



# INSTALLATION

INSTRUCTIONS

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TANGENT



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## INSTALLATION INSTRUCTIONS

### APPROVED ADHESIVES:

Cobalt PS-412-4 | Cobalt SRP-516-6 | Cobalt TR-617-4 | Excelsior SP-500 Acrylic Aerosol | Excelsior AW-510 Acrylic Wet Set | Excelsior AP-520 Acrylic Roll-On Excelsior MS-700 Modified Silane | Excelsior EW-710 Epoxy Wet-Set

### PRE-INSTALLATION CHECKLIST:

- Consult all associated product literature concerning adhesive installation, maintenance and warranty prior to installation of flooring.
- Allow all trades to complete work prior to installation.
- Deliver all materials to the installation location in its original packaging with labels intact.
- Do not stack pallets to avoid damage.
- Remove any plastic and strapping from product after delivery.
- Remove material from packaging and stack evenly on a smooth, dry surface. Do not stack higher than 18”.
- Inspect all material for proper type, color and matching lot numbers or production codes if appropriate.
- Ensure that all adhesives intended for installation are approved for use with flooring material.
- Ensure installation area and material storage temperatures are between 65° F (19° C) and 85° F (30° C) for at least 48 hours before, during and after installation.
- Ensure HVAC system is operational and fully functioning at normal operating conditions.
- Protect installation area from extreme temperature changes, such as heat and freezing, as well as direct sunlight for at least 48 hours before, during and after installation.
- Ensure all substrate preparation and moisture testing requirements have been read and understood by all interested parties.
- Test substrate for porosity in order to determine the installation method necessary.
- Ensure all vents, walls, moldings and/ or doorways are protected with tape or plastic prior to installation.
- Do not proceed with installation until all conditions have been met.

### PRODUCT LIMITATIONS:

Do not install materials over LVT, cushioned vinyl, hardwood flooring, cork, rubber, or asphaltic materials. Do not install flooring materials in outdoor areas or in and near commercial kitchens. Do not install in areas that may be subjected to sharp, pointed objects, such as stiletto heels, cleats or spikes. Do not allow product to be directly exposed to extreme heat sources, such as radiators, ovens or other high-heat equipment. May be susceptible to staining from rubber tires, casters or rubber-backed walk-off mats, as well as harsh disinfectants, cleaning agents, dyes or other harsh chemicals – ensure all chemicals and materials that may come in contact with flooring surface will not stain, mar or otherwise damage the flooring material prior to use.

### SUBSTRATE PREPARATION:

All substrates must be prepared according to ASTM F710, as well as applicable ACI and RFCI guidelines. Substrates must be clean, smooth, permanently dry, flat, and structurally sound. Substrates must be free of



visible water or moisture, dust, sealers, paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and any other extraneous coating, film, material or foreign matter. All substrates must be vacuumed with a flat vacuum attachment or damp mopped with clean, potable water to remove all surface dust. Sweeping without vacuuming or damp mopping will not be acceptable.

It is recommended that all substrates have a floor flatness of FF32 and/or a flatness tolerance of 1/8" in 6' or 3/16" in 10'.

All porous substrates must be tested to confirm porosity. To determine substrate porosity, place three, .05mL (1/4" wide) droplets of clean, potable water onto the surface of the substrate per every 2000 sq. ft., at least one test per room. If the substrate absorbs water within 60 seconds, the substrate is considered porous. All other substrates that do not meet this requirement are considered non-porous. Ensure that all non-porous substrates are not contaminated with any aforementioned contaminants. When conducting renovations or remodeling, remove all existing adhesive residue so that 90% of the original substrate is exposed by mechanical means, such as shot blasting, grinding or buffing with a 100 grit Diamabrush Prep Plus attachment. Do not use solvent/citrus based adhesive removers prior to installation. Follow The Resilient Floor Covering Institute's (RFCI) "Recommended Work Practice for Removal of Existing Floor Covering and Adhesive", and all applicable local, state, federal and industry regulations and guidelines. When removing asbestos and asbestos containing materials, follow all applicable OSHA standards.

### CONCRETE SUBSTRATES:

All cementitious substrates, including self-leveling underlayments, must have a minimum compressive strength of 3000 PSI and be prepared in accordance with ASTM F710 and ACI 302.2R. When flooring is being installed directly over concrete, surfaces that have an ICRI Concrete Surface Profile (CSP) of 5 or more should be smoothed with a self-leveling underlayment or a cementitious patch to prevent imperfections from telegraphing through flooring materials. On or below grade concrete must have a permanent, effective moisture vapor retarder installed below the slab. New or existing concrete substrates on all grade levels must be tested in accordance with ASTM F2170, using in situ Probes, to quantitatively determine relative humidity no more than one week prior to installation.

