

How To Instructions Material Installation

Installing SOUNDOWN SoundProofing Materials

These instructions offer a simple straightforward approach to soundproofing a machinery enclosure. There are other methods to accomplish the same results and we leave these to your own imagination and ingenuity, once you have understood the principles.



There are two common noise-attenuating treatments seen on vessels. The first type of treatment is Soundown's Composite Insulation as shown in figure 1. This is the most common insulation used by most boat builders and owners, as shown in the illustration to the left. Soundown's Composite insulation material comes in either foam or fiberglass with a thickness ranging from 1/2" to 3". The surface density of the barrier septum ranges from 1/2-lb to 2-lb per square foot. With this large selection of sizes and weight, the customer has a number of options from which to choose based on desired performance and space constraints. The second type is a "built-in-place" treatment as shown in figure 2. This higher performance insulation treatment is commonly employed on larger vessels. This particular design consists of three materials installed separately to form the composite. The advantage to this treatment is that the Tuff-Mass barrier covers the entire decoupled layer by means of being attached to the longitudinals or furring strips thus covering the decoupled layer and eliminating any possible leakage. The third material installed is the absorption layer followed by Soundown's Perforated Aluminum sheeting.

figure 1

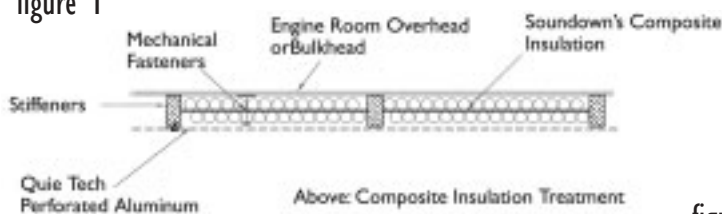
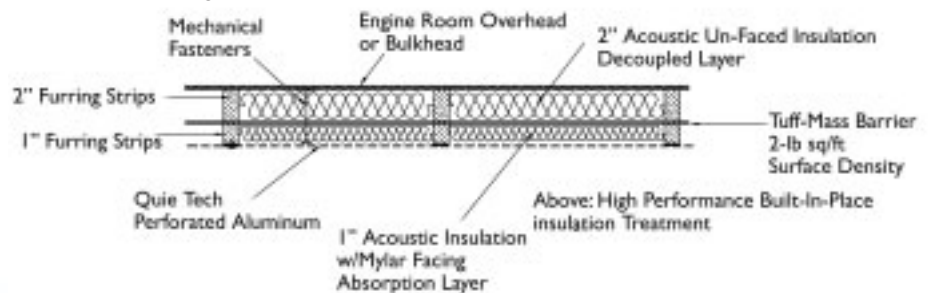


