VERGE

VERGE PRO

DRYBACK LVT/LVP
(LUXURY VINYL TILE/PLANK)
INSTALLATION GUIDE

Updated: 01-28-19

Note: This document supersedes all printed and electronic HOMs previously distributed for Verge Dryback LVT.

INTRODUCTION

This LVT product is a high-performance, glue-down flooring product, designed for permanent installations using the full-spread professional installation method, applied with a premium LVT adhesive.

Good preparation, communication between all parties, and attention to detail when following instructions are key to a successful installation.

This glue-down Luxury Vinyl Plank/Tile should only be installed by professional flooring mechanics that have demonstrated successful installations of jobs in similar size and scope. For the most secure warranty protection, this flooring should be installed in strict accordance with the information and procedures outlined in this document. It is highly recommended that you review this document entirely before starting a flooring installation.

It is important to avoid problems from the outset. If you are unsure of any information provided in this document or are having a problem with your installation, please stop your work and contact Customer Service for additional guidance.

PRODUCT DESCRIPTION / CLASSIFICATION

Luxury Vinyl Tile and Plank (LVT/LVP)

Classification: (ASTM F1700): Class III, Type B

Overall Gauge: **Verge -** 0.080" (2.0mm)
VergePRO - 0.098" (2.5mm)

Wear Layer: **Verge -** 8mil (0.20mm)
VergePRO - 22mil (0.55mm)

GENERAL INFORMATION

The key to a successful and trouble-free installation is thorough preparation. Do not install LVT flooring without first performing a thorough on-site evaluation (including jobsite testing), ensuring that subfloor preparations are finished, and that the work of all other trades has been completed. Site conditions must comply with the information provided within this document, with the requirements detailed in ASTM F710, “How to Prepare Concrete Substrates to Receive Resilient Flooring,” as well as relevant building codes, and local, state and national regulations. Note: It is highly recommended to have substrate moisture and pH testing conducted by a certified ICRI (International Concrete Repair Institute) Tier 2 technician. Documentation of moisture and pH test results may be required when submitting LVT claims.

- LVT is available in different sizes and formats. **Note: Be aware that some LVT products are square edge and some are micro-beveled. Mixing different edge treatments together will require hand beveling of the square edge material**.
- LVT is intended for interior use only and is suitable for above-grade, on-grade and below-grade applications. However, LVT should not be installed in locations where the substrate beneath the building structure is exposed to the elements.
- LVT is not recommended for exterior installations or for use in areas that are not climate-controlled.
- LVT is recommended for the use over properly prepared concrete, suspended wood, metal and other suitable substrates.
- Acclimate flooring, adhesives, and the job-site: only install LVT in climate-controlled structures consistently maintained at temperatures between 65°-85°F (18°-29°C) and 35%-85% RH a minimum of 48 hours before, all times during, and continuously after installation.
- Protect LVT from foot traffic for 24 hours after installation. Do not wash LVT for five days after installation.

JOBSITE INSPECTION AND TESTING

Prior to installation, plan and attend an on-site construction meeting with the General Contractor, Architect, and Property Owner to review all requirements and inspect site conditions as outlined in this document, as well as those outlined in ASTM F710, and any relevant building codes, and local, state or national regulations. Flooring installation should not begin until all site conditions have been assessed, testing has been completed, the subfloor has been prepared, and all conditions are in compliance. Defects should be addressed immediately and corrected before installing LVT Flooring. Installation of material constitutes acceptance of all conditions.

1. The building must be completely sealed before jobsite testing can begin (ASTM F710). This includes: windows, doors, roofing, walls, etc.
2. Interior environmental conditions must be maintained at 65°-85°F (18°-29°C) and 35%-85% RH a minimum of 48 hours before testing, and at all times during testing (ASTM F710).
3. Plan, prepare, and protect the substrate moisture test-sites for the duration of the testing in order to achieve valid results.
4. Subfloor flatness for all substrates shall not exceed 3/16" in 10 ft. (3.9mm in 3m).

MATERIAL RECEIVING, HANDLING AND STORAGE

1. Upon receipt, immediately remove any shrink-wrap and check material for damage, and that the material is of the correct style, color, quantity, and run number(s).
2. Immediately report any discrepancies.
3. General Storage: Store all materials flat and off of the floor in an acclimatized, weather-tight space between 65°-85°F (18°-29° C). **Do not double-stack pallets.**
4. Jobsite: Acclimate LVT material and adhesives in the acclimatized jobsite between 65°-85°F (18°-29°C) and 35%-85% RH for 48 hours prior, all times during, and maintain temperature continuously after installation. Spread unopened cartons no more than 6 cartons high and at least 4" apart. Keep away from heating and cooling ducts and direct sunlight. If permanent HVAC is not yet operational, temporary means should be used to maintain the noted temperature and RH.

