

ATTENTION: Always refer to the most current technical information available at www.lonseal.com, and review completely prior to starting the job. Lonseal reserves the right to change its products' design and material, or to improve products or processes at any time without notice. Installation procedures and use of Lonseal products must be in strict accordance with Lonseal's technical documentation for warranty terms to be valid.

RELATED TECHNICAL DATA SHEETS:

- ▶ #650 Two-Component, Solvent-Free Epoxy Adhesive
- ▶ #400 Contact Adhesive
- ▶ Lonmarine® Trim
- ▶ Lontape
- ▶ Welding Thread

ADDITIONAL MATERIAL REQUIRED:

- ▶ Lexel® Clear Sealant*

*This item is available from Lonseal (Product #ZCAULK), and all technical information may be found at <http://www.sascho.com/products/lexel/>.

APPLICATION:

1. Prepare the approved substrate as detailed in the **Interior Flooring Manual**. Marine Exterior grade plywood falls under APA Plywood Underlayment Panels per their Document E30 and is acceptable for use. Any plywood panels used must be untreated. See **Notes** below for additional information.
2. Ensure all products have been properly acclimated prior to installation. When installations are not performed in a controlled environment, dimensional changes with the flooring, and differing adhesive open, working, and curing times, must be taken into consideration. See **Notes** below for additional information.
3. Apply a full spread of the #650 using a 1/16 x 1/32 x 1/32 in. (1.6 x 0.8 x 0.8 mm) U-notch trowel and place the flooring into the adhesive immediately. The #650 is a wet-set adhesive and allowing too much open time will reduce its bond strength. The #650 is limited to horizontal applications. See **Alternate Adhesives** below for additional installation options.
4. Roll the flooring using a minimum 100 lb. (45.4 kg), three-section roller. Roll the floor again 2 to 3 hours later. If unable to utilize a large roller due to the size of the vessel or accessibility, a three-section laminate roller may be used. When using a smaller roller, the installer must put enough weight behind it to ensure strong, positive contact.
5. Heat weld all seams 24 hours after installation. See **Notes** below regarding products that cannot be heat welded due to their heavy embossing.
6. If installing Lonmarine® Trim, allow the adhesive to cure prior to installation.
7. Perform initial maintenance 48 hours after installation. See **Maintenance** below for additional information.
8. The #650 will be fully cured 72 hours after installation.

ALTERNATE ADHESIVES:

- ▶ For non-horizontal installations, #400 should be used instead of the #650. #400 is applied to the back of the flooring and the substrate using a 3/8 in. (9.5 mm) nap roller or paint brush. After allowing for sufficient open time, place the flooring onto the substrate. The #400 should still be slightly wet. Do not allow the #400 to dry, as this will result in a poor bond. The #400 is also a good alternative to the #650 for smaller applications, like hatch covers.
- ▶ Lontape may be used as an alternate to the #650 and #400. Lontape is applied full spread to the substrate. After removing the liner, place the flooring into the tape. Lontape cures in 12 hours and allows for immediate heat welding and trim installation.
- ▶ WEST SYSTEM® Epoxy may be used as an alternative to the #650. The 105 Epoxy Resin should be mixed with either the 205 or 206 hardener. After thoroughly mixing, add enough 406 Colloidal Silica filler to create an adhesive paste with the consistency of mayonnaise. All surface preparation and application instructions will be per the manufacturer's recommendations. Additional information regarding the use of WEST SYSTEM® Epoxy with Lonseal flooring may be found at www.lonseal.com, under the **Technical Bulletins** section.

MED-APPROVED ADHESIVES: While the #650 is included in Lonseal's MED/USCG certifications, the following alternate adhesives have been approved for use by their manufacturer with Lonseal flooring. The MED certifications are available from the manufacturer.

Adhesive Manufacturer	Type of Installation		
	Standard (Permanent)	Heavy Duty/Wet Areas	Vertical
	Acrylic Adhesive (Controlled Environments Only)	Epoxy Adhesive	Contact Adhesive
F. Ball & Co. Ltd.	Styccobond F44 or F46	Styccobond F81	Styccobond F66
	Contact: Jonathan Goold, +44 1538 361 633 or jonathan.goold@f-ball.co.uk		
MAPEI	Ultrabond V4 SP Fiber	n/a	n/a
	Contact: Steve Lima, (617) 407-6217 or slima@mapei.com		

Note: All warranties and support for these adhesives will be through the adhesive manufacturer. Follow the manufacturer's recommendations when using to ensure proper installation.

MAINTENANCE: The following sections are brief summaries of the maintenance procedures necessary for the noted type of installation. Please refer to installed flooring's appropriate **Maintenance Guide** to review complete, detailed maintenance information.

Vessel Interior Installations:

1. Remove all gross soiling (food, gum, residues, etc.). Take care if using a scraper or putty knife to avoid permanently damaging the surface of the flooring.
2. Clean the surface with a microfiber dust mop pad.
3. Apply a properly diluted neutral cleaner to the surface using a microfiber wet mop pad. Only use neutral cleaners intended for sheet vinyl to clean the flooring. Use of other types of cleaners, even diluted bleach or ammonia, could cause permanent damage, like discoloration or staining.
4. A scrubbing pad may be used instead of a microfiber wet mop to clean the floor to address heavy soiling. A blue pad may be used in most cases, but do not use anything more aggressive than a red pad for flooring with Topseal (e.g. W74TS) or a white pad with high gloss flooring (e.g. W72G). See **Notes** below for more information.
5. If necessary, use a clean microfiber mop pad and clean water to remove any remaining residue.
6. Allow the floor to fully dry.
7. Initial maintenance is the best time to apply a finish, if one is desired. Refer to the appropriate **Maintenance Guide** if intending to apply a finish. See **Notes** below for more information.

