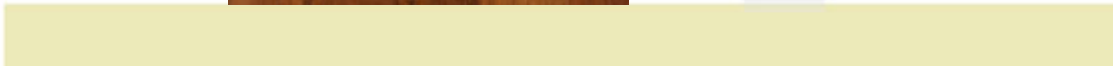


TERRA

HARDWOOD FLOORING







GENERAL INSTALLATION INSTRUCTIONS

Product Description

- Terra engineered flooring is a laminated prefinished floor. Each piece is three-ply construction for superior dimensional stability, with a generous 3.2mm top wear layer, measuring 9/16" x 37/16" x random lengths nominally 1' dimensional –7' overall. The Aluminum Oxide cured stain-resistant factory applied finish makes Terra prefinished engineered flooring suitable for kitchens, and high traffic areas. Terra prefinished engineered floorings is nested in shrunk wrapped cartons, 23.25 ft² per carton.
- Terra prefinished engineered flooring can be installed ABOVE GRADE or ON GRADE: NAILDOWN, FLOATED, OR GLUEDOWN. Terra prefinished engineered flooring can be installed BELOW GRADE or over RADIANT HEAT. Special instructions apply for installation over RADIANT HEAT.

Job site conditions/outside

- Check the jobsite for conditions that will result in excess moisture or high humidity. Surface drainage should be away from the house. The slope be minimum 6" in 10'. Gutters, drains and downspouts should be unclogged and functional, draining water away from the house.
- If there is a crawlspace, it must be cross ventilated with a total ventilating area exceeding 1 ½% of the first floor area, with no dead air spaces. For example, a 2,000-ft² crawl space must have 30 ft² of year-around open venting area.
- If the ground under the house feels damp, or is giving off excess moisture, lay a 6-mil.plyfilm-vapor barrier on the ground in the crawlspace below the installation area.
- Remember to take into account seasonal changes in relative humidity, which might affect jobsite stability.

Job site conditions/inside

- Do not open flooring packages until you are ready to begin installation. Look for signs of excess moisture and humidity i.e. water stains on walls or floors, peeling paint (especially around windows and doors), rusty metal, rusty nail heads. Flooring should be installed after all "wet" work in construction (i.e. sheetrock, concrete, tile or terrazzo etc.) is complete, and the prevailing relative humidity is between 40%-55%. The temperature of the room should be within 15 degrees F of the prevailing of the finished space, between 45 and 70 degrees F. Our engineered wood floors should not be installed on job-sites where the equilibrium point is below 6% M.C. (as they may cup and crack in equalizing to extremely low equilibrium points) or above 14% equilibrium. Terra engineered wood floors are not recommended for below grade installations or on-grade installations where there is excessive moisture.



GENERAL INSTALLATION INSTRUCTIONS

Equilibrium Moisture Content Chart

	Relative Humidity, Percent																			
Temp	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	98
30' F	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
40' F	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
50' F	1.4	2.6	3.6	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.2	12.3	13.4	14.8	16.4	18.4	20.9	24.3	26.9
60' F	1.3	2.5	3.6	4.6	5.4	6.2	7	7.8	8.6	9.4	10.2	11.1	12.1	13.3	14.6	16.2	18.2	20.7	24.1	26.8
70' F	1.3	2.5	3.5	4.5	5.4	6.2	6.9	7.7	8.5	9.2	10.1	11.0	12.0	13.1	14.4	16.0	17.9	20.5	23.9	26.6
80' F	1.3	2.4	3.5	4.4	5.3	6.1	6.8	7.6	8.3	9.1	9.9	10.8	11.7	12.9	14.2	15.7	17.7	20.2	23.6	26
90' F	1.2	2.3	3.4	4.3	5.1	5.9	6.7	7.4	8.1	8.9	9.7	10.5	11.5	12.6	13.9	15.4	17.3	19.8	23.3	26
100' F	1.2	2.3	3.3	4.2	5	5.8	6.5	7.2	7.9	8.7	9.5	10.3	11.2	12.3	13.6	15.1	17.0	19.5	22.9	25.6



