

Off-Site Construction: Delivering Better Buildings

March 26, 2024 | Session Overview

Speakers

Ryan M. Colker, Innovation Vice President, International Code Council

Jeff Brown, State Building Codes Office Director, Division of Building and Fire Regulation, Virginia Department of Housing and Community Development

Sara-Ann Logan, Vice President, Design, Volumetric Building Companies

Mary Tingerthal, President, Tingerthal Group, LLC

Moderator

Sarah Swango, Vice President, Corporation & Foundation Relations, National Institute of Building Sciences

Off-Site Construction Overview

There is no shortage of excuses not to build differently, but the current challenges we face as a building industry and society are becoming too tenuous to continue the status quo. From workforce availability and jobsite safety to housing affordability and availability, building quality and sustainability – we need solutions.

With national housing costs rising 52 percent from 2017 to 2022, off-site construction offers an affordable solution, capable of curbing construction timelines and reducing costs. Off-site construction can deliver projects 20 percent to 50 percent faster than traditional methods, which can provide cost savings of up to 20 percent. However, off-site construction makes up only a small proportion of construction activity.

On March 26, 2024, NIBS hosted a webinar on off-site construction and how it helps to deliver better buildings. The

webinar was part of the Building Innovation Webinar Series.

This session explored some of the challenges to the widespread deployment of off-site construction and how off-site construction leaders are working to overcome these challenges. Specific attention was paid to the critical importance of aligning design, manufacture, finance and regulations to deliver successful projects. From barriers and best practices to finance and regulation, this session discussed why off-site construction is a solution to drive innovation and sustainability.

What Is Off-Site Construction?

In his opening for this off-site construction webinar, Ryan Colker, Innovation Vice President with the International Code Council, offered the definition of off-site construction.

According to ICC/MBI Standards 1200 and 1205, the definition is a modular building, modular component, or panelized system that is designed and constructed in

compliance with this standard and is wholly or in substantial part fabricated or assembled in manufacturing plants for installation – or assembly and installation – on a separate building site. It has been “manufactured in such a manner that all parts or processes cannot be inspected at the installation site without disassembly, damage to, or destruction thereof.”

Colker referenced the report, *Offsite Construction for Housing: Research Roadmap*, produced by NIBS and MOD X for the U.S. Department of Housing and Urban Development. Research priorities are identified for six topical areas: Regulatory Framework; Standards and System Performance; Capital, Finance, and Insurance; Project Delivery and Contracts; Labor and Workforce Training and Management; and Business Models and Economic Performance.

Colker also shared a U.S. map showing how states approach the regulation of off-site construction.

“Having different standards state to state can create challenges,” Colker said, mentioning that states that leave off-site construction to local jurisdictions presents even greater challenges, including in project approvals and both in-factory and on-site inspections.”

Winning Over the Gatekeepers

Mary Tingerthal, President of Tingerthal Group, LLC, covered volumetric off-site construction for multifamily housing.

Tingerthal shared that her background is finance, having served as past CEO of the Minnesota Housing Finance Agency.

She said off-site construction makes sense because of:

- Time savings
- Cost savings
- Site considerations (tight urban sites, access to construction workforce, and proximity to manufacturers)
- Quality and sustainability

Some of the challenges for modular manufacturers include a bit of a negative industry track record and the capital requirements can be intense with fixed investment and workforce retention. The ability to develop a durable project pipeline can be hard and many times there’s a tendency for

interruption.

“Part of the battle is winning over the gatekeepers – the developers,” Tingerthal said. “They don’t immediately see the upside. They already have relationships with contractors who may see the use of offsite components as a threat, and there are perceived risks from lenders, including insurance and bonding requirements.”

Tingerthal shared a couple of case studies, including Alvera in Saint Paul, Minnesota, which was a case for modular. Alvera contains 193 units, and it was built into a tight urban site of 0.6 acres. The project took 13 months, and it was a 2023 Best of Show Awardee at the Modular Building Institute’s World of Modular.

Singular Projects to Platforms of Projects

Structuring off-site construction projects with a long runway vs. singular/one-off projects will go a long way toward achieving cost savings and capturing replicability.

Sara-Ann Logan, Vice President of Design with Volumetric Building Companies, emphasized the need for flexibility and to align expectations for success.

“The thing with offsite construction – you can’t do it by yourself,” Logan said. “You’re all part of a team.”

She shared examples of offsite construction assemblies (bathroom and kitchen kits, fixtures and finishes) and platform design, which calls for dedicated product development and manufacturing optimization to be deployed in projects.

“Think about multiple markets,” she said. “Can you design or have a system that is equally able to do hotels as it is able to do student housing? This is to try to transition the industry from thinking about singular projects to platforms of projects. What areas of flexibility are needed for success in your market?”

Logan said the key to success is based on transitioning from project thinking to portfolio or platform thinking to drive efficiencies in design and manufacturing.

Virginia: Seeing an Uptick in Off-Site Construction

Jeff Brown, State Building Codes Office Director in the Division of Building and Fire Regulation with the Virginia Department of Housing and Community Development, shared the status of off-site construction in the commonwealth, including the adoption of ICC/MBI Standards 1200 and 1205 in an effort to support regulatory consistency across states.

Virginia issues registrations seals that are affixed to approved modular units and panels. Last year, Virginia issued 7,000 registration seals for off-site construction. This is up from 5,000 the year prior.

“We’re visiting the manufacturing facilities to do inspections and reviewing inspection records to make sure everything we’ve asked of our third parties have been handled properly,” Brown said. “We work closely with the building departments to make sure any problems are resolved.”

Brown mentioned that Virginia also faces the challenge with sufficient affordable housing. Off-site construction generally is seen as a way to address the housing affordability issue.

“Affordable housing is near and dear to our heart, and we’re looking for ways to remove barriers,” he said, mentioning that the commonwealth has seen an uptick in off-site construction this calendar year.

Building Innovation Webinar Series

As part of our mission to continue conference education, NIBS launched a [webinar series](#) to reach even more professionals on new technology, trends, groundbreaking tools, best practices, and workforce solutions.

It’s NIBS’ way of extending the Building Innovation annual conference beyond the in-person meeting. The next webinar soon will be announced.