figure 2



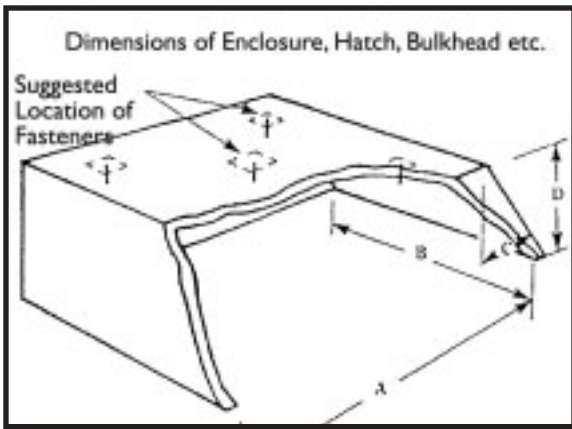
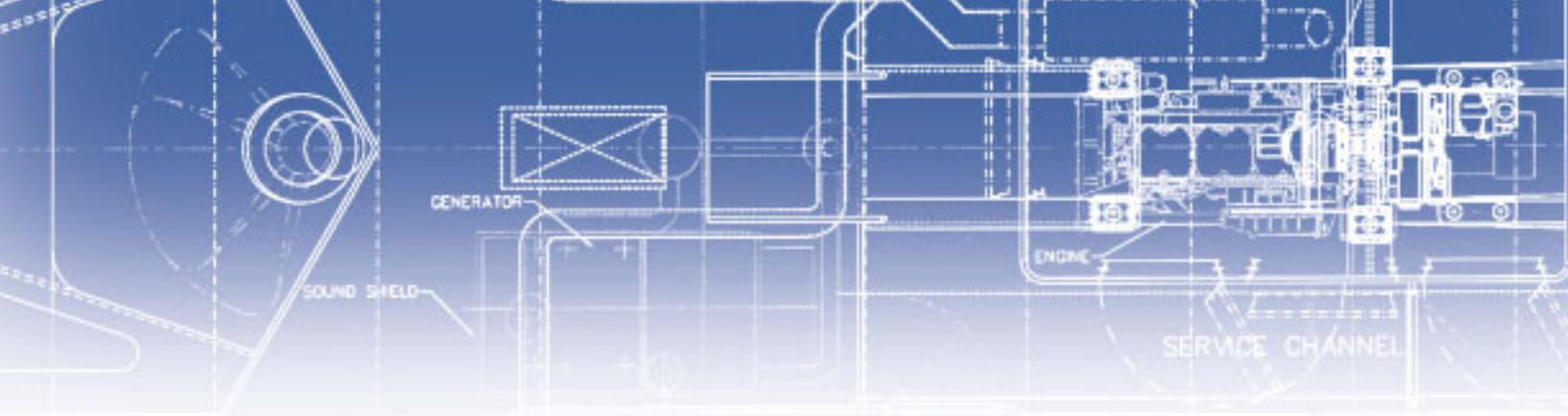
(203,2mm) ENGINE EXHAUST PIPE



SOUNDOWN CORPORATION

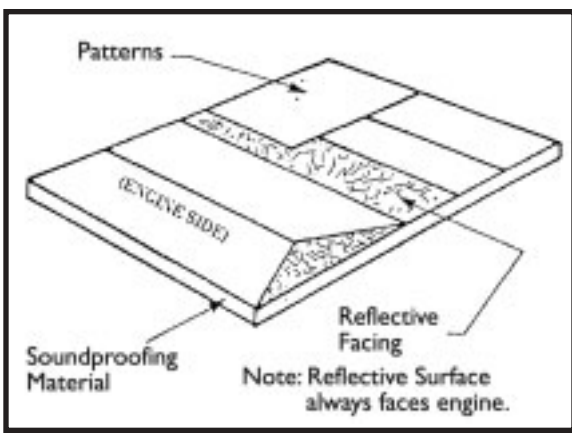
ACOUSTIC INSULATION DETAIL





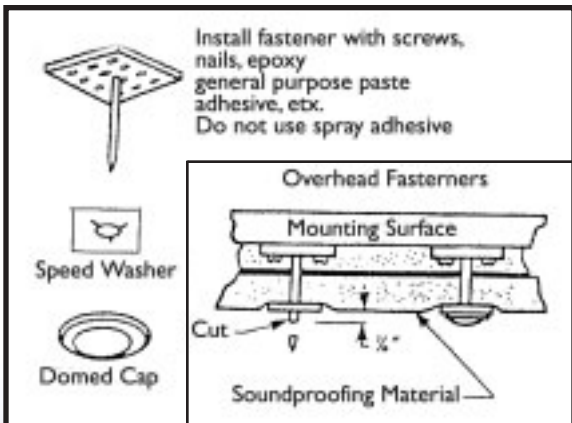
Step 1: Measuring and Making Patterns:
 Measure inside surfaces to be soundproofed. Transfer measurements to materials or make cardboard patterns noting "Engine Side". Be sure to allow for material thickness at corners. Double check for fit by placing cut patterns into enclosure. Top panel goes in first allowing the use of adjacent vertical panels for additional support at the outer edges of top panel.

Note: For larger installations, sheets of material may be joined together by applying spray adhesive to both exposed edges and butting together. Finish-off by applying seam tape to front and back surfaces.