GENERAL INSTALLATION INSTRUCTIONS

- Source: "Wood Handbook / Wood as an Engineered Material" U.S. Department of Agriculture Below grade installations must be protected from moisture through wall surfaces that touch the ground, or planters. Check for sufficient moisture barriers or waterproofing. Check water heaters, dryers, dishwashers, plumbing fixtures or any other moisture producing appliance for proper venting and/or operation so they do not introduce excessive moisture to the installation area.
- *Remember to take into account seasonal changes in relative humidity that might affect jobsite suitability.*

Sub floor Conditions / General

- The surface of the sub floor must be level to within 1/8" over a 10' radius. "Hills" should be sanded down, while "valleys" filled by a high compressive strength underlayment patch or self-leveling cement compound suitable for hardwood flooring like ARDEX 15 Self Leveling Compound or equal. Leveling large areas is not recommended.
- DO NOT SAND EXISTING RESILIENT FLOORING, BACKING, LINING FELT OR ADHESIVE AS IT MAY CONTAIN ASBESTOS FIBERS. Small cracks, nail holes or hammer dents, chips in the concrete, or small gaps between the underlayment are not a problem. You can use a Terra prefinished engineered flooring board on edge to check for levelness.
- Sub floor must be free of foreign material like oil, wax plaster, paint sheetrock mud, contaminants and construction debris.

Sub floor Conditions/Concrete

- Inspect concrete sub floor for cracks and buckling. By hydrostatic pressure, the water table may rise and force water up through the concrete floor. An improper mix of concrete will allow for capillary migration of moisture. Concrete must be free from excessive alkaline or there is a risk of bond failure in glue down installations. Test concrete PH for glue down installation and neutralize excessive PH with an acid wash. Follow mastic manufacturer's recommendations for testing and balancing PH.
- All concrete slabs must have a minimum 6-mil. polyfilm moisture barriers between the ground and the concrete. New concrete sub floors must be cured to a hard, dry, non-powdery finish. Concrete sub floors must have a density of 90 lbs./cu.in., and must not contain more than 2% moisture on a dry weight basis. A moisture barrier under the slab sometimes retards curing, so always check for moisture. Slabs newer than 60 days are generally too wet for wood flooring. Moisture content in concrete can be checked in the following ways:

With plastic moisture content in concrete tape, tape 6" x 6" mil clear polyfilm squares in several places on the concrete floor. If after 24 hours, there is any evidence of condensation (i.e. "clouding", drops of moisture, discoloration of concrete) between the plastic and the floor, the concrete is too wet.



GENERAL INSTALLATION INSTRUCTIONS.

- Place 3" unbroken ring of putty on the concrete floor, inside the ring, put a ¼ tsp. of calcium chloride crystals, and cover the putty with glass to seal the crystals from the air. If after 12 hours, the crystals dissolve, the floor is too wet.
- Chip small pieces of the slab (in case there is any sealer on the surface of the concrete), to the exposed areas. If a red color appears, excess moisture may be present in the concrete. Since phenolphthalein reacts with some chemicals by turning red, the presence of excess moisture should be verified by performing a different test.
- There are several different types of moisture meters for concrete. Consult your local distributor for more information.
- Should the moisture in the slab exceed 5% a moisture barrier must be installed. For glue down installations, **Terra** recommends Franklin Hydro-Barrier 11 1 or equal. Follow manufacturer's instructions for use and compatibility with the mastic. For nail down or floating installation, an effective moisture barrier must be in place prior to installation of the floor.
- It is recommended that all concrete be scoured with a terrazzo grinder or carborundum stone. Follow the manufacturer's instruction for use.

Sub floor Conditions/Wood-Plywood

- Plywood sub floors should be 5/8" T & G or 3/4" square edged minimum thickness, installed over minimum 16" O.C. floor joists adequately sized for the length of the span. They should be well nailed at all edges and through the center. High spots (exceeding 1/8" over 10' radius) should be sanded, and any old varnish, paint, shellac or wax should be sanded off. If plywood is used over an existing sub floor as an overlay, the total thickness must be at least 3/4". If the sub floor sags, inspect floor joists beneath for deficiencies. Renail any loose or squeaky areas. Cupping, or unevenness usually means the sub floor should not exceed 14% moisture content. 10% is desirable. You can check wood or plywood sub floor moisture content with a wood moisture meter, A two pin electric resistance type meter with a slide hammer allows for surface and core readings. Consult your local distributor for more information.



