

SECTION 095XX

GROOVED ACOUSTICAL WOOD WALL/CEILING PANELS (DADO™)

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wood veneer panels or planks that are grooved at the face for absorptive wall or ceiling application.
- B. Sound absorbing blanket.
- C. Hardware or ceiling suspension system as required for attachment to substrate.
- D. Coordination with all trades having elements that attach to, penetrate through or are concealed behind/above the wood panels of this section.

1.02 PRODUCTS INSTALLED BUT NOT SUPPLIED UNDER THIS SECTION

- A. Acoustic Insulation – 6 pcf density fiberglass board, thickness per project requirement.

1.03 RELATED SECTIONS

- A. Section 06420 – Wood Paneling
- B. Section 09120 – Suspension Framing/Furring for Plaster/Gypsum Board Assemblies
- C. Section 09250 – Gypsum Board
- D. Section 09510 – Acoustical Ceilings
- E. Division 15 Sections – Mechanical Work
- F. Division 16 Sections – Electrical Work
- G. Division 17 Sections – Audio, Data, Telecommunication Work

1.04 ALTERNATES

- A. Prior Approval: Proposed substitutions for products in this section may be submitted to the architect and acoustical consultant no later than ten (10) working days prior to the bid due date. Substitutions shall only be considered if submitted with complete information including acoustic data and a sample not smaller than 18" x 18" showing product design, composition, size, groove pattern, veneer, finish, standard penetrations, standard joint and end conditions and mounting hardware with suspension grid if applicable. Acceptance of substituted products is contingent on the architect's and acoustical consultant's approval and the substitution's compliance with all specified criteria. The architect shall approve substitution request via addendum.
- B. Unapproved Substitutions. Substitutions not approved via addendum shall not be submitted to the architect or acoustical consultant.

1.05 REFERENCES

- A. Local Building Code – Current Edition
- B. International Organization for Standardization
 - 1. ISO 354 - Measurement of Sound Absorption in a Reverberation Room
 - 2. ISO 10534 - Determination of sound absorption coefficient and impedance in impedance tubes - Part 1: Method using standing wave ratio.
- C. American Society for Testing & Materials (ASTM)
 - 1. ASTM E 1050-98 - Standard Test Method for Impedance and Absorption of Acoustical Materials Using a Tube, Two Microphones, and a Digital Frequency Analysis System
 - 2. ASTM C 423 - Sound Absorption & Sound Absorption Coefficients by the Reverberation Room Method
 - 3. ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials.

1.06 SYSTEM DESCRIPTION

- A. Design Requirements: Sound absorption shall be provided by Helmholtz absorption. This shall be achieved using parallel grooves on equal centers in a veneered, painted or laminated ¾" MDF substrate with holes behind the grooves as appropriate for the acoustical performance. The rear surface shall be covered with a non-woven matt to provide a resistive layer, as well as a porous absorber in the rear air cavity.
- B. Performance Requirements

1. Third-octave band acoustical performance requirements from 100 Hz to 8000 Hz for random incidence sound absorption shall be measured according to ASTM C423 or ISO 354. The random incidence absorption coefficients shall be what are indicated in the table below with 1" 6lb/ft³ fiberglass backing:

