

PART 1 - GENERAL

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| <u>1.1 Summary</u> | .1 Types of items described in this Section:
.1 Acoustical ceiling panels. |
| <u>1.2 Definitions</u> | .1 AC: Articulation Class.
.2 CAC: Ceiling Attenuation Class.
.3 LR: Light Reflectance coefficient.
.4 NRC: Noise Reduction Coefficient. |
| <u>1.3 Submittals</u> | .1 Product Data: For each type of product indicated.
.2 Samples for Initial Selection: For components with factory-applied colour finishes.
.3 Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
.1 Acoustical Panel: Set of 150 mm square Samples of each type, colour, pattern, and texture.
.4 Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.
.5 Maintenance Data: For finishes to include in maintenance manuals. |
| <u>1.4 Quality Assurance</u> | .1 Source Limitations:
.1 Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
.2 Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
.1 Fire-Resistance Characteristics: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested for fire resistance per CAN/ULC-S101 by ULC or another testing and inspecting agency acceptable to authorities having jurisdiction.
.1 Fire-Resistance Ratings: Indicated by design designations from ULC's <i>Fire Resistance Directory</i> or from the listings of another testing and |

inspecting agency.

- .2 Identify materials with appropriate markings of applicable testing and inspecting agency.

- .2 Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with CAN/ULC S102:

- .1 Flame Spread Rating: 25 or less.
- .2 Smoke-Developed Rating: 50 or less.

- .3 Mock-ups: Build mock-ups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

- .1 Approved mock-ups may become part of the completed Work if undisturbed at time of Substantial Completion.

- .4 Preinstallation Conference: Conduct conference at Project site.

1.5 Delivery, Storage and Handling

- .1 Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be 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 acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.6 Project Conditions

- .1 Environmental Limitations: Do not install acoustical panel ceilings 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 Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

1.7 Coordination

- .1 Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC

equipment and partition assemblies.

1.8 Extra
Materials

- .1 Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - .1 Acoustical Ceiling Panels: Full-size panels equal to 2.0 percent of quantity installed.

PART 2 - PRODUCTS

2.1 Acoustic
Panels, General

- .1 Recycled Content
 - .1 Provide acoustical panels with recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content constitutes a minimum of 25 percent by weight.
- .2 Acoustical Panel Standard
 - .1 Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
- .3 Acoustical Panel Colours and Patterns
 - .1 Match appearance characteristics indicated for each product type.
 - .2 Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Departmental Representative from each manufacturer's full range that comply with requirements indicated for type, pattern, colour, light reflectance, acoustical performance, edge detail, and size.
- .4 Broad Spectrum Antimicrobial Fungicide and Bactericide Treatment
 - .1 For acoustical panels indicated, treat with manufacturer's standard antimicrobial formulation that inhibits fungus, mould, mildew, and gram-positive and gram-negative bacteria and showing no mould, mildew, or bacterial growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274 or ASTM G 21.

2.2 Acoustic

- .1 General

Panels for
Acoustic Panel
Ceilings

- .1 Provide panels complying with ASTM E 1264 for type, form, and pattern indicated and as outlined below.
- .2 Fire Rating
 - .1 Required when installed in a fire rated assembly.
- .3 Colour
 - .1 White to match existing, unless otherwise noted.
- .4 Edge Detail
 - .1 Square, sized to fit flange of exposed suspension system members, unless otherwise noted.
- .5 Thickness
 - .1 15 mm unless otherwise indicated or required for fire rating.
- .6 Modular Size
 - .1 610 x 1220 mm to match existing.
- .7 Antimicrobial Treatment
 - .1 Broad spectrum fungicide and bactericide based.

- .2 Acoustical Panel (typical):
 - .1 To match existing.

2.3 Metal
Suspension Systems
and Moldings

- .1 Use existing metal suspension system and moldings.
- .2 Where additional materials may be required to complete Work, use materials to match existing.

PART 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.
 - .1 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

- .1 General: Install acoustical panel ceilings to comply with ASTM C 63, per manufacturer's written instructions and CISCA's *Ceiling Systems Handbook*.
 - .1 Fire-Rated Assembly: Install fire-rated ceiling systems according to tested fire-rated design.

- .2 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.
 - .1 Arrange directionally patterned acoustical panels as follows:
 - .1 Install panels with pattern running in one direction parallel to long axis of space.
 - .2 For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and mouldings.
 - .3 Paint cut edges of panel remaining exposed after installation; match colour of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 - .4 Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.

3.3 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.