



INTERNATIONAL
CODE
COUNCIL®

ACCELERATING OFF-SITE CONSTRUCTION THROUGH COLLABORATION



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www.iccsafe.org

INTRODUCTION

As the nation struggles with housing availability and affordability, off-site construction has been identified as a key component of the solution. While the concept is not new, scaling off-site construction requires a new focus to align policy, practice, research and communications.

What is Off-Site Construction?

Off-site construction is the use of factory-built modules or panels that are delivered to a job site with a high degree of finish, accelerating project completion.

[Learn more in ICC's Primer on Off-Site Construction.](#)



Importantly, the U.S. Department of Housing and Urban Development (HUD) has been a key contributor, building on its initial work in [Operation Breakthrough](#) in the late 1960s and early 1970s.¹ Today, HUD is taking a renewed interest through its *Offsite Construction Research Roadmap* (Research Roadmap) and recently released *Action Plan for Accelerating U.S. Offsite Construction for Housing* (Action Plan).

As the nation's leading building codes and standards development organization, an accredited third-party plan review and inspection agency for the off-site construction industry, and an innovator in solutions to achieve safe, resilient and affordable buildings, the International Code Council (ICC) and its subsidiaries — ICC-NTA as a third-party plan review and inspection agency for the off-site industry and the ICC Evaluation Service as an accredited product evaluation agency — have been pleased to engage with HUD throughout this journey.

The HUD Research Roadmap includes recommendations to focus on two priority areas where ICC has shown leadership and innovation in addressing the challenges of off-site construction: 1. Regulatory Frameworks, and 2. Standards and System Performance.

Here we focus specifically on how ICC is supporting the recommendations in the Action Plan, but many of the same activities address essential aspects in the Research Roadmap.

This response to the HUD Action Plan outlines how ICC's activities to date have set the foundation for advancing off-site construction and how ongoing efforts can help realize the Plan's objectives.

¹ Operating from May 1969 to the mid-1970s, Operation Breakthrough was designed to identify and demonstrate solutions to obstacles preventing large-scale housing production in the nation, with the goal of volume production of quality housing for all income groups. The demonstration sought housing system improvements, while at the same time providing improved environmental quality and low-cost maintenance.

SETTING THE FOUNDATION FOR OFF-SITE CONSTRUCTION ACCELERATION: DELIVERING ON THE ACTION PLAN

In addition to the broad topics captured in the HUD Research Roadmap, the Action Plan identifies specific activities that can help scale the delivery of off-site construction to advance housing affordability.

ICC has been at the forefront of developing and deploying the solutions needed to advance innovation while providing policymakers, financiers, developers and the public with the confidence they need to support off-site construction.

Regulatory Consistency and Demand Aggregation

ICC was established thirty years ago to help bring a consistent basis to building code requirements across the U.S. and has contributed greatly to a more coherent regulatory landscape.

For off-site construction specifically, both the building code requirements and how their achievement is verified is particularly important. Investing capital in more industrialized processes designed to deliver buildings in multiple jurisdictions means efficiency and consistency become even more critical.

Moving construction into factories also means that traditional inspections at the jobsite are no longer effective at verifying compliance. Establishing industrialized building programs at the state level with consistent code requirements across the state and a defined verification process was an important first step, but each state still sets different requirements.

Off-Site Construction Standards

Recognizing the need for consistency in the approvals and verification process across jurisdictions, ICC, working with Modular Building Institute (MBI), developed standards capturing best practices from across the country and globally.

ICC/MBI Standards 1200, 1205 and 1210² aim to bring consistency to the approvals process, enhancing efficiency. As of March 2026, the standards have been adopted in whole or in part in seven states³ with consideration for adoption in several other states and for inclusion in the 2027 International Building Code (IBC) and International Residential Code (IRC). Adoption of the standards across the country and as the criteria for verification in government projects will bring consistency and efficiency.

The ICC/MBI Standards are entering into their periodic update process. This process allows for the inclusion of new or updated approaches. We encourage HUD to participate in this update process to help bring ideas from the Action Plan and other priorities to the table.

To help drive consistency, HUD can support further adoption of the ICC/MBI Standards by: 1. Offering grants to support implementation and training, 2. Offering preferential treatment in HUD programs for states that use the standards, and 3: Using the standards in HUD (and other agency) programs.

Opportunities can include through the current PRO Housing Grants program and within grant programs proposed in legislation currently making their way through Congress.

² ICC/MBI 1200 Standard for Off-site Construction: Planning, Design, Fabrication and Assembly (<https://codes.iccsafe.org/content/ICC12002021P1>); ICC/MBI 1205 Standard for Off-site Construction: Inspection and Regulatory Compliance (<https://codes.iccsafe.org/content/ICC12052021P1>); and ICC/MBI 1210 Standard for Mechanical, Electrical, Plumbing Systems, Energy Efficiency and Water Conservation in Off-site Construction (<https://codes.iccsafe.org/content/ICC12102023P1>).