### ADHESIVE RH LIMITS:

- PS-412-4: 90% RH
- TR-617-4: 99% RH
- SRP-516-6: 95% RH
- SP-500 Acrylic Aerosol: 90% RH
- AW-510 Acrylic Wet Set: 85% RH
- AP-520 Acrylic Roll-On: 75% RH
- MS-700 Modified Silane: 95% RH
- EW-710 Epoxy Wet-Set: 85% RH

In addition to ASTM F 2170 Relative Humidity Testing, existing concrete that has previously had floor covering installed on all grade levels must be tested in accordance with ASTM F 1869, using Calcium Chloride test kits, to quantitatively determine the Moisture Vapor Emissions Rate (MVER) of the concrete.

### ADHESIVE MVER LIMITS:

- SP-500 Acrylic Aerosol: 9 lbs.
- AW-510 Acrylic Transition: 6 lbs.
- AP-520 Acrylic Roll-On: 6 lbs.
- MS-700 Modified Silane: 10 lbs.
- EW-710 Epoxy Wet-Set: 6 lbs.

If ASTM F2170 or ASTM F1869 test results exceed the above limits, a moisture mitigation product, such as the



Excelsior MM-100 Moisture Mitigation must be installed prior to proceeding with installation. Do not install flooring until moisture testing has been conducted per the appropriate standard and/or moisture mitigation has been installed per product technical data and/or installation instructions and is dry to the touch. Do not install flooring in below grade areas when hydrostatic pressure is visible or suspected. If ASTM F2170 and ASTM F1869 test results are below recommended limits, concrete substrates must be tested for elevated pH and alkalinity in accordance with ASTM F710.

### **ADHESIVE PH LIMITS:**

- SP-500 Acrylic Aerosol: 7-9
- AW-510 Acrylic Transition: 7-9
- AR-520 Acrylic Roll-On: 7-9
- MS-700 Modified Silane: 7-10
- EW-710 Epoxy Wet-Set: 7-10

If pH testing per ASTM F710 exceeds the above limits, the concrete must be sealed with pH insensitive product, such as the Excelsior MM-100, prior to proceeding with installation. Install all sealers and/or primers per product technical data and/or installation instructions. Do not install flooring until material is dry to the touch.

### **RESINOUS SUBSTRATES:**

When installing directly over a resinous products, such as the Excelsior MM-100 or an epoxy coating, ensure that coating is dry to the touch and has cured for the prescribed length of time. Substrate must be clean, dry, sound and free of contaminates. Ensure to follow installation procedures and trowel sizes for non-porous substrates.

### **GYP SUM BASED SUBSTRATES:**

Lightweight or gypsum substrates must have a minimum compressive strength of 2000 PSI when installed over a wood substrate or 3000 PSI when installed over a concrete substrate. Lightweight or gypsum substrates must be installed and prepared in accordance with ASTM F2419 or ASTM F2471, respectively. Lightweight or gypsum substrates that do not meet these requirements should be strengthened with a compatible repair product to improve the compressive strength of the substrate. Substrate must be structurally sound and firmly bonded to subfloor. All cracked or fractured areas must be removed and repaired with a compatible repair product. New or existing substrates may require a sealant or primer be installed prior to resilient floor installation. Follow the substrate manufacturer's recommendations regarding preparation for resilient flooring.

### **WOOD SUBSTRATES:**

Wood substrates must be prepared in accordance with ASTM F1482. Wood subfloors should be of double layer construction with a minimum thickness of 1". Crawl spaces beneath wood subfloors shall be in compliance with local building ventilation codes and have at least 18" of cross-ventilated space between the ground and the joists. Wood joists should be spaced on not more than 16" centers. Prior to installation, moisture retardant sheeting with a maximum rating of 1.0 perm must be installed beneath the wood subfloor, overlapped at least 8". For standard installations, use Underlayment Grade plywood with a minimum thickness of 1/4" thick and a fully sanded surface. When floors may be subjected to moisture, use an APA approved exterior grade plywood. Other wood subfloor materials, such as OSB, lauan, particleboard, chipboard or cementitious tile backer boards, are not acceptable subfloors. Avoid preservative-treated and fire-retardant plywood, as some may be manufactured with resins or adhesives that may cause discoloration or staining of the flooring. Wood subfloor deflection, movement, or instability will cause the flooring installations to release, buckle or become distorted. As such, do not use plastic or resin filler to patch cracks. Do not use cement or rosin coated nails and staples or solvent-based construction adhesives to adhere the plywood. Do not install on a sleeper system (wood subfloor system over concrete) or directly over Sturd-I- Floor panels.



