Modular construction is not a new concept. Between 1910 and 1940, Sears, Roebuck & Co. sold over 75,000 pre-fabricated homes. In the mid-1940s, the industry turned to modular when faced with skyrocketing demand for new homes after World War II and, in the late 1950s, modular expanded into the construction of schools and medical facilities. Today, modular is used across markets including fast-food restaurants, steam generator replacement projects, hotels and hospital-ity projects and multi-family residential projects. Examples of modular use include mechanical, electrical and plumbing (MEP) piping and component modules; structural modules; rebar modules; bathroom pods; major plant components; data centers; and high-rise modules.

Despite this long history, challenges to the effective utilization of off-site construction remain. The following sections outline some of these actual and perceived challenges.

How Do Building Codes Apply to Modular Construction?

Most jurisdictions use the International Building Code (IBC) as the basis for their building code. The IBC is written assuming on-site, traditional construction. As such, there is no “modular construction building code” or special provisions covering the utilization of off-site construction. However, modular construction is a process, and should not be thought of as a product only. Some states do have building codes that include modular construction considerations. Inspection of closed-construction “modules” (three dimensional boxes) that are pre-fabricated at an off-site facility fall under the jurisdiction of a statewide modular (or industrialized) building program. Thirty-six states have an agency responsible for the approval of the modular manufacturer, quality assurance (QA)/ quality control (QC), and plan approvals.

In other states, the local authority having jurisdiction enforces code regulations. A state label or insignia issued for each module demonstrates compliance with all applicable codes. It is then the responsibility of the modular manufacturers to make sure the modules are up to code and that they have been approved.

Licensing and Permitting

Depending on the jurisdiction, the modular fabricator may need to hold a license as a general contractor (GC), plumber or electrician. Construction needs to meet all applicable codes and requirements where the building will be located, regardless of where it is fabricated. Although fabrication and installation occur at separate locations, the state agencies will determine whether inspections will be done on-site, at the factory or, sometimes, at both places. Project stakeholders need to make sure the modular manufacturer is approved in the project state. The design and build team should tour the modular factory, if possible, and ask all pertinent questions as early as possible.

Manufacturer as Subcontractor or Supplier?

Generally, it is better for the module manufacturer/fabricator to be treated as a subcontractor than a supplier. The modular manufacturer should negotiate and sign a subcontract and not issue a purchase order. It should be made clear that the modular manufacturer is building to specification (and not designing a product). This is when the importance of fabricator as a subcontractor becomes important as to avoid “Product Liability.” This is important in order to avoid application of the Uniform Commercial

1Based on a webinar hosted by the Associated General Contractors of America and the National Institute of Building Sciences Off-Site Construction Council, “The Rise of Modular Construction: Emerging Commercial and Legal Issues.” See http://www.nibs.org/page/oscc_webinars to access the webinar.

2See https://www.modular.org/Links/BuildingCodes.aspx for information on the relevant codes and agencies in a particular jurisdiction.

3See https://www.modular.org/Finder/Default.aspx for information on modular manufacturers active in a particular state.
Code (which applies to the sale of goods) and its numerous rules, which are often not appropriate for construction (e.g., implied warranties of fitness for purpose). Project teams should make sure that they specify who “owns” the module and when.

**How Long Do You Maintain Project Records?**

There are potential variations in the statute of limitations for construction contracts and contracts for the sale of goods which vary by state. For example, in Arizona and Georgia a written contract is six years (A.R.S. § 12-548/O.C.G.A § 9-3-24), while the sale of goods is four years (A.R.S. 47-2725/O.C.G.A § 11-2-725). Consult a local construction attorney for state specific information.

**Lien and Prompt Payment Statutes-One Tier Too Remote?**

![Figure 1. Lien and Prompt Payment Tiers](image)

Based on State of New York law, under traditional construction methods, the owner, prime contractor, plumbing subcontractor and plumbing material supplier are all protected through the lien and prompt payment status. However, for modular construction, lien and prompt payment protection shifts to accommodate the modular contractor, removing the material supplier. This is why it is important to know and understand the risk up front in order to be able to make arrangements or negotiate for a successful project.

**Insurance Twists**

**Controlled Insurance Programs**

The amount of labor cost on-site usually is the determinant if Owner Controlled Insurance Program (OCIP)/Contractor Controlled Insurance Program (CCIP) is feasible. Labor cost typically comprises 60% of project cost with site-built construction. On a modular project, much of the labor normally performed on-site occurs elsewhere. Therefore, wrap-up insurance policies may not be feasible on modular projects.

**Builder’s Risk Insurance—Different Considerations on Modular Projects**

Builder’s risk is essentially insurance for property on-site. It often has extensions for materials stored on-site or in transit. This raises the concern if modules need to be stored on-site, or can they be stored elsewhere if the project is off schedule. Typically, according to risk insurance standards, no coverage is offered for storage of modules off-site. If modules will be stored off-site after they leave the manufacturer, the project must get a rider to the Builder’s Risk Policy for coverage of potential loss.