

SECTION 09 50 00

ACOUSTICAL STRATUM CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general conditions of contract, including general and supplementary conditions and division 1 specification sections, apply to work of this section

1.2 SUMMARY

- A. Section includes:
 - a. Metal ceiling panels
 - b. Suspension system
 - c. Wire hangers, fasteners and wall moldings
- B. Related sections:
 - a. Section 09 51 00 (09510) – Acoustic Ceiling
 - b. Section 09 20 00 (09520) – Plaster and Gypsum Board
 - c. Division 23 (15) – Heating, Ventilating and Air Conditioning
 - d. Division 26 (16)– Electrical
- C. Alternates:
 - a. Prior to approval: Unless otherwise provided for in the contract documents, proposed product substitutes may be submitted no later than 10 working days prior to the date established for receipt of bids. Approval of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by addenda
 - i. If substitute products that have not been approved by Addenda are included in a bid, the specified products shall be provided without additional compensation
 - b. Submittals: That do not provide adequate information for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not limited to: Single source materials supplier (if specified in section 1.5); panel design, size, composition, color and finish; suspension system component profiles and sizes; compliance with the referenced standards

1.3 REFERENCES

- A. ASTM E 84 "Standard Test Method for Surface Burning Characteristics of Building Materials"
- B. ASTM A 1008 "Standard Specification for Steel, Sheet, Cold-Rolled Carbon, Structural, High-Strength Low Alloy and High-Strength Low-Alloy with Improved Formability"
- C. ASTM C 423 "Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method"
- D. ASTM C 635 "Standard Specification for Metal Suspension Systems for Acoustical Tile Panel Ceilings"
- E. ASTM C 636 "Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Panel ceilings"
- F. ASTM A 641 "Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire"
- G. ASTM A 653 "Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process"

- H. ASTM E 1477 “Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by use of Integrating-Sphere Reflectometers”
- I. ASTM 1264 “Classification for Acoustical Ceiling Products”
- J. ASTM B209 “Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate”

1.4 SUBMITTALS

- A. Product Data: Manufacturer’s product data and installation instructions
- B. LEED Data: Product complies with use for achieving LEED Green Building Rating System credits. Metal Ceiling Pan products are manufactured with recycled material content that comply with credit systems available in various States / Provinces. Contact the Manufacturer for a project specific LEED letter.
- C. Shop Drawings: Reflected ceiling plans coordinating penetrations and ceiling mounted items. Show the following details:
 - a. Details and reflected ceiling plans for the Acoustical Metal Pan Ceiling installation
 - b. Clearly illustrate all components of the Acoustical Metal Pan Ceiling suspension and components
 - c. System assembly details and connections to building components
 - d. Location and direction of light fixtures, diffusers, speakers and other finish items
 - e. Framing and support details for work supported by acoustical ceiling suspension system
 - f. List of materials, dimensions, hanger fastenings and any special details
- D. Samples: Minimum 12-inch (300 mm) piece of each type and finish with acoustical material and suspension system

1.5 QUALITY ASSURANCE

- A. Manufacturer and Installer Qualifications: Provide Acoustical Metal Pan Ceiling components produced by a single manufacturer with resources adequate to deliver a product of consistent quality in terms of appearance and physical properties for all project scopes and scales without risk of delay or interruption; Installation work to be performed by a firm whose personnel have no less than three (3) years of successful experience on projects of similar size, requirements and complexity

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer’s unopened packages, suitably store to protect against exposure to moisture, sunlight, surface contamination and other unacceptable conditions
- B. Handle components to prevent damage
- C. Attic Stock
 - a. Panels and exposed trims 1%
 - b. Mounting and suspension components 0.5%

1.7 PROJECT CONDITIONS

- A. Environmental requirements at installation
 - a. The building shall be enclosed, the air condition system shall be operating with proper filters in place and the proper temperature and humidity conditions shall be stabilized before, during and following installation until Substantial Completion. Building areas to receive ceilings shall be free of construction dust and debris
 - b. Coordination: Coordinate acoustical ceilings work with installers of related work including but not limited to building insulation, drywall, mechanical and electrical systems

