

SECTION 09840
ACOUSTICAL WALL TREATMENT

PART 1 GENERAL

1.01 SUMMARY

Specifier Note: Revise paragraphs below to suit project requirements.

- A. Section Includes: Custom fabricated acoustical wall panels.

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.

1.02 REFERENCES

- A. ASTM International:

1. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Omit descriptions to composite and operational properties to extent necessary to link multiple components of a system and to interface with other systems.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements:

1. Surface Burning Characteristics (ASTM E84):
 - a. Flame spread: 25 maximum.
 - b. Smoke Developed: 450 maximum.
 - c. Fire ratings for all fabric covered panels is based on testing of the panel wrapped with the standard in stock fabric, Guilford of Maine, Model FR 701.
 - d. This rating applies to all acoustical wall treatment unless specifically excluded in the product specification section 2.02.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, edge profiles and panel components, including anchorage, accessories, finish colors and textures.
- D. Samples: Submit selection and verification samples of finishes, colors and textures.
- E. Test Reports: Certified test reports showing compliance with specified performance requirements.

1. Standard Systems: Submit certified copies of previous test reports substantiating performance of system in lieu of retesting.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 1 Quality Assurance Section.

1.05 QUALITY ASSURANCE

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 1 Regulatory Requirements Section. Repetitive statements should be avoided.

- A. Regulatory Requirements and Approvals: [Specify applicable requirements of regulatory agencies].

1. [Code agency name].

- a. [Report or approval number].

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 1 Product Requirements Section.

1.06 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions. Environmental conditions required for storage are the same as for installation, see 1.07 – A, Project Conditions.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements: Do not install panels until wet work, such as concrete and plastering, is complete; the building is enclosed; and the temperature and relative humidity are stabilized at 60 - 80 degrees F (16 - 27 degrees C) and 35% MINIMUM RH and 55% MAXIMUM RH, respectively. All products constructed with wood or wood fiber content must be stored for at least 72 hours in the controlled environment specified herein prior to installation to allow the materials to stabilize.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 ACOUSTICAL WALL PANELS

Specifier Note: Paragraph below is an addition to CSI SectionFormat. Retain or delete paragraph below per project requirements and specifier's practice.

- A. Manufacturer: Noise Control USA.

Specifier Note: Edit Paragraph below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

- B. Substitutions: No substitutions permitted.

Specifier Note: Paragraphs below list proprietary acoustical wall panels offered by Noise Control USA. Select wall panel type(s) appropriate to project. Panels are custom fabricated. Consult manufacturer regarding product options. Select product characteristics required; delete characteristics not required. Refer to manufacturer's technical product information.

2.02 MANUFACTURED UNITS

A. Alto Wood Panels:

1. Alto planks supplied in 96 inch (192 mm) or 120 inch (3048 mm) lengths. Size: 3/4 inch (19 mm) thick x 7-9/16 inch (192 mm) wide. Planks will be backed with a black acoustically transparent scrim to prevent fiberglass insulation color from showing through the perforations.

Field cut planks as required and install as shown on drawings. All exposed edges to be covered and finished with matching wood trim where shown in details. Tongue and groove edges allow continuous joining of planks with tight seams to create a smooth, flat perforated surface and blind nailing into wood furring.

2. Planks shall be a composite of 3/4 inch thick medium density fiberboard with a real wood veneer face. All planks will have parallel grooves equally spaced on the face and intersecting with partial depth holes in the rear to achieve the specified acoustical performance. Groove spacing shall be {5/16 inch (8 mm)} OR 5/8 inch (16 mm)).
3. Planks are installed per manufacturer instructions on wood furring strips with fiberglass core material {1 inch (25 mm) thick}, {2 inch (50 mm) thick} covering all wall or ceiling space behind the Alto planks and between the wood furring.
4. Fire Performance: {No fire rating required}, OR {Class A fire rating per ASTM E-84 and tested as perforated composite wood panel}.
5. Acoustical Performance: Alto planks with the {1 inch fiberglass core}, {2 inch fiberglass core} and tested per ASTM C-423 with the finished system, planks and fiberglass, mounted directly (Type A mounting) to the wall/ceiling surface shall have a Noise Reduction Coefficient (NRC) of {0.70, 1 inch fiberglass}, {0.90, 2 inch fiberglass}. Sound test results apply to panels with grooves spaced 5/16 inches apart and holes intersecting in a staggered pattern 5/8 inch (16 mm) by 1-1/4 inch.
6. Veneer: {Select from the manufacturer's standard range of clear coat finished real wood veneers} OR, {Architect specified finish stain and clear coat to match Architects sample}
7. Storage, Installation, and Maintenance of materials must be per the manufacturer's standard instructions and as specified in the Project Conditions section. The space must be temperature and humidity controlled during storage and installation.

