

PRODUCT DESCRIPTION

CSU-400 is a 1.9mm thick, rolled sound reduction underlayment specifically designed for indoor use under vinyl flooring products. CSU-400 is constructed from > 90% post-industrial recycled content comprised of recycled polyurethane foam, EVA foam and cork granules, making the product incredibly sustainable while contributing the LEED credits. CSU-400 reduces sound

transmission from room to room while also providing thermal insulation and comfort.

CSU-400 is available in 3.5' wide rolls and is easy to cut, allowing for easy installation. CSU-400 can be installed under glue-down or loose lay flooring products. The material is non-absorbent and will resist mold and mildew growth.

FEATURES

- **Approved for Use With Resilient Flooring**
- **Manufactured with Rapidly Renewable Resources**
- **Contains >90% Post-Industrial Recycled Content**
- **Easy to Cut & Install**
- **High Resistance to Compression**
- **High Recovery from Indentation**
- **Excellent Impact & Airborne Sound Reduction**
- **Qualifies for LEED Credits**
- **Compatible With Most Flooring Materials**

TECHNICAL INFORMATION

Unit Size: **3.5' x 100' x 1.9mm**
 Unit Weight: **51 lbs. per Roll**
 Coverage: **350 sq. ft. per Roll**
 Density: **19.5 lbs. / ft.³**
 Tensile Strength: **> 108 PSI**
 Compression: **<25%, 100 PSI**
 Recovery **>85%**

ASTM D2240 – Shore Hardness: **45 - 50**
 ASTM E492/E989 – Impact Sound: **IIC 50***
IIC 66**
IIC 53+
IIC 52++

ASTM E90 / E413 – Airborne Sound: **STC 53***
STC 62**
STC 57+
STC 58++

ASTM E2179 – Effectiveness of Floor: **ΔIIC 21***
ΔIIC 23+

LEED v2009 MR Credit 4.1: **Complies**
 LEED v2009 MR Credit 4.2: **Complies**
 LEED v2009 MR Credit 7: **Complies**
 LEED v2009 IEQ Credit 4.1: **Complies**
 LEED v2009 IEQ Credit 4.4: **Complies**

Shelf Life: **2 Years**
 Storage Temperature: **50° - 75° F**

* 6" Concrete, No Ceiling

+8" Concrete, No Ceiling

** 6" Concrete, Drywall Ceiling

++18" OWT/Gypsum, Drywall Ceiling

APPROVED ADHESIVES

- **Excelsior SP-500 Acrylic Aerosol Adhesive**
- **Excelsior AW-510 Acrylic Wet-Set**
- **Excelsior AP-520 Acrylic Roll-On Adhesive**
- **Excelsior MS-700 Modified Silane Wet-Set**
- **Excelsior EW-710 Epoxy Wet-Set**

PRODUCT LIMITATIONS

Expansion joints must be honored. Do not mechanically fasten underlayment. Do not install materials over existing resilient flooring products or adhesives, as well as asphaltic materials. Do not install underlayment in outdoor areas.

1. PRE-INSTALLATION CHECKLIST

- Consult all associated product literature concerning installation and warranty prior to installation of moisture mitigation.
- Allow all trades to complete work prior to installation.
- Deliver all materials to the installation location in its original packaging with labels intact.
- Inspect all material to ensure there is no leakage or damage.
- Do not stack pallets to avoid damage.
- Ensure installation area and material storage temperatures are between 65° F (19° C) and 85° F (30° C) and 40% - 65% RH 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 concrete moisture testing is conducted or scheduled to be conducted prior to flooring installation.
- Turn off radiant-heated flooring systems 48 hours prior to installation. 48 hours after installation, gradually increase the temperature over the course of 24 hours to a maximum temperature of 85°F (29.5° C).
- Ensure all vents, walls, moldings and/or doorways are protected with tape or plastic prior to installation.
- Test substrate for porosity in order to determine the installation method necessary.
- Ensure finished flooring is not intended make direct contact with the perimeter wall or any vertical surface attached to it, such as electrical boxes, heating ducts, columns, pipes or wood moldings, trim and accessories. Doing so will diminish or void sound reduction characteristics.
- Do not proceed with installation until all

conditions have been met.

