Building Code E3/AS1: Internal Moisture
2nd Edition, Amendment 7
Alternative Solution Compliance Statement

Building Code Clause E3 requires floor surfaces of any space containing sanitary fixtures or sanitary appliances in wet areas to be impervious and, easily cleaned, and have ventilation to meet conditions for health and safety. It requires buildings to be constructed to avoid fungal growth and excessive moisture. Its provisions relate to habitable spaces, wet areas, laundries and other spaces where moisture may be generated or accumulate. Its requirements include provisions for:

- adequate thermal resistance;
- space temperature; ventilation;
- disposal of overflow water; and
- surfaces to be impervious and easily cleaned.

The accepted solutions for flooring finishes in water-splash areas, including kitchen, laundries, wet area and toilet areas are (i) slab-on-grade concrete that is steel trowel or polished finished, (ii) ceramic or stone tiles having 6% maximum water absorption or (iii) an integrally waterproof sheet material (e.g. vinyl) with sealed joints and edges sealed or coved.
The finish must be impervious and easily cleaned. The area extends to the doorway and all walls of the room, or at least 1.5 meters from all sanitary fixtures or appliances in open plan spaces.
Laminates and vinyl planks may still be used, however, these flooring finish types will now need to be specified and approved as an Alternative solution.

This document provides guidance in regards to the comment under section 3.1.1 Floors (under section 3.0 Watersplash) that states "*other floor finishes may also be capable of satisfying the performance for impervious and easily cleaned, if installed in a manner that prevents gaps or cracks within the finish and at any parts of its perimeter that are exposed to watersplash, and/or if the surface is sealed with a suitable durable coating*".

When our products are installed in accordance with our Installation Manuals and, where applicable, Installation/Use Manuals of accessories, adhesives, moisture barriers and underlays, the product and systems meet the requirements of the E3 Building Code based on expert opinion obtained in this regard:

- In-Service History;
- Expert opinion or Producer Statement.

i. Impervious Surface

All our products are water and moisture resistant, featuring a durable, hygienic and waterproof surface that is easy to clean. Our products also feature locking systems that provide resistance to water penetration where watersplash may occur.

Our products utilize a I4F click technology, which is engineered to provide an extremely tight joint that inhibits regress of moisture.

ii. Perimeters Exposed to Watersplash

For all our products (incl. Glue-down LVT, Rigid Hybrid Vinyl, Water-resistant Laminate and Engineered Stone products) the perimeters of the room should be installed with a compressible PE foam and covered with a flexible silicone sealant (not acrylic sealant) at the floor to wall junction to all perimeters extending to the doorway, or at

least 1.5 meters from any sanitary fixtures of wet rooms or watersplash zone areas of open plan rooms to prevent gaps in the perimeter of the finish to prevent water ingress. In order to achieve the maximum allowed installation area, the main installation area should be separated from the wet room or splash zone area via joints at doorways and/or thresholds as required. Outside of water splash areas, standard installation guidelines must be applied as per our Installation Manuals.

iii. Service History

Our products have been distributed and installed by our partners in New Zealand for over 10 years. We have a proven track record of performance and service history in the New Zealand market for our products which were properly installed in accordance with our installation manuals and, where applicable, to the specifications as required under the Building Code.

iv. Additional Information

Apart from our long-standing history and experience in conducting business in the New Zealand market and the extensive testing performed internally by us, we are also currently working on having our flooring solutions independently appraised by BRANZ (www.branz.co.nz).

Please contact your Sales representative or our Technical Support team for further information, discussion or clarification of this statement or supporting documentation.

Konstantin Mishagin
Product Management and Compliance

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NEPTUNE®
Stone-based Waterproof Floors

INSTALLATION GUIDE

Thank you for choosing our flooring. When properly installed and cared for, your new flooring will be easy to maintain and will keep its great look for years. Please read all the instructions and follow all recommendations before you begin the installation. Improper installation will void the warranty.

