

Levelrock® 3500 Floor Underlayment

Application/Building Type:
Multi Family Construction

Project
The Encore

Location
Portland, Oregon

Product(s)
LEVELROCK® 3500 Floor Underlayment

LEVELROCK Applicator
Ultra Quiet Floors



Durable LEVELROCK® 3500 floor underlayment helps level concrete floors at Oregon high-rise condominium while enabling crews to stay on schedule.

All eyes in the flooring business are on Portland, Oregon. The Encore - a stunning, 177-unit condominium complex - is one of the first buildings in the Pacific Northwest to have its entire post-tensioned, concrete subfloors leveled with an innovative, fast-setting underlayment.

"The owners like it," says Kevin Knittel, project superintendent at Portland's Andersen Construction, which serves as the general contractor on the project. "They like how level the floors are and the quality of the finish."

LEVELROCK® 3500 floor underlayment from USG® has been used to level all 16 floors at The Encore. The product sets quickly - in as little as 90 minutes - and hardens to a minimum compressive strength of 3500 psi (pounds per square inch). In fact, tests on this project came in at more than 4100 psi, thereby meeting or exceeding today's new psi requirements of many flooring manufacturers.

The high volume of material that can be applied in a single day by skilled LEVELROCK applicators, such as Portland-based Ultra Quiet Floors, enables crews to resume their work on the same floor the next day, saving Andersen Construction time and money in building The Encore.

"It just helps drive the schedule faster," said Knittel. "It takes the glitch out of trying to move trades people around and juggle them through the spaces."

Level Floors Are Key

The Encore is a project of Hoyt Street Properties, Portland's largest development company. Situated at the north end of the Rose City's Pearl District, The Encore is adjacent to a large planned park.

Its sleek, glassy, contemporary presence is the work of BOORA Inc., an internationally acclaimed architectural firm based in Portland. Unit prices range from \$350,000 to \$2 million and attract the kind of clientele that demand only the highest-quality details, from level floors on up.

"Our experience has been that you have to have very level flat floors," says Knittel. "Without very level flat floors, you will be fighting your finishes." The Tile Council of North America (TCNA) recommendations are for floors on plane and level within 1/4 inch per 10 feet, and no greater variation than 1/16 inch per 12 inches. In this case, 90 percent of the finished floor is hardwood. The specification required the floor to be level within 1/8 inch per 10 feet.

Another important finishing detail involved the architectural challenge of The Encore's crescent-moon shape. The design forced the concrete contractor to pour concrete decks within tight tolerances. While poured-in-place concrete with post-tensioned cables is a common installation method, it tends to leave some deflection in the decks.



Knittel, a 30-year industry veteran of building big-city skyscrapers, says that's to be expected. However, to accommodate hardwood flooring, the decks had to be expertly leveled. Initially, Andersen Construction was leveling the subfloors on its own with a pre-sanded, bagged material - doing the work all by hand.

"They had their people mixing product in a barrel, addressing inconsistencies by grinding high spots and filling low spots," said Ed Novak, sales estimator at Ultra Quiet Floors and a 15-year flooring veteran. Ultra Quiet Floors is a regional flooring leader that pours an average of more than 2 million square feet of LEVELROCK floor underlayment each year.

"This was a 240,000-square-foot project," said Novak. "With that scope of work, we knew we could do something better for Andersen than what they were doing. So we sat down and talked about what Ultra Quiet Floors could do for The Encore."

In the end, Novak recommended LEVELROCK 3500 floor underlayment. Ultra Quiet Floors' crews would quickly mobilize and complete the floors, making way for the other trades to be back on the job the very next day. Knittel was familiar with pumped-in, self-leveling products and appreciated how fast they could be applied, but has been impressed by the compressive strength and durability of LEVELROCK 3500 floor underlayment.

Since this was Andersen Construction's first time using LEVELROCK products, Novak made a presentation to Knittel, Bill Juhala, an Andersen project manager, and the building's owners. With everyone satisfied, work began. Knittel scheduled pours to occur every two weeks, blocking out two days to pour each floor of the 16-floor high-rise.

Controlled Schedule

Ultra Quiet Floors uses an eight-man crew working in two shifts to apply the floor underlayment. The first shift is the setup crew, which comes in on the first day of the scheduled two-day pour. They set up leveling lasers, install grade pins and sweep the floors free of dust and debris. Next, they apply a concrete primer to the concrete deck - creating the ideal bond for the underlayment.

"We apply two sealers - a 4:1 concrete primer to displace the air, followed by a 1:1 concrete primer that seals up the porosity," said Novak. "That's a ratio of four parts water to one part sealer by volume. The other is one part water to one part sealer, or equal parts."

On the second day of work, Ultra Quiet Floors sends in the pour crew. Each LEVELROCK floor underlayment batch is mixed precisely. First, a Bobcat skid-steer loader operator measures out a bucket of sand and pours it into the concrete pump's mixer, where a laborer adds the appropriate number of underlayment bags. Next,



a precise amount of water is added to the underlayment/sand mixture and pumped up to the floor, where it is poured to meet the height of the grade pins. The material is then finished smoothly.

"Each batch gets an exact amount of sand," said Novak. "We have a line inside the Bobcat bucket marking the right amount of sand, and we rake off to that point, adding the bags of underlayment to get consistent batches. At Ultra Quiet Floors, we have some of the highest quality control standards in the country, which are consistent with the high integrity of USG LEVELROCK applications."

"I try to manage with a controlled schedule," said Knittel. "The key to keeping sequences and staying on budget is to have a good pre-plan. That's where this product really helps, because we're able to develop a plan, plug it into the master schedule and the impact to the flow of the project is minimal."

"The Math"

What about cost? Is using a poured self-leveling material justified by the gains in the production? Knittel says yes.

"We've done the math on five different jobs," explained Knittel. "It seems to cost more when you first look at it, but when you do your homework and measure the impact on our production time, the cost is the same. What's more, there is no loss in the schedule and the floors come out extremely flat, making LEVELROCK 3500 underlayment a superior alternative to the grind and fill process we've done on other projects."

The Encore is on schedule and the owners are happy. Best of all, the concrete floors have been leveled properly to meet the tolerances required to install hardwood flooring. And it all occurred quickly and affordably.

"The floors have come out great," said Knittel. "I've done other jobs with other materials, and they haven't come out as nice as this."