B. Design Series 90 Panels:

1. Thickness: 5/8 inch (15.9 mm).
2. Size: As indicated on the drawings up to a maximum 60 inch (1524 mm) x 120 inch (3048 mm) panel.
3. Core: 1/8 inch (3.2 mm) thick molded fiberglass, 12 pcf (192 kg/m³) density, fused to a pure kraft honeycomb core.
4. Edge Detail: Square, hardened with non-resin, Class A hardening solution.
5. Facing: [100% polyester fabric, FR 701 Style 2100 by Guilford of Maine] [Factory approved customer selected fabric]. Designer selected fabrics must be approved by the panel manufacturer as acceptable quality for wrapping and covering core materials. Some fabrics are unstable, too stiff, or lack the weight and thread density for producing an acceptable finish product.
 - a. Color: [As selected from panel manufacturer's stocked range of colors] [As selected from fabric manufacturer's full range of colors].
6. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:

Specifier Note: NRC, sound absorption data is based on testing with Guilford FR701 fabric. To maintain specified sound absorption, fabrics should be selected that allow air to pass easily through the material into the acoustical core.

- a. Mounted over Solid Substrate: 0.70, minimum.

- b. Mounted with 3/4 inch (19.1 mm) Deep Airspace over 1/2 inch (12.7 mm) Insulation: 0.85, minimum.
- c. Mounted with 1 1/2 inch (38 mm) Deep Airspace over 1 1/2 inch (38 mm) Insulation: 0.95, minimum.
- d. Mounted with 3 1/2 inch (89 mm) Deep Airspace over 3 1/2 inch (89 mm) Insulation: 1.00, minimum.

7. Mounting Accessories: [DS 90 metal impaling clip] [Edgemount clip] [Z-clip].

C. Ensemble Wood Panels:

Specifier Note: Due to the panel weight and for ease of installation, the recommended maximum size is no greater than 24 square feet (2.3 square meters) per panel.

1. Ensemble wood panels are a composite assembly custom sized as shown on the drawings. Maximum size is 48 inch (1219 mm) by 96 inch (2439 mm). Dimensional tolerance shall be $\pm 1/16$ inch in width and height.
2. Panels are constructed per the following: A facing of real wood veneer laminated to a 3/8 inch (9 mm) medium density fiberboard perforated with square openings 5/16 inches (8 mm) on center. The veneer face is cut with parallel grooves 1/8 inch (3 mm) wide and 5/16 inches on center. The facing assembly is bonded to a fiberglass core {1 inch (25 mm)} OR {2 inch (50 mm)} thick and the panel perimeter shall be constructed of a fiber board matching the thickness of the fiberglass core. The panel back will be constructed of 3/8 inch (9 mm) thick medium density fiberboard for an overall panel thickness of {1-25/32 inches (45 mm)} OR {2-25/32 inches (71 mm)}.
3. Panels are supplied with Z-clips on the panel back and Z-bar for wall or ceiling installation as required based on the panel layout.
4. Fire Performance: {No fire rating required}, OR {Class A fire rated MDF and fiberglass core materials per ASTM E-84}
5. Acoustical Performance: Noise Reduction Coefficient shall be a minimum of NRC 0.85 per ASTM C-423, Type D5 mount. Panel with 2 inch fiberglass core shall, shall have minimum Absorption Coefficients as follows in lower frequency one-third octave bands; 125 Hz - 0.13, 160 Hz - 0.19, 200 Hz - 0.43, 250 Hz - 0.80, 315 Hz - 0.97, 400 Hz - 1.07.
6. Veneer: {Select from manufacturers' standard range of clear coat finished real wood veneers} OR, {Architect specified finish stain and clear coat to match Architects sample}.
7. Storage, Installation, and Maintenance of materials must be per manufacturers' standard instructions and as specified in the Project Conditions section. The space must be temperature and humidity controlled during storage and installation.