Check-off each Item	Item	Standard	Why it is critical
	Subfloor flatness	Subfloor must be flat within 5 mm over 3 m.	A non-flat subfloor can cause gapping, buckling, and damage to the locking system.
	Subfloor moisture	ASTM F2170 RH 80% ASTM F1869 3.63 kg/92 m2 CM 2.5%	Subfloor moisture can cause site-related issues which might lead to an installation failure, alkali salt buildup damage to joints, and a potential mold source. 0.15 mm poly sheeting is required on all substrates.
	Subfloor deflection	Subfloor must be structurally sound with no up-and-down movement.	Subfloor deflection will cause gapping and joint damage to the locking mechanism.
	Approved substrate	No soft substrates.	Additional soft underlayment is not to be used and will void the warranty. Cushioned vinyl, floating floors, and carpets are not suitable substrates. Vinyl flooring should never be installed over wood that is installed over concrete doing so will void the warranty.
	Inspect planks	Inspect planks to be installed closely for visible damage.	Prior to installation, inspect the material in daylight for visible faults/damage, including defects or discrepancies in color or shine; check the edges of the flooring for straightness and any damage. No claims on surface defects will be accepted after installation.
	Maintain appropriate expansion space	Floating floors must be free to move.	Improper expansion can cause cupping, gapping, and damage to the locking system. Don’t hard butt

			flooring into door jams, walls and kitchens. Do not silicone perimeter of open plan rooms (wet areas only 15m2 or less, please read instructions)

I. GENERAL PREPARATIONS

TOOLS REQUIRED: Spacers, wedges, rubber mallet, ruler, pencil, tape measure, utility knife, tapping block, 0.15 mm moisture barrier, square, transition moldings, jamb saw, chalk line, eye protection, level, knee pads (optional), broom or vacuum.

- Prior to installation, inspect the material in daylight for visible faults/damage, including defects or discrepancies in color or shine; check the edges of the flooring for straightness and any damage. No claims on surface defects will be accepted after installation.
- It is preferable to lay boards perpendicular to the window, following the direction of the main source of light. For the best result, make sure to always work from 3 to 4 cartons at a time, mixing the planks during the installation.
- Check if subfloor/site conditions comply with the specifications described in these instructions. If the subfloor is not within specifications, DO NOT INSTALL, and contact your supplier.
- Flooring products can be damaged by rough handling before installation. Exercise care when handling and transporting these products. Store, transport and handle the cartons in a manner to prevent any damage. Store cartons flat, never on edge.
- Flooring products can be heavy and bulky. Always use proper lifting techniques when handling these products. Whenever possible, make use of material-handling equipment such as dollies or material carts. Never lift more than you can safely handle; get assistance.
- Calculate the room surface prior to installation and plan an extra 5-10% of flooring for cutting allowance.
- The environment where the flooring is to be installed is critically important with regard to successful installation and continued performance of the flooring products. The flooring is intended to be installed in interior locations only. These interior locations must meet climatic and structural requirements as well.
- Keep the boards at room temperature for at least 24 hours in an unopened package before you start the installation. The room temperature must be maintained consistently between 20-25°C before and during the installation.
- The flooring should only be installed in temperature ranges between 20-25°C, it is necessary to maintain a constant temperature before and during the installation. Portable heaters are not recommended as they may not heat the room and subfloor sufficiently. Kerosene heaters should never be used.
- After installation, make sure that the flooring is not exposed to temperatures less than 10°C or greater than 50°C.
- For floor surfaces exceeding 250 m2 and/or lengths exceeding 15 m, use expansion moldings.

II. SUBFLOOR INFORMATION

- The flooring can be installed over most existing hard surface floor coverings, provided that the existing floor surface is structurally sound, clean, dry, and smooth. Subfloor variations should not exceed 5 mm over 3 m.
- The substrate should not slope more than 25 mm per 2 m in any direction.
- Depressions, deep grooves, expansion joints, and other subfloor imperfections must be filled with patching & leveling compound.
- Substrates must be free from excessive moisture or alkali. Remove dirt, paint, varnish, wax, oils, solvents, and any foreign matter and contaminants.
- Do not use products containing petroleum, solvents, or citrus oils to prepare substrates as they can cause staining and expansion of the new flooring.
- Although this floor is waterproof, it is not to be used as a moisture barrier.
- This product is also not to be installed in areas that have a risk of flooding such as saunas or outdoor areas, seasonal porches, camping trailers, boats, RVs, lanais, rooms that are prone to flooding, or rooms or homes that are not temperature-controlled.
- Existing sheet vinyl floors must not be cushioned and not exceed more than one layer in thickness. Soft underlayment and soft substrates will diminish the product's inherent strength in the clicking mechanism and resisting indentations and could void the warranty.
- Acceptable job site conditions, including subfloor moisture conditions, must be maintained throughout the lifetime of the flooring.

