



# Mary Tingerthal

## Offsite construction offers potential savings for building multifamily low-income housing

A Minnesota Affordable Housing Policy Interview

*January 17, 2020*

According to former Minnesota Housing Commissioner Mary Tingerthal, construction projects at various sites around the country are starting to use offsite building techniques. She explains why she believes use of these techniques has the potential to increase the number of low-income housing units that can be built for the same number of dollars by bringing down the cost of construction.

### Present

John Adams, John Cairns (vice chair), Janis Clay (executive director), Paul Ostrow (chair), Dana Schroeder (associate director), Mary Tingerthal, T Williams. By phone: Paul Gilje.

### Summary

Former Minnesota Housing Commissioner Mary Tingerthal believes using offsite construction methods has the potential to lower the costs of building housing for low-income people. She says offsite construction needs a hard look as a way to increase the number of low-income housing units that can be built for the same number of dollars by bringing down the cost of construction. She notes that doing just that was one of the recommendations of former Governor Mark Dayton's Task Force on Housing, which released its report in August 2018.

She says 45 percent of construction projects in Scandinavian countries use offsite building techniques, compared with less than five percent in the U.S. She'd like to see that increase to 10 percent within the next five years.

Tingerthal lists potential solutions offsite construction offers to the construction industry's problems: reducing time for completing construction projects by 20 to 50 percent; saving 20 to 40 percent on labor costs; improving quality; increasing long-term sustainability and lowering life-cycle costs; and building in resilience and adaptability to new building codes.

Tingerthal discusses the September 2019 Construction Revolution Summit held in Minneapolis, which included public officials, modular-factory owners, general contractors, architects, engineers, labor, and for-profit and nonprofit developers. She spearheaded the Summit, which explored innovative techniques in residential development and construction, including the use of modular and panelized elements constructed offsite. The Summit's recommendations included showcasing Minnesota's buildings standards and inspection process for off-site construction, funding a series of pilot projects using offsite construction and attracting new offsite manufacturers and investors to the state.

## Biography

**Mary Tingerthal** served as Commissioner of Minnesota Housing (legally known as the Minnesota Housing Finance Agency or MHFA) from 2011 to 2019, appointed by Governor Mark Dayton. Minnesota Housing serves more than 75,000 families each year with a wide range of programs and has provided financing programs for affordable housing for the past 45 years.

Tingerthal previously served as president and CEO of the National Equity Fund. She also served as a managing director for GMAC Residential Funding, where she led the development of the company's home-equity loan products. Tingerthal held senior management positions with the Housing Partnership Network, Community Reinvestment Fund and the City of Saint Paul.

Tingerthal has participated in numerous community-based activities. She served as a member of the Community Advisory Council to the Federal Reserve Board and the Affordable Housing Advisory Council to Fannie Mae. She currently is chair of the board of Framework Homeownership and serves on the boards of the National Housing Trust and the National Community Investment Fund. She previously served as chair of the boards of Twin Cities Habitat for Humanity and of CommonBond Housing.

She holds a master's degree in business from Stanford's Graduate School of Business, attending as a Bush Fellow, and a bachelor of arts degree from the University of Minnesota.

## Background

The Civic Caucus has been focusing on the topic of affordable housing in its interviews since late October 2018. All of those interviews are available on the [Civic Caucus website](#). The Caucus interviewed Mary Tingerthal, former Minnesota Housing commissioner, on using offsite construction methods as a potential way of lowering the cost of low-income housing.

## Discussion

**Foreclosures were high in 2011, when Tingerthal became commissioner of Minnesota Housing.** Tingerthal said the agency provided about \$700 million in financing that year. That figure had doubled by the time she left her position in 2019.

**The agency's Housing Infrastructure Bond (HIB) program, which was authorized in 2012, has received a total of \$315 million in HIB authority over the years.** The bonds are limited-obligation, tax-exempt bonds and are issued by Minnesota Housing, as authorized by the Legislature. The proceeds of HIB bonds help to finance affordable housing projects that often can't pay any debt service, Tingerthal said, noting that it's often overlooked that Minnesota is a front-runner in putting money into such projects. In addition, over the same period, the agency has received a total of \$45.5 million in general obligation bonding authority for the renovation of public housing.

**Governor Tim Walz has proposed that the 2020 Legislature authorize Minnesota Housing to sell \$200 million in HIBs to be awarded to housing developers statewide on a competitive basis.** The funding would be used to preserve federally subsidized rental housing; to acquire, rehabilitate or construct permanent supportive housing; or to acquire land that will be held in community land trusts for single-family home ownership.

Walz also has proposed that the Legislature authorize \$60 million in general obligation bonds for Minnesota Housing's program to preserve existing public housing. Funds would be awarded on a competitive basis to local public housing authorities across the state.

**Governor Mark Dayton set up the Governor's Task Force on Housing in December 2017.** Tingerthal said Dayton wanted to leave a set of recommendations on affordable housing when he left office in 2019. The task force completed its work in the first half of 2018 and issued its final report, *More Places to Call Home: Investing in Minnesota's Future* in August 2018.

Tingerthal said the task force found that Minnesota will have to step up all housing production to meet the demands of household formation in the state. She said one of the task force recommendations was to look at innovative building methods.