### **METAL SUBSTRATES:**

Metal substrates must be thoroughly sanded/ground and cleaned of any residue, oil, rust and/or oxidation. Substrate must be smooth, flat and sound prior to installation. When installing in areas that may be subject to topical water or moisture and/or high humidity, an anti-corrosive coating must be applied to protect metal substrate. Contact a local paint or coating supplier for coating recommendations. Install flooring material within 12 hours after sanding/grinding to prevent re-oxidation. Any deflection in the metal floor can cause a bond failure between the adhesive and the metal substrate. Ensure to follow installation procedures and trowel sizes for non-porous substrates.

### **EXISTING FLOORING SUBSTRATES:**

The suitability of existing flooring as a substrate depends on the specific requirements of the adhesive being used to install the material. As such, refer to the adhesive requirements for existing flooring substrates and ensure all adhesive requirements and guidelines are followed.

### **RADIANT HEATING SUBSTRATES:**

When installing flooring over a substrate that contains a radiant heating system, ensure the radiant heat is turned off 48 hours prior to installation and remains off during the entire installation. 48 hours after installation, the radiant heat may be gradually increased over the course of 24 hours, until normal operating temperature is reached. Ensure the temperature of the radiant heating system does not exceed 85° F (29.5°C) and avoid making abrupt changes in radiant heating temperature.

### **CRACKS, JOINTS & VOIDS:**

All cracks, joints and voids, as well as the areas surrounding them, must be clean and free of dust, dirt, debris and contaminants. All minor cracks and voids 3/64" wide or less may be repaired with a suitable cementitious patch.

Due to the dynamic nature of concrete slabs, manufacturer cannot warranty installations to cover expansion joints, cracks or other voids (such as control cuts, saw joints and moving cracks or voids) wider than 3/64".

Do not install flooring directly over any expansion joints or cracks wider than 3/64".

All expansion joints should have a suitable expansion joint covering system installed to allow expansion joint to freely move. To treat expansions joints where an expansion joint covering system can't be installed or to treat through cracks (depth at least 75% of the thickness of the concrete), chase joint or crack with a suitable saw or grinder and open to a minimum width of 1/4". Be sure to clean all dust, dirt and debris from crack. Joints and cracks should then be sealed with a suitable, elastomeric caulk (such as Ardex Ardiseal Rapid Plus, Mapei P1 SL or equivalent) designed for use in expansion joints. Install a closed-cell backer rod at prescribed depth and follow caulk manufacturer's instructions for installation. Ensure surface is troweled flush with surface of concrete. To treat other cracks and voids (such as control cuts, saw-cut joints and surface cracks) over 3/64", chase joint or void with a suitable saw or grinder and clean all dust, dirt and debris from crack. Fill entire crack with a rigid crack filler (such as Ardex Ardifix, CMP CM10 or equivalent) designed for use in control or saw-cut cuts. Follow material manufacturer's instructions for installation. Ensure surface is troweled flush with surface of concrete.

*Consult a structural engineer prior to treating any crack or joint, especially those that may affect structural integrity (such as expansion joints). Review all manufacturer installation instructions and/or consult manufacturer technical staff for all crack or joint filling products prior to treating joints and cracks.*

### **PRODUCT INSTALLATION:**

Ensure substrate is suitably prepared prior to installation, as manufacturer is not responsible for substrates



that have not been properly prepared and tested for moisture. Ensure adhesive is approved for use with flooring material and the proper trowel type and size is used, as manufacturer is not responsible for any and all adhesion issues related to improper adhesive selection or usage.

Prior to installation, confirm material installation pattern and direction per design specifications or work order. Inspect all tiles before installing or during installation to verify that there are no visible defects, damages or excessive shading variations. Blend materials from several cartons to ensure consistent appearance and color or shade variation. Some flooring products, colors and textures have latent and acceptable color and shade variations. If there are concerns regarding shade or color variation, do not install material and consult a sales representative and manufacturer's technical staff.