SUBFLOOR PREPARATION

LVT can be installed on wood, concrete, terrazzo, stone, and many other properly prepared subfloors, including in-floor heating. One key factor to ensuring an excellent, finished appearance of an LVT floor is careful subfloor preparation. The information provided in this document includes general recommendations on how to prepare various types of subfloors. The selection of all materials, including: moisture-mitigation systems, self-leveling compounds, floor patch products, wood underlayments, and any other ancillary products are dependent upon existing conditions. The application of subfloor preparation materials must be in strict accordance with the manufacturer's instructions. **All warranties and guarantees pertaining to the suitability and performance of any preparation or ancillary product rests solely with that material manufacturer or the Flooring Contractor. The condition of the subfloor and bond issues resulting from the use of non-recommended, improper, or incorrectly prepared adhesives, sealers, embossing levelers, patches, concrete, gypsum-based products and other such items, are the sole responsibility of the Flooring Contractor, General Contractor, and/or manufacturer of the particular sub-flooring product.**

CONCRETE SUBFLOORS

GENERAL CONDITIONS

All concrete floors, regardless of age or grade level must be properly cured, free of excess moisture, and prepared in accordance to the most current version of ASTM F710 (Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring). Below and on-grade concrete subfloors must have a suitable vapor retarder properly installed beneath the slab (ASTM E1745). The surface of concrete floors to receive resilient flooring shall be dry, clean, smooth, and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of resilient flooring to the concrete, or cause a discoloration of the flooring from below (ACI 302.1 and ASTM F710). Non-chemical methods for removal, such as scraping, abrasive cleaning, or bead-blasting, including methods described in ASTM D4259 (Standard Practice For Abrading Concrete), may be used on existing slabs with deleterious residues. In all cases, the subfloor must meet the moisture and pH requirements prior to installation.

Warning: Concrete Subfloors Containing Coal Fly Ash: Fly ash is routinely used in cement in LEED-certified projects. No doubt it will continue to grow in popularity as LEED points become the norm in commercial construction. Fly ash contains silicon dioxide and calcium oxide. Silicon is difficult to bond to, and calcium oxide is a caustic, alkaline by-product which plays havoc on flooring adhesives. Installing floors on concrete substrates containing coal fly ash can be problematic and therefore may require aggressive scarification or shot blasting prior to installation of flooring materials. Perform bond test prior to the installation of LVT flooring. Refer to the manufacturer's instructions of such subfloor preparation products for guidance regarding the proper use of their products.

Moisture and Alkalinity: Perform either the In-Situ Relative Humidity (RH) test (ASTM F2170) or Moisture Vapor Emission Rate (MVER) test (ASTM F1869) in strict accordance to the most current version. Test surface alkalinity per ASTM F710. Refer to the adhesive manufacturer for acceptable moisture and pH ranges. Follow the adhesive instructions located on the product label, or contact the manufacturer for further information. If test results exceed recommended adhesive tolerances for moisture, then the area must be allowed to further dry to an acceptable level, or remediated using a moisture-mitigation system before installing LVT. **(Note: see "Moisture Mitigation" section, page 6).** Concrete floors should be tested for pH following the procedures outline in the most current version of ASTM F710. Rinsing and vacuuming with clean, potable water is the best way to lower surface pH, but it will not prevent future issues. Do not acid-rinse concrete floors to neutralize pH. Some moisture-mitigation systems are designed to control pH. Electronic meter testing is not considered a replacement for a Calcium Chloride Test or Relative Humidity Test.

ATTENTION: Mold and mildew grow only in the presence of moisture. Jobsite mold and moisture issues must be addressed and corrected prior to installation. Please visit www.epa.gov/mold for information about safely preventing and removing mold, mildew and other biological pollutants.

Floor Flatness: The surface shall be flat to 3/16" in 10 ft. (3.9 mm in 3 m). Level high spots by sanding, grinding, etc. and fill low spots. Smooth surface to prevent any irregularities or roughness from telegraphing through the new flooring.

Concrete PSI: Concrete substrates must have compression strength of 3,000 psi or greater.

Concrete Absorbency: Be aware that absorbent (porous) and non-absorbent (non-porous) subfloors may require different trowel sizes for adhesive application. Check absorbency by randomly placing 1" diameter droplets of water directly onto the surface of the concrete subfloor. If the water droplet does not dissipate within 60-90 seconds, then the substrate is considered non- absorbent. Even after removing old, glued-down flooring materials, do not assume that the concrete is absorbent (porous). Often, the old adhesive has sealed the floor. Follow adhesive manufacturers instructions for recommended trowel sizes.

Chemical Abatement / Other Contaminants: The use of adhesive removers or solvents in the abatement process or removal of existing or old adhesives is prohibited, and may void the warranty. If oil, grease or other contaminants have deeply penetrated the concrete and cannot be thoroughly removed, do not install LVT Luxury Resilient Flooring.

Expansion Joints / Isolation Joints: Such joints (or other moving joints) are incorporated into concrete floor slabs in order to permit movement without causing random cracks in the concrete. These joints must be honored and not be filled with underlayment products or other materials, and floor coverings must not be laid over them. Expansion joint covering systems should be detailed by the architect or engineer, and based upon intended usage and aesthetic considerations.

Treating Surface Cracks: Cracks, grooves, depressions, control joints, or other non-moving joints, and other irregularities shall be filled or smoothed with high-quality Portland cement-based patching or underlayment compounds for filling or smoothing, or both. Some surface cracks may need to be chased and filled. Patching or underlayment compound shall be moisture, mildew,and alkali-resistant, and shall provide a minimum of 3,000 psi compressive strength after 28 days, when tested in accordance with Test Method ASTM C109 or ASTM Test Method C472, whichever is appropriate. Refer to manufacturer's instructions of such subfloor preparation materials for more details.

