

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.

ADDITIONAL MATERIAL REQUIRED:

- ▶ MED-Certified Adhesive
- ▶ Lexel® Clear Sealant*

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

APPLICATION:

1. Prepare the approved substrate as detailed in the Interior Flooring Manual. Metal and fiberglass are approved substrates as detailed in the manual. Marine Exterior grade plywood falls under APA Plywood Underlayment Panels per their Document E30 and is also 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 open, working, and curing times for the adhesives, must be taken into consideration. See **Notes** below for additional information.
3. Layout and initial preparation will differ from Lonseal Sheet Vinyl, but still be similar to other tile and plank products.
 - a. Lonmarine Planks are randomized within each box, so no consistency should be expected between boxes used for installation. Opening up multiple boxes and mixing the planks during layout will help blend the planks across the installation. Each plank has direction arrows imprinted into the backside for use during installation. Planks are not the interlocking type, and have squared edges, so the planks should be abutted as tightly as possible to prevent gapping. See **Notes** below.
 - b. It is important to dry fit the installation area prior to applying the adhesives. This will allow the installer to determine the optimal layout of the planks for an aesthetic appearance across the installation, that accounts for the color variation and fit within the installation space. Layout should sufficiently randomize the planks, including reversing the planks as necessary, using the direction arrows to assist with this process. Fully randomizing the layout will help create a more natural looking installation and eliminate any visible pattern repeat. See **Notes** below.
 - c. Avoid placing plank joints on top of subfloor joints, and never install over expansion joints (refer to the Interior Flooring Manual for more information). End plank joints should also be a minimum of 6 in. (15.2 cm) apart.
 - d. The recommended layout will start at the center of the installation area. Determine which direction the planks will run, and locate the center of the walls or extents of the installation area that are perpendicular to the long dimension of the planks. Mark these locations in pencil and then connect them using a chalk line down the center of the room.
 - e. Lay one plank with its long side up against this center line in the center of the installation area. From there the installer will continue placing planks parallel to each other until reaching the wall or outer extents, and no more full width planks can be placed. This remaining balance will determine the width of the final row of planks. Avoid having planks less than 1/2 the width of the plank whenever possible. If the last row of planks will end up being less than this, shift the plank at the centerline from having its long edge against it to being centered on the line. This will widen the planks at the edges and provide better balance to the layout. See **Figure 1** below.
 - f. When determining the layout of the planks in the long dimension, keep the plank lengths greater than 12 in. (30.5 cm) whenever possible at the extents of the installation area. This can easily be done by cutting the difference off of the plank at the opposite end of the column and shifting the column upward. Keep in mind that the plank end joints should be a minimum of 6 in. (15.2 cm) apart, so adjacent columns may need to be shifted, too. This is why dry fitting is important, so that these changes or adjustments do not need to be made last minute after the adhesive has already been applied. As with the widths, longer planks at the extents will provide a more balanced layout. See **Figure 2** below.
 - g. Ensure minimum 5/16 – 3/8 in. (8 – 10 mm) expansion joints are included in the installation area for every 33 ft. (10 m) length of the room on all sides of the flooring, and around any penetrations, thresholds, under doors, and fixed or stationary objects (e.g., cabinetry or walls). Use spacers along all walls to maintain the expansion joint between the planks and them. Spacers should be approximately 20 in. (50.8 cm) apart.
4. Apply a full spread of the adhesive using the manufacturer's recommend trowel and allow for the recommended open time. Be aware of the open and working times for the adhesive used, and plan the installation accordingly. This may require that the installation be done in sections or phases to prevent negatively impacting the adhesive. Failure to follow the manufacturer's instructions could jeopardize the success of the installation.
 - a. See **Alternate Adhesives** and **MED-Certified Adhesives** below for adhesive options. Adhesives chosen must be approved for use with solid vinyl planks per the manufacturer.
5. Place the flooring and roll 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.
6. If necessary, apply sealant around the perimeter of the installation and any exposed edges of the flooring following the manufacturer's recommendations. See **Notes** below for additional information.
7. Perform initial maintenance 48 – 72 hours after installation. See **Maintenance** below for additional information.
8. Allow the adhesive to fully cure before any loads are applied to the flooring. The flooring installer will let all relevant parties know when access to the installation area may occur.

ALTERNATE ADHESIVES: The following adhesives may be used for installations that do not require MED/USCG certification, following the instructions in the TDS or manufacturer's technical documentation.

- ▶ Lonseal #650: Follow all instructions in the TDS and note that the product is a wet-set adhesive, so installation should be phased accordingly to prevent installing the planks outside of the optimal open and working times.
- ▶ Lontape: Follow all instructions in the TDS. Lontape must be applied full spread to the substrate. Once applied to the substrate the liner can be removed at the installer's convenience when ready to begin installing the planks.
- ▶ WEST SYSTEM® Epoxy: The 105 Epoxy Resin should be mixed with either the 205 or 206 hardeners. 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, and all warranties and support for their products will be through them. 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-CERTIFIED ADHESIVES: 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
	Website: www.f-ball.co.uk		
MAPEI	Ultrabond V4 SP Fiber	n/a	n/a
	Website: www.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 provides a brief summary of the maintenance procedures for Lonmarine Planks. Maintenance programs should be in place to ensure the flooring performs as intended and maintain warranty coverage. Please refer to the Lonmarine Planks Maintenance Guide to review complete, detailed maintenance information.