³ Virginia, Utah, Montana, Colorado, Rhode Island, Ohio and Maine.

DEMAND AGGREGATION

As recognized in the action plan, the need for demand aggregation and consistent project pipelines is essential to keep factories running and assure capital investments are not stranded. Standards are also helpful in this case.

Consistent standards-based design specifications provide owners, developers and procurers with vetted requirements that they know can be delivered. When using such standards, developers, financiers and insurers can be assured that they are not locked into proprietary solutions that could delay projects if the initial solution provider can no longer deliver. At the same time, manufacturers gain some certainty in the ability to scale as multiple projects would be based on the same base standards.

Here, ICC is working with the Center for Off-Site Construction (CfOC) at the New York Institute of Technology (NYIT) to develop CfOC/ICC Standards 1220 and 1230 providing for consistent configurations and connections for key building systems across volumetric and panelized systems.

As identified in the Action Plan, standard award criteria can allow for rapid acceleration of off-site construction capacity. Fortunately, the elements of such criteria largely exist or will become available in the near term as outlined above. Design specifications leveraging the model building codes and the ICC/MBI and CfOC/ICC standards can provide the basis for a coordinated set of criteria that can be applied by both public and private sector users including state and local housing authorities and private developers.

PERFORMANCE-BASED CODES

Currently, the U.S. construction industry (particularly in residential construction) relies on prescriptive based design criteria due to their ease of use in both application and demonstration of compliance with building codes. While the suite of I-Codes is largely prescriptive-based, pathways currently exist in the codes to use performance-based approaches to demonstrate equivalency. Additionally, ICC has released the ICC Performance Code (ICCPC) as a strictly performance-based code since 2000.

In 2021, ICC initiated an effort to reimagine the ICCPC to modernize the approach and capture best practices that would yield greater confidence and utility in the code. Based on that reimagining initiative, ICC launched development of the 2027 ICCPC as a total rewrite of the code to address modern needs.

Due to its industrialized approach and engineered approaches, off-site construction can effectively leverage performance-based criteria to deliver buildings efficiently. Many manufacturers have used the existing alternative compliance pathways to implement performance-based solutions, and third-party approval agencies are often equipped to review and accept such approaches. However, since these measures are often tied to demonstrating equivalence with existing prescriptive requirements, the process can be cumbersome. Starting from a performance basis, such as that contained in the ICCPC, will provide greater flexibility and efficiency.

The Action Plan infers a strong role for HUD in the development of a model performance-based building code. However, based on the effort already underway within ICC to update the ICCPC, such an approach would be duplicative of this private sector-led effort. ICC's effort fits within the existing model code frameworks familiar to jurisdictions and federal directives to leverage private sector developed standards where available.⁴ Standing up a new HUD-led effort would result in delays in developing such a model and could result in uneven update cycles and potential disconnects with the existing model codes.

⁴ OMB Circular A117 and the National Technology Transfer and Advancement Act require federal agencies to rely on private sector developed standards for rule makings to the extent practical.

Once published, the 2027 ICCPC will need to be adopted by state and local governments, and designers, manufacturers, code officials and third-party agencies will need to be trained on its application. HUD support in advancing its use will be essential to realizing the promise that a true performance-based code could provide. This could include direct technical assistance to jurisdictions or the use of existing and emerging grants programs to support adoption and implementation.

SYSTEMS CERTIFICATION

In addition to the consistent award and design criteria, the Action Plan calls for the implementation of a housing system certification. Fortunately, many of the pieces for a successful housing system certification already exist in some form within the U.S. regulatory system. These pieces can be brought together into a coordinated system that provides a recognized system certification that Authorities Having Jurisdiction (AHJs), funders and others could rely on. Such an approach could be incorporated into the pending updates to ICC/MBI Standards 1200 and 1205.

For example, some states allow for the development and approval of systems manuals within their off-site construction programs. A systems manual outlines the common elements of a building being submitted by a manufacturer. This manual is then reviewed by the third-party plan review agency for compliance with code requirements. As long as submitted plans remain in conformance with the systems manual, then these provisions do not need to be re-reviewed in each project, only the elements that are different from project to project. The ability to use a systems manual approach varies from state to state—some states allow on a case-by-case basis while others outright prohibit it.

This approach is also not unlike that captured in [Appendix N – Replicable Buildings](#) of the [International Building Code](#). Appendix N allows an approved agency to review proposed designs for compliance with structural, egress, fire protection; mechanical, electrical and plumbing systems; and energy efficiency and issue a report of Approved Replicable Design. The AHJ then reviews submitted plans for individual projects against the Approved Replicable Design and reviews any parameters that fall outside the replicable design.