D. Hard Side Panels:

1. Thickness: [1/2 inch (12.7 mm)] [1 inch (25.4 mm)] [1 1/2 inches (38 mm)] [2 inches (51 mm)] [3 inches (76 mm)] [4 inches (102 mm)].
2. Size: As indicated on the drawings up to a maximum 48 inch (1219 mm) x 120 inch (3048 mm) panel.
3. Core: [1/2 inch (12.7 mm)] [1 inch (25.4 mm)] [1 1/2 inch (38 mm)] [2 inch (51 mm)] [3 inch (76 mm)] [4 inch (102 mm)] thick fiberglass, 6 - 7 pcf (96 - 112 kg/m³) density.
4. Edge Detail: [Square] [Round] [Mitered] [Beveled] [Pencil] hardened with non-resin, Class A hardening solution.
5. Facing: [100% polyester fabric, FR 701 Style 2100 by Guilford of Maine] [Factory approved customer selected fabric]. Designer selected fabrics must be approved by the panel manufacturer as acceptable quality for wrapping and covering core materials. Some fabrics are unstable, too stiff, or lack the weight and thread density for producing an acceptable finish product.

- a. Color: [As selected from panel manufacturer's stocked range of colors] [As selected from fabric manufacturer's full range of colors].

6. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:

Specifier Note: NRC, sound absorption data is based on testing with Guilford FR701 fabric. To maintain specified sound absorption, fabrics should be selected that allow air to pass easily through the material into the acoustical core.

- a. 1/2 inch (12.7 mm) Panel: 0.60, minimum.
- b. 1 inch (25.4 mm) Panel: 0.80, minimum.
- c. 1-1/2 inch (38 mm) Panel: 0.95, minimum.
- d. 2 inch (51 mm) Panel: 1.00, minimum.
- e. 4 inch (102 mm) Panel: 1.10, minimum, 125 Hz = 0.65 or greater.

7. Mounting Accessories: [HS Impaling clips] [Z-clips] [Edgemount clips] [Velcro] [Magnetic tape].

E. High Impact Hard Side Panels:

1. Thickness: [1 1/8 inches (29 mm)] [2 1/8 inches (54 mm)] [3 1/8 inches (79 mm)] [4 1/8 inches (105 mm)].
2. Size: As indicated on the drawings up to a maximum 48 inch (1219 mm) x 120 inch (3048 mm) panel.
3. Core: [1 inch (25.4 mm)] [2 inches (51 mm)] thick fiberglass, 6 - 7 pcf (96 - 112 kg/m³) density, with bonded facing layer of [12 pcf (192 kg/m³)] [18 pcf (288 kg/m³)], 1/8 inch (3.2 mm) thick impact resistant fiberglass.
4. Edge Detail: [Square] [Round] [Mitered] [Beveled] [Pencil] hardened with non-resin, Class A hardening solution.
5. Facing: [100% polyester fabric, FR 701 Style 2100 by Guilford of Maine] [Factory approved customer selected fabric]. Designer selected fabrics must be approved by the panel manufacturer as acceptable quality for wrapping and covering core materials. Some fabrics are unstable, too stiff, or lack the weight and thread density for producing an acceptable finish product.
 - a. Color: [As selected from panel manufacturer's stocked range of colors] [As selected from fabric manufacturer's full range of colors].

6. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:

Specifier Note: NRC, sound absorption data is based on testing with Guilford FR701 fabric. To maintain specified sound absorption, fabrics should be selected that allow air to pass easily through the material into the acoustical core.