WOOD SUBFLOORS

- If this flooring is intended to be installed over an existing wood floor, it is recommended to repair any loose boards or squeaks before you begin the installation.
- Wood subfloors must have no more than 12% MC (moisture content).
- Basements and crawl spaces must be dry. Use of a 0.15 mm poly-film is required to cover 100% of the crawl space earth.
- We recommend laying the flooring crossways to the existing floorboards.
- All other subfloors - plywood, OSB, particleboard, chipboard, wafer board, etc. must be structurally sound and must be installed following their manufacturer's recommendations.
- DO NOT install over sleeper construction subfloors or wood subfloors applied directly over concrete.
- A minimum of 0.15 mm poly-film is required as a moisture barrier between the subfloor and the flooring.

CONCRETE SUBFLOORS

- Existing concrete subfloors must be fully cured, at least 60 days old, smooth, permanently dry, clean, and free of all foreign material such as dust, wax, solvents, paint, grease, oils, and old adhesive residue.
- The subfloor must be dry. With a pH limit of 9 and comply with moisture content requirements and tested as per the below methods:

  - Concrete moisture vapor emissions must not exceed 3.63 kg MVER (moisture vapor emission rate) per 93 m2 per 24 hours. This can be measured with the calcium chloride test (ASTM F1869).
  - 90% RH (ASTM F2170).
  - Max. 2.5% moisture content (CM method / ASTM F2659).
- A minimum of 0.15 mm poly-film is required as a moisture barrier between the concrete subfloor and the flooring.

NOTE: THE RESPONSIBILITY OF DETERMINING IF THE EXISTING FLOORING IS SUITABLE TO BE INSTALLED OVER RESTS SOLELY WITH THE INSTALLER/FLOORING CONTRACTOR ON SITE. IF THERE IS ANY DOUBT AS TO SUITABILITY, THE EXISTING FLOORING SHOULD BE REMOVED, OR AN ACCEPTABLE UNDERLAYMENT INSTALLED OVER IT. INSTALLATIONS OVER EXISTING RESILIENT FLOORING MAY BE MORE SUSCEPTIBLE TO INDENTATION.

DO NOT INSTALL OVER

- Any type of carpet.
- Existing cushion-backed vinyl flooring.
- Floating floor of any type, loose lay, and perimeter fastened sheet vinyl.
- Hardwood flooring / wood subfloors that lay directly on concrete or over dimensional lumber or plywood used over concrete.

IMPORTANT NOTICE

In-floor Radiant Heat: Flooring can be installed over 12 mm embedded radiant heat using the floating method. Maximum operating temperature should never exceed 30°C. The use of an in-floor temperature sensor is recommended to avoid overheating.