GENERAL INSTALLATION INSTRUCTIONS

Sub floor Conditions/Radiant Heat

- These instructions are additional to “SUBFLOOR CONDITIONS / GENERAL” AND “SUBFLOOR CONDITIONS / CONCRETE”
- Terra prefinished engineered flooring can be installed over RADIANT HEAT with the proper sub floor and jobsite conditions, but will not carry the full warrantee.
- The following conditions of the not carry the full warrantee.
- Moisture content of concrete must be between 1 ½%-2% on a dry weight basis.
- Concrete installed and cured at least four weeks with no heat transference.
- Heat should be run at 2/3 maximum output for at least two weeks to allow any residual moisture to evaporate, without damaging the sub floor.
- Prior to installation, the heat is turned off to allow to be at room temperature (+or-65 degrees F) during installation.
- After installation, turn boiler back on to a normal room temperature setting. At no time during the life of the floor should the boiler exceed a 110-degree F setting, or the floor temperatures exceed 81 degrees F.



FLOATING FLOOR INSTALLATION

- **Note: Do not open flooring packages until you are ready to begin installation.** Unlike solid wood flooring, **Terra** prefinished laminated flooring does not need acclimatization. As an installer, you are responsible for assessing the moisture content of the room and sub floor, and choosing the most appropriate installation method considering outdoor and indoor conditions. Please check your flooring to make sure the correct species; style, and quantity match your order, and the bill of lading. Check each piece of flooring for any manufacturing defects or factory damage **before installation**, and put aside for replacement.
- *Should the T&G fit be a little on the tight side, it is possible to loosen it up slightly, but only when installing in dry or climate controlled conditions, by allowing the flooring to acclimate itself somewhat to the drier equilibrium point before installing. However, care must be taken in very dry conditions not to loosen the fit too much or there may be increased over wood as a result. Conversely, in excessively humid conditions, prior exposure may excessively tighten up the T & G.*
- **Terra** is covered under a manufacturer's warranty, which depends on the proper use of materials and tools. Failure to follow installation instructions and recommendations will void the warranty coverage.
- Perform jobsite and sub floor evaluation as described in **GENERAL INSTALLATION INSTRUCTIONS**, and correct any problems. Floating Floor installation is appropriate over a wood, plywood, or concrete sub floor. **Terra** laminated flooring can be installed ABOVE GRADE, ON GRADE, on over RADIANT HEAT as a FLOATING floor.
- Special instructions apply for installation over RADIANT HEAT. Refer to SUBFLOOR CONDITIONS / **WOOD-PLYWOOD, SUBFLOOR CONDITIONS RADIANT HEAT**, and SUBFLOOR CONDITIONS CONCRETE in **GENERAL INSTALLATION INSTRUCTIONS**. Prepare sub floor for installation.



FLOATING FLOOR INSTALLATION

For FLOATING FLOOR installation, you will need the following tools:

- Parabond Millennium 2001
 - Hammer
 - Tape Measure
 - Safety Glasses
 - Hand or electric saw
 - Square
 - Mineral Spirits
 - Glue
 - Chalk line
 - Pencil
 - Broom
 - Soft Tapping Block
 - ½" Expansion Shims
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- Carefully remove any baseboards, doorway thresholds, or shoe moldings, as they can be re-used once the floor has been installed. Door casing and vertical trim that runs to the floor should be undercut to avoid difficult scribing. A piece of flooring can act as a saw guide. Thoroughly sweep and vacuum all debris from plywood.
 - Next, lay out a 6-mil polyethylene vapor barrier over the sub floor overlapping adjacent sheets 8" and taping the joints with duct tape. Oversize the vapor barrier so it extends at least 4" beyond the floor at doors and walls.
 - You then roll out the Valore-type foam underlayment over the poly and duct tape the joints. Do not overlap the foam at the joints.