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 or vacuum with a soft bristle brush only.
3. Apply a properly diluted neutral cleaner to the surface using a microfiber wet mop pad. Only use neutral cleaners intended for vinyl to clean the flooring. Use of other types of cleaners, even diluted bleach or ammonia, could cause permanent damage, such as discoloration or staining. See **Notes** below for more information.
4. A scrubbing pad may be used instead of a microfiber wet mop to clean the floor to address heavy soiling. A red pad may be used in most cases, but do not use anything more aggressive than a blue pad for heavily soiled flooring. 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. A floor finish is not required or recommended.

NOTES:

- A. It is highly recommended that a few additional boxes of planks are purchased beyond the quantity needed for the installation. Due to the inherent production and packaging processes, the planks are packaged randomly, and Lonseal cannot guarantee any consistency between boxes. Having additional boxes will help the installer to provide a balanced and aesthetic layout of the planks. The additional planks will also help to address any potential errors during the installation or can be used for any future repairs. Check all planks in proper lighting before and during installation, and immediately contact your Lonseal Sales Representative if you encounter any issues with the planks.
- B. The pattern of Lonmarine planks is intended to be installed in the same direction. The imprinted arrow in the backside of the plank indicates the production (machine) direction, and should be used by the installer to ensure all planks are running the same direction. If the installer chooses to introduce more randomness to the layout and reverse some planks, this should be done during the layout process and get approved by the relevant stakeholders prior to applying any adhesive, since this will provide a more custom appearance to the installation, and is outside the intended design of the product.
- C. When cutting flooring to fit the installation location, be aware that vinyl is subject to dimensional change. Lonseal accepts no responsibility for dimensional changes to flooring that is 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. Optimal acclimation and installation conditions will be in a controlled environment between 65 – 85 °F (18.3 – 29.4 °C).

- D. If Lonmarine Planks will be installed over a radiant-heated substrate, only in-slab, water-heated systems may be used. Matting or electrically heated systems must not be used with this flooring.
- E. 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 open, working, and curing times. A bond test should be performed to determine how the adhesive will be affected by these types of installation conditions.
- F. Lonmarine Planks do not require heat or chemical welding, and should not be used with these products. Proper maintenance will help ensure seams do not collect soiling.
- G. MEK, acetone, and other abrasive solvents should not be used to clean the flooring. These substances could cause permanent damage or discoloration.
- H. 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.
- I. 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.
- J. If the perimeter or expansion joints of the installation area require a sealant, Lonseal recommends using Lexel® Clear Sealant. If using an alternative, always contact the manufacturer to confirm suitability for use with vinyl. Some sealants, like silicone-based sealants, may not always bond properly to vinyl or may cause discoloration to the flooring. All warranties and support for any sealant used will be through the sealant manufacturer.
- K. Do not allow rubber-based products, including mats, to come into direct contact with the flooring. If you do need to use or transport anything that has rubber, place a protective layer between the rubber-based product and the flooring to prevent permanent discoloration from plasticizer migration, a normal occurrence when rubber makes direct contact with vinyl. The protective layer must also be non-rubber and non-staining. When placing a protective layer, ensure the flooring and the bottom of the protective layer are clean and free of debris so nothing is trapped between them that could scratch or damage the flooring. Alternatively, and if possible, the item could be stored elevated and not in direct contact with the flooring.
- L. Lonmarine Planks are for fully interior use only. Performance cannot be guaranteed, and no warranty will be given, if installed in semi-exterior or fully exterior applications. Avoid prolonged exposure to direct sunlight by ensuring proper window treatments are in place to prevent UV damage to the flooring.

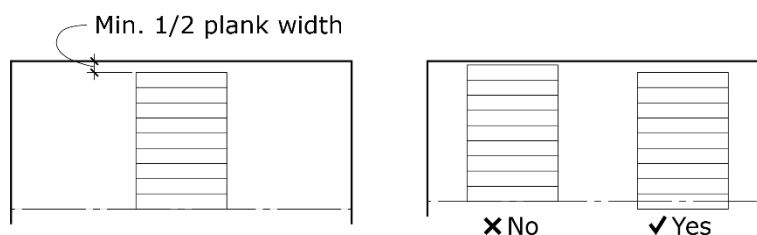


Figure 1: Determining perimeter plank width

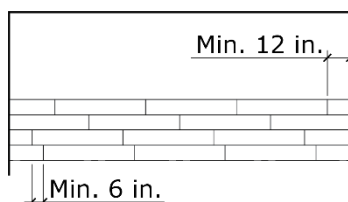


Figure 2: Determining perimeter plank length