Self-Leveling and Patching: For concrete subfloors, use only high-quality Portland cement or synthetic, gypsum-based materials (minimum 3,000 psi compressive strength per ASTM C109), and allow to dry according to manufacturer's instructions. Self-leveling compounds may have very high moisture content, thus requiring longer curing times. Note: Adding latex to levelers will normally make the floor NON-POROUS. Test for porosity and follow non-porous adhesive recommendations, if necessary. **FOLLOW THE MANUFACTURER'S INSTRUCTIONS, AND DO NOT OVER-WATER PATCHING AND LEVELING COMPOUNDS.** The installer is responsible for observing cure times, moisture content, adhesive bonding, and the structural integrity of any leveling or patch compound used.

WARNING: Do not lightly skim-coat highly polished or slick, power-troweled concrete surfaces. A thin film or residue of floor patch will not bond sufficiently to a slick subfloor and may become a bond breaker, causing tiles to release at the interface of the subfloor and patching material. In addition, it may be an unnecessary, added expense

NEW CONCRETE

New concrete subfloors contain a high percentage of residual moisture. Allow new concrete, including lightweight and gypsum toppings, to cure for at least 90 days before conducting moisture tests. In lieu of wet curing, quite often curing agents are applied to concrete slabs to retard the escape of water during the initial curing process. Compounds left on the slab can retard the escape of free-water during the drying process and eventually break down over time after the flooring is installed, affecting the integrity of the bond. Solvent-based adhesives will not adhere, and water-based adhesives will not set-up and properly cure. **Note: In the event of adhesion failure, the responsibility for warranties and performance guarantees rests with the compound manufacturer.**

OLD CONCRETE

Old or existing concrete subfloors may pose more of a risk than new concrete, therefore requiring special attention. Remove existing floor covering, all traces of old adhesives, paint, or other contaminants by scraping, sanding, grinding, shot-blasting or scarifying the substrate. **The use of adhesive removers or solvents in the abatement or removal of existing or old adhesives is prohibited and may void the LVT warranty.**

WARNING: ASBESTOS & SILICA – Refer to the current Resilient Floor Covering Institute (RFCI) document "Recommended Work Practices for Removal of Existing Resilient Floor Coverings" for guidance.

POWER-TROWELED CONCRETE

Power-troweled concrete surfaces can be very slick, relatively non-absorbent, and may produce surface laitance. These conditions can have an adverse effect on the bondability of subfloor preparation materials, flooring adhesives, and therefore mechanical preparation (such as shot-blasting or scarification) is recommended. Always perform bond tests to determine suitability.

Lightweight Concrete: The minimum density of lightweight concrete should be greater than 90lbs. per cubic foot, with minimum compression strength of 2,500 psi or greater. Perform only In-Situ Relative Humidity (RH) test in strict accordance to the latest edition of ASTM F2170. Existing lightweight concrete or gypsum substrates may need to be primed prior to the installation of flooring. Contact the Subfloor Preparation manufacturer for recommendations, and always perform a bond test before proceeding. You can also contact Customer Service.

In-Floor Heating: Radiant heating systems must be cast ½" below the surface of the concrete slab, and should be operating at least 2 weeks before installing LVT flooring. Set the temperature of the radiant heating system to 68°F 48 hours before, at all times during, and 72 hours after installation. The temperature of the radiant heat floor may be gradually increased 72 hours after installation, but the surface temperature should never exceed 85°F. Contact the manufacturer of your radiant heating system for further recommendations.

MOISTURE MITIGATION

Concrete subfloors that exceed the maximum moisture value per the specified adhesive must be brought into compliance prior to the installation of LVT flooring (Refer to the adhesive manufacturer for moisture tolerances). Due to the complexities associated with concrete moisture vapor emissions and movement of soluble salts in concrete subfloors, a specific product is not warranted. The use of products that meet the criteria listed in ASTM F3010 (Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings) are recommended. Refer to recommended Subfloor Preparation Materials under the "Subfloor Preparation" section in this document.

WOOD SUBFLOORS

GENERAL CONDITIONS

LVT is recommended for use on suspended wood subfloors. Wood subfloors should have standard, double-layer construction with a minimum total thickness of at least 1" (25mm). As a finish layer, use minimum ¼" (6mm) thick, APA-rated "underlayment grade" plywood with a fully sanded face, or other underlayment panel that is appropriate and warranted for the intended use. Follow manufacturer's instructions. Wood subfloors must be sturdy, sound, and flat within 3/16" in a 10-foot radius, and should not slope more than 1" per 6 ft. in any direction, with a minimum 18" (45cm) of well- ventilated air space underneath. Crawl spaces should be insulated and protected by a vapor barrier. Do not install LVT flooring over a sleeper type subfloor, or over plywood that is in direct contact with a concrete slab. All wood substrates must meet national and local building code requirements. Test wood subfloors and underlayment panels using a suitable wood-moisture meter. The maximum moisture content is 14%, and the readings between the subfloor and underlayment panels should be within 3% prior to installing the underlayment panels.

UNDERLAYMENT PANELS:

Underlayments for resilient flooring must be:.