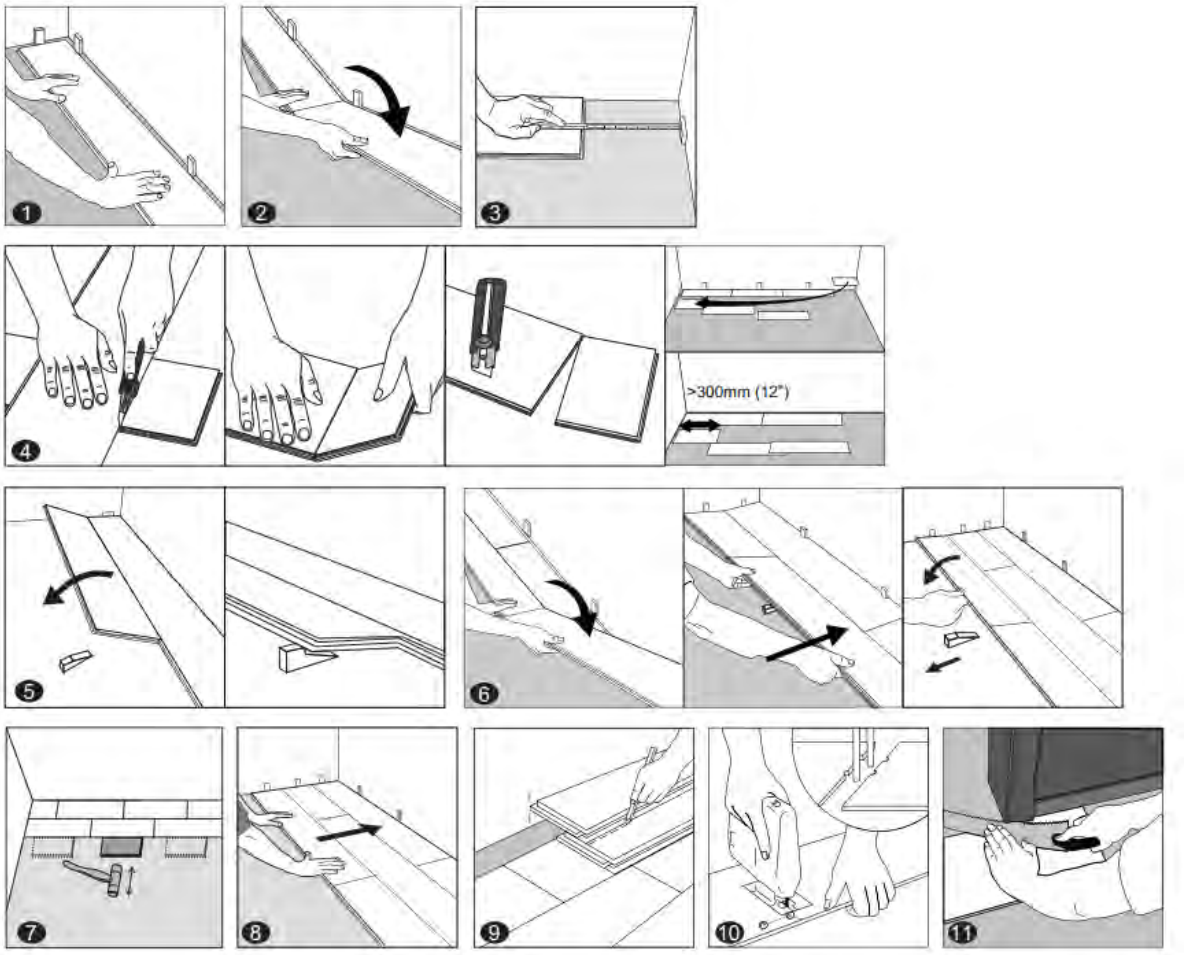
- Turn the heat off for 24 hours before, during, and 24 hours after installation when installing over radiant heated subfloors.
- Before installing over newly constructed radiant heat systems, operate the system at maximum capacity to force any residual moisture from the cementitious topping of the radiant heat system.
- Make sure that the temperature in the room is maintained consistently between 20-25°C before and during the installation.
- Once the installation is completed, the heating system should be turned on at the ambient temperature and gradually increased in 5°C increments every 12 hours until reaching normal operating conditions.
- Refer to the radiant heat system's manufacturer recommendations for additional guidance.

Warning: Electric heating mats that are not embedded into the subfloor are not recommended for use underneath the floors. Using electric heating mats that are not embedded and applied directly underneath the floors could void the warranty for your floor in case of failure. It is best to install the flooring over embedded radiant floor heating systems and adhere to the guidelines listed above.

Tip: The best idea to maximize the results of your heating system is to have "ON" times with a comfortable temperature and "OFF" times with setback temperatures which are normally 4°C lower than your comfort temperature. The setback temperatures are particularly important as these won't let the temperature of your room drop too much, meaning it is much quicker to heat your room back to comfort levels when it's needed.