Step 2: Layout and Cutting of Material:
 Arrange patterns on reflective side of soundproofing, nesting for best utilization of material. The silver facing side should face upwards for cutting. Using a sharp utility knife, or saw etc., carefully cut panels to contour indicated from patterns. Use firm steady strokes, holding blade sideways in vertical position with cutting edge at low angle to prevent tearing of material. Repeat cutting strokes until all material has been cut through. Install panels "Dry" to check for correct fits and allowances. Note installation sequence and repeat during final installation.

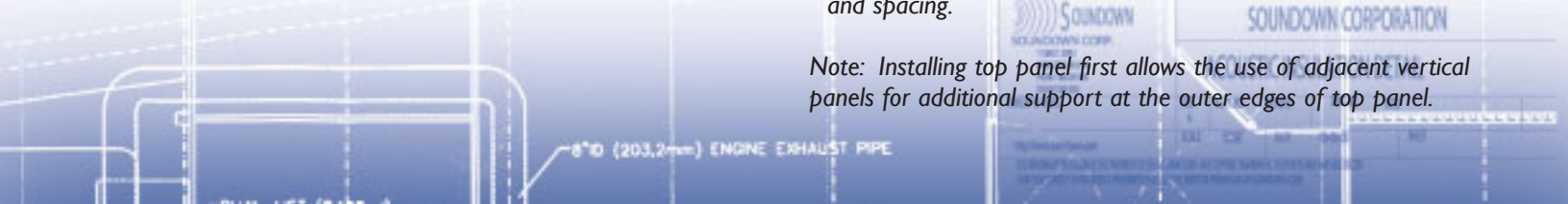
Step 3 - Installation of Pin Fasteners:

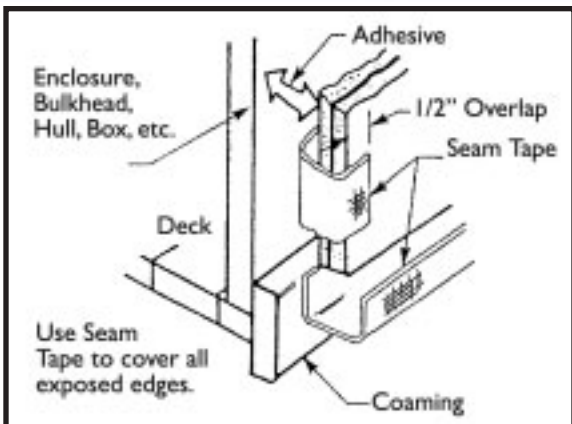
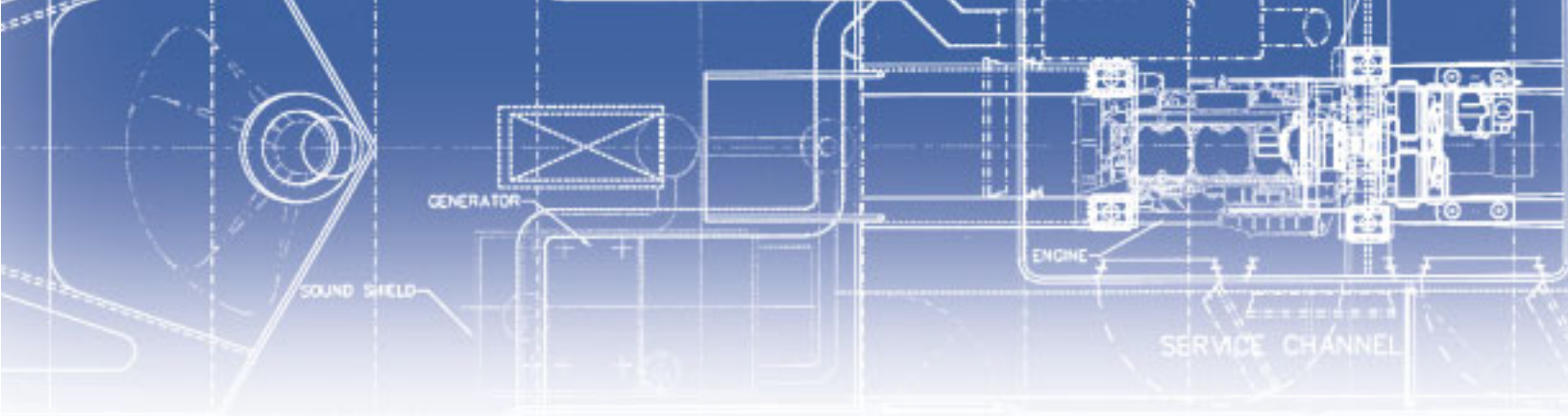