Current state off-site construction programs and ICC/MBI Standards [1200](#) and [1205](#) require manufacturers to be approved by the AHJ. This often involves a process of certification based on a defined set of criteria, including having a robust quality assurance program. These requirements could be supplemented within a systems certification program.

Within the existing product evaluation system, there are examples of approvals that allow for flexibility within a defined set of parameters. For example, acceptance criteria for structural insulated panels (SIPs) allow for variations in size or penetrations based on a defined set of parameters. The [ICC Guideline 6 on Advanced Panelization](#) provides a methodology for a systems-based approach for panelized systems that could be expanded to other building systems.

As discussed above, manufacturers interested in pursuing systems approval could use the existing performance-based criteria in the I-Codes or the criteria in the updated ICCPC where acceptable to the relevant jurisdictions.

Organizations like ICC are well positioned to bring these pieces together and develop such a certification given their existing role in the regulatory process and the recognition by both the industry and regulators. HUD would be a valuable partner in supporting the development of a systems approval process by contributing lessons learned from the manufactured housing program and in encouraging states to allow manufacturers to utilize the system certifications.

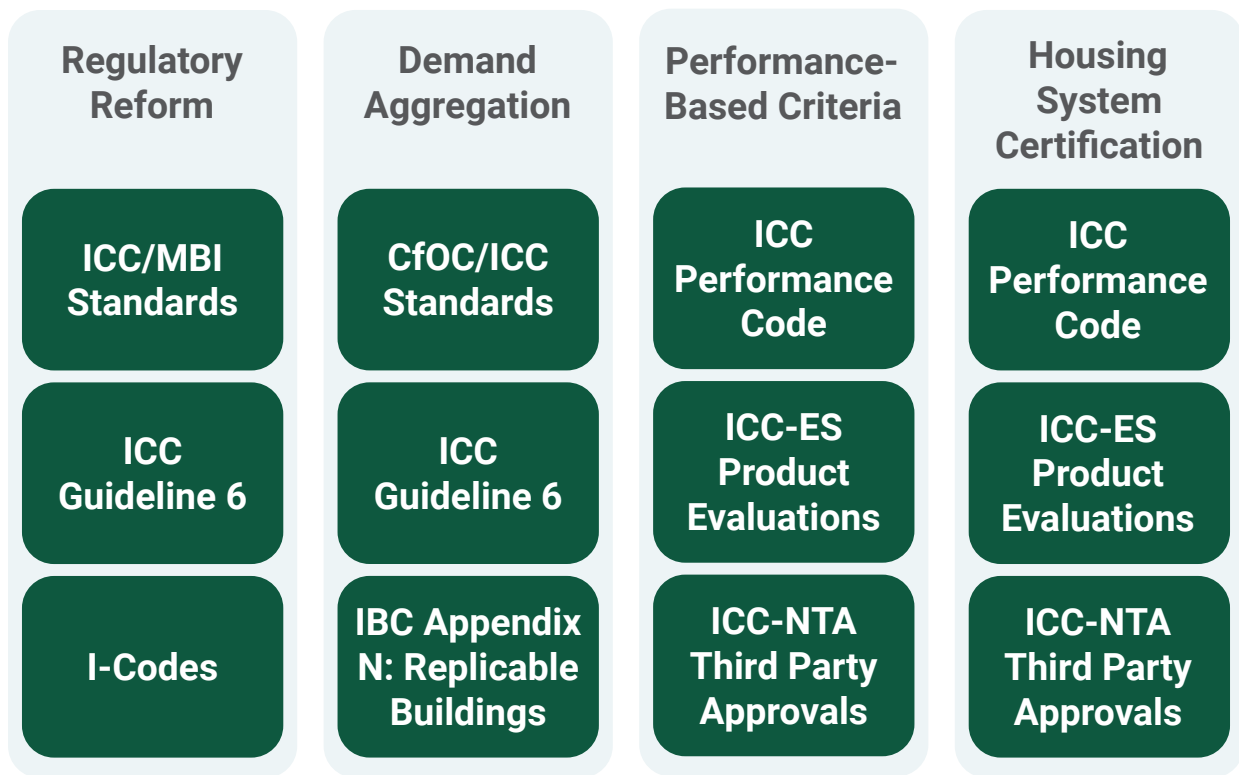


Figure 1. ICC's Contributions to Realizing the HUD Action Plan for Off-Site Construction

CONCLUSION

The International Code Council shares HUD's enthusiasm for the role of off-site construction in addressing the housing affordability crisis. Our efforts over the past years have focused on developing the codes, standards and solutions required to bring consistency, efficiency and scalability to the off-site construction industry.

We will continue to innovate and expand on our existing work while engaging with federal, state and local governments and the industry to implement coordinated approaches that result in the safe, affordable and resilient housing America needs.