| | 10 0 | 12 5 | 16 0 | 20 0 | 25 0 | 31 5 | 40 0 | 50 0 | 63 0 | 80 0 | 10 00 | 12 50 | 16 00 | 20 00 | 25 00 | 31 50 | 40 00 | NR C |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------------|
| Dado 5/3 | 0.0 8 | 0.1 4 | 0.2 7 | 0.4 1 | 0.5 9 | 0.7 7 | 0.9 5 | 1.0 4 | 1.0 6 | 1.0 2 | 0.9 9 | 0.8 6 | 0.7 8 | 0.7 4 | 0.6 6 | 0.6 2 | 0.6 2 | 0.8 5 |
| Dado 6/2 | 0.0 9 | 0.1 2 | 0.2 3 | 0.3 8 | 0.6 3 | 0.8 1 | 0.9 6 | 1.0 3 | 1.0 2 | 1.0 2 | 0.9 6 | 0.8 2 | 0.7 4 | 0.6 8 | 0.6 2 | 0.5 8 | 0.5 8 | 0.8 5 |
| Dado 9/2 | 0.0 9 | 0.1 2 | 0.2 3 | 0.3 8 | 0.6 3 | 0.8 1 | 0.9 6 | 1.0 3 | 1.0 2 | 1.0 2 | 0.9 6 | 0.8 2 | 0.7 4 | 0.6 8 | 0.6 2 | 0.5 8 | 0.5 8 | 0.8 5 |
| Dado 13/3 | 0.0 8 | 0.1 4 | 0.2 7 | 0.4 1 | 0.5 9 | 0.7 7 | 0.9 5 | 1.0 4 | 1.0 6 | 1.0 2 | 0.9 9 | 0.8 6 | 0.7 8 | 0.7 4 | 0.6 6 | 0.6 2 | 0.6 2 | 0.8 5 |
| Dado 14/2 | 0.3 3 | 0.4 1 | 0.7 6 | 0.9 3 | 0.9 6 | 0.8 7 | 1.1 1 | 1.0 3 | 1.0 5 | 0.9 4 | 0.9 1 | 0.8 5 | 0.8 1 | 0.8 1 | 0.7 2 | 0.6 4 | 0.5 8 | 0.9 0 |
| Dado 28/4 | 0.3 5 | 0.5 7 | 0.5 9 | 0.8 1 | 0.8 5 | 0.8 9 | 0.9 9 | 0.8 9 | 0.9 1 | 0.8 5 | 0.7 5 | 0.6 6 | 0.6 1 | 0.6 2 | 0.5 6 | 0.5 6 | 0.5 5 | 0.8 0 |
| Dado 29/3 | 0.0 8 | 0.1 4 | 0.2 7 | 0.4 1 | 0.5 9 | 0.7 7 | 0.9 5 | 1.0 4 | 1.0 6 | 1.0 2 | 0.9 9 | 0.8 6 | 0.7 8 | 0.7 4 | 0.6 6 | 0.6 2 | 0.6 2 | 0.8 5 |
| Dado 30/2 | 0.1 1 | 0.1 6 | 0.2 4 | 0.4 9 | 0.7 4 | 0.8 8 | 1.0 0 | 0.9 8 | 0.9 0 | 0.8 2 | 0.7 4 | 0.6 1 | 0.5 1 | 0.4 5 | 0.4 1 | 0.3 9 | 0.4 1 | 0.7 5 |

The sound absorption chart above represents the average Dado™ Absorptive Wood Panel or Plank acoustical performance based on each groove width and spacing. Several factors play into the exact performance, such as the cavity depth and contents of the cavity. Precise data for project requirements will be provided upon request.

1.07 SUBMITTALS

- Product Data: Submit manufacturers' technical data including basic system description, options and component sizes. Identify all applicable features and options. Cross out any inapplicable features or options.
- Shop Drawings: The contractor shall produce and submit shop drawings of products and suspension or mounting systems overlaid on base drawings (interior elevations or reflected ceiling plans) supplied electronically by the architect. Show overall layout with dimensions and references to details as necessary for penetrations, joints, ends and intersections with other materials or building components. Submit schedule of all quantities, sizes, groove patterns, edge banding, borders, veneers and finishes. Field-verify site conditions with dimensions shown on shop drawings.
- Samples: Minimum 11" x 8-1/2" sample of specified panel and finish with black, nonwoven, fiber backing material; 8-1/2" length samples of any exposed wall molding to be provided by manufacturer.
- Certifications: Manufacturers' certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

1.08 QUALITY ASSURANCE

- Qualifications: Manufacturer and installation contractor shall have a minimum of three years experience with similar systems.
- Single Source: All products under this section shall be supplied by a single manufacturer to ensure consistency in product size and finish.
- Woodworking Standards: Manufacturer to comply with specified provisions of Architectural Woodworking Institute quality standards.
- Flame Spread / Smoke Developed Characteristics: Tested by independent, accredited facility.
 - Class A
Core: Medium density fiberboard (MDF)
Tests: ASTM E 84
Composite Flame Spread Rating: 25 (maximum)
Smoke Developed: 450 (maximum)
 - Non-Fire Rated
Core: Medium density fiberboard (MDF)
 - Non-Fire Rated/High Humidity
Core: Medium density fiberboard (MDF)
- Pre-Installation Meeting: Installing contractor shall organize and conduct pre-installation meetings with all other trades to coordinate substrate conditions, conditioning of the space (temperature & humidity), and elements attaching to, penetrating through or concealed above/behind work in this section.

