Product	
Supplier	Flooring2
Product Type	Luxury Vinyl
Number	VG
Name	Vanguard

Floating Floors Installation Guide (Angle-Angle Locking)

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Applies to: SPC (Stone Plastic Composite), WPC (Wood Plastic Composite), Laminate, and similar floating floors with angle-angle or angle-tap locking systems.

Legal Disclaimers

> **IMPORTANT: READ BEFORE INSTALLATION**

Limitation of Liability
This guide provides general installation information only. We are not responsible for installation errors, product damage, personal injury, or property damage resulting from the use of this guide. Actual results depend on site conditions, installer skill, and adherence to all applicable codes and standards.

General Information Notice
This guide covers floating floor installation for SPC, WPC, laminate, and similar products using angle-angle and angle-tap locking systems. Product specifications may vary between product lines.

Professional Consultation Recommended
We recommend consulting a licensed flooring professional before installation, especially for complex projects or situations involving structural modifications.

Assumption of Risk
By proceeding with installation, you assume all risks associated with flooring installation, including but not limited to physical injury, property damage, and voiding of product warranties due to improper installation.

Safety Warnings

Regulatory Compliance

Before beginning any flooring installation, ensure compliance with:

- **OSHA Standards** - Follow workplace safety requirements (29 CFR 1926 for construction)
- **EPA Regulations** - Proper handling and disposal of materials
- **Building Codes** - Comply with International Building Code (IBC) and International Residential Code (IRC)
- **Lead Safety** - For structures built before 1978, follow EPA RRP Rule requirements
- **Asbestos Requirements** - For structures built before 1981, have existing flooring tested before removal

Personal Protective Equipment (PPE)

Equipment	When Required
Respiratory Protection	N95 mask when cutting planks
Eye Protection	Safety glasses during all cutting
Hearing Protection	When using power saws
Hand Protection	Work gloves when handling materials
Knee Protection	Knee pads for floor-level work

Health Hazards

Dust Exposure:

- Use dust collection when cutting
- Cut outdoors or in well-ventilated area when possible
- Keep work area clean to minimize airborne particles

Physical Strain:

- Use proper lifting techniques for material boxes
- Use knee pads to reduce knee strain
- Take regular breaks during installation

Emergency Procedures

Situation	Action
Cuts from Knife/Saw	Apply pressure, clean wound, seek medical attention if deep
Eye Injury from Dust	Flush with clean water for 15 minutes, seek medical attention
Inhalation of Dust	Move to fresh air, seek medical attention if symptoms persist

Emergency Contacts:

- Poison Control: 1-800-222-1222
- Local emergency services: 911

Understanding Locking Systems

Angle-Angle (2G) Locking

The most common type for SPC, WPC, and laminate products. Both long and short edges lock by angling the plank and dropping it into place.

How it works:

1. Angle the long edge into the previous row (approximately 20-30 degrees)
2. Lower the plank to engage the lock
3. For the short end: angle and engage, then press down

WARNING - DO NOT TAP 2G LOCKING SYSTEMS: The 2G (angle-angle) locking mechanism is designed to engage through angling only. Do NOT use a tapping block or mallet to force joints together. Tapping 2G joints can damage the locking mechanism and will void the product warranty. If a joint does not engage properly, lift the plank and re-angle it into position.

Angle-Tap (Unilin-style) Locking

Similar to angle-angle, but short edges are tapped together rather than angled.

How it works:

1. Angle the long edge into the previous row
2. Lower the plank flat
3. Tap the short end with a tapping block to engage

Note: The angle-tap system is specifically designed for tapping on the short edges. This is different from the 2G system above which must not be tapped.

Pre-Installation Preparation

Tools and Materials Needed

Basic Tools:

- □ Tape measure (minimum 25 ft / 7.6 m)
- □ Chalk line or laser level
- □ Utility knife with extra blades
- □ Straight edge or T-square
- □ Pencil or marking tool
- □ Tapping block (specific for floating floors)
- □ Pull bar for tight areas
- □ Rubber mallet

Power Tools:

- □ Circular saw, miter saw, or laminate cutter
- □ Jigsaw for irregular cuts
- □ Oscillating multi-tool (for undercutting door frames)

Materials:

- □ Floating floor planks (add 10% for waste and cuts)
- □ Underlayment (if not attached to planks)
- □ 6 mil polyethylene moisture barrier (see requirements below)
- □ Spacers (1/4" / 6 mm)
- □ Transition strips (T-molding, reducer, end cap)
- □ Quarter round or shoe molding

Safety Equipment:

- □ Safety glasses
- □ Work gloves
- □ Knee pads
- □ Dust mask
- □ Hearing protection

Moisture Barrier Requirements

IMPORTANT: CRITICAL: Moisture Barrier Policy

Installation Location	Moisture Barrier Requirement
On-grade (slab on ground)	REQUIRED - 6 mil (0.15mm) polyethylene
Below-grade (basement)	REQUIRED - 6 mil (0.15mm) polyethylene
Above-grade (upper floors)	RECOMMENDED - 6 mil (0.15mm) polyethylene

Moisture Barrier Installation:

- Overlap seams by 8" (20 cm) minimum
- Tape all seams with moisture-resistant tape
- Run barrier up walls 2" (5 cm) (trim after installation)
- Do not use staples or puncture barrier

Room Preparation

1. **Remove furniture and appliances** - Clear the entire installation area
2. **Remove existing flooring** - If applicable (floating floors can go over many surfaces)
3. **Remove baseboards and transitions** - Label for reinstallation if reusing
4. **Clean the subfloor** - Remove all debris, dust, and contaminants
5. **Undercut door frames** - Allow flooring to slide underneath (typically 1/2" / 13 mm)
6. **Check door clearance** - Doors may need trimming

Subfloor Requirements

Flatness Specification:

- Maximum variance: 3/16" over 10 feet (4.7 mm over 3 m)
- SPC/WPC is less forgiving than flexible vinyl
- Sand down high spots
- Fill low spots with leveling compound

Acceptable Subfloor Types:

- □ Concrete (fully cured, minimum 60 days)
- □ Plywood (minimum 1/4" / 6 mm, in good condition)
- □ OSB (minimum 1/4" / 6 mm, in good condition)
- □ Existing hard-surface flooring (vinyl, tile, hardwood - if well-bonded and level) - see note below
- □ Existing laminate (if well-bonded and level) - see note below

Installation Over Existing Flooring: While installation over existing hard-surface flooring is allowed, it is NOT recommended. Installing over existing flooring increases total floor height, may affect door clearances, and can transfer any underlying issues to the new floor. For best results, remove existing flooring and install directly on the subfloor.

NOT Acceptable:

- Carpet or carpet pad (must be removed)
- Cushion-backed vinyl
- Floating floors over floating floors (stability issues)

- Uneven or damaged subfloors

Moisture Testing Requirements:

Subfloor Type	Test Method	Maximum Reading
Concrete	Calcium Chloride (CaCl)	5 lbs per 1,000 sq ft / 24 hrs
Concrete	Relative Humidity (RH)	85% RH
Wood	Pin-type moisture meter	12% moisture content

Climate Requirements

Required Conditions:

- Temperature: 65F - 85F (18C - 29C)
- Relative Humidity: 35% - 55% RH
- Maintain conditions 48 hours before, during, and after installation

Vacation/Seasonal Homes:

- Operating range: 55F - 95F (13C - 35C)
- Minimum temperature: 40F (4C)
- HVAC must be operational to maintain conditions

Acclimation:

- SPC/WPC requires minimal acclimation due to rigid core
- Store in installation area for 24-48 hours
- Keep boxes closed until ready to install
- Material and room should be at similar temperature

Installation Method

Angle-Angle Installation

Best For: All SPC and WPC products with angle-angle or angle-tap locking systems

Requirements:

- Clean, level subfloor
- Appropriate underlayment/moisture barrier
- Proper environmental conditions

Step-by-Step Instructions

Step 1: Plan Your Layout

- Measure the room width and calculate number of rows
- Ensure first and last rows are at least half-plank width
- Determine starting wall (typically longest, straightest wall)
- Plan plank direction (usually parallel to main light source or longest dimension)
- Calculate stagger pattern: minimum 6" (15 cm) offset between end joints

Step 2: Install Underlayment and Moisture Barrier

- If required, install 6 mil moisture barrier first
- Install underlayment per manufacturer instructions
- If planks have attached underlayment, do not add additional padding
- Tape all seams

Step 3: Begin First Row

- Start in left corner of starting wall (right-handed installers)
- Place spacers (1/4" / 6 mm) against starting wall and side wall
- Lay first plank with tongue facing the room
- For angle-angle: cut off groove edge of first row (wall side)

Step 4: Complete First Row

- Angle second plank's short end into first plank
- Drop and lock into place
- Continue adding planks to complete first row
- Cut final piece to fit, leaving expansion gap