- a. 1-1/8 inch (29 mm) Panel: 1.00, minimum.
- b. 2 1/8 inch (54 mm) Panel: 1.05, minimum.

7. Mounting Accessories: [HS Impaling clips] [Z-brackets] [Edgemount mechanical clips] [Velcro] [Magnetic tape].

F. Hi-Tack Tack able Panels:

1. Thickness: [1/2 inch (12.7 mm)] [3/4 inch (19.1 mm)].
2. Size: As indicated on the drawings up to a maximum 48 inch (1219 mm) x 120 inch (3048 mm) panel.

Specifier Note: Panels can be specified with the optional perforated core for improved sound absorption as detailed herein.

3. Core: [1/2 inch (12.7 mm)] [3/4 inch (19.1 mm)] thick mineral fiber board, 24 pcf (384 kg/m³) density [Perforated core].
4. Edge Detail: [Square] [Round] [Beveled] [Pencil].
5. Facing: [100% polyester fabric, FR 701 Style 2100 by Guilford of Maine] [Factory approved customer selected fabric]. Designer selected fabrics must be approved by the panel manufacturer as acceptable

quality for wrapping and covering core materials. Some fabrics are unstable, too stiff, or lack the weight and thread density for producing an acceptable finish product.

- a. Color: [As selected from panel manufacturer's stocked range of colors] [As selected from fabric manufacturer's full range of colors].

6. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:

Specifier Note: NRC, sound absorption data is based on testing with Guilford FR701 fabric. To maintain specified sound absorption, fabrics should be selected that allow air to pass easily through the material into the acoustical core.

Specifier Note: Noise Reduction Coefficients (NRC) below apply to perforated panels only.

- a. 1/2 inch (12.7 mm) Panel: 0.30, minimum.
- b. 3/4 inch (19.1 mm) Panel: 0.30, minimum.

7. Mounting Accessories: Manufacturer's standard 1-part mechanical clips.

G. Perforated Metal Panels:

1. Thickness: 2 inches (51 mm). Model -V is 2 inches (51 mm) at perimeter and 2-3/4 inches (70 mm) at the V-ridges.

Specifier Note: panels are available in flat () or V-ridge (-V) styles. Standard sizes for flat () panels up to 42 inches wide x 120 inches high (1067 x 3048 mm) or 114 inches wide x 48 inches high (2896 x 1219 mm). Available in larger sizes up to 54 inches wide x 144 inches high (1372 x 3658mm) or 138 inches wide x 60 inches high (3505 x 1524 mm) as special order.

Standard sizes for V-ridge (-V) panels up to 36 inches wide x 120 inches high (914 x 3048 mm) or 96 inches wide x 48 inches high (2438 x 1219 mm). Available in larger sizes up to 48 inches wide x 144 inches high (1219 x 3658 mm) or 132 inches wide x 60 inches high (3353 x 1524 mm) as special order. Note: -V panels are sized in increments of 6 inches (152 mm), the width of each V ridge. Minimum panel size is 12 inches (305 mm) wide.

2. Size: As indicated on the drawings.
3. Construction: [22 gage galvanized steel] [0.032 inch (0.81 mm) light duty aluminum] [0.040 inch (1.02 mm) medium duty aluminum] face, perforated with 3/32 inch (2.4 mm) holes on 3/16 inch (4.8 mm) staggered centers, providing 23% open area. [20 gage steel] [0.040 aluminum] channel/stiffener framing. 2 inches (51 mm) thick, [black glass fiber batt insulation with medium density skin] [fibrous insulation sound absorber encased in 2.5 mil thick black poly embossed vinyl].
4. Finish: Manufacturer's standard powder coated paint finish.
 - a. Color: [As selected from panel manufacturer's range of standard colors] [Match Architect's sample].
5. Sound Absorption (ASTM E795, A mounting): Noise Reduction Coefficient of 0.90.
6. Mounting Accessories: [Flush mount Z-clips top with angle clips bottom] [Top Z-clip and bottom J-channel].

H. KSP Co-polymer Panels:

1. Thickness: 2 5/8 inches (67 mm).

Specifier Note: The maximum size available for KSP panels is 42 inches x 120 inches (1067 x 3048 mm).

