Off-Site Construction: Delivering Better Buildings
Webinar | March 26, 1-2 pm ET
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
Volumetric Building Companies

Mary Tingerthal
President, Tingerthal Group, LLC
ICC Family of Solutions

- Codes and Standards
- Personnel Training & Certification
- Product Evaluation
- Accreditation Services
- Codification & Administration Services
- Engineering Support
- Community Resilience Benchmarks®
- Third-Party Evaluation Services
Why Off-Site Construction?

MODULAR CONSTRUCTION SCHEDULE

SITE BUILT CONSTRUCTION SCHEDULE

- Design Engineering
- Permits & Approvals
- Site Development & Foundations
- Install & Site Restoration
- Building Construction at Plant

Simultaneous site development and building construction at the plant reduces schedule by 30% to 50%.
HUD Off-Site Research Roadmap
OFF-SITE CONSTRUCTION. A modular building, modular component or panelized system which 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 and 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.

- ICC/MBI Standard 1200/1205
Off-Site Construction Standards

https://www.iccsafe.org/offsite
Additional Off-Site Resources

Primer on Off-Site Construction, Codes, Standards and Compliance

FAQs on Off-Site Construction

Facilitating Affordability, Sustainability Goals through Standards for Off-Site Construction

iccsafe.org/offsite
Additional Off-Site Resources

Workgroups:
• Standards & Regulatory Support
• Case Studies & Best Practices
• Data & Surveys

https://www.nibs.org/oscc
Volumetric Offsite Construction
For Multifamily Housing

Mary Tingerthal
Former CEO, Minnesota Housing Finance Agency
Consultant to RISE Modular
Founder, Construction Revolution
Why Offsite Construction Makes Sense

• Time Savings
• Cost Savings
• Site Considerations
  • Tight urban sites
  • Access to construction workforce
  • Proximity to manufacturers
• Quality and Sustainability
Challenges for Volumetric Manufacturers

- Negative Industry Track Record
- Capital Requirements
  - Fixed Investment
  - Workforce Investment/Retention
  - Performance Bonds
- Long “Proof of Concept” Cycle
- Durable Project Pipeline
  - Vertical Integration
  - Developer Partnerships
Winning over the gatekeepers (developers)

- They don’t immediately see the upside
- Relationships w/Contractors
  - Bids reflect major fear factor
  - Revenue generation from captives
- Perceived Risks from Lenders
  - Insurance, bonding requirements
- Competitive Process for Affordable
  - Complicated scoring systems
  - No reward for innovation
- Sharing Success Stories
Story #1 Alvera - Saint Paul, MN

The Case for Modular

• Tight urban site 0.6 acres, 193 units
• Construction cost and time schedule

The Results

• 2023 MBI Best of Show Awardee
• 13-month completion (vs.18-24 mo)

Lessons Learned

• Staging site
• Inspections coordination
Story #2 – Minneapolis PHA Scattered Site

The Case for Modular
  • Needed standard design, multiple sites, large units
  • Needed fast rolling completion

The Results
  • Finalist for Ivory Innovation Award
  • First move-ins 5 mo. after mod set

Lessons Learned
  • Need coordination before bidding
  • Careful attention to site selection
Opportunities for Volumetric Modular in Multifamily Residential

• Increase Extent and Frequency of Information Exchange
• Incentives and Set-Aside Programs
  • Developers
  • Manufacturers
• Structure Programs with Long Enough Runway
  • Plan to support replicability with integrated teams
  • Capture lessons learned as part of the plan
• Learn from Other Countries
  • International Exchanges
  • Japan, Sweden, Ireland, Scotland, UK
Utilization of Products, Components, and Platform Design for Offsite Construction

Sara.Ann Logan  AIA, RIBA, NOMA, IIDA
VP of Design – Volumetric Building Companies
Principal and Stamping Architect
What Options are there In Off-site?

- Assemblies
- Kits | Pods
- Volumes | Modules
- Interfaces | Platform
Examples of Assemblies

- Wall | Floor Assemblies
- Standard Testing (Fire, Acoustic etc)
- System Rules
- Means and Methods

All help align expectations and coordinate with non-offsite building technology and processes
Examples of Kits and Pods

• Bathroom Kits | Pods
• Kitchen Kits | Pods
• Fixtures and Finishes

Helps simplify tedious, highly specific, and highly skilled portions of a project and simplify them for inclusion into either off-site or traditional processes.
Examples of Modules

• **Steel (light-gauge, red-iron with light gauge infill)**
  specialty residential, mid to high-rise

• **Wood (framed)**
  residential to mid-rise

• **CLT**
  mid to high-rise (in certain markets)

- Helps improve speed of construction and lower overall project development time
Examples of Platform Design Concept

• **Heavy up-front product and DfMA focus**
  dedicated product development and manufacturing optimization to be deployed in projects but developed outside of the project structure

• **Focus on use in multiple markets, multiple systems, multiple asset classes, or multiple projects**
  establish the company or client’s scope or reach to increase demand and open up opportunities for efficiency
  (VBC operations in multiple markets, systems, asset classes, and repeat portfolios)

• **Focus on defining the need for flexibility**
  what areas of flexibility are needed for success in your market?
  (size, design, aesthetics?)

  Key to success is based on transitioning from project thinking to portfolio or platform thinking in order to drive efficiencies in design and manufacturing
Virginia’s Off-Site Construction Program

Division of Building and Fire Regulations

State Building Codes Office

Off-Site Construction
osc@dhcd.virginia.gov
Virginia's Off-Site Construction Program

Virginia Industrialized Building Safety Regulations (IBSR)

- **Closed Construction**
  Volumetric Modular, Panelized Systems, Components

- **Compliance Assurance Agencies (CAAs)**
  Approved Third-Party Review and Inspection Agencies

- **State Building Codes Office**
  Off-Site Construction AHJ

- **Local Building Departments**
  On-Site Construction AHJ
Virginia’s Off-Site Construction Program
Discussion Questions

• What recommendations would you give someone interested in pursuing their first off-site construction project?

• What are the biggest gaps you see in achieving widespread use of off-site construction and how do you see those gaps being filled?