2. 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 have any and all existing adhesives, materials, contaminants or bond-breakers mechanically removed via scraping, sanding, grinding or buffing with a 25 grit DiamoBrush Prep Plus tool prior to adhesive installation. In extreme situations, shotblasting may be required. Mechanical preparation must expose at least 90% of the original substrate. Following cleaning and removal, 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.**

All porous substrates must be tested per ASTM F3191 to confirm porosity. Use a pipette or equivalent to conduct three tests by placing a .05 mL (1/4" wide) droplet of clean, potable water onto the surface. If the substrate absorbs water within 60 seconds, the substrate is considered porous. Conduct 3 tests for the first 3000 sq. ft. and one for each additional 2000 sq. ft., at least one per room. 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.

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'. Substrates that do not meet this requirement should have a compatible cementitious patch (such as the Excelsior CP-300) or self-leveling underlayment

(such as the Excelsior SU-310) installed to flatten the installation area.

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 concrete must have a minimum compressive strength of 3500 PSI and be prepared in accordance with ASTM F710. When flooring is being installed directly over concrete, concrete surfaces that have an ICRI Concrete Surface Profile (CSP) over 4 should be flattened with a self-leveling underlayment or a 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.

ADHESIVE RH LIMITS	
ADHESIVE	RH LIMIT
Excelsior SP-500	90% RH
Excelsior AW-510	90% RH
Excelsior AP-520	80% RH
Excelsior MS-700	95% RH
Excelsior EW-710	90% RH

New or existing concrete substrates on all grade levels must be tested in accordance with ASTM F2170, using in situ Probes, to quantitatively determine the amount of relative humidity no more than one week prior to the installation.

In addition to ASTM F2170 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

ADHESIVE	MVER LIMIT
Excelsior SP-500	8 lbs.
Excelsior AW-510	6 lbs.
Excelsior AP-520	6 lbs.
Excelsior MS-700	10 lbs.
Excelsior EW-710	6 lbs.

If ASTM F2170 or ASTM F1869 test results exceed the prescribed limits, a moisture mitigation product, such as Excelsior MM-100 Moisture Mitigation, must be installed prior to proceeding with installation. Install The MM-100 per technical data sheet at a rate of 400 sq. ft. per gallon. When installing over concrete as moisture mitigation, material must be applied in two coats. Do not install flooring until moisture testing has been conducted per the appropriate standard and/or moisture mitigation has been installed and is dry to the touch. Do not install flooring in below grade areas when hydrostatic pressure is visible or suspected.

RESINOUS SUBSTRATES

When installing directly over a resinous moisture mitigation product, such as the 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 the adhesive being used is approved for use over a non-porous substrate. Be sure to follow installation procedures and trowel sizes for non-porous substrates. If patching or pouring self-leveling over resinous moisture mitigation products, be sure to apply a suitable primer, such as the Excelsior P-200 Primer.

GYPSUM BASED SUBSTRATES

Gypsum-based substrates must have a minimum compressive strength of 3500 PSI. Gypsum substrates that do not meet this requirement may have one coat of the Excelsior MM-100 installed to improve the strength of substrate. Substrate must be structurally sound and firmly bonded to subfloor. Any cracked or fractured

areas must be removed and repaired with a compatible patch or repair product. Follow instructions for installation over a gypsum substrate. New or existing gypsum substrates may require a sealant or primer. Follow all manufacturer's recommendations regarding preparation for resilient flooring installation.

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.

METAL SUBSTRATES

Metal substrates must be thoroughly sanded/grinded and cleaned of any residue, oil, rust and/or oxidation. Substrate must be smooth, flat and sound prior to installation. 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. Be sure 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.

3. 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 CP-300.

Due to the dynamic nature of concrete slabs, manufacturer **cannot** warranty installations to fill or cover expansion joints or dynamic cracks (such as control cuts, saw joints and moving cracks or voids) wider than 3/64". As such, **do not** install flooring directly over any expansion joints or dynamic cracks wider than 3/64".