FLOATING FLOOR INSTALLATION

- **Started Row.** After deciding which direction the flooring is to be run, start with the groove side of the flooring facing the wall on the left side of the room. Lay the first row "dry" to reveal any irregularities in the starting wall. If the starting wall is irregular, not straight, or out of square, scribe the first plank to match the variation, and "square up" the first row with the rest of the room. The first row of planks establishes the basis for building the rest of the floor, so it very important that the first row is square and true. Allow for at least $\frac{1}{2}$ " expansion space (to be covered later with a baseboard or molding) between the edge of the edge of the flooring and any fixed element in the room like walls. Columns, islands, casework, etc.. A temporary $\frac{1}{2}$ " shim between the floor and the wall will maintain the expansion space.
- Once the first row is ready, snap a chalk line, $\frac{1}{2}$ " from the starting wall. Set the first board up to the chalk line leaving $\frac{1}{2}$ " expansion space. Set $\frac{1}{2}$ " shims every 12" between the flooring and walls, and leave in place throughout installation to avoid movement of flooring during installation. Apply a continuous $\frac{1}{8}$ " bead of Millennia 2001 or equal to the top the groove on the end of the next board and interlock with the first board. Check for a tight fit between boards and remove any excess glue immediately with a damp cloth. Continue the first row, cutting the last piece allowing for the $\frac{1}{2}$ " expansion space. Make sure shims are in place at each end of the installation, and along the starter wall.
- **Subsequent Rows:** Start each new row with the cut-off end off the previous row, makings sure ends of the flooring are staggered at least 8". Place a softwood "knocking block" against the tongue to gently tap the flooring. Lay the flooring row by row following these procedures:
- Start with the cutoff board from the previous row, leaving $\frac{1}{2}$ " expansion joint between the end of the flooring and the wall.
- Glue end joint (only) on next full board as described above.
- Place the board tight to the end joint only of the first board in the row (the cut-off), leaving a small space between the long edge of the new board and the previous row. Using the softwood block, gently tap the new board into place working towards the interlocked end joint from the opposite end. It is very difficult to adjust the end-joint once the long seam is set.
- Make sure all seams are tight, and proceed with the next board.
- At the end of each row, cut the excess length (leaving $\frac{1}{2}$ " expansion space), and use it for the beginning of the next row.
- **Last Row:** Usually, the last row does not allow a full width board. Scribe the last row to accommodate any irregularities in the wall, leaving the $\frac{1}{2}$ " expansion joint. Pull last row tight with a pull bar. If the wall is straight, an easy way to size the width of the last row is to lay a row of flooring unglued directly on top of the last installed row, facing the tongue towards the wall. Take a short piece of flooring, tongue side facing the wall, and place it face down on top of the unglued row, with the tongue against the wall. Draw a pencil line along the unglued row moving down the wall. The line will define the width of the last row.



FLOATING FLOOR INSTALLATION

- DO NOT ROLL INSTALLED FLOOR.
- Sometimes it becomes necessary to change the direction of the flooring, like continuing the floor through a doorway to another room or closet, starting from the groove side. On those occasions when the floor must be laid groove to groove, a spline that mimics the shape of the tongue must be glued into the groove of the secured flooring, converting a groove edge to a tongue edge. This will allow you to continue in this direction, tapping only the tongue side, using the installation procedures described previously.
- After installation: Remove all expansion space shims, and apply standing and running trim to cover expansion spaces and nail heads. Never attach trim to flooring