III. INSTALLATION

- Remove trim molding, wall base, appliances, and furniture from the room. For the best results, door jambs must be undercut to allow the flooring to move freely without being pinched. After preparation work, sweep and vacuum the entire work area to remove all dust and debris.
- With a floating floor you must always ensure you leave a 10 mm gap between walls and fixtures such as pillars, stairs, etc. These gaps will be covered with trim moldings after the floor is installed.
- Whenever possible, plan the layout so that the joints in the planks do not fall on top of joints or seams in the existing substrate. The end joints of the planks should be staggered a minimum of 20 cm apart. Do not install over the expansion joints. Avoid installing pieces shorter than 30 cm at the beginning or end of rows.
- Do not install your kitchen cabinets directly over your floor. Built-in cabinets, kitchen cabinets, islands, and similar heavy items must be installed first. Only then can the flooring be installed, leaving an appropriate expansion gap around it. This gap will be covered with trim moldings after the floor is installed. The quality of the floor can only be guaranteed if it is allowed to move freely. It must not be nailed, adhered, or fastened to the subfloor in any way.
- Decide the installation direction. It is recommended to install the boards perpendicular to the window following the direction of the main source of light.
- Do not silicone the perimeter of open plan areas
- Do not hard butt flooring into door jambs, walls or kitchens as this may result in the floor failing
- Measure the area to be installed: The board width of the last row shall not be less than 50 mm. If so, adjust the width of the first row to be installed. In narrow hallways, it is recommended to install the floor parallel to the length of the hall.
- UNDERLAY: If the floor DOES NOT HAVE a pre-attached underlayment, an additional underlayment is recommended in order to improve acoustic performance and absorb some irregularities on the substrate. Best results can be expected with an underlayment of 1 mm maximum thickness with a high density (>135 kg/m3), high compressive strength ($\geqslant$200 kPa according to EN 16354, ASTM D3575-20, Suffix D), and <10% thickness change (according to ASTM D3575-20, Suffix B) that supports the click system during daily use. Thicker underlayments, underlayments with a low density and inadequate compressive strength could damage the locking mechanism and will void the warranty.
- If the floor HAS a pre-attached underlayment, the use of an additional underlayment could damage the locking mechanism and will VOID warranty.



1. **First row, first plank:** After thoroughly cleaning the subfloor, you should begin laying from left to right. Position the first plank so that the grooved edge is facing you. Place the floorboard 10 mm from the left wall. Use spacers between the wall and the floorboard.
2. **First row, second plank:** Insert the end tongue on the short side of the second plank into the end groove of the first one and rotate downward to assemble. Make sure both planks are perfectly aligned.

IMPORTANT: If you notice both planks aren't at the same height or are not well-locked together, please follow the disassembling instructions at the bottom of the page, disassemble, and check if any debris stuck inside the lock is obstructing. Failure to properly line up the end joint and attempting to force it in while out of alignment could result in permanent damage to the end joint.

3. **First row, last plank:** At the end of the first row, leave an expansion gap of 10 mm to the wall and measure the length of the last plank to fit.
4. **To cut the plank:** Use a simple utility knife and ruler, and with the top side facing up, score heavily and several times on the same axis. The knife will not go through the surface but make a deep cut. You can then snap one half of the plank using your other hand to hold down the second placing it very close to the cut. The plank will split naturally.
5. **Second row, first plank:** Start the second row with the leftover cut part of the last plank of the previous row. This small plank should measure at least 30 cm. Otherwise, cut a new plank in half

and use it to begin the second row. The end joints of each adjoining row should not be closer than 20 cm to each other. Whenever practical, use the piece cut from the preceding row to start the next row.
Click the long side of the plank into the previous row and place an installation wedge under the board.

6. **Second row, second plank:** Place the short end of the plank at an angle against the short side of the previously installed floorboard and fold down. Slide down the long side of the board into the locking groove of the adjacent floorboard in the previous row. When the whole row is complete, remove the wedge and fold the row down.
7. **After finishing the installation of every row:** Use a tapping block and a small hammer or rubber mallet to gently tap the planks into the click of the previous row to make sure they are tightly clicked together and make sure there is no gap between the long side of the planks installed. Any gapping can compromise the whole installation.
8. **Tip:** After the first 2-3 rows of planks are installed, they should be checked with a string line to ensure that rows are still running straight. If they are not, it could be that the starting wall has some irregularities that caused bowing in the installation. If so, the starting row of planks may have to be scribed and re-trimmed to account for any unevenness in the wall. This can be done without having to disassemble the beginning rows.
9. **To lay the last row:** Position a loose board exactly on top of the last row laid. Place another board on top, with the tongue side touching the wall. Draw a line along the edge of this board, to mark the first board. Cut along the edge of this board to mark the first board. Cut along this line to obtain the required width. Insert this cut board against the wall. The last row should be at least 50 mm wide. The spacers can then be removed.
10. **Holes for pipes:** Measure the diameter of the pipe and drill a hole that is 20 mm larger. Saw off a piece as shown in the figure and lay the board in place on the floor. Then lay the sawed-off piece in place.
11. **Door molding and skirting:** Lay a board (with the decorative side down) next to the door molding and saw as shown in the figure. Then slide the floorboard under the molding.

INSTALLATION IN WET AREAS (maximum 15m2)

IMPORTANT: This product is not warranted for installation in wet areas with running water and areas with built-in drains, e.g., pools and shower areas.

- Use a T-molding to separate the wet area from the rest of the installation.
- Fill the expansion spaces with a compressible PE foam backer rod and cover them with a flexible 100% silicone sealant around the entire perimeter of the installation before installing moldings. Branded and generic silicone tubes are available at any local home center or hardware store. **IMPORTANT**: Do not use acrylic sealant.
- Apply silicone sealant to connections to doorframes or any other fixed objects.

IV. FINISHING THE INSTALLATION

- Protect all exposed edges of the flooring by installing wall molding and/or transition strips. Allowing slight clearance between the molding and the planks. Make sure that no plank will be secured in any way to the subfloor.

- At doorways and at other areas where the flooring planks may meet other flooring surfaces, the use of a transition molding is required to cover the exposed edge but do not pinch the planks. Leave a 10 mm gap between the planks and the adjoining surface.

V. MAINTENANCE

- Use appropriate window coverings, such as drapes, window treatments, or UV-tinting on windows, to protect the product from direct sunlight as long-term exposure to direct sunlight can potentially lead to discoloration.
- Sweep or vacuum daily using soft bristle attachments. Do not use a vacuum equipped with a beater bar.
- Do not buff or sand the surface.
- Clean up spills and excessive liquids immediately.
- Damp mop as needed and use neutral cleaners recommended for vinyl flooring.
- The use of residential steam mops and spray mops on this product is allowed. Use at the lowest power with a suitable soft pad, and do not hold a steam mop on one spot for an extended period of time (longer than 30 seconds). Refer to the mop's manufacturer instructions for proper usage.
- Use proper floor protection devices such as felt protectors under furniture. Equip wheeled-type office chairs and other rolling furniture with wide-surface, casters at least 5 cm in diameter.
- Place a walk-off mat at outside entrances to reduce the amount of dirt brought into your home. Do not use mats with latex or rubber backing since these backings can cause permanent discoloration.
- Do not use abrasive cleaners, bleach, or wax to maintain the floor.
- For stubborn spills use low odor mineral spirits or denatured alcohol applied to a clean cloth. Never pour chemicals directly on the floor.
- Do not drag or slide heavy objects across the floor.
- The flooring can be used in homes where wheelchairs are needed, but only certain thickness products can be installed for that purpose - not including pre-attached backing, at least 5 mm thick product. The flooring must not be applied to ramps. Motorized wheelchairs are NOT to be used.

VI. DISASSEMBLING

To disassemble, simply lift the planks one by one following the opposite sequence as the installation.

MAINTENANCE GUIDELINES AND REPAIR INSTRUCTIONS

1. CLEANING

- All vinyl floors benefit from regular maintenance; accumulated soil may lead to scratching. Sweep or vacuum daily using soft bristle attachments, vacuum cleaner with correct hard floor surface attachment - beater bars, hard plastics, floor scrubbers, jet mops, buffers or similar products must not be used. Clean up spills and excessive liquids immediately.
- Damp mop as needed and use neutral cleaners recommended for vinyl flooring. Soap, oil cleaners and restorative products must never be used. Change rinse water often and never flood the floor with water.
- The use of residential steam mops on this product is allowed. Use at lowest power with a suitable soft pad, and do not hold a steam mop on one spot for an extended period of time (longer than 5 minutes). Refer to the steam mop's manufacturer instructions for proper usage.
- Do not use abrasive cleaners, bleach, wax, high % non-diluted vinegar, acetone, or harsh chemicals to maintain the floor.
- After washing allow your floor the time to dry.