Step 5: Start Second Row

- Cut first plank of second row to create stagger (minimum 6" offset)
- Angle long edge into first row at 20-30 degrees angle
- Lower plank to lock long edge
- Engage short end with previous plank (angle or tap depending on system)

Step 6: Continue Installation

- Work left to right, row by row
- Maintain consistent stagger pattern
- Mix planks from different boxes for color/pattern variation
- Use tapping block and rubber mallet if needed (never strike locking edge directly)
- Use pull bar for final pieces against walls

Step 7: Install Final Row

- Measure width needed (minus expansion gap)
- Rip planks to width using table saw or circular saw
- Use pull bar to engage final row
- Maintain expansion gap at end wall

Step 8: Complete Installation

- Remove all spacers
- Install transitions at doorways and floor changes
- Install quarter round or shoe molding to cover expansion gap
- Do not pin flooring with molding (nail to wall, not floor)

Finishing Touches

Expansion Gap Requirements

IMPORTANT: Critical: Expansion gaps allow floor to move naturally with temperature and humidity changes.

Location	Minimum Gap
Perimeter (all walls)	1/4" (6 mm)
Around fixed objects (columns, pipes)	1/4" (6 mm)
Door frames and transitions	1/4" (6 mm)
Large rooms (over 40 ft / 12 m)	Consider T-molding break

Transitions and Moldings

Transition Type	Use Case
T-Molding	Between rooms of equal height flooring
Reducer	Transition to lower flooring (carpet, tile)
End Cap	At doorways, sliding doors, or fireplaces
Stair Nosing	For stair edges (verify product is stair-rated)
Quarter Round	Along walls to cover expansion gap

Installation Notes

- **Quarter round/shoe molding:** Nail to wall only, not to floor
- **Transitions:** Fasten to subfloor only, allowing floor to float underneath
- **Never pin flooring:** Avoid fastening anything through the floor surface
- **Heavy appliances:** Consider movable appliance platforms for refrigerators

Final Steps

1. **Clean the floor** - Sweep or vacuum thoroughly
2. **Inspect all areas** - Check for gaps, damage, or unlocked joints
3. **Install transitions** - At all doorways and floor type changes
4. **Install quarter round** - Around entire perimeter
5. **Replace furniture** - Use felt pads under all furniture legs
6. **Trim doors if needed** - Ensure proper clearance

Traffic Restrictions

- **Light foot traffic:** Immediately after installation
- **Normal use:** Immediately (no adhesive curing required)
- **Heavy furniture:** 24 hours (allow floor to settle)
- **Rolling loads:** Use hardboard paths for moving heavy items

WARNING - ROLLING LOADS NOT RECOMMENDED: Floating floors are not designed for sustained rolling loads such as office chairs, carts, pallet jacks, or other wheeled equipment. Rolling loads can damage locking mechanisms, cause joint separation, and create permanent wear patterns. Damage caused by rolling loads is not covered under product warranties. For areas with rolling chair traffic, use chair mats to protect the floor.

Room-Specific Considerations

High-Traffic Areas

- SPC is excellent for high-traffic areas
- Use commercial-grade wear layer (20 mil+) for heavy use
- Plan transitions at heavily used doorways

Kitchens

- SPC/WPC is waterproof core - excellent for kitchens
- Install under or around appliances as appropriate
- Leave expansion gap around island cabinets if floor goes under them
- Consider pull-out bases for heavy appliances

Bathrooms

- Most SPC/WPC products are waterproof and bathroom-rated
- Verify product is approved for bathroom use
- Maintain expansion gaps even in wet areas
- Apply silicone caulk at tub and toilet bases
- Ensure good ventilation to prevent moisture buildup

Basements

- SPC/WPC is excellent for basements (waterproof core)
- **REQUIRED:** 6 mil moisture barrier on all basement installations
- Conduct moisture testing before installation
- Monitor humidity levels seasonally

Stairs

- Verify product is rated for stair use
- Use proper stair nosing
- Most floating floors require adhesive for stair treads
- Consider professional installation for stairs
- Each tread must be secured (not floating on stairs)

Radiant Heat Systems

Pre-Installation Requirements:

- Verify product is rated for radiant heat
- Only hydronic radiant heat typically approved
- Minimum 3/8" (10 mm) separation from heating components
- System must be operational 2 weeks before installation
- Reduce temperature to 65F (18C) 5 days before installation

Post-Installation:

- Gradually increase temperature (maximum 5F / 2.8C per hour)
- Maximum floor surface temperature: 85F (29C)
- Never exceed product's temperature rating

