

1 General

1.1 **SECTION INCLUDES**

- .1 Design, Labour, Products, equipment and services necessary for acoustical **wall and ceiling** panels work in accordance with the Contract Documents.

1.2 **REFERENCES**

- .1 ***ASTM A653/A653M, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.***
- .2 ***ASTM C636, Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.***
- .3 ***ASTM C645, Specification for Non-Load Bearing (Axial) Steel Studs, Runners (Tracks), and Rigid Furring Channels for Screw Application of Gypsum Board.***
- .4 ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .5 ***CAN/ULC S102, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.***

1.3 **DESIGN REQUIREMENTS**

- .1 ***Acoustic baffle suspension system:***
- .1 ***Design suspension system in accordance with following Climatic Design Data for Toronto contained in the Ontario Building Code:***
- .1 ***Design temperature: January 1%, July 2 1/2%.***
- .2 ***Hourly wind pressures: 1 in 50 year occurrence.***
- .2 ***Design ceiling suspension system in accordance with ASTM C636 and manufacturer's printed directions.***
- .3 ***Design hanger anchor and entire suspension system static loading not to exceed 25% of their ultimate capacity including lighting fixture dead loads.***
- .4 ***Design subframing as necessary to accommodate, to avoid conflicts and interferences where ducts or equipment prevent regular spacing of hangers.***

1.4 **SUBMITTALS**

- .1 Product data:
- .1 Submit duplicate copies of manufacturer's Product data in accordance with Section 01 33 00 indicating:
- .1 Performance criteria, compliance with appropriate reference standard(s), characteristics, limitations, and trouble-shooting protocol.
- .2 Product transportation, storage, handling and installation requirements.

- .2 Shop Drawings:
 - .1 Submit Shop Drawings in accordance with Section 01 33 00 indicating:
 - .1 Elevations, sections, details, materials, dimensions, and finishes.
 - .2 ***Suspension system layout including hangers and isolators.***
 - .3 ***Conditions at abutting, intersecting, and penetrating construction.***
 - .4 ***Dimensioned locations of lighting fixtures, diffusers, sprinkler heads and other items that pierce the ceiling plane.***
- .3 Samples:
 - .1 Submit following samples in accordance with Section 01 33 00.
 - .1 Two 300 x 300 mm samples of each acoustical panel unit required, showing full range of exposed texture to be expected in completed work and one 300 x 300 mm sample for each finish and/or colour.
- .4 ***Certificates: Submit manufacturer's letter or certification that acoustic ceiling panel and baffle systems meet required fire resistance ratings.***
- .5 Closeout submittals:
 - .1 Submit following for panels incorporation into Operations and Maintenance Manuals in accordance with Section 01 78 00:
 - .1 Performance criteria and maintenance data.

1.5 QUALITY ASSURANCE

- .1 ***Retain a Professional Engineer, licensed in Province of Ontario, with experience in work of comparable complexity and scope, to perform following services as part of work of this Section:***
 - .1 ***Design of acoustic baffle assemblies.***
 - .2 ***Review, stamp, and sign Shop Drawings and design calculations.***
 - .3 ***Conduct shop and on-site inspections, prepare and submit written inspection reports verifying that this part of Work is in accordance with Contract Documents and reviewed Shop Drawings.***
- .2 Installers qualifications: Perform work of this Section by a company that has a minimum of five years proven experience in the installation of acoustical panel units of a similar size and nature and that is approved by manufacturer. Submit to Consultant, applicator's current certificate of approval by the material manufacturer as proof of compliance.
- .3 Mock-up:
 - .1 Construct one 3 m² mock-up of acoustical panels in location acceptable to Consultant.
 - .2 ***Acoustic baffles: Construct one 2 m² mock-up of acoustical baffle adjacent to structural elements including beams, integration of electrical and mechanical devices, lighting, sprinklers, diffusers at typical conditions.***
 - .3 Arrange for Consultant's review and acceptance, allow 48 hours after acceptance before proceeding with work.

- .4 Mock-up may remain as part of Work if accepted by Consultant. Remove and dispose of mock-ups which do not form part of Work.
- .5 Upon acceptance, mock-up shall serve as a minimum standard of quality for the balance of the work of this Section.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Prevent soiling, physical damage or wetting.
- .2 Store cartons open at each end to stabilize moisture content and temperature.

1.7 SITE CONDITIONS

- .1 Do not install work of this Section outside of following environmental ranges without Consultant's and Product manufacturer's written acceptance:
 - .1 Ambient air and surface temperature: 13°C to 21°C.
 - .2 Precipitation: None.
 - .3 Relative Humidity: 65 to 75%
- .2 Do not install acoustical panels until building is closed in and HVAC system is operational.
- .3 Supply and install temporary protection and facilities to maintain Product manufacturer's, and above specified environmental requirements for 24 hours before, during, and 24 hours after installation.

1.8 MAINTENANCE

- .1 Submit extra 3% of gross area covered, for each pattern and type specified. Submit Products from same production run as installed products. Store maintenance Products as directed by Consultant.

