

Opportunities to Utilize Off-Site Construction to Meet Vermont's Housing, Workforce and Climate Goals

by Jeffrey Lubell

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Appearing before the House Committee on Commerce and Economic Development and House Committee on General and Housing

Personal background

Selected Work History	Years
Principal Associate, Housing and Asset Building, Abt Global (formerly Abt Associates), telecommuter	2013-2025
Executive Director, Center for Housing Policy , Washington, DC	2006-2013
Director, Policy Development Division, Office of Policy Development & Research, US Department of Housing and Urban Development , Washington, DC	2000-2003

- Vermont resident for about 16 years (Norwich and Weybridge)
- Active as a volunteer in local government
- The views I express today are my personal views and not those of my employer, Abt Global, or of the Norwich Affordable Housing Subcommittee, Homes for Norwich or any other organization

New Report on Off-Site Construction

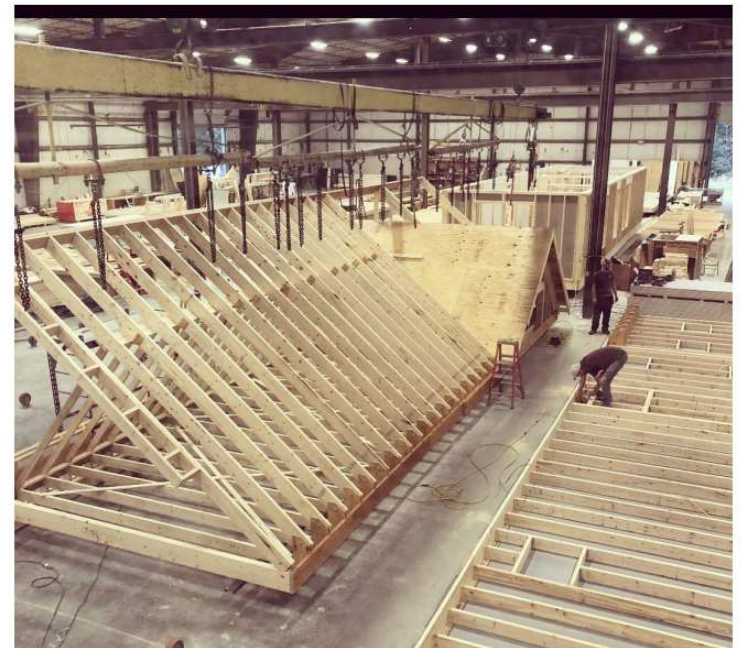
- Commissioned by:
 - Vermont Department of Housing and Community Development
 - Vermont Economic Development Authority and
 - Vermont Housing Finance Agency
- Co-authored by Seth Leonard and Jeffrey Lubell
- Analysis of challenges and opportunities associated with off-site construction
- Grounded in survey and interviews

https://vhfa.org/sites/default/files/publications/Off-Site_Construction_Opportunities.pdf

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Outline of Testimony

1. What problems motivated the study?
2. What is off-site construction?
3. What are the potential benefits of off-site construction?
4. What are the main limitations of off-site construction / barriers to increased use?
5. What did we learn from the survey and interviews about the local landscape?
6. How can Vermont optimize the potential of off-site construction to produce lower-cost homes?
7. What are the potential next steps?

1. What problems motivated the study?

- Significant **shortage of housing** affordable to working families in Vermont that contributes to high housing costs.
- Shortage **negatively impacts affected families** and **inhibits the economic growth** of Vermont businesses that need an adequate supply of housing to attract workers.
- Construction costs have been rising rapidly in recent years – projects seeking 9% LIHTC in 2024 averaged **\$520/sq foot** and over **\$500,000 per unit**.
- A key factor contributing to high construction costs is an **inability to achieve robust economies of scale** through traditional site-built construction techniques.

New York Times Dec. 18, 2023

OPINION
BINYAMIN APPELBAUM

Why Do We Build Houses in the Same Way That We Did 125 Years Ago?