- Structurally sound
- Specifically designed and warranted for resilient flooring
- A minimum of ¼" (6mm) thick
- Of a smooth surface, so as to prevent telegraphing
- Able to resist indentations
- Free of any substances that may cause flooring to stain

Plywood: Use only American Plywood Association (APA) rated underlayment grade plywood, with a minimum grade of "BB" or "CC", and minimum ¼" thickness. Allow expansion spacing between plywood butt joints of 1/32"–1/16", or follow manufacturer's instructions. When installing underlayment, stagger cross-joints 4' on an 8' panel (minimum 16"), lightly butt the panels, and set fasteners flush or slightly below the surface level of the underlayment. Fill underlayment seams, nail holes, and any indentations with an approved Portland Cement-type floor patch, allow recommended drying time, and sand the patch until smooth. Otherwise, use manufacturer-certified poplar, birch, and spruce plywood underlayment, with a fully sanded face and exterior glue. All dust must be COMPLETELY removed to ensure a strong adhesive bond. Vacuum or sweep thoroughly, then apply adhesive.

Lauan Plywood: Use only Type 1 lauan exterior grade "BB" or "CC" for underlayment. The use of lesser grades of lauan plywood is unacceptable, and may cause severe problems when used as an underlayment, including: discoloration, indentation, loss of bond, and delamination.

NOTE: The use of lauan plywood and other extremely porous wood underlayments will reduce the flash and working time of adhesives. It is best to apply an acrylic-based primer-sealer to any porous substrate prior to installing LVT. A manufacturer's certification of lauan grade must accompany any claim involving the use of a lauan underlayment.

UNAPPROVED SUBSTRATES

Remove the floors listed below and refer to the appropriate "General Conditions" subsection under the "Concrete Subfloors" and "Wood Subfloors" sections. For glued-down floors, remove old adhesive before installing LVT. Encapsulate adhesive and cutback residue. Any appearance- or performance-related issues associated with the underlayment are the responsibility of the flooring contractor and/or underlayment manufacturer.

- Asphalt Tile
- Carpeting/Carpet Pad
- Cementitious Tile Backer Boards
- Chipboard
- Cushion-Back Sheet Vinyl
- Floating Floors
- Glass Mesh Tile Boards
- Hardiboard
- Hardwood
- Hardwood/Engineered Hardwood Over Concrete
- Masonite
- OSB
- Parquet
- Particleboard
- Plywood - Fire-Retardant
- Plywood - Knotty
- Plywood - Preservative-Treated / Treated
- Rubber Tile
- Self-Stick Tile
- Sleeper Substrates
- Strip Wood

NOTE: Various Federal, State, and Local government agencies have regulations governing the removal of in-place asbestos-containing material. If you contemplate the removal of a resilient floor covering structure that contains (or is presumed to contain) asbestos, you must review and comply with all applicable regulations. Do not sand, dry sweep, dry scrape, drill, saw, bead blast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphalt "cut-back" adhesive, or other adhesive. These products may contain asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of bodily harm. Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content. RFCI's Recommended Work Practices for Removal of Resilient Floor Covering are a defined set of instructions addressed to the task of removing all resilient floor covering structures. For further information, visit the Resilient Floor Covering Institute website at www.rfci.com.

OTHER SUBFLOORS

GENERAL CONDITIONS

It is always best practice and recommended to remove existing flooring and start new with the original base. Recognizing that there are certain situations in which this is not possible, existing flooring materials such as terrazzo, marble, ceramic tile, or quarry tiles may be a suitable substrate for LVT if properly prepared. Note: Special attention in the preparation of these substrates must be taken. Consult with substrate preparation material supplier for appropriate material selections, application requirements, and warranty information. The responsibility of the assessment, determination, and selection of the substrate preparation material, along with application and product performance, rests with the applicator and preparation material provider.

Terrazzo and Stone Subfloors: These materials are porous and allow moisture to pass through. As such, the subfloor must be tested for moisture and pH, as outlined in the "Moisture and Alkalinity" subsection under "Concrete Subfloors". If the moisture and pH do not meet the tolerances of the appropriate adhesive, moisture mitigation is required. Any loose or damaged tiles must be repaired or removed. Thoroughly clean the surface to remove all old sealants, varnishes, oil, grease, wax, or finishes. Roughen smooth or glazed surfaces to provide a mechanical key for self-leveling compounds or preparation materials. Follow the manufacturer's recommendations for such preparation materials.

Existing Resilient Floors: LVT may be installed over a **single layer** of existing resilient flooring, on-grade and suspended moisture-free substrates (never below grade), when properly prepared. Never install over existing cushion vinyl, rubber, or slip-retardant flooring. The existing material must be fully and firmly bonded to an approved subfloor or underlayment. All polishes, waxes, floor finishes, and contaminants must be properly stripped. Indented or damaged areas must be replaced or repaired. Use appropriate patching, repair or embossing levelers.

Embossing Levelers: Use embossing levelers on sheet goods with textures that could telegraph through flooring. Self-leveling compounds must fully cure according to manufacturer's instructions before installing LVT flooring. The flooring contractor is fully responsible for moisture and leveler-related issues. Note: The use of embossing levelers on sheet goods will not create a porous subfloor.

Metal Substrates: It may be possible to install directly over steel, stainless steel, aluminum, and lead substrates using the appropriate adhesive but confirm and follow the adhesive manufacturers recommendations. These types of substrates must be thoroughly cleaned, dried and free of dust, dirt, wax, paint, grease, or any other contaminates that may interfere with the adhesive bond. The surface may require cleaning with mineral spirits to remove oil or grease prior to abrading or lightly sanding the surface to achieve a satisfactory bond. A bond test should be performed prior to installation. Metal substrates require the non- porous application method. Due to the softness of lead, it is recommended that it be coated with a minimum of 1/8" cement-based underlayment. While this may not be a requirement for thin applications of lead, it must be understood that lead will indent quite easily. A bond test should be performed prior to installation. Contact Customer Service for details.