2 Products

2.1 MATERIALS

- .1 General:
 - .1 All materials under work of this Section, including but not limited to, adhesives and touch-up paints are to have low VOC content limits.
 - .2 All dimensional lumber used to be FSC certified.
- .2 Acoustical wall and ceiling panels (CLG.7): ASTM E84, Class A.
 - .1 Core: 100% PET (Polyethylene Terephthalate); 60% recycled material.
 - .2 Finish:
 - .1 Etched #3 - STRIPE.
 - .2 Etched #9 - FULL STRIPE.
 - .3 Panel size: 12 mm thick, custom shapes as indicated on Drawings.
 - .4 NRC: 0.4-1.
 - .5 Attachment method: Adhesive as recommend by manufacture.

- .6 Acceptable Manufacture: 'Etched Wall Tiles' by Hush Acoustics or approved alternative.
- .3 **Acoustic baffles and Suspension system (CLG.6):**
 - .1 **Acoustic baffles**
 - .1 *Provide acoustic ceiling baffles that are resistant to mold, mildew, sag, humidity, soiling, and impact, and that are capable of being washed and disinfected.*
 - .2 *Core: 100% PET (Polyethylene Terephthalate); 60% recycled material and meeting the following performance criteria:*
 - .1 *Fire performance: Class A rated to ASTM E84.*
 - .3 *Size: 12 mm thick.*
 - .4 *Spacing: Baffle spacing as shown on Contract Drawings.*
 - .5 *Colour and Finish: Surface and base finish to be selected by the Consultant.*
 - .6 *Acoustic baffles : 'Ceiling Baffle System' by Ezoboard or approved alterative.*
 - .2 *Clips: Manufacturer's standard attachment clips, such as panel, wall and leveling clips.*
 - .3 **Acoustic baffle suspension system components:**
 - .1 *Galvanized steel sheet: ASTM A653/A653-M, Z275; cold rolled, galvanized steel sheet.*
 - .2 *Main carrying channels: ASTM C645; Channels formed from galvanized steel sheet, 38 x 19 mm cold rolled.*
 - .3 *Subframing: ASTM C645; Channels formed from galvanized steel sheet, dimensions and spans as required.*
 - .4 *Hangers: 2.6 mm minimum diameter, galvanized steel wire.*
 - .5 *Tie wire: 1.6 mm minimum diameter, soft annealed galvanized steel wire.*
 - .6 *Exposed main, cross tees, and relocatable cross tees: 25 mm exposed face x 38 mm high steel, bulb tee design double steel web, rectangular single spans without exceeding a deflection of 1/360 of the span. Splices to be integral and reversible; cross tee interlocking into main tee. Colour and finish: Matte black.*
 - .7 *15/16" suspension system:*
 - .1 *'Prelude XL' by Armstrong World Industries Inc. or approved alternatives by CGC Inc. Certainteed Ceilings Canada or Rockfon/Chicago Metallic.*
 - .4 *Suspension kit: Provide deck hanging kit as required to suit baffles with individual suspension, including anchors, caps, cables, adjusters and washers.*
- .4 Moulding: Plastic, in colour to match panels.
- .5 Fasteners: Concealed, stainless steel Type 304.

2.2 FABRICATION

- .1 Verify dimensions of existing work before commencing fabrications and report discrepancies to Consultant.
- .2 Fabricate work in accordance with Contract Drawings and reviewed shop drawings. Fabricate, fit and assemble work in shop where possible. Where shop fabrication is not possible, make trial assembly in shop.
- .3 Fabricate work free from defects impairing function, appearance, strength and durability.

3 Execution

3.1 EXAMINATION

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

3.2 INSTALLATION

- .1 Install panels, support and adhesive, trim and related items to lines and elevations indicated and in strict accordance with reviewed shop/erection drawings and manufacturer's printed instructions. Carefully co-ordinate work with other Sections.
- .2 Install Panels to Shop Drawings and manufacturer's printed instructions. Damaged panels, waviness, warp or distortion of finished work will not be accepted.
- .3 Cover field cut edges by means of trim or other moldings.
- .4 ***Install acoustic ceiling baffles, suspension system, kit, support and anchoring system, fasteners, trim and related items to lines and elevations indicated and in strict accordance with reviewed shop/erection drawings and manufacturer's printed instructions. Carefully co-ordinate work with other Sections.***
- .5 ***Acoustic ceiling baffles and suspension system:***
 - .1 ***Suspension system:***
 - .1 ***Coordinate locations and openings of mechanical and electrical services support, and penetration through the ceiling system. Coordinate field conditions, clearances, measurements, and mechanical and electrical services testing and commissioning, above ceiling.***
 - .2 ***Install hanger wires plumb and securely anchored to the building structural framing, independent of walls, pipes, ducts, and deck; install additional framing and hangers to bridge interference items.***
 - .3 ***Install ceiling systems in accordance with manufacturer's written instructions, reviewed shop drawings, and ASTM C636, listed in order of precedence.***

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3.3 **CLEANING**

- .1 Clean exposed surfaces of acoustical panel, trim, moldings and suspension members to comply with manufacturer's instructions for cleaning.
- .2 Touch up any minor finish damage.
- .3 Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.4 **PROTECTION**

- .1 Protect installed work from damage due to subsequent construction activity, including temperature and humidity limitations and dust control, so that the work will be without damage and deterioration at the time of acceptance by the Owner.

END OF SECTION