

SECTION 09 84 33 - SOUND-ABSORBING ROOM COMPONENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes shop-fabricated, sound absorbing panel units tested for acoustical performance, including:
  - 1. Wood fiber acoustical wall panels.
  - 2. Fabric-Wrapped, wood fiber acoustical wall panels.
  - 3. Fabric-wrapped acoustical wall panels.
  - 4. High frequency diffusers.
- B. Related Sections:
  - 1. Division 01 Section "Coordination Drawings" for requirements to coordinate the work of this Section with the construction elements indicated as "Coordination Drawing Content" and as required by the other Prime Contractors for the Project Coordination Drawings.
  - 2. Division 06 Section "Rough Carpentry" for wood blocking at sound absorbing room components.
  - 3. Division 09 Section "Acoustical Insulation and Sealants" for acoustical insulation installed behind sound absorbing room components.

1.3 DEFINITIONS

- A. NRC: Noise Reduction Coefficient.
- B. SAA: Sound Absorption Average.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of fabric facing, panel edge, core material, and mounting indicated.
- B. Shop Drawings: For sound-absorbing room component. Include mounting devices and details; details at panel head, base, joints, and corners; and details at ceiling, floor base, and wall intersections. Indicate panel edge and core materials.
  - 1. Include elevations showing panel sizes and direction of fabric weave and pattern matching.
- C. Samples for Initial Selection: For each type of fabric facing from sound-absorbing room component manufacturer's full range.
- D. Samples for Verification: For the following products, prepared on Samples of size indicated below:

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1. Fabric: Full-width by approximately 36-inch- long Sample, but not smaller than required to show complete pattern repeat, from dye lot to be used for the Work, and with specified treatments applied. Mark top and face of fabric.
2. Panel Edge: 12-inch- long Sample(s) showing each edge profile, corner, and finish.
3. Core Material: 12-inch- square Sample at corner.
4. Mounting Devices: Full-size Samples.
5. Assembled Panels: Approximately 36 by 36 inches, including joints and mounting methods.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Elevations and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
  1. Electrical outlets, switches and thermostats.
  2. Items penetrating or covered by fabric-wrapped wall panels including the following:
    - a. Speakers.
    - b. Alarms.
    - c. Access panels.
    - d. Clocks.
    - e. Tack boards.
    - f. White boards.
    - g. Wall-mounted phones.
    - h. Wall-mounted projectors.
- B. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sound-absorbing room components to include in maintenance manuals. Include fabric manufacturers' written cleaning and stain-removal recommendations.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials from same production run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Fabric: For each fabric, color, and pattern installed, provide length equal to 2 percent of amount installed, but no fewer than 10 yards.

1.8 QUALITY ASSURANCE

- A. Source Limitations: Obtain sound-absorbing room components from single source from single manufacturer.
- B. Fire-Test-Response Characteristics: Provide sound-absorbing room components meeting the following as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
  1. Surface-Burning Characteristics: As determined by testing per ASTM E 84.

- a. Flame-Spread Index: 25 or less.
  - b. Smoke-Developed Index: 450 or less.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials, fabrication, and installation.
- 1. Build mockup of typical wall area as directed by Architect.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

#### 1.9 PREINSTALLATION CONFERENCE

- A. Preinstallation Conference: Conduct conference at Project site.
- 1. Review specification requirements.
  - 2. Review installation procedures.
  - 3. Inspect project conditions.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Comply with fabric and sound-absorbing room components manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.
- B. Deliver materials and units in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.

#### 1.11 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install sound-absorbing room components until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Lighting: Do not install sound-absorbing room components until a permanent level of lighting is provided on surfaces to receive the units.
- C. Field Measurements: Verify locations of sound-absorbing room components and actual dimensions of openings and penetrations by field measurements before fabrication.

#### 1.12 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of sound-absorbing room components that fail in materials or workmanship within specified warranty period.
- 1. Failures include, but are not limited to the following:
    - a. Acoustical performance.
    - b. Fabric sagging, distorting, or releasing from panel edge.
    - c. Warping of core.

2. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 SOUND-ABSORBING ROOM COMPONENTS, GENERAL

#### A. Core Materials:

1. Wood Fiber Board: Wood fibers bonded with inorganic hydraulic cement.
2. Glass-Fiber Board: ASTM C 612, Type standard with manufacturer; nominal density of 6 to 7 lb/cu. ft., unfaced, and dimensionally stable, molded rigid board; and with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

#### B. Facing Material: Fabric from same dye lot; color and pattern as selected by Architect from manufacturer's full range.

#### C. Mounting Devices: Concealed on back of unit, recommended by manufacturer to support weight of unit, and as follows:

1. Metal Clips or Bar Hangers: Manufacturer's standard two-part metal "Z" clips, with one part of each clip mechanically attached to back of unit and the other part to substrate, designed to permit unit removal.

### 2.2 WOOD FIBER ACOUSTICAL WALL PANELS

#### A. Basis-of-Design: Subject to compliance with requirements, Wood Fiber Acoustical Wall Panels incorporated into the project shall be based on products as follows:

1. Tectum, Inc.; "Standard Interior Wall Panels."

#### B. Wood Fiber Acoustical Wall Panel: Manufacturer's standard panel construction consisting of wood fibers bonded with inorganic hydraulic cement.