2. Size: As indicated on the drawings.
3. Construction: 2 inches (51 mm) thick, 1.5 pcf (24 kg/m³) density, sound absorber encased in 2.5 mil thick black poly embossed vinyl and framed with 2-1/2 inch (64 mm) thick aluminum and faced with 1/16 inch (1.6 mm) thick copolymer perforated with 3/32 inch (2.4 mm) holes on 5/32 inch (4 mm) staggered centers. Paint aluminum frame to match the copolymer facing.

- a. Color: As selected from panel manufacturer's range of standard colors.
- 4. Edge Detail: Square.
- 5. Sound Absorption (ASTM E795, A Mounting): Noise Reduction Coefficient of 0.90.
- 6. Mounting Accessories: [Top Z-clip and bottom J-channel] [Z-clips top with angle clips bottom].
- 7. Install with minimum 1/8 inch (3.2 mm) reveal between panels to allow for expansion and contraction of copolymer.

I. S-4 Absorber Panels:

- 1. Thickness: [1 inch (25.4 mm)] [2 inches (51 mm)].

Specifier Note: The maximum size available for this panel is 48 inches wide × 96 inches high (1219 × 2438 mm).

- 2. Size: As indicated on the drawings.
- 3. Construction: 3 pcf (48 kg/m³) density fiberglass core encapsulated and sealed with fiberglass reinforced reflective film. Color: [White] [Aluminized silver].

Specifier Note: Class A fire rating for aluminized silver facing only.

- 4. Edge Detail: Square with soft corner.
- 5. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:
 - a. 1 inch (25.4 mm) Panel: 0.75, minimum.
 - b. 2 inch (51 mm) Panel: 0.95, minimum.
- 6. Mounting Accessories: [Impaling pins] [Edge clips] [Top and bottom J-clips].

J. Sereno Wood Panels

- 1. Size: As shown on drawings sized up to 47-7/8 inches (1216 mm) × 95-3/4 inches (2432 mm). Thickness is 3/4 inches (19 mm). Panels are backed with a black acoustically transparent scrim to prevent fiberglass insulation color from showing through perforations. Perf pattern Model 6-16.

Specifier Note: Hole diameter and hole spacing options are available with variable sound absorption performance.

- 2. Panels shall be a composite of 3/4 inch thick medium density fiberboard with a real wood veneer face. All panels are installed per manufacturer instructions using Z-clips and Z channels to create an airspace behind the panels. The airspace as detailed on drawings is filled with absorptive fiberglass board, 5 - 6 pcf density material {1 inch (25 mm) thick}, {2 inch (50 mm) thick} covering all wall or ceiling space behind the panels and between the framing or furring supporting the Z channel.
- 3. Fire Performance: {No fire rating required}, OR {Class A fire rating per ASTM E-84 and tested as perforated composite wood panel}.
- 4. Acoustical Performance: Panels installed over {1 inch fiberglass core}, {2 inch fiberglass core} and tested per ASTM C-423 with the finished system, panels and fiberglass, mounted directly (Type A mounting) to the wall/ceiling surface shall have a Noise Reduction Coefficient (NRC) of {0.70, 1 inch fiberglass}, {1.00, 2 inch fiberglass}. Performance based on Perforation Pattern 6-16.
- 5. Veneer: {Select from the manufacturer's standard range of clear coat finished real wood veneers} OR, {Architect specified finish stain and clear coat to match Architects sample}.
- 6. Storage, Installation, and Maintenance of materials must be per the manufacturer's standard instructions and as specified in the Project Conditions section. The space must be temperature and humidity controlled during storage and installation.