1.09 DELIVERY STORAGE AND HANDLING

- A. Shipping, Handling and Unloading: Deliver wood panels to the project site in the manufacturer's original, unopened packaging. Do not unpack or handle finished products until the project environmental requirements have been met and the products are ready to be installed.
- B. Storage and Protection: Store all wood panels and associated wood trim pieces in a clean, dry, fully-enclosed storage facility. Protect products from damage that may be caused by exposure to water, chemicals, direct sunlight or infestation.
- C. Acceptance at Site: Ensure that all project environmental requirements have been met prior to unpacking or installing wood panels and all associated wood trim products. Full or partial installation constitutes complete product acceptance.
- D. Waste Management and Disposal: Dispose of all packaging materials and debris in a safe and environmentally responsible manner according to the instructions set forth by the General Contractor, local ordinances or codes and the Environmental Protection Agency.

1.10 PROJECT CONDITIONS

- A. Project Environmental Requirements: Prior to unpacking or installing wood products, ensure that the installation area is fully enclosed and protected from moisture and direct sunlight. Ensure that the building's mechanical systems are fully operational and will not be turned off again even for testing and balancing of the mechanical systems. Coordinate with other trades to ensure that all work above or behind wood surfaces is complete and that all wet and dusty trades have completed work.
- B. Product Acclimation: For a minimum period of seventy-two (72) hours and prior to unpacking or installing any wood products, allow both the installation area and the wood products to stabilize in temperature and humidity levels that are representative of the final temperature and humidity levels expected after building completion and occupation. Do not install products if the humidity exceeds 55% or drops below 40%.
- C. Product Handling: Handle wood panels carefully so as to avoid chipping, scratching, scuffing or denting the wood finish or edges.

1.11 WARRANTY

- A. Submit to Owner or Owner's Representative a written and dated warranty issued by the wood ceiling/wall manufacturer warranting the wood panels and associated trim pieces against defects in materials or manufacturing for a period of one (1) year from the date of delivery.
- B. Components used in the system but not provided by the manufacturer are excluded from the manufacturer's warranty. Damage caused by exposure to moisture or rapid or extreme changes to temperature or humidity are excluded from the manufacturer's warranty. Damage caused by improper storage, handling, acclimatization, or installation is excluded from the warranty. Appearance and colorings of wood products, stains and finishes can vary over time and as site conditions change and are therefore excluded from the warranty.

1.12 OWNER'S INSTRUCTIONS

- A. Installing contractor shall provide to the building owner or to the owner's representative a copy of the manufacturer's maintenance manual supplied with the panels.

1.13 MAINTENANCE

- A. Extra Materials: If provided per the project requirements, extra materials shall remain in the manufacturer's original, unopened packaging and shall be given to the building owner or owner's representative upon substantial completion of work.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. RPG Acoustical Systems, LLC, 99 South St, Passaic, NJ 07055 (telephone) 973-916-1166, <http://www.rpgacoustic.com>.

2.02 MATERIALS

- A. Core (standard): Medium density fiberboard (MDF) made of soft and hard wood fibers with added binding agents, ¾" thick.

- B. Face Material as Selected by Architect:
 - 1. Wood Veneer Species: _____
 - 1.1 Veneer Matching: _____
 - 1.2 Veneer Finish: Clear Lacquer or Stain & Clear Lacquer _____
 - 2. Laminate Type: _____
 - 3. Colored Lacquer: Paint Code _____
- C. Backing Fabric: Nonwoven, black, glass fiber matt, 60 g/m² (0.012 psf) surface weight.
- D. Acoustic Insulation: 6 pcf density fiberglass board, thickness per project requirement. Provided by installer

2.03 MANUFACTURED UNITS

- A. Panels: (consult manufacturer for available combinations)
 - 1. Width: up to 5'
 - 2. Length: up to 12'
 - 3. Thickness: 3/4"
 - 4. Grooves: 2mm width grooves on 16mm centers.
 - 5. Weight: with standard core, approximately 2 lbs. per square foot
 - 6. Edge conditions
 - a. Concealed
 - i. Standard: Straight cut, no veneer, unfinished, partial perforations visible.
 - b. Visible
 - i. Standard: Straight cut, no veneer, finished, perforations set back from edge (not visible).
 - ii. Veneer: Straight cut, veneer, finished.
 - iii. Veneer & setback: Straight cut, veneer, finished, grooved terminate at specified distance from edge (per drawings).
 - iv. Edge molding: Standard, Type A edge molding or custom per drawings.

