ACOUSTICAL CEILINGS

1. GENERAL

1.1 Quality Control

.1 Installer: Trained and approved by the Manufacturer and having a minimum three years experience in the installation of the work described in this Section and can show evidence of satisfactory completion of projects of similar size, scope and type. If requested, provide letter of certification from Manufacturer stating that installer is certified applicator of its products, and is familiar with proper procedures and installation requirements required by the manufacturer.

.2 Finish Ceiling System: Square with adjoining walls and level within 1:1000, in true plane, free from distorted, warped, soiled or damaged panels or grid.

.3 Metal Suspension System Standard: Complying with ASTM C635 Intermediate Duty and C636 except as otherwise specified.

.4 Deflection Limitation, Completed Ceiling: L/360 of span maximum deflection.

.5 Maintenance Seminars: Provide, to the City, training seminars and recommendations on Product maintenance procedures.

.6 Pre-Installation Meeting: Two weeks prior to commencing work of this Section, arrange for manufacturer's technical representative to visit the site and review preparatory and installation procedures to be followed, conditions under which the work will be done, and inspect the surfaces to receive the work of this Section. Advise the Contractor Administrator of the date and time of the meeting.

.7 Manufacturer’s Site Inspection: Have the manufacturer’s technical representative inspect the Work at suitable intervals during application and at conclusion of the work of this Section, to ensure the Work is correctly installed. When requested, submit manufacturer’s inspection reports and verification that the work of this Section is correctly installed.

.8 Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system through one source from a single manufacturer.

.9 Sample Installation: Construct on site a 10 m x 10 m (30' x 30') minimum sample installation of each type acoustical ceiling. Modify sample installation as often as necessary to obtain Contractor Administrator’s acceptance. Accepted sample installation may become part of completed Work if undisturbed at time of Substantial Performance.

.1 Include electrical and mechanical fixtures in sample installation as directed by Contractor Administrator.

1.2 Submittals

.1 Product Data: For each type of product indicated.

.2 Samples: For each component indicated and for each exposed finish required and of size indicated below.

.1 Acoustical Panel: Duplicate 150 mm (6") square samples of each type, color, pattern, and texture.

.2 Exposed Suspension System Members, Mouldings, and Trim: Duplicate 300 mm (12") long samples of each type, finish, and color.

.3 Maintenance Data: Submit maintenance instructions for insertion in operations and maintenance manuals. Instructions shall give specific warning of maintenance or cleaning practices or materials which may damage installed work. Include data sheets for maintenance products recommended by installer and names, addresses, and telephone numbers of local sources for products.

1.3 Delivery, Storage and Handling

.1 Deliver products to Project site in original, unopened packages and store in a fully enclosed, conditioned space, protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

.2 Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

.3 Handle products carefully to avoid chipping edges, bent or other damages.

1.4 Project Conditions

.1 Do not install work until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.5 Coordination

.1 Coordinate layout and installation of work of this Section with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.6 Extra Stock

.1 Provide 2% of each type and colour of materials installed. Store the extra materials at locations as directed by the Contract Administrator. Extra stock shall be of same production run as installed materials. Include cost of extra stock in the Contract Price.

2. PRODUCTS

2.1 Materials

.1 Specified Products: Work of this Section is based on the products specified. Products by other manufacturers similar in function, design, performance, and construction complying with requirements of this Section may be incorporated into the Work subject to Contract Administrator's acceptance.

.2 Fire Resistance Rated Assemblies: Provide work identical to those of assemblies tested for fire resistance in accordance with ULC or cUL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

.1 ACT-01: Non-rated system.

.2 ACT-02: 1 hr. fire resistance rated system.

.3 Acoustical Panels (ACT): Asbestos free, wet felted mineral fiber, antimicrobial treated to inhibit growth of fungus, mould and mildew, factory applied moisture and sag resistant coating.

.1 ACT-01: 610 mm x 610 mm x 15 mm, square edge, lay-in, non-rated, Radar ClimaPlus by CGC, or Fine Fissured Humiguard by Armstrong.

.2 ACT-02: 1220 mm x 610 mm x 15 mm, square edge, lay-in, fire resistance rated, Radar ClimaPlus by CGC, or Fine Fissured Humiguard by Armstrong.