K. SportsBoard Conform co-polymer Panels:

1. Thickness: [1 1/16 inches (27 mm)] [2 1/16 inches (52 mm)].
2. Size: As indicated on the drawings up to a maximum 42 inch (1067 mm) x 92 inch (2337 mm) panel.
3. Core: [1 inch (25.4 mm) thick] [2 inches (51 mm) thick], 6 - 7 pcf (96- 112 kg/m³) density fiberglass.
4. Edge Detail: Square.
5. Formed Copolymer Facing and Edges: 1/16 inch (1.6 mm) thick copolymer perforated with 3/32 inch (2.4 mm) holes on 5/32 inch (4 mm) staggered centers. Copolymer is a single sheet heat formed to cover all panel edges.
 - a. Color: As selected from panel manufacturer's range of standard colors.
6. Install with minimum 1/8 inch (3.2 mm) reveal at the perimeter to allow for expansion and contraction of copolymer due to temperature changes.

L. SportsBoard Elite fabric wrapped co-polymer Panels:

1. Thickness: [1-1/16 inches (27 mm)] [2-1/16 inches (52 mm)].
2. Size: As indicated on the drawings up to a maximum 48 inch (1219 mm) x 120 inch (3048 mm) panel.
3. Core: [1 inch (25.4 mm) thick] [2 inches (51 mm) thick], 6 - 7 pcf (96 - 112 kg/m³) density fiberglass.
4. Edge Detail: [Square] [Bevel] [Miter] hardened with non-resin, Class A hardening solution.
5. Fabric Facing: [100% polyester fabric, FR 701 Style 2100 by Guilford of Maine] [Factory approved customer selected fabric]. Designer selected fabrics must be approved by the panel manufacturer as acceptable quality for wrapping and covering core materials. Some fabrics are unstable, too stiff, or lack the weight and thread density for producing an acceptable finish product.
 - a. Color: [As selected from panel manufacturer's stocked range of colors] [As selected from fabric manufacturer's full range of colors].
6. Copolymer Impact Resistant Layer: 1/16 inch (1.6 mm) thick copolymer perforated with 3/32 inch (2.4 mm) holes on 5/32 inch (4 mm) staggered centers.
7. Sound Absorption (ASTM C423, A Mounting): Noise Reduction Coefficient of [0.85, 1 inch thick core] [1.00, 2 inch thick core] minimum.

Specifier note: NRC, sound absorption data is based on testing with Guilford FR701 fabric. To maintain specified sound absorption, fabrics should be selected that allow air to pass easily through the material into the acoustical core.

8. Mounting Accessories: Manufacturer's standard HS Metal impaling clips.

M. Tuned Absorber Diffuser, Model TAD Panels:

1. Thickness: [1-1/8 inches (28.5 mm)]. Optional sizes available. See Item 3.
2. Size: 24 inches (588 mm) x 24 inches (588 mm), 24 inches (588 mm) x 48 inches (1176 mm), 48 inches (1176 mm) x 48 inches (1176 mm), 48 inches (1176 mm) x 72 inches (1764 mm), 48 inches (1176 mm) x 96 inches (2352 mm). Optional: Custom sizes are available, however, panel cutting for some dimensions may interfere with the laminate hole pattern which could be visible at the panel's edge.
3. Core: [1 inch (24.5 mm)] thick 5-7 pcf (80 – 112 kg/m³) density fiberglass. Optional: [2 inch (49 mm), 3 inch (73.5 mm), and 4 inch (98 mm)] thick cores for greater low frequency absorption.
4. Edge Detail: [Square] [Bevel] hardened with non-resin, Class A hardening solution
5. Impact resistant, 1/8 inch (6 mm) thick hardboard facing laminated to the core. Randomized 1/2 inch (12 mm) diameter hole pattern designed to tune the panel for greater absorption in the 250 to 1000 Hz

frequency range while providing increased diffusion of reflected sound relative to a flat surface.

6. Fabric Facing: [100% polyester fabric, FR 701 Style 2100 by Guilford of Maine] [Factory approved customer selected fabric]. Designer selected fabrics must be approved by the panel manufacturer as acceptable quality for wrapping and covering core materials. Some fabrics are unstable, too stiff, or lack the weight and thread density for producing an acceptable finish product.
 - a. Color: [As selected from panel manufacturer's stocked range of colors] [As selected from fabric manufacturer's full range of colors].
7. Sound Absorption (ASTM C423): Noise Reduction Coefficient of 0.75. Absorption coefficients in the 2500 Hz to 5000 Hz frequency range shall not exceed 0.55 at any single 1/3 octave band.