Polymeric Poured Floors: These type of floors are generally two-part, resin-based, epoxy paints or coatings. It's very difficult to tell whether or not they are well bonded to the substrate and are subject to issues with excessive moisture. Thus, it is recommended that polymeric poured floors be removed, so as to avoid potential problems.

SPECIAL CONSIDERATIONS

Radiant Heat: Radiant heating systems must be cast ½" below the surface of the concrete slab, and should be operating at least 2 weeks before installing LVT flooring. Set the temperature of the radiant heating system to 68°F 48 hours before, at all times during, and 72 hours after installation. The temperature of the radiant heat floor may be gradually increased 72 hours after installation, but the surface temperature should never exceed 85°F. **Note: For best performance it is recommended to use a Two-Part Epoxy Adhesive over floors with radiant heating. Follow adhesive manufacturers instructions.**

Removal of Existing Resilient Flooring - Asbestos Abatement: It is recommended following the Resilient Floor Covering Institute Guidelines for removal of existing tile and mastic. Existing resilient flooring and adhesive should be mechanically removed. The use of adhesive removers or solvents is strictly prohibited. Any mastic remover residue including Soy or Citrus products can attack and break down the new adhesive, resulting in tiles releasing from the subfloor. Floor covering warranties do not cover instances where adhesive removers or solvents cause damage to the flooring or installation failure.

Concrete Curing, Sealing, Hardening or Parting Compounds: Wet curing concrete for seven days is recommended, if at all possible. This will prevent the need to use curing, sealing, hardening, or parting compounds. Curing compounds leave a film that can interfere with the adhesion of floor coverings, and thus their use should be avoided. Some contain wax, soap, oils, or silicones, and must be removed prior to installing resilient flooring. Mechanically remove compounds by using a concrete or terrazzo grinder, or by shot-blasting. Some materials are advertised as being "dissipative," but should not be taken for granted. Always conduct bond tests to determine the need for removal (see "Adhesive Bond Testing" section, directly below).

ADHESIVE BOND TESTING

Use the following test to determine if a subfloor is compatible for use with the adhesives, or to determine if the porous or non-porous adhesive application method is required: Using the flooring and adhesive suitable for the subfloor, install a 3' x 3' section following the recommended installation procedures. Tape the edges with duct tape to prevent the adhesive from prematurely drying. Select light traffic areas, such as those located next to walls or columns. The adhesive should be dry and the flooring should be difficult to remove after 48 hours. Note: the adhesive is dry at this point, but not cured. Full cure and maximum bond will not occur for 6-8 days. On large installations, tests should be performed every 50 linear feet.

ADHESIVES

GENERAL INFORMATION:

Areas of usage and subfloor conditions determine the appropriate adhesive. For areas with high point loads, rolling loads, topical spillages, radiant heat or direct sunlight only use Two Part Epoxy. Always use new trowels to ensure proper adhesive coverage.

INSTALLATION

GENERAL INFORMATION

Before starting the installation, verify that the material is of the correct style, color, quantity, and run numbers, and ensure that the correct adhesive has been selected for area of usage. Also, confirm that all pre-installation requirements, as detailed in the remainder of this section, have been satisfactorily completed. Start of flooring installation indicates acceptance of current subfloor conditions and full responsibility for completed work.

CHECK RUN NUMBERS AND MANUFACTURE DATE

Locate the run number on the short end of each carton and verify that all of the material for your job is from the same run. Minor shade variations within the same run number contribute to the natural look of LVT. To avoid noticeable shade variations, do not install material from different runs across large expanses.

To determine manufacture date, locate the run number on the short end of the carton. It is the eight-digit number separated by decimal points beginning with the two-digit day, then the two-digit month, and finally the four-digit year. **EX: 15.07.2018 (Day.Month.Year)**

- Acclimate tiles (keep cartons flat), adhesive, jobsite, and subfloor to a stable condition between 65°-85°F (18°-29°C) and 35%- 85% RH for a minimum of 48 hours before and after installation.
- Confirm quantity of LVT flooring and adhesive are sufficient for area to be installed. Check material for visual defects before installation. Installation of flooring acknowledges acceptance of materials.
- Make sure all surfaces to be covered are completely clean, dry, and smooth, and that all necessary subfloor preparation has been properly completed and documented.
- Perform final acceptance inspection of substrate.
- Protect adjacent work areas and finished surfaces from damage that could occur during product installation.
- LVT should be the last material installed, so as to prevent other trades from disrupting the installation and adhesive set-up, and to prevent damage to the floor.

LVT can come in plank, rectangular, and square tile formats. Install tiles running in the same direction (block or staggered), quarter-turned or as specified by architect. LVT plank flooring should have end-joints offset by at least 6" and should be installed in a staggered manner, so as to create a random appearance that avoids alignment of end-joints. LVT can be laid out to run either parallel or diagonal to the room or primary wall. The following conditions must be given consideration when determining how LVT will be installed:

Layout: Layout shall be specified by the architect, designer or end user (refer to architectural drawings).

