

# CSI Stampable Overlay

## Technical Data Sheet



*Helix Color Systems is a premier line of specialty decorative concrete admixtures manufactured by ChemSystems Inc. Helix Color Systems is manufactured for the discriminating installer or designer who values service and quality. Specializing in custom colors, specialty products, and superior service, Helix Color Systems offers an innovative alternative in the decorative concrete industry.*

### Description

CSI Stampable Overlay is a one-component polymer-modified cementitious stampable overlay. When applied in conjunction with color, stains and sealers, CSI Stampable Overlay can produce a decorative paving finish similar to imprinted concrete. Typically applied at a 1/4 - to 5/8-inch thickness, CSI Stampable Overlay is for interior and exterior use. CSI Stampable Overlay can be utilized in new construction and renovation. Most imprinting tools can be used with CSI Stampable Overlay.

### Product Benefits

- CSI Stampable Overlay is available in many standard colors.
- CSI Stampable Overlay can be modified to set faster or slower by using common concrete admixtures like Fritzpak set retarder or non chloride set accelerator.
- CSI Stampable Overlay is a zero VOC product that contributes toward LEED's points.
- CSI Stampable Overlay is a decorative overlayment that looks like imprinted concrete and functions as a durable concrete surface. It is not designed to provide a smooth finish surface.
- CSI Stampable Overlay is ideal for interior as well as exterior applications.
- CSI Stampable Overlay can be installed over a rigid waterproof membrane system to provide a composition waterproof decorative floor finish.
- CSI Stampable Overlay provides a fast track construction option by allowing the delay of decorative flooring installation until after the initial heavy construction is complete. This eliminates the need to invest in protection of the surface and greatly reduces damage from construction-related traffic.
- CSI Stampable Overlay may be applied in thicknesses ranging from a minimum of 1/4-inch thick to a maximum of 5/8-inch thick. The recommended application is 3/8- to 1/2-inch thick.
- CSI Stampable Overlay Powder is available in white or gray base.
- CSI Stampable Overlay can be pre colored or colored on site by using CSI Stampable Overlay tint packs.

### Pre-Application

1. Always produce an actual finished mock up sample for approval prior to installation of each application.
2. ChemSystems, Inc. utilizes International Concrete Repair Institute (ICRI) Concrete Surface Profile (CSP) standards for specifying finished surface roughness prior to applying CSI Stampable Overlay. For proper adhesion, the concrete must have a minimum of a #3 surface profile in accordance with the ICRI CSP chart. Contact the ICRI at [www.ICRI.org](http://www.ICRI.org) or ChemSystems, Inc. for more information on these surface profiles.
3. Concrete, new or old, must be cleaned of all grease, paint, curing agents or loose concrete patches and droppings. In particular, be sure to remove all grease, oil, silicone coatings or any other materials on concrete that prevent adhesion.
4. Mechanical shot blasting, grinding or power scarifying achieves sufficient concrete profile.
5. Always check the substrate for contaminants, alkalinity and moisture emissivity. Test and record the surface alkalinity and moisture emissivity. **NOTE:** Although CSI Stampable Overlay is resistant to water, excessive moisture vapor transmission (MVT) can increase alkalinity at the bond line and promote delamination. Always monitor and record MVT conditions on grade and below grade surfaces. When MVT is not within specified tolerances, contact ChemSystems, Inc. for assistance. After the surface has been thoroughly cleaned, inspect substrate for proper control joints and expansion joints. All joints must be maintained. Proper maintenance is best achieved by placing a corresponding joint in the CSI Stampable Overlay material during or after installation, followed by caulking and/or grout installation. Furthermore, inspect substrate for undesirable cracks. Working cracks are anticipated to show through the surface of CSI Stampable Overlay unless properly treated. Working cracks can be repaired using a semi rigid crack repair or bridging system. If cracks are aggressive (exceeding 1/8-inch), Nobel Crack Isolation System can be applied to minimize crack transfer. Non-working (hairline) cracks require no repair.

### Mixing Applications

Correct mixing of CSI Stampable Overlay is absolutely essential to the proper functioning of the material.