NAIL DOWN INSTALLATION

- **Note: Do not open flooring packages until you are ready to begin installation.** Unlike solid wood flooring, **Terra** prefinished engineered flooring does not need acclimatization. As an installer, you are responsible for assessing the moisture content of the room and sub floor, and choosing the most appropriate installation method considering outdoor and indoor conditions. Please check your flooring to make sure the correct species; style and quantity match your order, and the bill of lading. Check each piece of flooring for any manufacturing defects or factory damage **before installation**, and put aside for replacement.
- *Should the T & G fit be a little on the tight side, it is possible to loosen it up slightly, but only when installing in dry or climate controlled conditions, by allowing the flooring to acclimate itself somewhat to the drier equilibrium point before installing. However, care must be taken in very dry conditions not to loosen the fit too much or there may be increased over wood as a result. Conversely, in excessively humid conditions, prior exposure may excessively tighten up the T & G.*
- **Terra** prefinished engineered flooring is covered under a manufacturer's warrantee, which depends on the proper use of materials and tools. Failure to follow installation instructions and recommendations will void the warrantee coverage.
- Perform jobsite and sub floor evaluation as described in **GENERAL INSTALLATION INSTRUCTIONS**, and correct any problems. **Terra** prefinished engineered flooring can be installed ABOVE GARDE or ON GRADE using the nail down method of installation. Nail down installation is appropriate over a wood or plywood sub floor. Refer to SUBFLOOR CONDITIONS / WOOD-PLYWOOD in **GENERAL INSTALLATION INSTRUCTIONS**. Prepare sub floor for installation.
- For NAILDOWN installation, you will need the following tools:

Hammer	½" Expansion Shims
Tape Measure	Pencil
Safety Glasses	Brown
Hand or electric saw	Softwood Tapping Block
Side Nailing Machine	Square
Non-Hardening Construction Adhesive	



NAIL DOWN INSTALLATION

- Carefully remove any baseboards, doorway thresholds, or shoe molding, as they can be re-used once the floor has been installed. Door casing and vertical and vertical trim that runs to the floor should be undercut to avoid difficult scribing. A piece of flooring can act as a saw guide.
- Thoroughly sweep and vacuum all debris from plywood.
- **Started Row:** After deciding which direction the flooring is to be run, start with the groove side of the flooring facing the wall on the left side of the room. If the starting wall is irregular, not straight, or out of square, scribe and cut the first row of planks to match the variation, and "square up" the first row with the rest of the room. The first row of planks establishes the basis for building the rest of the floor, so it is very important that the first row is square and true. Allow for at least $\frac{1}{2}$ " expansion space (to be concealed later with a baseboard or molding) between the edge of the flooring and any fixed element in the room like walls, columns, islands, casework, etc. A temporary $\frac{1}{2}$ " shim between the floor and the wall will maintain the expansion space. Lay beads of non-hardening construction adhesive on the sub floor every 18" (and at least one bead per piece of flooring) perpendicular to the direction of the flooring, and top nail the first row with 8d finish nails should be filled with a matching wood putty suitable for hardwood flooring. Continue with full boards until the row is complete, cutting the last piece to allow for the $\frac{1}{2}$ " expansion space at the end.
- After the entire first row is established and top nailed, "blind" nail the first row through using $1\frac{1}{4}$ " – $1\frac{1}{2}$ " cleats on a nailing machine adjusted for a $\frac{9}{16}$ " thick floor. Blind nailing refers to nailing flooring through the tongue on an angle so the nail head is hidden by the groove of the next row of flooring. Terra recommends using a Primatch 300 Nailer with 5/8" adapter. To avoid damage to the edges, use a softwood knocking block when tapping the flooring together. Take care to position and set the nail in the "nail pocket" milled into the profile of the flooring at the top of the tongue, and to properly adjust the depth of the nail to avoid "dimpling". Only the first and last rows, or places too limited or awkward to fit the nailing machine, should require top nailing or blind nailing by hand. If blind nailing by hand, use 7d or 8d nails and set them. Subsequent rows are held down by the previous row on the "black" edge, and blind nailing on the front edge. Continue using the construction adhesive described in the started row.
- **Subsequent Rows:** Start each new row with the cut-off of the previous row, making sure ends of the flooring are staggered at least 6". Place a softwood "knocking block" against the tongue to gently tap the flooring in place, tight against adjacent pieces. Never tap against the groove, as that may damage the surface of the flooring. Lay the flooring row by row following these procedures:
- Lay beads of non-hardening construction adhesive every 18" perpendicular to the direction of the flooring, making sure, when laying the floor that each pieces of flooring sits on at least one beads of adhesive. To save time, the beads can be longer than one width of flooring.