- Establish center lines and determine starting point to balance the installation by having equal tile widths on opposite sides of room. This can be facilitated by measuring or dry-laying tiles and marking baselines.
- **Wet-Set Applications:** The room layout must be arranged so that all flooring can be installed while working off of freshly installed tiles. This will keep tiles from shifting, minimize adhesive displacement, and prevent wet adhesive from oozing up and getting onto the surface of the tiles. This can be accomplished by snapping chalk lines to create work zones that are no wider than a comfortable arm's reach, and in multiples of the tile or plank width. Periodically pull back a tile or plank during installation and check for adhesive transfer to backing.
- When all preparatory work is satisfactorily completed, including dry fitting cut tiles (if applicable), proceed with installation. Inspect each tile for visual defects before installing. Installation of flooring implies acceptance of materials.
- **Protecting Newly Installed Floors:** Newly installed flooring must be protected while the adhesive sets, and also protected from damage of other trades. Early foot traffic, as well as point or rolling loads, can cause shifting of tiles, adhesive displacement, or breaking of the bond between the adhesive and the tile or substrate.

Always start with a clean jobsite. All trades must finish before installing LVT. Carefully inspect each plank or tile for defects prior to installation, and do not install damaged material. Be sure to check run numbers/manufacture dates prior to installing.

TILE INSTALLATION

STEP 1: SQUARE THE ROOM

Square the layout of the room, find the center of one end of the room. Locate the same point at the other end-wall. Snap a chalk line between these points to mark the center line on the floor. Then, measure along this center line to find the middle of the room. At the center point, mark off a line across the room at precise right angles to the first line This can be accomplished using the 3-4-5 triangle method. Starting from the center point, make a mark measuring 4 feet vertically and 3 feet horizontally. Connect the marks with a diagonal line to complete the triangle. If the diagonal line does not measure exactly 5 feet, then the center crossing lines are not at a true right angle. (See Figure 1)

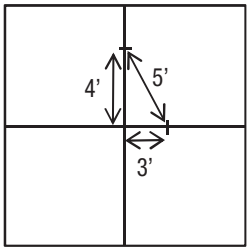

Figure 1

TIP: Multiples of the 3-4-5 triangle method may be used for greater accuracy in large rooms (e.g. 6-8-10, 9-12-15, etc.).

STEP 2: BALANCE THE ROOM

Either measure or dry-lay a row of tiles from the center line to the side wall to determine the size of the first and last tiles. If the resulting border is too small in either direction, move the row of tiles over one-half tiles' width and snap a new line. This becomes your new starting line. (See Figure 2)

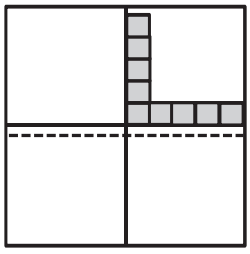
Figure 2

TIP: Use the dimensions of the room to calculate the size of the first tile without dry-laying.

STEP 3: INSTALL THE TILES

After determining the layout and snapping center line, spread adhesive and install flooring as outlined below using the dry to touch or wet-set application method. (See Figure 3)

Apply adhesive as recommended on the label.

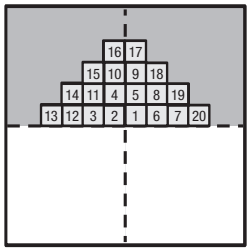

Figure 3

Pressure Sensitive (dry-to-touch) Applications: Lay tiles from the center of the room in a pyramid fashion while working towards the walls as shown in Figure 3. The dry, tacky adhesive makes it possible to work on top of the material without compromising the installation.

Wet-Set Applications: The room layout must be set-up so that all flooring can be installed while working off of freshly installed tiles. This will keep tiles from shifting, minimize adhesive displacement, and prevent wet adhesive from oozing up and getting onto the surface of the tiles. This can be accomplished by creating work zones outlined with parallel chalk lines. Create work zones that are no wider than the installer's comfortable arm reach and in multiples of the tile width. Measure and snap chalk line parallel to the established base line. Spread adhesive within the work zone, and begin installing tiles using the row-by-row method, as shown in Figure B under "LVT Resilient Plank Installation" (next section).

TIP: Do not apply more adhesive than can be worked within the recommended working time. Always follow the adhesive manufacturer's recommendations.

IMPORTANT: All LVT flooring must be rolled with a minimum 100lb roller after installation. Use a hand roller in areas that cannot be reached with a 100lb roller.

PLANK INSTALLATION

STEP 1: SQUARE THE ROOM

To square the layout of the room, find the center of one end of the room. Locate the same point at the other end-wall. Snap a chalk line between these points to mark the center line on the floor. Then, measure along this center line to find the middle of the room. At the center point, mark off a line across the room at precise right angles to the first line. This can be accomplished using the 3-4-5 triangle method. Starting from the center point, make a mark measuring 4 feet vertically and 3 feet horizontally. Connect the marks with a diagonal line to complete the triangle. If the diagonal line does not measure exactly 5 feet, then the center crossing lines are not at a true right angle. (See Figure A)

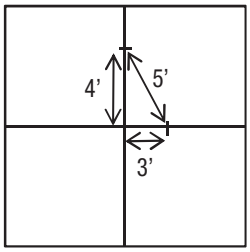

Figure A

TIP: For large rooms, multiples of the above dimensions may be used to obtain greater accuracy. (6-8-10, 9-12-15, and so on.)