2.04 ACCESSORIES

- A. Edge Moldings: Finish to match finish on panels.
- B. Custom Trim: Custom wood trim pieces per drawings finished to match finish on panels.
- C. Ceiling Grid Systems: Panels manufactured for compatibility to _____ grid system.

2.05 FABRICATION

- A. Shop Assembly: Panels used in downwardly accessible, suspended, concealed grid, ceiling systems shall have acoustic insulation adhered to the panel backs (optional) and hardware such as braces or spring torsion clips pre-fastened for direct attachment to ceiling grid system.
- B. Fabrication Tolerances – 0.05 mm (perforations); 1/16" (lengths & widths)

2.06 FINISHES

- A. Shop Finishing: Panels shall be shop-finished with stain per selection by architect (optional) and clear, satin lacquer (wood veneers) or painted (specify sheen) per color selection by architect.

PART 3 EXECUTION

3.01 INSTALLERS

- A. Installing contractor shall have a minimum of five (5) years successful experience installing wood ceiling and wall systems in similar applications using similar mounting techniques or suspension systems.

3.02 EXAMINATION

- A. Site Verification of Conditions: Examine installation area for compliance with all manufacturers' project environmental requirements and ensure uninstalled products have been stored, handled and acclimatized properly prior to commencing installation. Inspect all substrates for completion and quality of work to ensure that surfaces are level, plumb, clean, dry and completely cured from water or solvent evaporation. Do not commence installation if the structural capacity of the substrate is questionable or inadequate.

- B. Coordination with Other Trades: Coordinate with all other trades to ensure that wet work including concrete, terrazzo, plastering, painting, etc. in the installation area is complete, cured and dry prior to installation. Coordinate with all other trades to verify that components associated with mechanical, electrical, lighting, data, telecommunication, audio, video, fire suppression and other building systems are installed behind or above designated installation areas prior to commencing installation. Coordinate the exact size, location and sequencing of building system components that penetrate the wood ceiling/wall panels.

3.03 PREPARATION

- A. Protection: Protect all floor, wall and ceiling finishes against possible damage prior to commencing installation and during installation.
- B. Surface Preparation: When necessary, field measure substrates to acquire accurate dimensions of wood panels and submit final dimensions to manufacturer.

3.04 INSTALLATION

- A. Install wood panels as shown and detailed in the architectural drawings and according to manufacture's guidelines and industry standards.
- B. Install wood panels with expansion/contraction gaps appropriate for the project and as identified in the submittal documentation.

3.05 CONSTRUCTION

- A. Interface with Other Work: Support all light fixtures, HVAC air inlet/outlet devices, speakers, signage, sprinkler heads/piping, etc. independently from wood panels. Contractor shall not use wood panels to support the weight of any other building element or component.

3.06 ADJUSTING

- A. Following initial installation, adjust mounting hardware or suspension system so that removable panels can be removed easily, yet stay safely secured upon replacement. Adjust panels so that surfaces are aligned, flush and level or plumb and gaps in between units are of a consistent width and straight.
- B. Check that manufacturer's expansion/contraction requirements were maintained during installation. As required, adjust the mounting hardware or suspension system to allow for the appropriate amount of product expansion/contraction.
- C. Remove and replace at no extra charge any damaged panels that cannot be repaired to the Owner's and Architect's satisfaction.

3.07 CLEANING

- A. Remove dust from surfaces and penetrations by vacuuming using only a soft brush. Do not scratch wood surfaces with sharp metal or plastic vacuum cleaner extensions. Remove pencil marks with soft erasure. Remove general surface dirt with a clean, soft, lightly dampened cloth with a diluted, mild cleaning agent and warm water. Wipe again with clean, soft lightly dampened cloth only with warm water. Finally, dry surface completely with clean, soft, dry cloth. Do not use abrasive cleaners with grit or cloths that could scratch the wood finish.
- B. Remove and replace at no additional charge any materials that cannot be cleaned to the Owner's satisfaction.

3.08 DEMONSTRATION

- A. Demonstrate to the building owner or to the owner's representative the safe and proper method for removing and replacing all types of accessible panels.
- B. Supply the building owner or the owner's representative with any special tools provided by the manufacturer required to unlatch safety hardware on accessible panels.

3.09 PROTECTION

- A. Upon completion of work, protect installed wood surfaces from damage or soiling until project substantial completion and owner occupancy.

END OF SECTION