NAIL DOWN INSTALLATION

- Start with the cutoff board from the previous row. Place and blind nail.
- Place the next full board tight to the first board in the row (the cut-off). Using the softwood block, gently tap the new board into place snug against the adjacent flooring.
- Make sure all seams are tight, and blind nail through the tongue along the long edge at 6"–8" intervals.
- At the end of each row, cut the excess length (leaving ½" expansion space), and use it for the beginning of the next row.
- Last row: Usually, the last row does not allow a full width board. Scribe the last row to accommodate any irregularities in the wall, leaving the ½" expansion joint. Pull last row tight with a crowbar. If the wall is straight, an easy way to size the width of the last row is to lay a row of flooring unglued directly on top of the last installed row, facing the tongue towards the wall. Take a short piece of **Terra** prefinished engineered flooring tongue side facing the wall, and place it face down on top of the unglued row, with the tongue against the wall. Draw a pencil line along the unglued row moving down the wall. The line will define the width of the last row.
- Sometime it becomes necessary to change the direction of the flooring, like continuing the floor through a doorway to another room or closet, starting from the groove side. On those occasions when the floor must be layed groove-to-groove, a spline that mimics the shape of the tongue must be glued into the groove of the secured flooring, converting a groove edge to a tongue edge. This will allow you to continue in this direction, tapping only the tongue side, using the installation procedures described previously.
- After installation: Remove all expansion space shims, and apply standing and running trim to cover expansion spaces and nail heads. Do not attach trim to flooring.



GLUE DOWN INSTALLATION

- **Note: Do not open flooring packages until you are ready to begin installation.** Unlike solid wood flooring, **Terra** prefinished laminated flooring does not need acclimatization. As an installer, you are responsible for assessing the moisture content of the room and sub floor, and choosing the most appropriate installation method considering outdoor and indoor conditions. Please check your flooring to make sure the correct species; style, and quantity match your order and the bill of lading. Check each piece of flooring for any manufacturing defects or factory damage **before installation**, and put aside for replacement.
- *Should the T & G fit be a little on the tight side, it is possible to loosen it up slightly, but only when installing in dry or climate controlled conditions, by allowing the flooring to acclimate itself somewhat to the drier equilibrium point before installing. However, care must be taken in very dry conditions not to loosen the fit too much or there may be increased expansion over wood as a result. Conversely, in excessively humid conditions, prior exposure may excessively tighten up the T & G.*
- **Terra** prefinished laminated flooring is covered under a manufacturer's warranty, which depends on the proper use of materials and tools. Failure to follow installation instructions and recommendations will void the warranty coverage.
- Perform jobsite and sub floor evaluation as described in **GENERAL INSTALLATION INSTRUCTIONS**, and correct any problems. **Terra** prefinished laminated flooring can be installed ABOVE GRADE or ON GRADE using the glue down method of installation. Some mastic warranties installation over RADIANT HEAT.
- Glue down installation is appropriate over a wood, plywood, or concrete sub floor. Refer to SUBFLOOR CONDITIONS / WOOD-PLYWOOD, AND SUBFLOOR CONDITIONS / CONCRETE in **GENERAL INSTALLATION INSTRUCTIONS, Prepare sub floor installation.**

For GLUEDOWN installation, you will need the following tools:

Notched trowel	Chalk line
Hammer	
Tape Measure Pencil	
Safety Glasses Broom	
Hand or electric saw	Softwood Tapping Block
Square	1/2" Expansion shims
Mineral Spirits	Last Board Puller and/or Rubber Mallet