STEP 2: INSTALL THE PLANKS

After snapping the center starting chalk lines, spread the appropriate adhesive on the center lines, leaving portions of the lines at center and near each wall uncovered. Start laying the planks from the right angle formed by the center lines. Lay the material from the center of the room, working towards the walls as shown. It is imperative that the first row is placed precisely and accurately against the reference line as you install. Make sure each plank is flush against the chalk line and tight against the adjoining plank. The ends of the planks should align perfectly. Lay row-by-row or in pyramid fashion (See Figures B & C).

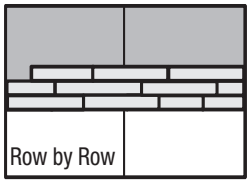

Figure B

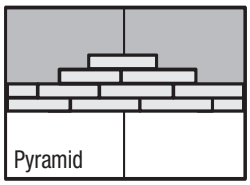

Figure C

TIP: Pay special attention to the edges of the planks. Do not slide the planks through the adhesive as you install.

IMPORTANT: All LVT flooring must be rolled with a minimum 100lb roller after installation. Use a hand roller in areas that cannot be reached.

Note: Bond issues resulting from the use of non-recommended adhesives are not warranted. All warranties and guarantees pertaining to the suitability and performance of any product not recommended rests with the material manufacturer or the installation contractor. The condition of the subfloor and bond issues resulting from the use of non-recommended, improper, or incorrectly prepared adhesives, sealers, embossing levelers, patches, concrete, gypsum-based products and other such items, are the sole responsibility of the installer and/or manufacturer of the particular sub- flooring product.

CARE & MAINTENANCE

LVT DRYBACK GENERAL CARE & MAINTENANCE

LVT dryback flooring is manufactured with a high-performance, UV-cured urethane and ceramic bead coating, which provides improved maintenance characteristics and options for the end-user in commercial environments. All floor coverings require some care to look their best, and many problems can be prevented before they occur. The area of usage, type of traffic, and frequency of traffic on the floor will determine the type and frequency of maintenance needed. Proper care and maintenance are an essential part of keeping your LVT flooring attractive and safe. These guidelines will help to maintain the appearance of and extend the life of your LVT flooring.

FLOOR-CARE BEST PRACTICES

- Sweep or vacuum daily; use only vacuums without beater bars.
- Protect the floor from tracked-in dirt and grit particles by using walk-off mats at all outside entrances.
- Avoid the use of rubber-backed mats, as certain rubber compounds can permanently stain vinyl.
- In order to prevent indentations and scratches, provide glass, plastic, felt, or other non-staining cups with flat under-surfaces not less than 2" wide for the legs of heavy furniture or appliances. Equip swiveled-type office chairs and other rolling furniture with broad-surface, non-staining casters at least 2" in diameter. Remove small diameter buttons from the legs of straight chairs and replace with metal or felt glides that have bearing surfaces no less than 1" in diameter.
- Always use the proper equipment to protect the flooring from damage that could be caused by the moving of heavy fixtures or appliances.
- Never use anything coarser than 3M-equivalent red cleaning pads or brushes on LVT resilient flooring (see Maintenance Procedures section).
- The use of aggressive strippers, such as mop-on/mop-off, no-scrub and no-rinse strippers, may affect the adhesive bond.
- Protect your floor against burns. Burns from the glowing end of cigarettes, matches, or other extremely hot items can damage LVT floors.
- Do not flood floor or subject to frequent standing water.
- Only use premium cleaning products that are designed for Luxury Vinyl Tile (LVT) floors with urethane coatings.
- All LVT floors have good resistance to stains and are not affected by most common spills. However, any spill should be cleaned up immediately. The longer the spilled materials are left on the floor, the greater the risk of permanently staining the floor. For information regarding the proper method or solution to use on a specific stain, contact Customer Service.
- Avoid exposure to direct sunlight for prolonged periods. The use of drapes or blinds is recommended during peak sunlight hours. Prolonged exposure to direct sunlight can result in discoloration, and excessive temperatures might cause tiles or planks to expand.

MAINTENANCE PROCEDURES

Safety: When performing wet maintenance, always use proper signage and prohibit traffic until the floor is completely dry. Always use caution and follow electrical equipment manufacturer's safety instructions.

NO-POLISHING/NO-BUFFING MAINTENANCE OPTIONS

Initial Maintenance for a Newly Installed floor

1. Allow the adhesive to cure for at least 48 hours prior to wet-cleaning the floor.
2. Thoroughly sweep, dust-mop, or vacuum (without beater bar assembly) the floor to remove all loose dirt, dust, grit, and debris.
3. Remove any dried adhesive-residue from the surface with a premium neutral pH cleaner, or with mineral spirits applied to a clean, lint-free cloth. Do not allow excessive amounts of solvent to sit on the vinyl or to penetrate the joints of the flooring. **NEVER APPLY SOLVENT DIRECTLY TO FLOORING**.
4. Damp-mop the floor using a premium neutral pH cleaner.
5. If necessary, scrub the floor using an auto scrubber or rotary machine (175 rpm or less) with a premium neutral pH cleaner, using the proper dilution ratio and the appropriate scrubbing brush or pad. Fit the buffer with a 3M-equivalent red or white scrubbing pad and work the solution over the floor.
6. Thoroughly rinse the entire floor with fresh, clean water. Remove the dirty residue with a wet-vacuum or with a clean mop and allow the floor to dry completely.