- Measure out 1 gallon of cool clean water. Start mixing the water with a mechanical blade mixer, (or equivalent) while gradually adding one bag of CSI Stampable Overlay Powder. More than one bag can be mixed at a time in the proper container. Note: Slight additions of water may be necessary depending on environmental conditions. Water additions should not exceed 1 quart.
- If adding color on site with a CSI Stampable Overlay Tint pack, add the entire contents of the tint pack to the stampable overlay mixture during the last 2 minutes of mixing. Assure that the color is thoroughly blended, and the color is consistent.
- Continue to mix the two materials together – never reverse the procedure and attempt to add the liquid into the powder.
- After the material has been mixed free of any obvious lumps, continue to mix for at least two more minutes to assure all the powder is thoroughly mixed.
- Apply CSI Stampable Overlay immediately upon completion of mixing. Working time of material is about 30-60 minutes, depending on temperature and humidity (high temperature and low humidity reduce working time). Mix no more material than can be applied in that time.
- CSI Stampable Overlay can be mixed in a low speed mortar mixer following the same mixing ratios and sequences. Do not mix less than 60% of the mortar mixers maximum volume capacity. **NOTE:** CSI Stampable Overlay bonds tenaciously to tools and equipment. Wash equipment quickly and often after each use or place the tools in water for later cleaning.

#### STEP ONE – LIQUID PRIMER APPLICATION

Dilute CSI Stampable Overlay Mix Liquid one to one (50%) with clean, cool water to make the primer liquid. Apply primer liquid with a pump-up sprayer, paint roller or brush at 150-250 square feet per gallon. Coverage rates will vary depending on the ambient temperature, humidity and texture of concrete substrate. Work material into the surface with a stiff-bristled brush.

**NOTE:** CSI Stampable Overlay must be applied over wet or tacky prime-coat application. If CSI Primer dries, it can become a bond breaker. Apply a second coat of primer liquid if the first coat rapidly absorbs into the concrete or dries.

#### STEP TWO – CSI STAMPABLE OVERLAY BODY COAT APPLICATION

While the primer remains tacky, apply mixed CSI Stampable Overlay body coat. Spread the mix using a gauge rake, straightedge screed or a screed box to achieve the desired thickness. Continue to work new batches into the material already applied, working the two together to assure no cold joint or color difference occurs. When the surface is firm enough to finish, use a Flexible Blade Smoother ([www.midwestrake.com](http://www.midwestrake.com)) Magic Trowel Squeegee ([www.texmaster.com/magictrowel](http://www.texmaster.com/magictrowel)), fresno trowel, or hand trowels to smooth and level the overlay. Strike the material only once or twice, as excess finishing will cause the material to tear and pull. Spiked shoes or sports shoes with cleats can be worn to walk into the material to finish edges, corners, and imperfections. Do not attempt to create a perfectly smooth surface. Imprinting tools will eliminate minor surface imperfections.

#### STEP THREE – IMPRINTING CSI STAMPABLE OVERLAY

1. Begin imprinting when fingers can cause an impression without material sticking to them.
2. Use caution with CSI Liquid Release\*. Premature application can cause blisters to form in the material. Normally, liquid release requires a longer set time for applications than powdered release.
3. Immediately prior to imprinting, apply a liberal film of CSI Liquid Release\* on the selected imprinting tools using a pump-up sprayer. Apply a thin film of CSI Liquid Release\* agent to the CSI Stampable Overlay surface. **CAUTION:** Avoid over-spray onto any pre-primed or open surfaces.
4. When using powdered release, apply CSI Release Powder\* following the same procedures when imprinting concrete.

## STEP FOUR – STAMPING

1. Using conventional imprinting tools, carefully align and lay the stamps into the material, taking care to position the tools to create the desired effect.
2. Select tools that are designed for CSI Stampable Overlay applications. Imprinting tools with skinny joint profiles and 45-degree relief edges work best.
3. Imprinting CSI Stampable Overlay is different than conventional concrete. The smaller aggregates require less aggressive manipulation; therefore, gentle malleting is necessary.
4. When lifting the stamps, gradually pull from both edges to relieve suction between the surface and the tool. Use imprinting tools fitted with handles, floppies or other tools designed for ease in handling.
5. Use specially designed edging tools, chisels, and grout touch-up wheels. These assist in cleaning and defining all edges to achieve a professional finish profile.
6. Refrain from installing CSI Stampable Overlay in extreme weather conditions. Wind and heat can cause premature hydration, which results in shrinkage cracking. Shrinkage cracks are an aesthetic issue and will not normally result in long-term failure, although proper care should be taken to repair them.

## STEP FIVE – DETAIL WORK

1. Protect the overlay during the curing period.
2. After the material has cured, detail any imprinting imperfections using grinders, chisels or scraping tools prior to sealing or staining.
3. Honor all joints and use a full depth cut of at least 1 1/2-inches for all expansion or control joints to minimize reflective cracking.

## STEP SIX – CURING

Plastic sheeting can be used to cure CSI Stampable Overlay. If curing with plastic, areas of inconsistent color may occur from areas of high moisture, especially when using liquid release. Under ambient conditions (temperature 70 °F, humidity 50%) CSI Stampable Overlay will cure in 24 hours. Cooler temperatures and higher humidity will increase the cure time. Do not remove release or seal if the surface is plastic or soft. Light traffic in 24 to 36 hours, full traffic in 48 to 72 hours. See “Technical Data” section in this bulletin for surface strength specifications.