GLUE DOWN INSTALLATION

- Carefully remove any baseboards, doorway thresholds, or shoe moldings, as they can be re-used once the floor has been installed. Door casings and vertical trim that runs to the floor should be undercut to avoid difficult scribing. A piece of flooring can act as a saw guide. Thoroughly sweep and vacuum all debris from sub floor.
- **Starter Row:** After deciding which direction the flooring is to be run, start with the groove side of the flooring facing the wall on the left side of the room. Lay the first row "dry" to reveal any irregularities in the starting wall. If the starting wall is irregular, not straight, or out of square, scribe the first plank to match the variation and "square up" the first row with the rest of the room. The first row of planks establishes the basis for building the rest of the floor, so it is very important that the first row is square and true. Allow for at least $\frac{1}{2}$ " expansion space (to be covered later with a baseboard or molding) between the edge of the flooring and any fixed element in the room like walls, columns, islands, casework, etc.. A temporary $\frac{1}{2}$ " shim between the floor and the wall will maintain the expansion space.
- Once the first row is ready, snap a chalk line the distance from the starting wall equal to the width for the flooring plus $\frac{1}{2}$ " **Terra** recommends Bostiks Best, Franklin 811 or equal. Terra does not recommend any adhesive with a high water content. Follow sub floor prep recommendations. Follow sub floor prep recommendations. Follow specific directions of the mastic manufacturer, careful not to conceal the chalk line with the mastic.
- Set the tongue side of the first board up to the chalk line. This should leave $\frac{1}{2}$ " expansion space between the groove side and the started wall. Set $\frac{1}{2}$ " shims every 12", and at least two per plank between the flooring and walls. Leave the shims in place throughout the installation to avoid movement of flooring during installation. Check for a tight fit between boards. Continue the first row, cutting the last piece allowing for the $\frac{1}{2}$ " expansion space. Make sure shims are in place at each end of the installation, and along the starter wall.
- **Option:** You can snap the line approximately 2' from the starter wall (a multiple of the flooring width (s) plus $\frac{1}{2}$ ") to allow yourself a "dry" area from which to lay the floor. The "dry" area then becomes the last area to be installed, requiring you to reverse direction of the tongue and groove. Instructions for reversing direction are described on page 4. Flooring scribed to the start wall then becomes the last row installed. If you choose to leave yourself a "dry" area, follow the same directions as above, except you can no longer depend on the shims against the starter wall to maintain the first row during installation. You will have to wait for the first row of flooring + or - 3' from the starter wall to adhere sufficiently so as to provide a solid reference line to build the rest of the floor.
- **Subsequent Rows:** Start each new row with the cut-off end of the previous row, making sure ends of the flooring are staggered at least 6" to simulate a solid wood installation. Using a Last Board Puller, or a softwood "knocking block" and Rubber mallet, gently tap the flooring in place tight against the adjacent pieces. Never tap directly against the groove, as that may damage the surface of the flooring. Lay the flooring row by row following these procedures:
- Start with the cutoff board from the previous row, leaving $\frac{1}{2}$ " expansion joint between flooring and the wall.



GLUE DOWN INSTALLATION

- Place the board tight to the end joint only of the first board in the row (the cut-off), leaving a small space between the long edge of the new board and the previous row. Using a Last Board Puller, or a softwood “Knocking block” and Rubber Mallet, gently at the new board into place working towards the interlocked end joint from the opposite end.
- Make sure all seams are tight, and proceed with the next board.
- At the end of each row, cut the excess length (leaving ½” expansion space), and use it for the beginning of the next row.
- Apply adhesive in intervals as necessary with a trowel following specific directions of the adhesive manufacturer.
- Last Row: Usually, the last row does not allow a full width board. Scribe the last row to accommodate any irregularities in the wall, leaving the ½” expansion joint. Pull last row tight with a pry bar or Last Board Puller. If the wall is straight, an easy way to size the width of the last row is to lay a row of flooring unglued directly on top of the last installed row, facing the tongue towards the wall. Take a short piece of Terra prefinished laminate, tongue side facing the wall, and place it face down on top of the unglued row, with the tongue against the wall. Draw a pencil line along the unglued row moving down the wall. The line will define the width of the last row.
- Sometimes it becomes necessary to change the direction of the flooring, like continuing the floor through a doorway to another room or closet starting from groove side. On those occasions when the floor must be laid groove to groove, a spline that mimics the shape of the tongue must be glued into the groove of the secured flooring converting a groove edge to tongue edge. This will allow you to continue in this direction, tapping only the tongue side, using the installation procedures described previously.
- *After Installation: Remove all expansion space shims, and apply standing and running trim to cover expansion spaces and nail heads. Never attach trim to flooring.*