Semi-Exterior Installations:

1. Remove all gross soiling (food, gum, residues, etc.). Take care if using a scraper or putty knife to avoid permanently damaging the surface of the flooring.
2. Clean the surface with a microfiber dust mop pad
3. Apply a properly diluted neutral cleaner to the surface using a microfiber wet mop pad. Only use neutral cleaners intended for sheet vinyl to clean the flooring. Use of other types of cleaners, even diluted bleach or ammonia, could cause permanent damage, like discoloration or staining.
4. A blue scrubbing pad may be used instead of a microfiber wet mop to clean the floor to address heavy soiling. See **Notes** below for more information.
5. If necessary, use a clean microfiber mop pad and clean water to remove any remaining residue. A hose using clean, fresh water may be used to rinse of the flooring for areas that can drain directly off the vessel.
6. Allow the floor to fully dry.
7. Semi-exterior flooring (e.g. Lonmarine® and Loncommodore) are not intended to be finished. If a finish is desired, only urethane finishes intended for exterior use should be used. Application of a finish will improve maintenance and some finishes may include additives to improve slip resistance. See **Notes** below for more information.

Full Exterior Londeck Installations:

1. Remove all gross soiling (food, gum, residues, etc.). Take care if using a scraper or putty knife to avoid permanently damaging the surface of the flooring.
2. Prepare the area to be cleaned by covering furniture, glass, and aluminum items; relocating them if possible.
3. For a mild solution, dilute 1/4 cup (59.1 mL) of trisodium phosphate (TSP) in 1 gallon (0.9 L) of warm water. For stronger solutions, use 1/2 – 3/4 cup (118.3 – 177.4 mL).
4. Apply the solution to the Londeck and scrub vigorously with a deck brush. If the area is large enough, a low-speed rotary machine or auto-scrubber equipped with scrubbing brushes may be used.
5. Thoroughly rinse the area with clean, fresh water.
6. Londeck is not intended to be finished. If a finish is desired, only urethane finishes intended for exterior use should be used. Application of a finish will improve maintenance and some finishes may include additives to improve slip resistance. See **Notes** below for more information.

NOTES:

- A. When cutting flooring to fit the installation location, be aware that sheet vinyl is subject to dimensional change. Lonseal accepts no responsibility for dimensional changes to its flooring that are cut into shapes or cut outside recommended environmental conditions. The amount of change will depend on the environment in which the flooring is cut versus the environment in which it is installed. Keeping the flooring acclimated in similar, if not the same, environments can help reduce or eliminate this natural occurrence, as can cutting the flooring slightly larger than needed and trimming to the correct size after installation. Optimal acclimation and installation conditions will be in a controlled environment between 65 – 85 °F (18.3 – 29.4 °C).
- B. Lonseal brand adhesives are intended to be used in a controlled environment to ensure they perform as intended. When not installing in a controlled environment, the adhesive may have different curing times. A bond test should be performed to determine how the adhesive will be affected by these types of installation conditions.
- C. For all patterned flooring seams, it is recommended to match the pattern at the center of the installation or focal point, and work the pattern out toward the perimeter from there. Embossed patterns will not always side-match along the length of the entire seam. However, seams should appear balanced throughout the length, and not taper off into the seam.
- D. Certain heavily embossed products are not able to be properly heat welded due to the height or spacing of the embossing. For these products, seams should be double- or underscribe-cut to ensure they are as tight as possible. This will minimize any gaps that could collect soiling. This option is only permitted when these types of floors are used with a full spread of the #650. All other products must be heat welded.
- E. MEK, acetone, and other abrasive solvents should not be used to clean the flooring. These substances could cause permanent damage or discoloration.
- F. Standard single-disc machines and auto-scrubbers may not be useable or logistically possible in some cases. For these instances, the 3M™ Doodlebug™ Pad Holder and the Rubbermaid® Upright Scrubber Pad Holder use small rectangular versions of the same pads used by the larger machines.
- G. It is understood that installations in the interior of the vessel may be left unfinished. Be aware that the lack of a finish will require additional effort to maintain the floor properly.
- H. DFT and Lonsealer must not be used in marine installations.
- I. If a finish is desired on semi-exterior or full exterior flooring, please contact Lonseal's Technical Department for options.
- J. The #650 is only intended to be used as an adhesive. It should not be used as a filler or leveler for the substrate. If an epoxy-based product is necessary for smoothing or leveling, consider using WEST SYSTEM® Epoxy, following their recommendations for use in this type of application. Once the epoxy has cured, roughen the surface with 60 grit sandpaper and brush or vacuum to remove any debris. Then proceed with the installation noted above.
- K. For installations requiring MED/USCG certified products, only the Lonmarine® and Loncommodore product lines are certified. The #650 is included in these certifications.
- L. The substrate for the Londeck will be prepared the same as the interior products.