- B. Dimensional Stability: Acoustical Metal Pan Ceiling installation shall be carried out in temperature conditions up to 120°F (49°C), in spaces before the building is enclosed and HVAC is cycled or not operating

1.8 WARRANTY (LIMITED)

- A. Acoustical Panels: Submit a written warranty executed by the manufacture agreeing to repair or replacement of acoustical panels that fail within the warranty period, Failures include but are not limited to:
- Acoustical metal panels: Warping, rusting and manufacturer's defects
 - Acoustical suspension: Rusting and manufacturer's defects
- B. Warranty period for Acoustical Metal Pan Ceiling is 1 years from date of Substantial Completion

1.9 MAINTENANCE

- A. Provide extra acoustical panels and suspension material, matching installed material in manufacturer's original packages and clearly labeled as attic stock as specified in DELIVERY, STORAGE AND HANDLING section
- B. Deliver extra stock and access tools to owner's representative

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Subject to compliance with requirements, provide products from the following manufacturer:
CARRITEC
575 blvd. Morgan, Baie-D'Urfé, QC H9X 3T6
Phone 514-457-7779 • Fax 514-457-5559
Contact: info@carritec.com
- B. Carritec Ceiling STRATUM Series

2.2 MATERIALS AND FABRICATION

A. METAL CEILING PANELS

- Modular Metal Panels "STRATUM Series" by Carritec with specified Carritec finish or approved equal. Final finish / color shall be approved by *<Architect/Owners name>* based on the above-mentioned sample submittals.
- Panel Construction: The ceilings panels to be break formed from a single metal sheet. The panels to be manufactured with a 1-3/4" to 2-1/4" integral edge on all sides. No indentations, marks or defacing of the exposed surface of the ceiling will be allowed.
- Material:
 - Aluminum sheet comply with ASTM B 209, alloy and tempered recommended by aluminum producer and finish indicated and with not less than the strength and durability properties of the 3003-H14 for the painted finish or laminate finish and 5005-H14 for anodized finish *<Remove this section if not applicable>*
 - Thickness: Minimum 0.040 inch (18 Gauge) to 0.070 inch (13 Gauge), so that the panel deflection does not exceed L/360 panel dimension in width and length.
 - Finish: Standard: polyester baked enamel, selected from manufacturer's standard colors; Polyvinylidene fluoride resin (Kynar 500) Paint; Duranar, XLI; Clear Anodized (Bright; Brushed; Brushalum; Satin); Veneer (Please contact Carritec for selection of wood essence); Laminates (Please contact Carritec for wood grain laminates selection) *<Remove items not applicable>* Please contact Carritec to learn more on our special high-end finishes and veneers.
 - Color: Custom color selected by Architect *<Remove items not applicable>*

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- ii. Material: Steel sheet comply with ASTM 653, steel and hot dipped galvanized steel recommended by mill producer and finish indicated. **<Remove this section if not applicable>**
 - (i) Thickness: Minimum 0.020 inch (25 Gauge) to 0.070 inch (15 Gauge), so that the panel deflection does not exceed L/360 panel dimension in width and length. Segmenting of panels or suspension is not acceptable.
 - (ii) Finish: Standard: polyester baked enamel, selected from manufacturer's standard colors; Polyvinylidene fluoride resin (Kynar 500) Paint; Duranar, XLI; Veneer (Please contact Carritec for selection of wood essence); Laminates (Please contact Carritec for wood grain laminates selection) **<Remove items not applicable>** Please contact Carritec to learn more on our special high-end finishes and veneers.
 - (iii) Color: Custom color selected by Architect **<Remove items not applicable>**

 - iii. Material: Stainless steel sheet comply with ASTM A789 type 304 OR 316 **<Remove this section if not applicable>**
 - (i) Thickness: Minimum 0.024 inch (24 Gauge) or greater if required, so that the panel deflection does not exceed L/360 panel dimension in width and length.
 - (ii) Finish: Mill Finished (2B); Brushed (#4, #6); Mirror Finished (#8, #10); Non-Directional Finished; Embossed (Please contact Carritec for embossed selections) **<Remove items not applicable>** Please contact Carritec to learn more on our special high-end finishes
 - (iii) Color: Custom color selected by Architect **<Remove items not applicable>**