Ensure substrate is clean, dry flat and sound prior to installation. Ensure the room is square using the 3-4-5 squaring rule or similar method to ensure acceptable installation. Dry-lay several pieces of material in order to determine idea room layout. Cut borders and other specialty pieces to fit snugly against or around walls, thresholds, transition strips, fixtures and other protrusions or accessories. Ensure material around perimeter is 1/8" from wall or less, depending on depth of wall base or trim. Ensure all end seams are a minimum of 6" apart. Use a nail-down guide or equivalent along starting row to expedite wet-set installation. Apply adhesive according to instructions for specific product in use and observe adhesive flash times, if applicable. Ensure all adhesive working times are observed and followed. Be sure to follow instructions based on substrate porosity (porous or non-porous). Use below chart for reference.

### **ADHESIVE COVERAGE RATES (PER GALLON):**

- PS-412-4: 220 - 260 sf/gal
- TR-617-4: 220 - 260 sf/gal
- SRP-516-6: 140 - 150 sf/
- can SP-500: 150 sf/can
- AW-510: 165 - 200 sf/gal
- AP-520: 320-400 sf/gal
- MS-700: 160 - 260 sf/gal
- EW-710: 165 - 250 sf/gal

Install material into adhesive and observe directional arrows on back of tile to ensure arrows are installed in the same direction, unless installing in a specific and pre- determined design, such as a quarter- turn or herringbone design. For larger installations, use a pyramid layout when installing planks to eliminate run-off. When installing into adhesive using a wet- set method, avoid walking or working on material until adhesive has cured for light foot traffic. Working on material that is installed into wet adhesive could cause adhesive to displace. When working off of material is not possible, use a kneeling board or equivalent to disperse weight evenly and prevent adhesive displacement. Pay close attention to working time to avoid adhesion issues. This may require installing material in smaller sections. Replace trowels at recommended intervals to maintain proper trowel ridge and spread rate.

Periodically lift material to ensure proper adhesive transfer and ensure adhesive has not surpassed the open time - adhesive should cover 90% of tile. Roll material with a 3 section, 100 lb. roller within 30 minutes of installation, crossing in a perpendicular direction after initial roll. Use a hand roller in areas that cannot be reached with larger roller. Visually inspect installation to ensure that material has not shifted and that adhesive has not been squeezed out of joints or compressed onto surface. Clean excessive adhesive or adhesive residue from the surface of the material per adhesive recommendations. Do not apply abrasive or solvent based cleaners directly to flooring material.

### **LOOSE LAY INSTALLATION:**

Apply adhesive along starting row and along perimeter of initial installation area according to instructions for specific product in use. Ensure the width of the adhesive installation is no less than the width of two planks. Observe adhesive flash times and working times and expand adhesive installation area as installation



continues. Be sure to follow instructions based on substrate porosity (porous or non-porous). Install material in the same direction, unless installing in a specific and pre-determined design, such as a herringbone design. For larger installations, use a pyramid layout when installing planks to eliminate run-off.

Use a straight edge along initial row to ensure that all planks are aligned with each other and ensure all seams are tight. When installing material in heavy use areas and through doorways or when flooring installation changes direction, apply adhesive along doorway or along seam and create an "X" pattern to prevent excessive flooring movement. Roll material with a 3 section, 100 lb. roller within 30 minutes of installation, crossing in a perpendicular direction after initial roll. Use a hand roller in areas that cannot be reached with larger roller. Visually inspect installation to ensure that material has not shifted and that all seams are tight.

### **FLOORING PROTECTION:**

Protect newly installed flooring with construction grade paper or protective boards, such as Masonite or Ram Board, to protect flooring from damage by other trades. Do not slide or drag pallets or heavy equipment across the new flooring. Limit usage and foot traffic according to the adhesive's requirements. When moving appliances or heavy furniture, protect flooring from scuffing and tearing using temporary floor protection.

All furniture casters must be made of a soft material and must have a contact point of at least 1" in width to limit indentation and flooring damage. All rolling chair or seating must have a resilient flooring chair pad installed over the finished floor to protect floor covering. All fixed furniture legs must have permanent felt or soft rubber floor protectors installed on all contact points and to reduce indentation. Floor protectors must have a flat contact point of at least 1 sq. in. or 1 in. diameter and must cover the entire bottom surface of the furniture leg.

Ensure all furniture castors and chair legs and are clean and free of any and all dirt and debris. Routinely clean chair castors and furniture legs to ensure that dirt or debris has not built up or become embedded in castors or floor protectors. Replace chair castors and floor protectors at regular intervals, especially if they become damaged or heavily soiled. Place walk-off mats at outside entrances. Ensure mats are manufactured with non-staining backs to prevent discoloration.

### **EW-710 EPOXY WET SET:**

Light Foot Traffic	8-12 hours
Heavy/Rolling Traffic	24-48 hours
Maintenance	72 hours