.4 Exposed Main Runner: Hot dipped galvanized steel to ASTM A653/A653M minimum Z90 coating designation, 24 mm (15/16") exposed face and 38 mm (1-1/2") high, bulb tee design with double web and separate exposed cap piece, maximum length, with reversible and integral splice. Prefinish runner in baked enamel, standard colour.

.5 Exposed Cross Runner: Hot dipped galvanized steel to ASTM A653/A653M minimum Z90 coating designation, exposed face to match main runners, 38 mm (1-1/2") high, bulb tee design of same fabrication as main runners, with override stepped ends to allow cross runner flange to sit on main runner flange providing flush exposed faces, and with positive interlock to main runner, grid module to suit acoustical panels. Finish to match main runners.

.6 Main Runner Splices: Designed to lock lengths of main runners together so that joined lengths of runners function structurally as a single unit with runner faces at joint perfectly aligned and presenting a tight seam.

.7 Wire Hangers, Braces and Ties: ASTM A641/A641M, Class 1 zinc coating, soft temper, minimum 2.6 mm (12 gauge).

.8 Hanger Rods, Flat and Channel Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

.9 Angle Hangers: Angles with legs not less than 22 mm (7/8") wide; formed with 1 mm (0.04") thick, galvanized steel sheet to ASTM A653/A653M, Z275 coating designation; with bolted connections and 8 mm (5/16") diameter bolts.

.10 Hold-Down Clips: Galvanized steel spring clips, manufacturer's standard.

.11 Edge Mouldings and Trim: In profile indicated or, if not indicated, manufacturer's standard mouldings for edges and penetrations that fit acoustical panel edge details and suspension systems; edges hemmed, formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

.1 Standard Moulding: Matching width and configuration of exposed runners.

3. EXECUTION

3.1 Examination

.1 Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

.2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Preparation

.1 Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using border panels of less than half panel width, and comply with layout shown on reflected ceiling plans.

3.3 Installation - Hangers

.1 Suspend ceiling hangers from building's structural members, independent of walls, pipes, ducts and metal decks.

.2 Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

.3 Splay hangers only where required and, if permitted with fire resistance rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

.4 Where ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers. Size supplemental suspension members and hangers to support ceiling loads within performance limits specified.

.5 Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or fail due to age, corrosion, vibration or elevated temperatures.

.6 Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both structure to which hangers are attached and type of hanger involved. Install hangers in a manner that will not deteriorate or fail due to age, corrosion, vibration or elevated temperatures.

.7 Space hangers maximum 1200 mm (48”) o.c. along each runner supported directly from hangers, unless otherwise indicated; provide hangers not more than 150 mm (6”) from ends of each runner.

.8 Provide additional ceiling suspension hangers within 150 mm (6") of each corner and at maximum 600 mm (24") around perimeter of light fixtures and diffusers.

3.4 Installation – Mouldings and Trims

.1 Install edge mouldings and trim of type at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

.2 Screw attach mouldings to substrate at maximum 400 mm (16”) centers and not more than 75 mm (3”) from ends, levelling with ceiling suspension system to a tolerance of 3 mm in 3600 mm (1/8” in 12’). Miter corners accurately and connect securely.

.3 Do not use exposed fasteners, including pop rivets, on mouldings and trim.

3.5 Installation - Runners

.1 Use longest practical lengths of runners to minimize joints. Make joints square, tight, flush and reinforced with concealed splines. Assemble framework to form a rigid and interlocking system. Remove and replace dented, bent, or kinked members

.2 Run main runners at right angles to length of light fixtures.

.3 Frame at openings for light fixtures, air diffusers, speakers and at changes in ceiling heights.

3.6 Installation – Acoustical Panels

.1 Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge mouldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit. Terminate edges with moulding.

.2 Square Edged Panels: Install panels with edges fully hidden from view by runner flanges and mouldings.

.3 Install hold down clips to hold panels tight to grid system within 6000 mm (20'-0") of an exterior door and an operable window, space clips as recommended by panel manufacturer's written instructions and required by authorities having jurisdiction for fire resistance rated assemblies.

.4 Protect lighting fixtures and air ducts to comply with requirements indicated for fire resistance rated assemblies.

3.7 Cleaning

.1 Clean exposed surfaces of acoustical panel ceilings, including trim, edge mouldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touch up of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION