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INSTALLATION METHODOLOGY
DRY BACK BONDED LVT RANGES – NATURAL & KENT

GENERAL ADVICE

The final appearance and durability of any Luxury Vinyl Plank installation depends largely on the condition of the surface upon which it is laid. A little time and effort spent on the proper preparation of the sub-floor will often be repaid in terms of an installation of which all concerned can feel proud.

LVT/P's require a smooth, hard, clean, sound and level surface, not only for appearance but also for achieving a satisfactory adhesive bond and long-term durability. The sub-floor should be swept or preferably vacuumed, to remove all dust and dirt. (Always brush the sweepings away from the area onto which the flooring is to be laid).
It is important to remove any traces or patches of oil, grease or any oil-based paint from the sub-floor surface. This can be done using either paint strippers or degreasing compounds, however, be very cautious using products that contain petroleum, solvents or citrus oils, as they will impact the bonding strength of glued-down installation. Note – The use of adhesive abatement chemicals will void the warranty. Once the sub-floor is clean it must be thoroughly washed to remove any stripper or residue and then allowed to dry thoroughly.

GENERAL PREPARATIONS

- Before installation, the LVT/Ps should be checked in daylight to ensure that the correct colour, batch number, and quantity have been received and that the material is in good condition. i.e. No visible faults/damage, including defects or discrepancies in colour or gloss, check the edges of the flooring for straightness and any damage
- It is preferable to only use material from the same production batch. (The use of different production batches could result in visible shade differences. The batch number is marked on the back of the planks).
- Check if subfloor/site conditions comply with the specifications described in these instructions. If you are not satisfied, 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 flooring planks 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.
- Do not install flooring over any type of soft substrate, including additional pad-type underlayment

INDOOR ENVIRONMENT

- The environment where the flooring is to be installed is critically important concerning 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.
- Flooring should only be installed in temperature-controlled environments. It is necessary to maintain a constant temperature of 18°C - 23°C before, during and after 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 15°C or greater than 35°C. Excessively high or low temperatures may cause this product to expand or contract and lead to visual defects of the floor that will not be warranted.

MATERIAL STORAGE AND ACCLIMATISATION

- The flooring material must be acclimated to the installation area for a minimum of 48 hours before installation.
- The permanent HVAC system (air conditioning) is turned on and set to a minimum of 18°C or a maximum of 23°C, for a minimum of 7 days before and during installation.
- Cartons of tile or plank products can be stored flat and squarely on top of one another, and should not be stacked more than 6 high to allow for airflow around the stacks. Preferably, locate the material in the "centre" of the installation area (i.e. away from vents, direct sunlight, etc.). Storing cartons in direct sunlight may affect proper acclimation by inducing thermal expansion/contraction.
- When palletizing on a job site the vinyl plank or tiles need to be stacked 2 rows side by side with airspace between the stacks. It is recommended that 16 mm or thicker plywood be placed between the stacks and 25 mm thick plywood between pallets. The stacks must not exceed a total of 12 boxes.
- Please follow the adhesive manufacturer's guidelines for storing, acclimation or preparation of the adhesive before installation.

GENERAL SUBFLOOR INFORMATION

CONCRETE SUBFLOORS - RESPONSIBILITY

NEW AND EXISTING CONCRETE SUBFLOORS MUST BE STRUCTURALLY SOUND AND IN COMPLIANCE WITH LOCAL BUILDING CODES.

The specifier and main contractor shall ensure that the sub-floor is acceptable to receive the LVT/P with respect to levelness, smoothness, soundness, and cleanness. The minimum requirement is that the sub-floor is compliant with a Grade 1-floor finish as set out in SANS 10070 Code of Practice: The installation of resilient thermoplastic and similar flexible floor covering materials, in terms of levelness. This optimum floor finish can be achieved using a high-quality, reliable, cementitious self-levelling compound, for levelling and smoothing work on interior surfaces.

Even though it may not be the Floor Covering Installers direct responsibility to conduct these tests, it is, however, his responsibility to make sure that these tests have been carried out, and that the results are acceptable, before installing the floor covering.

The flooring contractor shall ensure that the sub-floor is sufficiently dry before the installation of the flooring material by testing with a suitably approved Concrete Moisture Meter. (*Tramex CME 4, Caisson / Romus VI-D4 Pinless Concrete Moisture Meter, GE Protimeter Mini or a Hygrometer).*
Laying flooring onto a wet subfloor will not only affect the adhesive but will also cause the flooring to curl and lift.
Concrete floors with a pH of 9 or greater will not be acceptable to install the LVT/P. The subfloor must be brought to a neutral pH level before beginning the installation.
(See ***FloorworX Technical Bulletin No. 30: Moisture in Sub-Floors and Damp-Proof Membranes***).

Note - The flooring must not be installed over moving expansion joints or rubber-based substrates.
Overlays - The responsibility of determining if the existing flooring is suitable to be overlaid rests with the installer/flooring contractor. If there is any doubt as to the suitability then the existing flooring should be removed or an acceptable underlayment installed. Overlaying may be more susceptible to indentation.

WOOD & OTHER SUBFLOORS

NB - WOOD SUBFLOORS MUST BE STRUCTURALLY SOUND AND IN COMPLIANCE WITH LOCAL BUILDING CODES.

Occasionally, the floor layer may be expected to install flooring on a bonded or floating wooden floor, a metal sub-floor or other surfaces. In the event of these products being overlaid, then it is highly recommended that the soundness and evenness of the subfloor be evaluated from the onset, as any movement or delamination will compromise the installation.

Traditional LVT/P products are very flexible and overlaying these products on any type of existing floor covering is not recommended as any imperfection or undulations will become visible and end up "grinning" through. It also renders the product liable to delamination in the event of the floor covering upon which it is installed failing.

In terms of wooden sub-floors, they must be dry, smooth and firm before the laying of flooring commences. Any surface contaminant, such as wax or paint, must be removed by sanding. Since wooden floors will rot if exposed to excessive moisture, all suspended wooden floors must have adequate cross-ventilation provided by air bricks. The flooring contractor must check that the air space below the floor is properly ventilated by inspecting the air bricks, which should be completely visible, clean and unblocked. If there are no air bricks, or if the air bricks are blocked off, the LVT/P flooring should not be installed. Apart from ensuring a dry, firm clean, surface, the flooring contractor should check that there is no movement of the wooden boards. Any loose boards must be secured to the joists.

Damaged boards should be replaced. All protruding nails or screws must be driven flush with the boards. Any small holes or cracks must be filled with a mixture of wood glue and sawdust and allowed to set hard before proceeding with the installation of flooring.
If, after all, preparation, the wooden boards are still springy and move, the wooden sub-floor should be completely covered with sheets of 25 mm shutter board (Marine Ply).
(See ***FloorworX Installation methodology of Shutter Boards over Wooden Flooring)***.

Under no circumstances should LVT/P floor coverings be installed over **woodblock floors**, as sealing the woodblock surface from the air will cause the woodblocks to rot. Such sealing may also prevent the woodblocks from breathing, causing them to swell and come loose from their adhesive bond, resulting in complete floor failure.

In the case of quarry tiles, terrazzo, ceramic or porcelain tiles, if the existing tiles are loose, cracked or not adhered to the substrate, the complete area of tiles has to be removed. It is then imperative that the floor is properly prepared with the relevant priming or bonding agent before the application of a reputable self-levelling screed compound. Overlaying LVT/P products is not recommended on Slate, as the product flakes off leaving an uneven surface that will delaminate, nor can it be installed over fire-retardant-treated plywood or preservative-treated plywood as it may cause problems with adhesive bonding.

When metal surfaces are encountered, they must be treated to remove all traces of grease and rust. Any embossing, rivets, welds or joints which stand proud need to be smoothed out through grinding. The surface must be swept and preferably vacuumed to remove all loose dust and dirt, and then primed using a suitable metal primer, before the application of FloorworX No 71 Contact Adhesive. The flash-off time of a solvent-based adhesive must be checked before any flooring is laid.

This product is also not to be installed in areas that have a risk of flooding such as saunas or outdoor areas, or over rubber-based substrates.

SUBFLOOR HEATING (Underfloor Heating)

Due to the sudden temperature changes, which have the potential to negatively affect this flooring, it is **not recommended** to install it over any **Electrical** Radiant Heating systems. Installation over these types of systems will compromise the manufacturer's warranty. If you wish to install over electrically heated floors, contact FloorworX Technical Department for further information.

THE BELOW INSTRUCTIONS ARE FOR **EMBEDDED WATER RADIANT HEATING SYSTEMS**

- In-floor **Water Based Radiant Heat**: The Flooring can be installed over a **water** radiant heating system that is embedded at a depth of 12mm.
- The maximum operating temperature should never exceed 27°C. The use of an in-floor temperature sensor (thermostat control) is recommended to avoid overheating.
- Turn the heat off for 24 hours before, during and 24 hours after installation when installing over water-based radiant heated subfloors.
- Before installing over newly constructed water radiant heat system, 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 and remains consistent between 18°C - 23°C before and during the installation.
- Once the installation is completed, the heating system should be turned on, at the ambient temperature and increased gradually by 5 °C degree increments every 12 hours until reaching normal operating conditions
- **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 floor could void the warranty in the case of failure. It is best to install the flooring over embedded water radiant floor heating systems and adhere to the guidelines listed above.
- Refer to the radiant heat system's manufacturer recommendations for additional guidance.
- Tip: - The best idea to maximize the results of your heating system is to have "ON" times with a comfort 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.

INSTALLATION - LAYOUT AND APPLICATION

1. GENERAL RULES

Ensure that all recommendations for substrate and job site conditions are met before beginning the installation. Beginning the installation is an implied acceptance of site conditions by the parties involved and liability for any failure directly related to inadequate site conditions becomes the responsibility of the installer and/or flooring contractor

2. ADHESIVE

IMPORTANT: FOR **OPTIMAL** ADHESION A HARD-SETTING ACRYLIC ADHESIVE (FLOORWORX NO 62) IS RECOMMENDED FOR RESIDENTIAL APPLICATIONS AND A TWO-PART POLYURETHANE OR EPOXY ADHESIVE FOR COMMERCIAL APPLICATIONS.

Recommendation:-
It is advisable to always perform localized bond testing to see the compatibility of the adhesive to the substrate and area of application, and to decide on the appropriate adhesive to be used for the installation, as well as the correct trowel size, based on the type and viscosity of the adhesive. If uncertainty prevails, contact the adhesive supplier/manufacturer for further assistance.

ADHESIVE BASED ON THE MANUFACTURER'S APPLICATION RECOMMENDATIONS
LVT/P's should be laid in:-
FloorworX No 62 water-based acrylic adhesive which has been spread using a trowel fitted with a TKB-A2 notched blade at a rate of approximately 5.5 to 6.0m² per litre (depending on the porosity of the floor), alternatively, FloorworX No. 55 two-part polyurethane adhesive which has been spread using a trowel fitted with a TKB-A2 notched blade at a rate of approximately 2.0m² per litre (depending on the porosity of the floor), alternatively, FloorworX No 71 contact adhesive applied to both the tile/plank on the previously prepared floor using a brush or paint roller at the rate of approximately 3.5m2 per litre per single application, where applicable.
Note the following:-

- Trowels will wear during use, check the trowel both before and during use to ensure that the proper, specified trowel notch is used and maintained.
- The adhesive must be spread evenly over the floor area with particular attention to edges – this will ensure that the product is fully bonded at the perimeters.
- Ensure that the material is rolled afterwards with a 68 kg three-sectional metal floor roller.
- Roll in all directions to ensure a firm bond. It is important to only spread sufficient adhesive that can be covered within the open time of the adhesive.
- Areas that cannot be rolled with the large roller e.g. abutments such as door frames or skirting boards should be rolled with a hand roller or pressed into the adhesive with a rubbing hammer.
- Always clean away excess adhesive with a damp cloth before it is allowed to dry.

(See ***FloorworX Technical Bulletin No. 35: FloorworX Adhesives and their Applications***).

IMPORTANT – FloorworX No 62 Acrylic Adhesive

The open time of the adhesive will depend on site conditions and the porosity of the substrate. It is best practice to conduct an adhesive bond test before starting the installation, as this will assist in identifying both the working characteristics of the adhesive (waiting and working time) for the site conditions and also any potential bonding problems. When the adhesive feels tacky but not wet, the flooring can be laid. Ensure that the flooring is laid into the adhesive before it dries.
Note:-

- If the flooring is laid into the adhesive too early, the volatiles that have not flashed off will be trapped. This will prevent the adhesive from curing and will result in a poor bond. The problem will manifest itself in the peaking or lifting of the flooring.
- If the flooring is laid into the adhesive too late, there will be little or no bond which will result in the flooring lifting. Trowel notch marks will show through the flooring once it has been trafficked.

IMPORTANT – FloorworX No 55 Two Part Polyurethane Adhesive

The adhesive system consists of a large container of base (5Kg) and a small container of activator (1Kg) which is mixed before spreading on the sub-floor. The 6 kg pack will give you coverage of between 10m² and 12m² per pack, depending on the sub-floor porosity.

- **Do not spread the adhesive over a larger area than can be covered within the open* time of the adhesive**
- Thoroughly mix the activator and the base, preferably using a stirrer attached to a low-speed drill. Mixing by hand takes at least 10 minutes. (When stirring, pay special attention to ensure that the adhesive on the sides and bottom of the container is thoroughly mixed).
- Once mixed, the adhesive should be spread immediately. (If left in the container, it will harden rapidly due to the heat generated by the curing reaction. (Pot life is ± 30 minutes; hence only mix that amount of adhesive which can be used).
- Once the adhesive has been spread, the tiles should be laid into it immediately. FloorworX No. 55 adhesive does not contain any water or solvents, so there is no flash-off time.
- Ensure that all excess adhesive is removed before it cures. Attempting to remove cured adhesive will damage the floor covering.

IMPORTANT – FloorworX No 71 Contact Adhesive

FloorworX No 71 is a trowel, brush or roller grade contact adhesive and will give you a coverage of approximately 3,5m² per litre (single surface application), depending on the sub-floor.
Caution must be exercised when using FloorworX No. 71 contact adhesive as the solvents contained in the adhesive are flammable and hazardous.

- Stir the adhesive thoroughly before use.
- Apply FloorworX No. 71 contact adhesive using a smooth trowel, brush or paint (mohair) roller to both the sub-floor and the reverse side of the material.
- Allow the adhesive on both surfaces to dry thoroughly.
- Ensure that the flooring is correctly aligned when it is laid because once adhered, the adhesive bond is strong and subsequent realignment will damage either the sub-floor or flooring material.

PRECAUTIONS

- Do not add solvent to the adhesive.
- Provide a fire extinguisher
- Ensure that the work area has adequate ventilation and that the relevant safety signs are displayed.
- Exercise extreme caution when handling the adhesive as the solvents used are flammable and toxic.
- Do not smoke.
- Keep the adhesive drums away from naked flames.

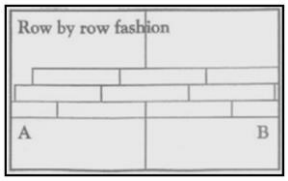
INSTALLATION

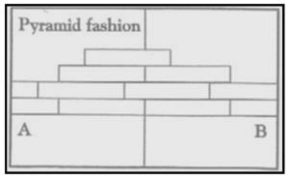
- Calculate the room surface before installation and plan an extra 5-10% of flooring for cutting waste.
- Do not install flooring over any type of soft substrate, including additional pad-type underlayment.
- It is customary to centre rooms and hallways, so borders are not less than half a tile or plank.
- It is preferable to lay boards following the direction of the main source of light. For the best result, make sure to always work with 3 to 4 cartons at a time, mixing the planks during the installation.
- In hallways and small spaces, it may be simpler to work lengthwise from one end using a centre reference line as a guide.
- Make sure the cut edges are always against the wall.
- Do not install the LVT/P flooring under direct sunlight, or expose the product to direct sunlight for long periods.
  - The sun is a relentless and powerful bleaching agent, and it is therefore important to protect your floor from direct sunlight by using curtains, blinds or similar.
- LVT/P flooring is not adapted for outdoor-installation

LAYOUT OF THE ROOM

- Find the centre point of the room. Strike a line.
- Obtain a true 90 º angle by using a 3-4-5 method.
- Strike a second line which will divide the room into four equal parts.
- Measure the distance from the centre to the wall, parallel to the direction of the plank.
- Divide the measurement by the width of the plank. If less than half remains as the border plank, adjust the point to compensate. This will give a larger border along the wall and reduce the chance of having to cut a small sliver of flooring to place along the wall.

FLOORING LAYOUT





- We recommend dry fitting first (without glue). Start the first row with a whole plank in length.
- Carefully place the first piece of plank at the junction of the chalk lines.
- Continue to lay the plank, making sure each plank is flush against the chalk line and tight against the adjoining plank.
- Make sure the plank is well seated into the adhesive paying special attention, to the edges.
- Lay row by row, or in a pyramid fashion (see below).
- It is strongly recommended to stagger the rows by at least 30 cm so that the short edge seams are not in a straight uniform line. However, you may want to try other patterns of planks to suit your taste.
- Make sure the first rows are in a perfect straight line. For instance, it is possible that your starting wall has a slight angle. You can check this by holding a chalk line and adjusting the straightness of your floor where necessary. Before placing the planks in the glue, please ensure you cut them to the correct size, planks can be cut net to vertical obstructions, but cannot be force fit.

BOARDERS

- Measure the distance from the last plank in the row to the wall.
- Mark the plank and cut it against the mark.
- Lay the plank in place, making sure that the cut edge is against the wall.

FITTING AROUND IRREGULAR OBJECTS

- Make or trace a pattern out of (heavy) paper or cardboard to fit around pipes and other irregularities.
- Place the pattern on the plank, trace cutting along the trace lines.

CUTTING

- To make cuts simply measure and mark the plank. Score and snap using a sharp utility knife.

FINISHING THE INSTALLATION

- First impressions may have more impact on the client than hours of skilled fitting; therefore the entire installation should be cleared of scrap material and debris, the floor swept or vacuumed and any traces of adhesive residues removed from the floor and skirtings.
- As with all newly installed floor coverings, LVT/P's should be protected after completion of the installation to protect the floor covering from other trades or site traffic before project completion.
- The use of solvents to remove dried adhesive may discolour the floor. Therefore, you should first test the solvent on either a scrap piece or in an inconspicuous area.
- Ideally, the adhesive should be able to cure 100% before moving in furniture. If permissible, leave the floor untouched for a suitable period after installation, between 18°C and 23°C, to allow for the curing process to complete.
- It is recommended that for rooms with a high moisture level like bathrooms, a waterproof transparent silicone must be used around the perimeter.
- Replace the skirting, allowing slight clearance between the skirting and the planks.
- Nail the skirting to the wall surface, **not through** the flooring.
- At doorways and at other areas where the flooring planks may meet other flooring surfaces, it is preferable to use a "T" moulded section, or similar, to cover the exposed edge.
- Leave a small gap between the planks and the adjoining surface.

MAINTENANCE

- When possible, use appropriate window coverings, such as drapes, window treatments, or UV-tinting on the windows, to protect the product from prolonged exposure to intense heat
- Sweep or vacuum daily using soft bristle attachments. Do not use a vacuum that is equipped with a beater bar.
- Do not buff or sand the surface.
- Clean up any spills immediately.
- Damp mop as needed and use neutral cleaners recommended for vinyl flooring.
- 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 or an appropriate dirt-trapping system at outside entrances to reduce the amount of dirt being trafficked into the area. Do not use mats with latex or rubber backing since these backings can cause permanent discolouration.
- Do not use abrasive cleaners, bleach or wax to maintain the floor.
- For stubborn spills use low odour 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.

Should you encounter a problem not dealt with in this bulletin, contact your local FloorworX Branch or FloorworX Technical Department.

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