Specifier note: NRC, sound absorption data is based on testing with Guilford FR701 fabric. To maintain specified sound absorption, fabrics should be selected that allow air to pass easily through the material into the acoustical core.

8. Scattering Coefficients per ISO 17497-1, Acoustic Sound Scattering Properties of Surfaces, must average 0.12 or greater for 1/3 octave bands from 800 Hz to 10,000 Hz (1-1/8 inch panel thickness).
9. Mounting Accessories: [HS impaling clips] [Z-brackets].
10. Surface Burning Characteristics: The fiberglass core and Guilford FR701 fabric have been tested and achieved a Class A rating per ASTM E84. The 1/8 inch thick laminate is not included in the fire test results and may change the composite panel's fire rating.

N. VersaTune Balanced Absorption Panels

1. Thickness: 1-1/8 inches (29 mm) [2 1/8 inches (54 mm)] [3 1/8 inches (79 mm)] [4 1/8 inches (105 mm)]
2. Size: As indicated on the drawings up to a maximum 48 inch (1219 mm) x 120 inch (3048 mm) panel.
3. Edge Detail: [Square] [Round] [Mitered] [Beveled] [Pencil] hardened with non-resin, Class A hardening solution.
4. Facing: [100% polyester fabric, FR 701 Style 2100 by Guilford of Maine] [Factory approved customer selected fabric]. Designer selected fabrics must be approved by the panel manufacturer as acceptable quality for wrapping and covering core materials. Some fabrics are unstable, too stiff, or lack the weight and thread density for producing an acceptable finish product.
 - a. Color: [As selected from panel manufacturer's stocked range of colors] [As selected from fabric manufacturer's full range of colors].
5. Sound Absorption (ASTM C423, A Mounting): Absorption Coefficients as follows:
 - a. 2-1/8 inch (54 mm) Panel: 125 Hz - 0.78, 250 Hz - 0.78, 500 Hz - 0.86, 1000 Hz - 0.79, 2000 Hz - 0.76.

Specifier note: NRC, sound absorption data is based on testing with Guilford FR701 fabric. To maintain specified sound absorption, fabrics should be selected that allow air to pass easily through the material into the acoustical core.

6. Performance per ASTM C423. All 1/3 octave band sound absorption coefficients from 125 Hz to 5000 Hz must exceed 0.70 in order to achieve greater broadband reverberation control.
7. Mounting Accessories: [HS Impaling clips] [Z-brackets] [Edgemount mechanical clips] [Velcro] [Magnetic tape].

2.03 FABRICATION

Specifier Note: Retain or delete paragraphs below per project requirements.

Specifier Note: Heat shrink process described below creates a more impact resistant panel. Dents in the fiberglass core due to impacts and abuse are invisible behind the stretched fabric face.

- A. General: Treat fabric wrapped panels using heat shrink process to develop fully taut facing.
- B. Design Series 90 Panels:
 - 1. Wrap panel edges and return facing fabric 1 inch (25.4 mm) on back of panel. Secure fabric with adhesive applied to edges and back of panel only.
- C. HardSide and High Impact HardSide Panels: Wrap panel edges and return facing fabric 1 - 2 inches (25.4 - 51 mm) on back of panel. Secure fabric with adhesive applied to edges and back of panel only.
- D. SportsBoard Elite Panels:
 - 1. Wrap panel edges and return facing fabric 1 - 2 inches (25.4 - 51 mm) on back of panel. Secure fabric with adhesive applied to edges and back of panel only.

PART 3 EXECUTION

Specifier Note: Paragraph below is an addition to CSI SectionFormat. Retain or delete paragraph below per project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 - 1. Verify that stud spacing is 16 inches (406 mm) oc, maximum, for panels installed over open studs.
 - 2. Do not install panels until unsatisfactory conditions are corrected.

3.03 CLEANING

- A. Follow manufacturer's instructions for cleaning panels soiled during installation. Replace panels that cannot be cleaned to as new condition.
- B. Keep site free from accumulation of waste and debris.

END OF SECTION