Quality Control Checklist

Pre-Installation

- □ Subfloor flatness verified (3/16" over 10 ft maximum)
- □ Moisture testing completed and documented
- □ All moisture readings within acceptable limits
- □ Moisture barrier installed (if on or below grade)
- □ Materials conditioned to room temperature
- □ Environmental conditions verified (65-85F, 35-55% RH)
- □ Underlayment installed (if needed)
- □ Layout planned and first/last row widths calculated
- □ All tools and materials on site

During Installation

- □ Expansion gaps maintained with spacers
- □ Stagger pattern consistent (minimum 6" offset)
- □ Planks mixing from multiple boxes
- □ Locking joints fully engaged
- □ No damaged or defective pieces installed
- □ Tapping block used (never striking lock directly)
- □ Pull bar used for final pieces

Final Inspection

- □ All joints tight and fully locked
- □ No visible gaps or lippage
- □ Expansion gaps consistent around perimeter
- □ All transitions properly installed
- □ Quarter round installed and covering gaps
- □ Floor is clean and free of debris
- □ Doors open and close properly
- □ Installation documentation complete

Troubleshooting

Planks Not Locking

Cause: Debris in joint, damaged locking mechanism, or incorrect angle

Solution:

- Remove plank and inspect lock
- Clean any debris from joint
- Check for damaged locking edge
- Verify correct installation angle (20-30 degrees)

Prevention:

- Keep subfloor and planks clean
- Inspect each plank before installation
- Use proper installation technique

Gaps Between Planks

Cause: Improper locking, subfloor issues, or temperature changes

Solution:

- Lift and re-engage affected planks
- Ensure full lock engagement
- Check subfloor flatness

Prevention:

- Ensure all joints fully lock
- Maintain consistent room temperature
- Address subfloor issues before installation

Buckling or Peaking

Cause: Insufficient expansion gap or floor pinned by obstruction

Solution:

- Identify obstruction (molding, transition, heavy furniture)
- Increase expansion gap at walls
- Remove any fasteners through flooring

Prevention:

- Maintain proper expansion gaps everywhere
- Never fasten through flooring
- Allow gap around fixed objects

Squeaking or Movement

Cause: Uneven subfloor, debris under floor, or double underlayment

Solution:

- Identify source of movement
- May require lifting sections to address
- Check for debris or subfloor issues

Prevention:

- Ensure subfloor is flat
- Remove all debris before installation
- Do not double-up underlayment

Edge Chipping During Cuts

Cause: Wrong blade or cutting technique

Solution:

- Use fine-tooth blade (80+ teeth for miter saw)
- Cut with good side up for circular saw
- Cut with good side down for miter saw

Prevention:

- Use appropriate blade for rigid-core products
- Score deeply with utility knife before cutting
- Support piece fully during cuts

Professional vs DIY

DIY Suitable For

- Most residential installations
- Rectangular rooms with few obstacles
- DIYers with moderate home improvement experience
- Areas under 1,000 sq ft
- Standard room layouts

Professional Installation Required For

- Stairs (due to adhesive requirements)
- Very large areas (may need expansion joints)
- Complex room layouts with many cuts
- Commercial installations
- When subfloor preparation is needed
- Radiant heat systems (for proper temperature protocols)
- When warranty requires professional installation

Care and Maintenance

Daily Care

- Sweep or dust mop to remove loose dirt and debris
- Wipe up spills immediately (although waterproof, standing water can seep into seams)
- Use doormats at entrances

Regular Cleaning

- Damp mop with neutral pH cleaner
- Use neutral pH cleaners only
- Avoid excess water puddling
- Use microfiber mop for best results

Products to Avoid

- Steam cleaners (can damage core and loosen locks)
- Abrasive cleaners or scrub pads
- Wax or polish products
- Oil-based soaps
- Ammonia-based cleaners
- Bleach or harsh chemicals
- "Mop and shine" products

Ongoing Maintenance

- Use felt pads under all furniture legs
- Use chair mats under rolling chairs
- Lift furniture to move, do not drag
- Protect from prolonged direct sunlight (use blinds/curtains)
- Maintain consistent indoor humidity (35-55% RH)
- Trim pet nails regularly
- Replace damaged planks promptly (remove and reinstall)

Additional Resources

Industry Associations

- Resilient Floor Covering Institute (RFCI)
- World Floor Covering Association (WFCA)
- Floor Covering Installation Contractors Association (FCICA)

Certification Programs

- CFI Certified Flooring Installers
- INSTALL Flooring Certification

Warranty Information

See separate warranty brochure for complete warranty terms and conditions.

This installation guide is provided for general reference. Always consult local building codes before installation.