2. SPOT REMOVAL

- Spots must be removed immediately using a well-wrung, slightly damp cloth. To reduce spotting, do not allow liquids to stand or remain on the surface of the flooring.
- Nail polish, tar, markers, crayon, lipstick and ink can be removed using nail polish remover or denatured alcohol. Soak a clean rag in cool water and rinse the surface completely to remove residual denatured alcohol or nail polish remover.
- For stubborn spots use low odor mineral spirits or denatured alcohol applied to a clean cloth. Never pour chemicals directly on floor.
- For chocolate, grease, juice and wine stains, use lukewarm water and a non-abrasive cleaner.
- For candle wax and chewing gum, scrape carefully with a blunt plastic scraper.
- Pet stains (including urine, feces and vomit from domestic cats or dogs) need to be cleaned within 24 hours.

3. PROTECTING

- Avoid bringing dirt, sand, grit and substances such as oil or asphalt indoors, use non staining mat at entrances (inside and out). A walk-off mat at outside entrances to reduce the amount of dirt brought into your home.
- Do not use mats with a latex or rubber backing since these backings can cause permanent discoloration.
- For areas with rolling chairs (e.g. desk area) apply freely rotating, non-rubber wheels to chairs with castors and/or use a protective mat under the chair.
- Do not allow cigarettes, matches or other very hot items to get in contact with the floor as this may cause permanent damage.
- Do not drag or slide heavy objects across the floor. When moving appliances or heavy furniture it is always wise to lay a plywood panel, or similar, on your floor and “walk” the item across it. This protects your floor from scuffing, gouging and tears.
- Use proper floor protection devices such as non-staining felt protectors and furniture cups

under. Felt pads should be timely maintained. Do not use colored floor protectors.

- Please bear in mind that pets with sharp nails can leave deep scratches on the floor, keep pet nails trimmed to minimize scratches.

FLOORING REPAIR INSTRUCTIONS

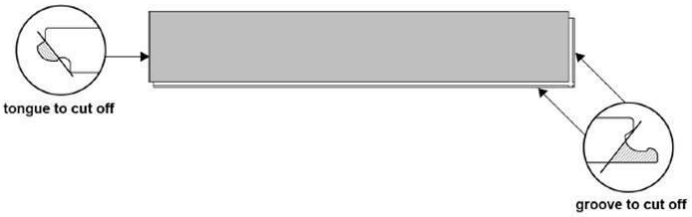
A damaged board in the middle of the floor doesn't require disassembling the whole floor. You can fix it by cutting that single damaged board out and replacing it with a new one.

Things you'll need: pencil, straightedge, plunge saw, cutting blade for soft surfaces, chisel, utility blade/concave knife, premium vinyl adhesive (a high-grab high-shear hard-setting adhesive), weights (approximately 90lbs / 40kg).

Instructions:

1. Mark damaged board 1-1/2" / 3.81cm from ends and sides. Drill 3/16" / 4.76mm holes in corners and at relief cuts.

2. Using a concave knife /a utility blade knife / a saw (set saw depth to board thickness) cut along lines and remove center section. Make relief cuts using drilled holes as visible stop.
   Pro tip: Warming the product with a heat gun will help when using a utility knife.
3. Carefully lift and pull center length cut first, then work into corners to remove end pieces last.
4. Vacuum the area from any debris and dust.
5. Using a concave knife /a utility blade knife / a saw, prepare replacement board by removing the bottom groove on both ends (see drawing below) as well as the tongue on the short end. (See drawing below).



6. Apply a thin bead of glue to the edges of the remaining planks on the floor surrounding the plank being replaced.
7. Hold the board at a 45-degree angle. Slip the tongue that is still present into the groove at one end of the hole. Gently lower the board into place in the hole.
8. Use a rubber mallet and a tapping block to tap the replacement plank into place.
9. Make sure that any adhesive that squeezes to the surface is removed immediately.
10. Weigh the board down and allow the glue to dry for at least 48 hours.

