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Unitized construction: Delivering better buildings, faster

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They are some of the latest buzz words in business headlines: unitized, modular, or componentized construction. But unitized construction is nothing new to Margulies Perruzzi Architects (MPA). What is new is how frequently its design teams and clients are turning to the more efficient and green unitized systems over on-site, stick construction.

MPA is currently working on a large-scale office renovation project for a developer who has endorsed the use of unitized framing for its building. The result will be a three-story office complex that is less expensive, delivered faster - and rented earlier.

Unitized construction is loosely defined as building components that are shop-prepared, assembled, and then shipped to the work site as a completed unit. Those units are then connected to form the building enclosure and façade. Stick construction generally refers to factory-made building components that are erected piece by piece on site.

For MPA, the unitized process involves more design work, collaboration with suppliers, and approvals up front. However, in the end it means lower field installation costs, less waste at the construction site, and often, a longer-lasting, higher-performing building envelope that provides thermal insulation, reduces energy costs, resists high winds, and allows for more natural light to be filtered into the building. The unitized construction process may also earn a project points toward LEED certification.

The envelope or exterior skin of the building can also be referred to as a curtain wall. Most curtain walls are made of lightweight materials. For the new office project MPA is designing, the curtain wall will include a combination of metal and spandrel glass. The latter material is aesthetically pleasing and retains heating and cooling within the building better than vision glass.

Still, for some observers of the shift towards modular or unitized buildings, there is concern about buildings looking too modern or clashing with surrounding architecture. In 2010, MPA designed the award-winning, LEED Gold-certified 175-185 Wyman St. office complex in Waltham, Mass. to feature both cost-effective and contemporary materials, while still appealing to tenants interested in a more traditional Boston aesthetic. MPA chose a rainscreen system, an exterior wall with two different outer faces: terracotta and metal. The rainscreen utilizes the exterior cladding as a screen against water intrusion and provides airspace behind the skin for drainage and venting. But key in this was pre-fabricating large panels to allow the contractor to quickly make the building weather-tight. That shorter construction phase resulted in cost savings for the client.

So while unitized construction may be the latest darling of your daily newsfeed, it's a daily discussion for MPA - and often a good decision - when it comes to designing better, greener buildings.

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