Noise Reduction Coefficient (NRC) designation of 0.55.
  - .6 Light Reflectance (LR) range of 0.84 to ASTM E1477.
  - .7 Edge type square.
  - .8 Colour: White
  - .9 Size 610 x 610 x 610 mm thick.
  - .10 Shape: flat.
- .2 Acoustical Suspension:
  - .1 Intermediate duty system to ASTM C635.
  - .2 Basic materials for suspension system: commercial quality cold rolled steel, zinc coated.
  - .3 Suspension system: non fire rated, two directional exposed tee bar grid.
  - .4 Exposed tee bar grid components: shop painted satin sheen, white colour. Components die cut. Main tee with double web, rectangular bulb and 25 mm rolled cap on exposed face. Cross tee with rectangular bulb; web extended to form positive interlock with main tee webs; lower flange extended and offset to provide flush intersection.
  - .5 Hanger wire: galvanized soft annealed steel wire, 3.6 mm diameter for access tile ceilings.
  - .6 Hanger inserts: purpose made.
  - .7 Carrying channels: 38 x 64 mm channel, of 0.61 mm thick galvanized steel.
  - .8 Accessories: splices, clips, wire ties, retainers and wall moulding flushy, to complement suspension system components, as recommended by system manufacturer.
- .3 Performance/Design Criteria:
  - .1 Maximum deflection: 1/360th of span to ASTM C635 deflection test.

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**PART 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions prior to acoustical ceiling installation.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative. of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative..

**3.2 INSTALLATION**

- .1 Installation: in accordance with ASTM C636 except where specified otherwise.
- .2 Suspension System:
  - .1 Erect ceiling suspension system after work above ceiling has been inspected by Departmental Representative.
  - .2 Secure hangers to overhead structure using attachment methods acceptable to Departmental Representative.
  - .3 Install hangers spaced at maximum 1200 mm centres and within 150 mm from ends of main tees.
  - .4 Lay out system according to reflected ceiling plan.
  - .5 Install wall moulding to provide correct ceiling height.
  - .6 Completed suspension system to support super-imposed loads, such as lighting fixtures, diffusers, grilles and speakers.
  - .7 Support at light fixtures and diffusers with additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
  - .8 Interlock cross member to main runner to provide rigid assembly.
  - .9 Ensure finished ceiling system is square with adjoining walls and level within 1:1000.
- .3 Acoustic Panels:
  - .1 Install acoustical panels and tiles in ceiling suspension system.
  - .2 Co-ordinate ceiling work with work of other sections such as interior lighting, fire protection communication, and intrusion and detection systems.

**3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**3.4 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by acoustical ceiling installation.

**END OF SECTION**