

GENERAL INSTALLATION GUIDELINE:

- **Safety:** This product is made with wood fibers and a magnesium oxide binder. Sawing, sanding or machining these products can produce wood dust and other airborne debris. Airborne dust can cause respiratory, eye and skin irritation. Respirable wood dust is classified as carcinogens. Personal protective equipment includes safety glasses or goggles, and impervious gloves. Respiratory protection may be required and depends on how the product is being cut and handled. Job site environmental conditions must be evaluated in determining what type of respiratory protection is required. In all cases, cutting is to be performed in a well-ventilated area and power tools must be equipped with a dust collection system.
- **Warranty:** Failure to follow Cardinal Acoustics, Inc. recommended installation instruction in effect at this time of installation may void the product system warranty.
- **Storage & Handling:** Panels should be stored in a dry interior location and shall remain in cartons prior to installation to avoid damage. The cartons should be stored in a flat, horizontal position to not cause bowing effect of the panels. Proper care must be taken when handling to avoid damage and soiling. Do not store in unconditioned spaces with humidity greater than 85% or lower than 25% RH and temperatures lower than 32 degrees F or greater than 120 degrees F.
- **HVAC Design & Operation, Temperature & Humidity Control:** Real wood and wood composite products are natural building materials and they will react to changes in humidity. Spaces with installed product should be maintained with humidity in a range between 25% and 85% RH and temperature between 32 and 120 degrees F. Wood materials will tend to contract with lower humidity and expand with higher humidity.

Wood fiber panels may also tend to warp, twist, or bow due to natural stresses in the components and these humidity changes. Be aware of these natural tendencies when evaluating the products. It is also necessary for the area to be enclosed and for the HVAC systems to be functioning and in continuous operations for the life of the product.

DESIGN CONSIDERATIONS:

- **Directionality:** Cardinal Acoustics panels are beveled on the two long sides with square short sides. Panels should be installed bevel side to bevel side. In installation layouts where this is not possible, ashlar patterns are recommended. For increased design flexibility, custom panels can be ordered with a beveled side on all four sides.
- **Direct Attachment:** Panels are mechanically fastened direct to structure using appropriate fasteners. Do not countersink screws or fasteners into panel face. Fasteners or screws should be flush to the panel so that the woods fibers conceal the fastener.
- **Screws:** Sharp point screws are 1-5/8" long and are available in coordinating factory finished white, natural or custom painted panels. For 20- and 25- light gauge steel framing, wood



CARDINAL

ACOUSTICS

AN ACOUSTICAL WOOD FIBER COMPANY

furring use 1-5/8" sharp point drywall screws. Cardinal Acoustics recommends a 5/8" penetration beyond the 1" panel. For different thickness panels, the same consideration is taken into place for screw length.

Drill point screws are 1-5/8" long and are available in coordinating factory finished white, natural or custom painted panels. For 20- gauge structural and heavier steel decking or framing, use 1-5/8" self-drilling drywall screws. Cardinal Acoustics recommends a 5/8" penetration beyond the 1" panel. For different thickness panels, the same consideration is taken into place for screw length.

CMU screws are 2-1/4" long and are available in coordinating factory white, natural or custom painted panels. For hollow block CMU structures, use 2-1/4" masonry screws. Cardinal Acoustics recommends a 1-1/4" penetration beyond the 1" panel when attachment to CMU. For different thickness panels, the same consideration is taken into place for screw length.

INSTALLATION – WALL MOUNTING METHODS:

The use of screw attachment is widely accepted. The proper installation of the screws results in an installation where the heads are difficult to find even when viewed from a short distance. The screw heads are painted to match the color of the panels. The screws are installed so that the screw head is flush with the surface of the panel. Do not countersink the screw heads. The wood fibers of the Cardinal Acoustics panels help hide the screw head.

- **Mounting Method D-20:** The D-20 mounting method includes beveled edge wall panels laid on 3/4" furring strips or drywall grid to maintain air gaps between the structure and back of the panels. The furring must be attached to structure in a method that supports the full weight of the panels. If you are attaching to existing drywall, all fasteners must go into a stud, drywall grid, or other structural component. It is the responsibility of the contractor to locate these elements in either ceiling or wall applications.
- **Mounting Method C-20:** The C-20 mounting method includes beveled edge wall panels laid on a 3/4" furring strips with 1", 3lb density fiberglass batt insulation between the furring, which increases the acoustic absorption of the installed space. The furring must be attached to structure in a method that supports the full weight of the panels. If you are attaching to existing drywall, all fasteners must go into a stud, drywall grid, or other structural component. It is the responsibility of the contractor to locate these elements in either ceiling or wall applications.
- **Mounting Method C-40:** The C-40 mounting method includes beveled edge wall panels laid on a 1-1/2" furring strips with 2-1/2" batt insulation between the furring, which increases the acoustic absorption of the installed space. The furring must be attached to structure in a method that



supports the full weight of the panels. If you are attaching to existing drywall, all fasteners must go into a stud, drywall grid, or other structural component. It is the responsibility of the contractor to locate these elements in either ceiling or wall applications

- **Panel Direction & Fastener Layout:** Recommended screw spacing is such that one screw supports one to three square feet of panel. It is the contractor's responsibility to ensure type of fastener and placement is able to carry the system weight. Additionally, Cardinal Acoustics panel surface is not intended to support additional weight. Because the pull through resistance of the screw head is adequate, no waster or adhesive application is required.

Wall Panel Installation → Panels should be fastened 24" O.C. starting at the edge of the panel. When furring is used, it should be installed perpendicular to the long side of the panel. Panels are required to be installed in an ashlar pattern.

- **Screw Placement for All Mounting Methods:** Panels are typically installed over furring, but the same screw pattern should be used for a Type A direct mounting. The recommended method is for the furring to be spaced not over 24" O.C. and perpendicular to the panel direction in standard use spaces. If furring must be installed parallel to the panel direction, the spacing must match the panel width. A 48" panel must have mid-width furring.

When attaching to furring, use painted head drywall screws. For wall applications on 24" wide panels, two screws per furring crossing are required; for 48" wide panels, three screws per furring crossing are required. The screws are to be spaced 1" from the panel edges and where three is required, the third screw is centered. For ceiling applications using 24' wide panels, three screws per furring crossing are required. For ceiling applications using 48" wide panels, five screws per crossing are required.

- **Field Cutting:** Panels are easily cut using standard wood cutting tools. The short ends of panels will be square ends from the plant and will require a hand router with a ¼" bevel bit to replicate the ¼' bevel in the field if required.

CEILING MOUNTING METHODS

Mounting panels to the ceiling follows the same fastener and mounting methods that are listed for walls, however, the screw layout for ceiling panels should be mechanically fastened every 12" O.C. no matter what mounting method (A, D-20, C-20, C-40). With D-20, C-20 or C-40 mounting, metal or wood furring should be installed perpendicular to panel direction no more than 24" O.C. Once furring installed, place panel on furring, making sure panel ends fall over furring strips.

Mechanically attach panels every 12" O.C. to furring, placing screw heads flush with the face of the panels. Do not countersink screws. Place the next panel against the furring, butting the end to the previously installed panel. Anytime a panel touches another panel, the end should be beveled. Mechanically fasten the second panel every 12" O.C.