Elevated Thinking — Using Expertise to Create a New Solution for a Common High-Rise Challenge

In Miami where highrises are the rule not the exception, developers are finding the space the need by building up. In a market that understands highrise construction in a way that few other do, you may be surprised to learn that one large project recently found an innovative solution to the challenge of leveling transitions between finished floor goods. In high-rise construction, transitions between the varying heights of finished floor goods are generally tackled in one of two ways:

**Plywood leveling and ramping**
Leveling and ramping transitions using plywood is a slow, labor intensive process. It is difficult to ramp accurately making the process a frustrating undertaking for even the most seasoned floor goods installers. In high-rise construction where profits can be won or lost in the project’s timeline, this tedious process can be costly.

**Barrel mixed concrete leveling and ramping** - Where plywood is not used then floor goods installers accomplish leveling and ramping by barrel mixing mortars or concrete. While mix and spill concrete offers the benefit of being more malleable than plywood for leveling and ramping, it is still clumsy to place. It is generally considered the less ideal solution because of cost as well as dry time, which can easily take 28 days or more.

The challenge of transitions occurring between floor goods is not exclusive to high-rise construction and is regularly addressed with ease in smaller scale projects. The most common of these project types is multifamily wood frame construction, where not only are transitions an issue but a fire rating is also required. In order to address both, a high-strength pumpable underlayment is installed. Underlayments not only block flame spread, making them a vital component in many UL Fire Designs, but they also have the ability to be poured to a specific height with accuracy and speed.

To install a pumpable underlayment, the underlayment is mixed on the job site with water and sand and then pumped through a hose into the building. It takes a special, highly experienced applicator with specific high-rise pumping and floor leveling expertise to accurately complete a high-rise underlayment installation. The crew systematically moves through the
space applying the product to the specified depth and simultaneously finishing it using a screed to provide a flat, consistent finish. The underlayment is then left to dry. Where it may take days to complete plywood installation on a single floor, a pumpable underlayment can cover several floors in a single day, saving a tremendous amount of time on this portion of the project. Additionally, pumped underlayments are generally hard enough to walk on within two to four hours after the pour thus allowing other trades to resume work quickly. An underlayment will be ready for finished floor goods in a few days depending on the thickness of the pour, allowing for finished floor goods installation in a fraction of the time of concrete transitions.

Using underlayments to address transitions in high-rise projects has remained virtually unheard of because of the limiting factor of gravity. The process of pumping the material up 40+ stories is facilitated by proper pump equipment, concrete standpipe and most significantly, expert personnel. The higher the material has to go, the more product that is in transition at a given time, thus the more stress being exerted on the equipment. The solution to establish harmony between the material and the equipment lies in the applicator’s ability to analyze and finesse the mix design technology floor by floor.

High-rise projects highlight the importance of working with knowledgeable and experienced professionals. The process of installing an underlayment consistently in high-rise construction is completed through a series of tweaks made with each shift vertically. Understanding the process and setting realistic expectations is a vital first step to the successful completion of a high-rise underlayment project. Over promising on the amount of floors that can be covered in one day can create a domino effect of work delays for other trades. A well planned project, however, facilitates the means by which a rigorous construction schedule can be achieved while also saving on floor prep labor and material costs.