To treat expansions joints and dynamic cracks that are completely through 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. Install a closed-cell backer rod to make the depth equal to the width of the joint or crack (a 1/2" expansion joint requires a void that is no more than 1/2"). 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.

To treat dynamic cracks (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. Ensure surface is troweled flush with surface of concrete.

Consult a structural engineer prior to treating any cracks that may affect structural integrity, such as expansion joints. Review all manufacturer installation instructions and/or consult manufacturer technical staff prior to treating cracks.

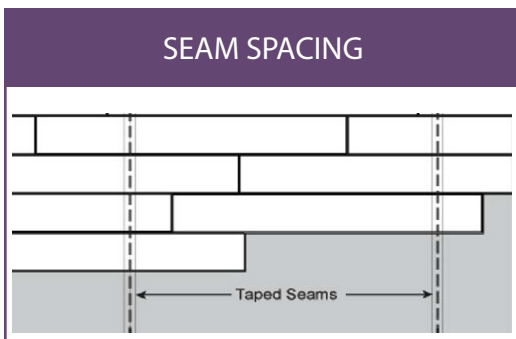
4. PERIMETER ISOLATION

In order to preserve the sound reduction properties of the CSU-400, finished flooring cannot make direct contact with the perimeter wall or any vertical surface attached to it, such as electrical boxes, heating ducts, columns and pipes or rigid baseboards, moldings, trim and accessories. To isolate the perimeter, leave a ¼" gap between the finished flooring and all vertical surfaces and a 1/8" gap between the finished flooring and rigid baseboards, moldings, trim and accessories. Seal all gaps with a permanently flexible acoustical grade caulk, such as the ColorRite sealant/caulk. Ensure caulk is clear, colored or paintable.

5. 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. If installing planks or rectangular tiles, CSU-400 must be installed perpendicular to the intended direction of the flooring material to ensure the seams of the underlayment are perpendicular to the longest seams in the flooring material, as below:



Prior to installation, dry lay all material to fit to dimensions of space, making cuts where

necessary. Ensure that each roll contains a perimeter gap between the roll and all vertical surfaces per Perimeter Isolation.

Apply adhesive according to instructions for specific product in use. Be sure to follow instructions based on substrate porosity (porous or non-porous). Use below chart for reference:

ADHESIVE COVERAGE RATES		
PRODUCT	POROUS	NON-POROUS
SP-500	100 sq. ft. / unit	
AW-510	160 sq. ft.	N/A
AP-520	320 sq. ft.	400 sq. ft.
MS-700	160 sq. ft.	235 sq. ft.
EW-710	160 sq. ft.	235 sq. ft.

All rolls must be tightly butted together. To ensure tight seams, rolls may be taped with 3M 3903 6.5 mil Vinyl Duct Tape, Tyvek House Wrap Tape or equivalent underlayment seam tape. Replace trowels at recommended intervals to maintain proper trowel ridge and spread rate. When installing into adhesive using a wet-set method, avoid walking or working on material until adhesive has cured for light foot traffic. Pay close attention to open times to avoid adhesion issues. This may require installing material in smaller sections.

Roll tile 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.

6. FLOORING INSTALLATION

CSU-400 is considered a non-porous material. Prior to flooring installation, ensure adhesive is approved for use with the substrate 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. Ensure all seams are tight and no gaps exist between each and any roll. When laying out flooring material, especially with planks and rectangular tiles, ensure all the longest seams in the flooring are perpendicular to the seams in the underlayment and that all other seams do not fall directly on seams in underlayment.

7. CLEAN-UP

Excessive adhesive or adhesive residue can be removed from underlayment with a clean cloth and a solution of Excelsior NC-900 (or equivalent) and clean, potable water. Tools and materials where adhesive has dried can be cleaned with a clean, damp cloth and Mineral Spirits or equivalent solvent adhesive cleaner. **Do not** apply solvents directly to underlayments.

8. WARRANTY

CSU-400 provides a limited 10 year material and labor warranty. See associated warranty document for more information.

FOR PROFESSIONAL USE ONLY. PLEASE CONSULT ALL ASSOCIATED TECHNICAL DATA SHEETS, SAFETY DATA SHEETS AND WARRANTY INFORMATION PRIOR TO INSTALLATION.