Now that the material is cut to fit, fasteners should be installed at this time. If you are using "Screw Fasteners" see step 6 for attachment and spacing. Use mechanical fasteners on all overhead surfaces as well as vertical surfaces to ensure backup in the event of adhesive failure. Fasteners should be permanently attached with screws, nails, staples, epoxy, etc., to overhead at the center, and additional fasteners approximately $\frac{1}{2}$ the distance, along a diagonal to each corner. Use one fastener or more for each 2-3 square feet of surface, with fasteners spaced approximately 15 inches apart. The same spacing holds true for "Screw-In-Fasteners".

• If you are using "Screw-In-Fasteners" see step 6 for attachment and spacing.

Note: Installing top panel first allows the use of adjacent vertical panels for additional support at the outer edges of top panel.





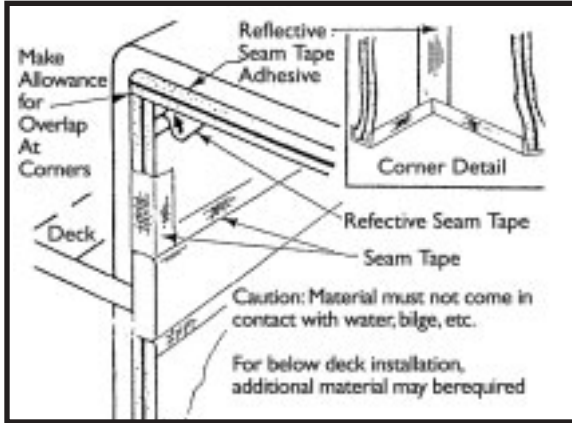
Step 4 - Sealing Exposed Edges:

Seal all exposed edges, wear and chafe points with Seam tape to prevent fumes, moisture, or other foreign matter from contaminating soundproofing. Overlap approximately 1/2 inch to 1 inch on reflective foil facing, fold tape down over exposed edge of material and fold remaining tape onto rear surface. Work pressure sensitive adhesive onto reflective foil and into foam by carefully rubbing entire surface of tape until maximum adhesion is obtained.

Step 5 - Final Installation:

At this point, all panels should be trimmed for exact fit, with all exposed edges sealed and protected with tape, sequence of panel installation noted, mechanical fasteners in place, and all attachment surfaces clean and ready for application of adhesive.

You are now ready for Final Installation. Apply adhesive and install one panel at a time. Install top panel first. Caution: Take care to avoid injury from sharp projecting pins on hangers when pushing soundproofing into place. Following directions and precautions on can, spray two coats of adhesive (spray 2nd coat in opposite direction for best results) onto prepared (clean) mounting surface, allowing drying time between coats, and carefully apply a light coat of adhesive to back of sound proofing. When sufficiently tacky, accurately position and firmly press pan into place. Accurate positioning is critical - cement bonds instantly upon contact! Caution: Apply adhesive sparingly!