 - iv. Material: Satin coat sheets complying with ASTM A 366 for required finish at job site. **<Remove this section if not applicable>**
 - (i) Thickness: Minimum 0.022 inch (26 Gauge) to 0.070 inch (15 Gauge), so that the panel deflection does not exceed L/360 panel dimension in width and length.
 - (ii) Finish: Galvanized; Galvalume; Baked Enamel; Kynar 500 Paint; Duranar, XL **<Remove items not applicable>** Please contact Carritec to learn more on our special high-end finish
 - (iii) Color: Custom color selected by Architect **<Remove items not applicable>**
- d. Perforation Panels: (Non perforated) (Wide variety of perforation patterns available)
 - e. Acoustic Treatment: Non-woven acoustic fabric adhered with thermal activated adhesive onto interior surface of the ceiling pan. Fiberglass acoustic media encased in black poly or PVC that will not promote the growth of mold. Thickness is determined by the rate of sound absorption coefficient determined in the specification.
 - f. Noise Reduction: Coefficient (NRC) up to 0.90 depending on the perforation pattern.
 - g. Flame Rating: All metal pans and associated suspension systems are made entirely of noncombustible materials and comply with ASTM E 1264 for Class A materials as determined by testing identical products as per ASTM E 84.

B. SUSPENSION SYSTEM

- a. Suspension system to be 2" steel Z bar and splice, hook on suspension bracket, splices, hooks and wall molding.
 - i. Existing hangers shall not be used unless they comply or are made to comply with local building codes.
 - ii. Secondary Suspension include 10ft Z bar, placed on panels width nominal dimension. Manufactured from 16-gauge galvanized steel, to be attached to the primary suspension 1 ½" C channel mainly by the installer with a suspension bracket.
 - iii. Attachment devices: Hanger attachment shall be ¼" Dia. galvanized threaded rod, other approved hanging device that will support required loads. Attachments shall be zinc coated or protected with rust inhibited paint.

- b. Installation & Accessibility:
 - i. Ceiling panel series HO: Panels are installed progressively in accordance with Carritec installation drawings, perimeter panels to be installed last. Access into the ceiling plenum is achieved by lifting adjacent panels to allow disengagement and removal of the intended panels. Fully 100% accessible ceiling for interior applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine job-site conditions for conditions that may adversely affect installation of the ceiling panels.
- B. Verify dimensions of the ceiling panels prior to installation to assure compatibility with job-site conditions.
- C. Verify suspension system is installed level and true. Ensure all wire hangers are properly secured to structure according to local codes.
- D. Ceiling panels shall be inspected before installation to be free of dents, scratches and other defects prior to installation finished surfaces to assure that blemished or dented surfaces are not present prior to installation.

3.2 INSTALLATION

- A. Install ceiling panels in accordance with manufacturer's written instructions and approved shop drawings.
- B. Use white cotton gloves when handling ceiling tiles.
- C. Ceiling panels shall be engaged level, square, and true to line, in proper alignment and relationship to other work of other trades.
- D. Install acoustical pad if required into ceiling panel prior installation.

3.3 PRODUCT HANDLING

- A. Delivery: Deliver ceiling components to job site in unopened containers designed to protect product on site as well as in transit, properly identified with product manufacturer's name, trade name and other applicable identification.
- B. Storage: Store all materials in dry and protected locations until installation.
- C. Veneer based ceiling tiles must be immediately stored in a stable temperature environment at 70 -72 degrees and with an ambient humidity of 40% to 60%. Do not stack panels directly on concrete floor.
- D. Remove protective film material from ceiling tiles only when space is completely clean and dust free of airborne particles. Clean, cotton white gloves shall be used for final installation.
- E. Remove and replace units that have been damaged or cannot be satisfactorily cleaned to the owner's or architect's acceptance, at no additional cost to the owner. To clean materials follow manufacturer's written cleaning procedures.

- END OF SECTION -