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**Partie 1            General**

**1.1                RELATED REQUIREMENTS**

- .1      Section 09 21 16 – Gypsum board assemblies.
- .2      Section 09 53 00 – Acoustical suspension.
- .3      Divisions 21 à 28 for coordination of ceiling elements.

**1.2                REFERENCES**

- .1      American Society for Testing and Materials International (ASTM)
  - .1      ASTM C423-09a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
  - .2      ASTM E1264-08, Standard Classification for Acoustical Ceiling Products.
  - .3      ASTM E1477-98a (2008), 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-51.34-M86, Vapour Barrier, Polyethylene Sheet, for Use in Building Construction and Amendment No. 1 1988.
  - .2      CAN/CGSB-92.1-M89, Sound Absorptive Prefabricated Acoustical Units.
- .3      Canadian Standards Association (CSA)/CSA International
  - .1      CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .4      Department of Justice Canada (JUS)
  - .1      Canadian Environmental Protection Act (1999) (LCPE), ch. 33.
  - .2      Transportation of Dangerous Goods Act (TDGA), ch. 34.
- .5      Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1      Material Safety Data Sheets (MSDS).
- .6      Underwriter's Laboratories of Canada (ULC)
  - .1      CAN/ULC-S102-2003, Surface Burning Characteristics of Building Materials and Assemblies.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1      Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2      Product Data: submit WHMIS MSDS in accordance with Section 01 47 15 - Sustainable Requirements: Construction and Section 02 81 01 - Hazardous Materials.
- .3      Submit duplicate full size samples of each type acoustical units.

**1.4                QUALITY ASSURANCE**

- .1      Regulatory Requirements:

- .1 Fire-resistance rated floor/ceiling and roof/ceiling assembly: certified by Canadian Certification Organization accredited by Standards Council of Canada.
- .2 Mock-up:
  - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
  - .2 Construct mock-up 10 m<sup>2</sup> minimum of each type acoustical panel including one inside corner and one outside corner.
  - .3 Construct mock-up where directed.
  - .4 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with ceiling work.
  - .5 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of the finished work.
- .3 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

## **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Protect on site stored or installed absorptive material from moisture damage.
- .2 Store extra materials required for maintenance, where directed by Departmental Representative.
- .3 Waste Management and Disposal:
  - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction /Demolition Waste Management and Disposal.
  - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
  - .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan (WMP).
  - .4 Separate for recycling and place in designated containers in accordance with Waste Management Plan.
  - .5 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, and Regional and Municipal regulations.
  - .6 Ensure emptied containers are sealed and stored safely in accordance with Section 01 35 43 - Environmental Procedures.
  - .7 Fold up metal and plastic banding, flatten and place in designated area for recycling.

## **1.6 ENVIRONMENT**

- .1 Permit wet work to dry before beginning to install.
- .2 Maintain uniform minimum temperature of 15 degrees C and humidity of 20% to 40% before and during installation.
- .3 Store materials in work area 48 hours prior to installation.

## **1.7 EXTRA MATERIALS**

- .1 Provide extra materials of acoustic units in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Provide acoustical units amounting to 2% of gross ceiling area for each pattern and type required for project.
- .3 Ensure extra materials are from same production run as installed materials.
- .4 Clearly identify each type of acoustic unit, including colour and texture.
- .5 Deliver to Departmental Representative upon completion of the work of this section.

## **1.8 ACCEPTABLE PRODUCTS AND MATERIALS**

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

## **Partie 2 Products**

### **2.1 MATERIALS**

- .1 Acoustic units for suspended ceiling system: to CAN/CGSB-92.1 and ASTM E1264.
- .2 **Type TA1 and TA3:**
  - .1 Type: fibre de verre avec membrane acoustiquement transparente;
  - .2 Conforme à la norme ASTM E1264, Type XII, Forme 2, Motif E;
  - .3 Texture : très fine;
  - .4 Résistance au feu : Classe A;
  - .5 Flame spread rating of: 25 or less in accordance with CAN/ULC-S102.
  - .6 Noise Reduction Coefficient (NRC) designation of: 0.90 to ASTM C423.
  - .7 Articulation Class (AC): 190 to ASTM E1111.
  - .8 Light Reflectance (LR) range of: 0.86 to ASTM E1477.
  - .9 Edge type: square tegular, 14 mm thick.
  - .10 Colour: white.
  - .11 Shape: flat.
  - .12 Surface coverings: factory applied acrylic latex on membrane.
  - .13 Recycled content: 71%.
  - .14 Dimensions: two sizes required:
    - .1 **TA1:** 610 mm x 1219 mm x 25 mm thick (Imperial).
    - .2 **TA3:** 610 mm x 1524 mm x 25 mm thick (Imperial).
- .3 **Type TA2:**
  - .1 Type: mineral fibre hydroform.
  - .2 To ASTM E1264, Type IX, Form 2, Pattern G.

- .3 Texture: smooth.
- .4 Fire resistance: Class A.
- .5 Flame spread rating of: 25 or less in accordance with CAN/ULC-S102.
- .6 Noise Reduction Coefficient (NRC) designation: N/A.
- .7 Articulation Class (AC): 33 to ASTM E1111.
- .8 Light Reflectance (LR) range of 0.89 to ASTM E1477.
- .9 Edge type: square, 24 mm thick.
- .10 Colour: white.
- .11 Profile: plan.
- .12 Coating: factory applied vinyl latex, waterproof, washable, scratch and dirt resistant, to USDA, FSIS and ACIA guidelines for use in food preparation areas.
- .13 Recycled content: 51%.
- .14 Dimensions:
  - .1 610 mm x 1219 mm x 16 mm thick (Imperial).
- .4 Adhesive: low VOC type recommended by acoustic unit manufacturer.
- .5 Edging and transition moulding as required on drawings.
- .6 Staples, nails and screws: to CSA B111 non-corrosive finish as recommended by acoustic unit manufacturer.
- .7 Hold down clips: purpose made clips to secure tile to suspension system, approved for use in fire-rated systems.

### **Partie 3 Execution**

#### **3.1 INSPECTION**

- .1 Do not install acoustical panels and tiles until work above ceiling has been inspected by Departmental Representative.

#### **3.2 INSTALLATION**

- .1 Install acoustical panels and tiles in ceiling suspension system.
- .2 Install fibrous acoustical media and spacers over entire area above suspended metal panels.
- .3 In fire rated ceiling systems, secure lay-in panels with hold-down clips and protect over light fixtures, diffusers, air return grilles and other appurtenances according to Certification Organizations design requirements.

#### **3.3 APPLICATION**

- .1 Install adhesive bonded, stapled, screwed, nailed acoustic units to clean, dry and firm substrate.
- .2 Install acoustical units on ceilings and walls as indicated on drawings, as indicated on drawings, follow indications for alignment and departure points.

- .3 Scribe acoustic units to fit adjacent work. Butt joints tight, terminate edges with moulding.

### **3.4 INTERFACE WITH OTHER WORK**

- .1 Co-ordinate with Section 09 53 00 - Acoustical Suspension.
- .2 Co-ordinate ceiling work to accommodate components of other sections, such as light fixtures, diffusers, speakers, sprinkler heads, to be built into acoustical ceiling components.

**END OF SECTION**