

# CustomTech Remediates Moisture and Controls Floor Flatness on 7-Day Slabs Before Wall Installation at New Hospital



Ocean View Tower is a new seven-story expansion of Sharp Chula Vista Medical Center, a regional hospital that has been serving this community in San Diego County, California for over 70 years. Their latest investment in the facility's future includes 138 private patient rooms, ten intensive care units and six high-tech surgical suites. Over 170,000 square feet were added to the hospital, including 120,000 that received an Early Stage Leveling™ flooring preparation system from CustomTech™, a division of Custom Building Products.



In fast-track health care construction, controlling moisture vapor prior to flooring installation is paramount. Critical care patients and expensive medical equipment are not easily relocated to make repairs so it is imperative that the prep work is completed correctly the first time. Floor flatness and integrity are also vitally important requirements on health care projects as foot traffic, gurneys and sensitive devices are constantly in motion across the surface.

To manage both of these issues at a very early stage - while the building was still wide open to the elements - CustomTech's Early Stage Leveling™ and Moisture Control System was implemented on the project. This solution allowed placement of self-leveling underlayment just seven days after the concrete was placed - months before curtain walls were added to the building.

Not only does this approach help lower costs and facilitate leveler placement, it also minimizes disruption of the project schedule and the activity of other trades that comes with late-stage implementation. This benefit gives tremendous flexibility to the general contractor. Applying a moisture mitigation membrane over a slab soon after concrete placement also helps retain moisture to resist curling and shrinkage. Pre-leveling the slab allows for much faster and more efficient installations by other trades such as framing, drywall and millwork that are now working from a flat floor.

All flooring preparation and flooring installation work on the Ocean View Tower was executed by The Rouse Company, who have installed CustomTech products on a number of other large, fast-track construction projects since the line was introduced in 2013. The General Contractor on the project was



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Hensel Phelps Construction Company, who also acted as a design build partner overseeing progress from the start. Both companies' dedication and expertise in this field contributed to a well-planned and successful operation.

"This system was definitely helpful and made our job easier by saving time, coordination and go-backs," said Fay Fleming, project engineer with Hensel Phelps. "It was nice to not have to deal with floating floors or issues with door frames or moving drywall."

### Jobsite Conditions and Moisture Vapor Control

Beginning the flooring preparation process at such an early stage required a system of products that addresses high moisture vapor emissions from green concrete — plus a premium-quality underlayment with sufficient compressive strength to hold up to exposure and trade traffic. Another cornerstone of the solution was the labor and materials cost savings based on an innovative acrylic primer.



The new slabs in the Ocean View Tower were pan deck built over corrugated steel panels to accommodate a large number of columns. A pre-determined rate of anticipated deflection between the column lines was provided by the structural engineer on the project to assure that the assembly would be suitable. To remove laitance, curing compounds or any contamination, and to provide an open surface texture for bonding, the slabs were prepared with a light brush blast.

Concrete had been placed just days earlier and its relative humidity (RH) was still at 100% when TechMVC™ Moisture Vapor Control was applied to the slab. The product was spread at full-strength with a squeegee and then back rolled with a 3/8-inch nap roller. Tech MVC only requires 8.5 mils nominal thickness to bring floors into compliance with ASTM F710 and ASTM F3010. When applied to concrete at this early age, TechMVC will help retain moisture, thereby minimizing curling as the concrete slab continues to cure.



TechMVC is a single coat, low viscosity, moisture- and alkali-resistant, 100% solids epoxy coating. Rapid-curing TechMVC is specifically formulated to control concrete moisture emissions and create a barrier to the migration of alkalinity between the substrate and adhered flooring materials. This vapor control product is appropriate for concrete substrates cured at least 72 hours that measure up to 100% RH (per ASTM F2170), 25 lbs MVT (per ASTM F869) and pH 14.

### Priming and Leveling

To prepare for pouring self-leveling underlayment, TechPrime™ A Advanced Acrylic Primer was applied at full strength over the epoxy moisture vapor barrier utilizing a 1/4-inch nap roller. With no dilution or component blending required, installers were able to use a dip and roll method for higher speed and efficiency. TechPrime A seals porous surfaces and is designed to adhere to non-porous surfaces including epoxy.



The use of this specialized acrylic primer over the epoxy barrier is a chemistry breakthrough by CustomTech and represents a significant source of savings on the project. The acrylic primer is less expensive than epoxy primers and coverage rates per gallon are nearly tripled. Sand broadcasting is no longer required which further reduces labor costs to deliver, distribute and remove



**PRODUCTS USED:**

TechMVC™ 100% Solids Epoxy Moisture Vapor Control; TechPrime™ A Advanced Acrylic Primer; TechLevel™ 150 Premium Calcium Aluminate Based Self-Leveling Underlayment; Silk® Patching and Finishing Compound

**LOCATION:** Chula Vista, CA

**YEAR COMPLETED:** 2019

**ARCHITECT:** AVR P Skyport Studios / SmithGroupJJR / Hensel Phelps Design Build Team

**GENERAL CONTRACTOR:**

Hensel Phelps Construction Company, Irvine, CA

**FLOORING PREP CONTRACTOR:**

The Rouse Company, Rancho Dominguez, CA

**CUSTOM BUILDING**

**PRODUCTS TEAM:**

Brian Swann, CTC, District Manager; Jamie Karabela, CustomTech Business Development Manager

rejected sand.

The leveler chosen for the project was CustomTech's flagship product, TechLevel™ 150 Premium Calcium Aluminate Based Self-Leveling Underlayment. TechLevel 150 attains greater than 4300 psi compressive strength for use on a wide variety of medium to heavy-duty commercial applications. This quick setting underlayment can be applied up to 1.5-inches (3.8 cm) thick in one pour to flatten floors to receive any floor covering.

At the Ocean View Tower, TechLevel 150 was poured to an average depth of 1/2-inch to flatten the slab between column lines and to encapsulate the entire floor. Superior flow retention allowed the leveler to be easily spread with a gauge rake and the surface was finished with smoothing tools. TechLevel 150 also helps to eliminate installation problems like bond failure, crumbling and staining of resilient flooring due to free moisture found in traditional underlayments.

"TechLevel 150 is my go-to leveler if I have a choice. We definitely prefer it over any other product and use it on all of our jobs," said Josh Reed, concrete division manager at the Rouse Company. "The entire CustomTech flooring prep system is easy to use and works great. We love it!"

**Early Stage Leveling and Moisture Control**

While an early stage installation facilitates pump truck operations, The Rouse Company used a traditional barrel mixing technique on this project. With a large crew on hand, they were able to take exceptional care to precisely manage water ratios and mixing times.

San Diego's climate is perfect for early stage leveling and moisture control while the building is still open to the elements. However, the system can be used in other areas and at other times as long as moderate temperatures (50-90 degrees F), humidity and winds allow application according to the product Technical Data Sheets. Fully-cured self-leveling underlayment on this project was exposed to occasional rainfall; as specified in the system data sheets, brooms were used to remove any standing water and prevent puddling in order to maintain performance.

Since the slabs were already leveled, other trades were able to proceed with their installations more quickly and accurately, including all of the extensive framing and millwork required at a health care facility. Then, prior to installation of sheet vinyl, the floors were treated with a skim coat of Silk® Patching and Finishing Compound as needed to address any imperfections in the surface from trade damage. Fast-curing Silk offers excellent handling, can be applied from a feather edge to one-inch and allows installation of flooring in as little as 30 minutes.

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