2. What is off-site construction?

Off-site construction involves the **production of housing in factories, rather than on-site**. Main forms:

- **Manufactured housing** – homes produced in factories that conform to the national HUD Code and contain a chassis
- **Volumetric modular** (or just modular for short), in which three-dimensional “boxes” are constructed offsite and joined onsite
- **Panelized construction**, in which two-dimensional wall, floor or ceiling panels are constructed offsite and then incorporated into a building onsite.
- **Kit homes** comprised of pre-assembled panels and other pre-cut parts.

Examples of Off-site Construction



Huntington TruHome volumetric modular home



Nationwide Homes modular duplex



New Frameworks panelized 900 SF ADU with compressed straw bale exterior walls



Cavco manufactured housing duplex

3. What are the potential benefits of off-site construction?

- **Cost Savings.** Shorter timeline; less material waste; potential for significant cost savings through economies of scale.
- **Workforce development.** Potential to create well-paying year-round jobs in Vermont.
- **Mitigate labor shortages:** Potential to broaden the labor pool.
- **Higher volume and pace of building:** Off-site homes can be built faster and with fewer workers. Could be good source of housing to help victims of natural disasters.
- **Statewide climate goals:** Opportunity to specify energy-efficient home designs
- **Streamline inspections process:** Centralized inspections

4. What are the main limitations of off-site construction / barriers to increased use?

- **Potential for cost savings not always realized:**
Modular/panelized primarily used for custom builds of high-end housing that do not realize full economies of scale. Significant work often needed to complete homes on-site
- **Manufactured housing** has scale and low-cost but limited designs (though multi-unit structures now allowed).
- **High up-front costs** leave manufacturers vulnerable to housing downturns
- **Local building codes** / design reviews pose obstacle to scale
- **Labor shortages inhibit growth**
- **Public perception** of manufactured housing can be a challenge

5. What did we learn from the survey and interviews about the local landscape?

- **Three volumetric modular factories** in New England that produce residential housing: **VT, NH** and **ME**.
- Volumetric modular plants in **Quebec** and **PA** capable of delivering homes to Vermont.
- A number of additional Vermont and NH facilities produce panels or kits that can be assembled onsite to produce Accessory Dwelling Units or other structures.
- A survey and interviews with these manufacturers indicate that manufacturers are **generally optimistic** about the future of off-site construction in the region.
- Restarting **former manufactured housing facility in Fair Haven** could increase state's off-site construction capacity.

6. How can Vermont optimize the potential of off-site construction to produce lower-cost homes?

A. Use bulk purchase guarantees to achieve lower costs for starter homes

- State entity guarantees purchase of a large # (e.g., 100 or 200) of similar units from a single manufacturer for 3-5 years; works with partners to identify locations for installation. Potentially separate bulk purchases for townhomes, duplexes, entry-level single-family, etc.

B. Invest in new or expanded factory capacity

- Equity investment or low-cost loan to restart Fair Haven plant and/or to allow existing manufacturer to expand their operations or add automation

C. Integrate off-site construction into multifamily construction

- Quebec manufacturers are developing catalog of standardized designs; consider standardizing interior modules.

D. Other: state-wide building code for off-site construction, pre-approved designs; small grants for builders / manufacturers

Potential Next Steps

1. Review and confirm the state's policy objectives and priorities.

6. Implement prioritization and incentives for using off site construction within existing funding programs.

2. Develop a plan for using bulk purchases of homes produced through off-site construction to achieve lower construction costs for single-family and missing middle housing types.

7. Facilitate restarting the Fair Haven plant and support the expansion of other existing Vermont manufacturers.

3. Develop a plan for using offsite construction to achieve lower multifamily construction costs.

8. Consider providing business planning support in the form of small grants and technical assistance to existing Vermont businesses seeking to develop or expand offsite construction businesses.

4. Consider issuing a Request for Information to get input from potential manufacturers about how best to achieve cost savings through bulk purchases.

9. Consider adopting a state-wide building code for offsite construction and procedures for factory-level inspections and pre-approved designs.

5. Allocate funding to support bulk purchases.

10. Create a Northern New England working group that reaches across state lines and considers a regional market and shared approach.

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