DAILY/ROUTINE MAINTENANCE

1. Clean entryway walk-off mats to remove dirt, grit, sand and other contaminants from being tracked onto the floor (as needed).
2. Thoroughly sweep, dust-mop, or vacuum (without beater bar assembly) the floor to remove all loose dirt, dust, grit, and debris that can stick to and damage the surface of the floor.
3. Spills should be cleaned up immediately. Spot-clean using a premium neutral pH cleaner and micro fiber or preferred mop.
4. Damp-mop the floor on a regular (recommended - daily) basis using a premium neutral pH cleaner.

PERIODIC MAINTENANCE

1. When necessary, scrub the floor using an auto scrubber or rotary machine (175 rpm or less) with a premium neutral pH cleaner, using the proper dilution ratio. Fit the buffer with a 3M-equivalent red or white scrubbing pad and work the solution over the floor.
2. Thoroughly rinse the entire floor with fresh, clean water. Remove the dirty residue with a wet-vacuum or with a clean mop and allow the floor to dry completely.

ALTERNATIVE MAINTENANCE OPTIONS

Alternative maintenance options provide end-users with the flexibility of using different methods to maintain their floors, based upon the needs of the area of usage. LVT floors may be maintained using the Finish Option or the Spray Buff Option, as detailed below.

GENERAL RECOMMENDATIONS FOR FINISH OPTION:

1. After completing Steps 1 and 2 under the "Initial Maintenance for a Newly-Installed Floor" section, scrub the floor using an auto scrubber or rotary machine (175 rpm or less) with a premium neutral pH cleaner, using the proper dilution ratio. Fit the buffer with a 3M-equivalent red or white scrubbing pad and work the solution over the floor to remove contamination and promote adhesion. **NOTE: Always use a premium quality product specifically designed for LVT flooring and follow the manufacturers instructions.**
2. Thoroughly rinse the entire floor with fresh, clean water. Remove the dirty residue with a wet-vacuum or with a clean mop and allow the floor to dry completely.
3. Apply two or more coats of a premium matte or gloss specifically designed for LVT flooring.
4. Apply additional coats of floor finish (only as needed). Refer to manufacturers instructions.

GENERAL RECOMMENDATIONS FOR SPRAY BUFF OPTION:

1. After completing Steps 1 and 2 under the "Initial Maintenance for a Newly-Installed Floor" section, machine-scrub the floor with a premium neutral pH cleaner, using the proper dilution ratio. Fit the buffer with a 3M-equivalent red or white scrubbing pad and work the solution over the floor to remove contamination and promote adhesion. **NOTE: Always use a premium quality product specifically designed for LVT flooring and follow the manufacturers instructions.**
2. Thoroughly rinse the entire floor with fresh, clean water. Remove the dirty residue with a wet-vacuum or with a clean mop and allow the floor to dry completely.
3. Using a handheld spray-bottle with a premium matte or gloss finish, and working in small areas (10 x 10 foot), lightly mist the floor and buff using an auto scrubber or rotary machine (175 rpm or less) fitted with a 3M-equivalent red pad.
4. Routine (recommended - daily) and periodic maintenance should be performed, as stated in above sections.
5. Machine-scrubbing should always be conducted prior to spray buffing.

RESTORATIVE MAINTENANCE

1. Mix vinyl stripper solution per instruction-label. Blockade and set up caution signs. Using a clean, string mop, apply liberal amounts of solution onto the floor and allow to soak per the instructions. Rewet if necessary.
2. Using a low speed machine (175 rpm or less), scrub the floor with a scrubbing brush or pad equivalent to a 3M red pad.
3. Use a wet-vacuum or a clean mop to remove the dirty stripping solution. If the floor begins to dry, it may be necessary to drizzle fresh, clean water onto the stripper solution to remove it.
4. Thoroughly rinse the entire floor with fresh, clean water. Remove the dirty residue with a wet-vacuum or with a clean mop and allow the floor to dry completely.
5. Next, start over by following the Finish option.

OPERATING ROOMS

The frequent use of disinfectants in operating rooms will make the use of floor finish impractical. DO NOT USE PHENOLIC DISINFECTANTS ON ANY FLOOR.

AUTOMATIC SCRUBBERS

Automatic scrubbers come in walk-behind and ride-on styles with some being compact for hard-to-reach areas around equipment or fixed seating. Auto Scrubbers are efficient, safe and cost effective delivering substantial time savings compared to the mop and bucket method of floor maintenance.

STAIN REMOVAL

To remove stubborn spots and stains from LVT floors, always begin with mild cleaners, such as a premium neutral pH cleaner. If such cleaners fail to remove the spots and stains, and "if permitted," use mineral spirits. Do not use harsh solvents, such as lacquer thinner or straight acetone, as these can permanently soften and damage the vinyl surface.

For stubborn spots and stains (such as paints, permanent markers, and dyes), and "if permitted," try applying fingernail polish remover containing acetone (do not use straight acetone) to a soft cloth and rubbing across the affected areas. Subsequent to this cleaning procedure for stubborn spots and stains, please clean the affected area with clear water to remove any residue. Any damage resulting from the use of pure solvents IS NOT covered by the LVT Warranty. Always test stronger cleaning agents on sample pieces or in unnoticeable areas first.

Never use a brush or pad more aggressive than a 3M red equivalent. Blue, Green, Brown and Black pads will damage the surface of the floor.