1. Mounting: "C-20" type mounting method.
2. Core: Cementitious-fiber board.
3. Edge Profile: Mitered (beveled to a point) where panels meet and square elsewhere.
4. Acoustical Performance: Sound absorption NRC of .95 according to ASTM C 423 for Type A mounting according to ASTM E 795.
5. Nominal Overall Panel Thickness: 1-inch.
6. Panel Width: As indicated on Drawings.
7. Panel Height: As indicated on Drawings.

### 2.3 FABRIC-WRAPPED WOOD FIBER ACOUSTICAL WALL PANELS

#### A. Basis-of-Design: Subject to compliance with requirements, Wood Fiber Acoustical Wall Panels incorporated into the project shall be based on products as follows:

1. Tectum, Inc.; "Fabri-Tough Wall Panels."

#### B. Wood Fiber Acoustical Wall Panel: Manufacturer's standard panel construction consisting of wood fibers bonded with inorganic hydraulic cement.

1. Mounting: "C-20" type mounting method with 1-inch fiberglass insulation infill between furring.
2. Core: Cementitious-fiber board.
3. Edge Profile: Kerfed with fabric wrapped to kerf.
4. Acoustical Performance: Panel Type 2000 sound absorption NRC of .94 according to ASTM C 423 for Type A mounting according to ASTM E 795.
5. Nominal Overall Panel Thickness: 1 inch.
6. Panel Width: As indicated on Drawings.
7. Panel Height: As indicated on Drawings.
8. Fabric: Fabri-Tough with flame spread of 25 or less per ASTM E 84. Fabric color selected by Architect from manufacturer's full range.

#### 2.4 SOUND ABSORBING, DIFFUSING AND REFLECTING PANELS

- A. Basis of Design: Subject to compliance with requirements, Fabric Wrapped Sound Absorbing Wall Panels incorporated into the project shall be based on products/systems manufactured as follows:
1. Kinetics Noise Control.
    - a. Fabric Wrapped Impact-Resistant Acoustical Panels: "Kinetics High Impact Hard Side."
    - b. High Frequency Diffusers: "Kinetics High Tones."
  - B. Acceptable Manufacturers: Subject to compliance with requirements, in lieu of the Basis of Design manufacturer, Contractor may provide products from the following manufacturers that meet or exceed the published data of the specified Basis of Design product.
    1. Fabric Wrapped Impact-Resistant Panels:
      - a. MBI Colorsonix
      - b. G & S – Acousti-Impact
    2. High Frequency Diffusers:
      - a. AVL Systems – Prime #7 -FE
      - b. RPG – FlutterFree
      - c. Real Acoustix-FlutterX
  - C. Fabric Wrapped Impact-Resistant Acoustical Panel: Manufacturer's standard panel construction consisting of facing material laminated to front face, edges, and back edge border of core.
    1. Mounting: Back mounted with manufacturer's standard metal clips or bar hangers, secured to substrate.
    2. Core: Glass-fiber board.
    3. Edge Construction: Manufacturer's standard chemically hardened core with no frame.
    4. Edge Profile: Square unless noted otherwise on Drawings.
    5. Corner Detail in Elevation: Square with continuous edge profile indicated.
    6. Facing Material: Manufacturer's standard non-woven fabric.
    7. Acoustical Performance: Sound absorption NRC 1.05 according to ASTM C 423 for Type A mounting according to ASTM E 795.
    8. Nominal Overall Panel Thickness: 2-1/8-inches.
    9. Panel Width: As indicated on Drawings.
    10. Panel Height: As indicated on Drawings.
  - D. High Frequency Panel Diffusers: Manufacturer's hardwood diffuser used to produce a diffuse scattering of high frequency sound and control flutter echo.
    1. Panel Shape:
    2. Mounting: Face mounted with 1-inch thick hardwood with grooved face channels, finish nails as indicated on Drawings.

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3. Face Color and Finish: As selected by Architect from manufacturer's full range of colors and finishes.
4. Acoustical Performance: Sound diffusion occurring at 3150 Hz per AES-4id2001.
5. Panel Width: 4-inches.
6. Panel Height: As indicated on Drawings.

## 2.5 FABRICATION

- A. General: Use manufacturer's standard construction except as otherwise indicated; with facing material applied to face, edges, and back border of dimensionally stable core; and with rigid edges to reinforce panel perimeter against warpage and damage.
  1. Glass-Fiber Board Cores: Chemically harden core edges and areas of core where mounting devices are attached.
- B. Core-Face Layer: Evenly stretched over core face and edges and securely attached to core; free from puckers, ripples, wrinkles, or sags.
- C. Facing Material: Apply fabric facing fully covering visible surfaces of unit; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.
  1. Square Corners: Tailor corners.
  2. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches in adjacent units.
- D. Dimensional Tolerances of Finished Units: Plus or minus 1/16 inch for the following:
  1. Thickness.
  2. Edge straightness.
  3. Overall length and width.
  4. Squareness from corner to corner.
  5. Chords, radii, and diameters.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine fabric, fabricated units, substrates, areas, and conditions, for compliance with requirements, installation tolerances, and other conditions affecting performance of sound-absorbing room components.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install sound-absorbing room components in locations indicated with vertical surfaces and edges plumb, top edges level and in alignment with other units, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.
- B. Comply with sound-absorbing wall unit manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.

- C. Align and level fabric pattern and grain among adjacent units.

### 3.3 INSTALLATION TOLERANCES

- A. Variation from Plumb and Level: Plus or minus 1/16 inch.
- B. Variation of Panel Joints from Hairline: Not more than 1/16 inch wide.

### 3.4 CLEANING

- A. Clip loose threads; remove pills and extraneous materials.
- B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION 09 84 33