NEPTUNE®
Stone-based Waterproof Floors

SGS

TEST REPORT

scan to see the report

XMIN2206006781CM

No. : XMIN2206006781CM
Date : Jul 05, 2022

CUSTOMER NAME: CFL FLOORING (CHINA) CO., LTD.

ADDRESS: NO.111 CHANGJIANG ROAD, JIASHAN DEVELOPMENT AREA, JIAXING, P.R. CHINA

Sample Name : SPC

Product Specification : 4+1mm IXPE

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

****

Date of Receipt : Jun 27, 2022

Testing Start Date : Jun 27, 2022

Testing End Date : Jul 05, 2022

Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for
SGS-CSTC Standards Technical
Services Co. , Ltd Xiamen Branch
Testing Center

Civi Huang
Authorized signatory

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SGS

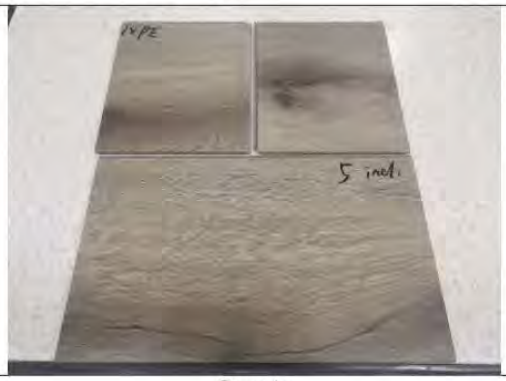
TEST REPORT

No. : XMIN2206006781CM
Date : Jul 05, 2022

Summary of Results:

No.	Test Item	Test Method	Result
1	Laminate Surface Swell Test – Assembled Joint	Refer to NALFA Surface Water Test_Final_08-01-2019 and client's requirement	See results

Original Sample Photo:



Sample

Assembled Laminate Planks with Plastic Ring seal

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SGS

TEST REPORT

No. : XMIN2206006781CM
Date : Jul 05, 2022

Test Item: Laminate Surface Swell Test – Assembled Joint

Sample Description: See photo

Test Method: Refer to NALFA Surface Water Test_Final_08-01-2019 and client's requirement

Test Condition:

Specimen: 2pcs samples of 150mm×178mm×5mm and 1pc sample of 300mm×178mm×5mm form a specimen, total 2pcs specimens, see photo(s)

Exposure time: 24h

Recovery time: 24h

Test Result:

Specimen No.		1	2	Average
Quantitative calculation (see note 2)	The inverted "T" Joint Wet swell value (mm)	0.004	0.007	0.006
	Wet swell (mm)	0.002	0.004	0.003
	The inverted "T" Joint Recovery swell value (mm)	0.003	0.005	0.004
	Recovery swell (mm)	0.003	0.003	0.003
Remaining water after 24h exposure time (%)		83	83	/
Qualitative rating (see note 3)		Grade 1	Grade 1	/

Note: 1. All test specimens were cut from the samples, see the photograph.
2. For Quantitative calculation as below:
Wet swell = Wet height – initial height, Recovery swell = Recovery height – initial height.
3. For Qualitative rating, Evaluate the joints for apparent differences, in visual and feel (light touch can be helpful in discerning differences) within the circle compared to unexposed portions of the specimen and grade the test assembly per the criteria listed below:

Grade:
1 = No change – No noticeable change in edge swell or panel surface lift. 2 = Slight swelling – Slight swelling, small ridge along one or more joints, very little if any panel surface lift. 3 = Significant – Noticeable edge swelling and some panel surface lift extending in away from joint. 4 = Objectional – Severely raised edge and swelling extending noticeably under the panel surface. 5 = Invalid Test – Water leaked out of the ring, leaving no continuous film of water inside the ring (this grade is given even if there is no swell of the edge joint).

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TEST REPORT

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Test Photo:

	
After 24 hours Exposure time – Specimen 1#	After 24 hours Exposure time – Specimen 2#
	
After 24 hours Recovery time – Specimen 1#	After 24 hours Recovery time – Specimen 2#

******** End of report********

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