## STEP SEVEN – STAINING OR PRE-SEALING

For antiquing, staining and coloration treatments such as CSI ChromaStain\*, and CSI Concrete Dye\* (interior use only), follow the appropriate application guidelines in the respective Technical Data Sheets. In general, once desired finish is achieved, material should be left to cure for 24 hours prior to staining. Make sure to select sealers best suited for the application, traffic, use, maintenance and exposure.

## STEP EIGHT – CLEAR SEALER

Apply selected sealer by sprayer, brush or roller. Make sure to select sealers best suited for the application, traffic, use, maintenance and exposure. Do not seal before the overlay has cured for 24 hours. Recommended sealers can be found in the Surface Protection and Maintenance section

## Surface Protection and Maintenance

- Maintenance will vary depending on a number of factors, including volume and intensity of traffic, ultraviolet light exposure, geographic location and weather conditions.
- All CSI Stampable Overlay installations should be professionally cleaned and resealed periodically by a qualified floor maintenance contractor in order to maintain a top quality appearance.
- Exterior CSI Stampable Overlay surfaces should be resealed annually depending on traffic, especially in freeze-thaw locations.
- Refer to CSI Sealer Selection guide to select the proper CSI Sealer for the specific application.
- For interior applications, apply CSI Floor Finish\* as a maintenance coating.

## Limitations and Precautions

- The substrate temperature should range from 65-80 °F. A warm substrate decreases the material's pot life and can cause mixes to be sticky. A cooler substrate will retard the cure and may cause a blush in some sealers. Never apply CSI Stampable Overlay to substrates below 55 °F.
- Keep the unfinished flooring surface clean.
- Do not track dirt, grease or any other contaminants onto the unfinished flooring surface. Any contaminants could affect the aesthetics of the finished flooring.
- Good ventilation must be provided during application.
- This application is not designed to bridge cracks, working joints, dynamic cracks or expansion joints.

## Shelf Life and Storage

**Liquid:** CSI Stampable Overlay Liquid has a shelf life of one year. Store indoors. Store and mix at a temperature of 65-80 °F (18-26 °C). Do not allow product to freeze. If CSI Stampable Overlay Liquid freezes, discard.

**Powder:** CSI Stampable Overlay Powder has a shelf life of 12 months.

## Coverage Rates

Coverage Rate per bag:

1/4-inch = 24 square feet	3/8-inch = 16 square feet
1/2-inch = 12 square feet	5/8-inch = 10 square feet

## Package Sizes

**Liquid:** CSI Stampable Overlay Liquid Primer is available in 1- and 5-gallon pails.

**Powder:** CSI Stampable Overlay Powder uncolored is available in 50-pound bags of gray or white base; CSI Stampable Overlay Powder precolored is available in 50-pound bags.

## Technical Data

Please refer to the corresponding MSDS for hazard-related information.

Compressive Strength.....ASTM C109 (2" x 2" cubes): 4,219 psi

Indentation Characteristics .....(Steadily Applied Load) MIL-D-134, Para. 4.7.4.2.1  
(2,000 lbs.on 1" steel ram imposed for 30 min.): 2.26%

Adhesion.....MIL-D-3134, Para. 4.7.14 (Shear from steel plate after  
96 hours): 305 psi

Compression Test.....Outdoor 50#/1 gallon mix, 7-day cure: 3,300 psi;  
28-day cure: 3,900 psi  
Indoor 50#/1 gallon mix, 7-day cure: 2,800 psi;  
28-day cure: 3,900 psi

Water Absorption.....MIL-D-3134: 3.41%

Tensile Strength.....ASTM C190: 925 psi

Flexural Strength.....ASTM C580: 2,415 psi

Impact Resistance .....(Gardner Impact Tester) No chipping, cracking or  
delamination and not more than 0.014"

## Product Handling

For complete instructions on handling and use, consult the corresponding Material Safety Data Sheet before using product.

## Warranty

CSI Stampable Overlay a proprietary product, is warranted to be of uniform quality within manufacturing tolerances. Since control is not exercised over its use, no warranty, expressed or implied, is made as to the effects of such use. Seller's and manufacturer's obligation under this warranty shall be limited to refunding the purchase price of that portion of the material proven to be defective. The user assumes all other risks and liabilities resulting from use of this product. If you have any questions, please contact ChemSystems, Inc.



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\*For complete information on all CSI products—including product information catalogs, product brochures, color charts, technical specifications, sales aids and more—contact ChemSystems, Inc.

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