Step 6 - Installation of Speed Washers Screw in Fasteners

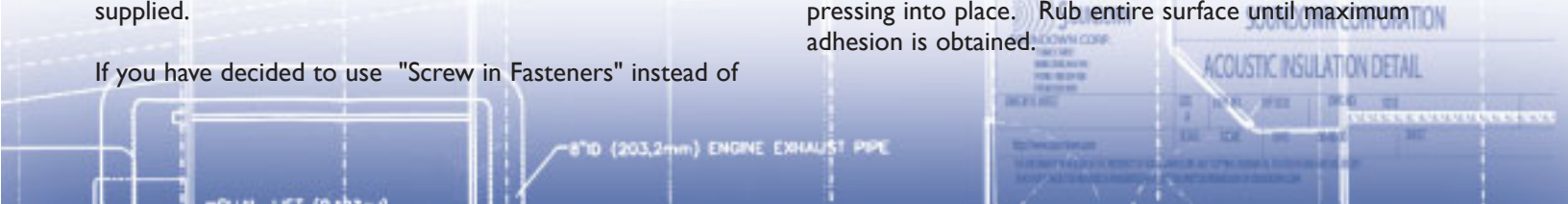
Push speed washers onto projecting fastener pins until soundproofing is slightly compressed. Caution: Do not overcompress soundproofing or tear reflective facing. When all speed washers are correctly installed, use a pair of wire snips to cut protruding pins approximately 1/8 inch beyond speed washer. See Step 3. Install protective caps when supplied.

If you have decided to use "Screw in Fasteners" instead of

Soundown's hanging pins now is the time to use them. Install screw with fender washer keeping with the same spacing that is in Step 3

Step 7 - Finish Taping of Seams and Joints:

Apply reflective seam tape to all exposed joints and corners, by accurately positioning centrally over joints, and firmly pressing into place. Rub entire surface until maximum adhesion is obtained.



Step 8 - Carpet Underlayments:

Carpet underlay materials are intended to be installed with the foam down against the deck or floor, and the vinyl barrier towards the carpet. Material that is installed upside down will not provide as much quieting as a properly installed underlayment.

Our standard line of installation adhesives may be used on the foam side only, if bonding is called for. More often, these materials are installed similar to a standard carpet pad which is held in place by the carpet. If a situation arises that calls for the vinyl to be bonded to the carpet, special vinyl adhesive must be used, and you should check with the carpet or adhesive manufacture for product compatibility.

Step 9 - Head and Hull Liners:

Head and hull liners may be installed directly to any surface. In some instances such as the overhead, it may be desirable to mount the material to thin panels which may be blind fastened to the overhead beams or structure with interlocking, removable fasteners such as head-lock pads. With a panel system, the material may be wrapped around to the back of the panel. The removal of the foam from the material that is to be wrapped around the panel edge will result in a sharper edge. This may eliminate the need for wood trim work at seams or edges.

Bonding of the material is achieved with "foam and fabric" type spray contact adhesive. Care must be taken, especially with solid vinyl's, to allow most of the solvent to evaporate and to avoid wet spots. If solid vinyl's are installed while the adhesive is still in a "wet" state, the solvent will be trapped in the material and cause bond failure. Read the instructions on the spray can before using.

These materials should be handled carefully during the installation to avoid any sharp folding of the vinyl back on itself, which may result in creasing of the material. If a crease is inadvertently made in the vinyl, it may be relaxed with heat when in place. If not yet installed, pull slightly during placement, to stretch the wrinkle out of the material.

Larger sections may be laid into place after cutting and by carefully folding back the material onto itself one half at a time to be bonded into place. Spray glue on both the foam and the surface to be covered. Always maintain a radius where folded, especially on the second half bond as the first half bond ends abruptly and may cause creasing if the material is pulled back against it. A cardboard tube may be of assistance on flat areas in this process.

Do's and Don'ts for Soundproofing

Do's

- Read instructions
- Plan carefully
- Make templates first
- Use sharp tools
- Use only recommended adhesives with Adequate Ventilation
- Apply 2 or more coats of adhesive to clean mounting surface
- Apply a light coat of adhesive to back fo foam
- Apply adhesive for and install one panel at a time
- Experiment with a test piece first
- Allow adequate clearance (6" Minimum) from engine & exhaust manifolds
- Seal all exposed surfaces with Seam tape
- Protect wear points and contact surfaces with Seam tape
- Use Fasteners as required

Don'ts

- Tear reflective foil covering
- Apply too much adhesive
- Use "other" brand adhesives without testing first
- Expose foam to bilge or wet areas
- Expose materials to temperatures above 250 F
- Leave Exposed joints or edges
- Rely on adhesives Alone for permanant attachment
- Leave Gaps or Openings in insulated surfaces
- Expect to completely eliminate All-noise