## **We're starting to see the use of offsite building techniques around the country.**

Tingerthal made that statement and said she became really intrigued with the idea of reducing construction costs of housing by using innovative construction methods. Some reasons for her interest include:

1. Every year she was Minnesota Housing Commissioner, the cost of housing went up more than people's incomes.
2. The Low-Income Housing Tax Credit (LIHTC), while a critically important source for producing affordable housing, has some inefficiencies that tend to add to the cost of producing that housing.
3. There is a lot of competition for construction materials and from other sectors (such as infrastructure projects) that drive up the cost of construction.
4. More and more people don't have enough income to afford housing.
5. Many advocates and policymakers are already focused on the critically important areas of rental assistance and providing financing, but fewer are focused on reducing the cost of housing.
6. Offsite construction really needs a hard look as a way to increase the number of low-income housing units with the same number of dollars by decreasing the cost of construction.

"This is a cost-cutting play," Tingerthal said. "I wouldn't be spending time on this if I didn't think it could lower the costs of affordable housing."

**Tingerthal spearheaded the Construction Revolution Summit to explore offsite construction methods.** After leaving her position as Minnesota Housing Commissioner in early 2019, Tingerthal arranged for a small amount of support from the McKnight Foundation to attract other funders to convene people to discuss and learn about offsite construction methods.

Sixteen other sponsors joined in to fund the **Construction Revolution Summit**, held in Minneapolis in September 2019. According to the Summit's website, the event brought together leaders from across Minnesota and the nation to explore innovative techniques in residential development and construction, including the use of modular and panelized elements. The 125 Summit participants:

- Explored new technologies and approaches;
- Connected with leaders from every aspect of the residential development process; and

- Drafted an action plan to accelerate the use of innovative construction techniques.

Tingerthal said the Summit included state and local public officials, modular factory owners, general contractors, architects, engineers, for-profit and nonprofit developers and labor. She said the format of the event forced people from different sectors to talk to each other about the issues. Following the Summit, many participants told her they'd never been in a group with so many different players from the development world.

The Summit developed the following set of recommendations:

1. Develop and promote learning opportunities that showcase Minnesota's building standards and inspections process for offsite construction.
2. Launch multi-sector learning cohorts to explore the potential and challenges of offsite construction techniques.
3. Foster local collaboration to develop a fast-track or pre-approval process to offsite construction concepts.
4. Incentivize a series of pilot projects for projects using offsite construction through a public-sector-led Request for Proposal (RFP) process.
5. Attract new offsite manufacturers and investors to Minnesota.

Tingerthal said a group of people interested in continuing the work of the Summit is writing up an action plan. She said the [Summit website](#) includes some of the best research about innovative housing construction methods.

**According to McKinsey and Company research, in Scandinavian countries, 45 percent of housing construction projects use offsite building techniques, compared with less than five percent in the U.S.** Tingerthal said Japan and Germany follow the Nordic countries in order of their use of offsite construction methods. She'd like to see the U.S. move from less than five percent to 10 percent in the next five years.

She said the Nordic countries lead in use of offsite construction for both policy and physical reasons: (1) They support social housing, which is somewhere between public housing and affordable housing in the U.S. She said construction of social housing is more efficient and effective with use of offsite construction methods. (2) Climate conditions lead to a shorter construction season. Constructing modules inside at offsite locations during the winter shortens the time frame for building a project. (3) Use of robots and precision measurement offsite lead to greater efficiency and higher quality.

**Offsite construction offers potential solutions to some of the construction industry's problems.** Tingerthal cited research from McKinsey and Company in listing some potential solutions:

1. It can reduce time for completing construction projects by 20 to 50 percent. She noted that Marriott is going to use modular construction on 25 percent of its new building projects for this reason.
2. It can save 20 to 40 percent on labor costs.
3. It can improve the quality of the end product due to better quality control and fewer errors.
4. It can result in long-term sustainability and lower life-cycle costs due to higher energy efficiency and the ability to use more sophisticated materials.
5. It can build in resilience and adaptability to new building codes.

**Offsite construction methods cover a range of complexity.** Tingerthal said offsite construction ranges from manufacturing simple panels to full-scale panels to cubes of rooms that can be put together at the construction site to a fully serviced and finished house. She said Minnesota has a good regulatory environment for offsite construction and also some of the best offsite-construction companies.

Because it's expensive to build a factory, Tingerthal said offsite-construction companies need to know that continuous demand exists for their products.

Offsite construction can take several months off the typical 24-month design and construction cycle for a multifamily construction project, she said. That's because while the offsite factory is building modules, onsite work on the foundation, common spaces, site work and utilities can be underway simultaneously. She said the offsite factory workers use many of the same construction skills that onsite workers use, but often the work can be done with greater efficiency in the factory. Tingerthal noted that offsite construction requires the use of large cranes at the construction site, which have become more sophisticated in recent years.

She said construction companies must think modular from day one of the project. "That's how you capture the savings," she said, noting that modular is not right for every project.

Citing McKinsey and Company research, she said seven factors determine the attractiveness of a market for offsite construction:

1. Labor dynamics;

2. Consolidated and continuous demand volumes;
3. Supply chain and logistics;
4. Local site constraints;
5. Access to materials;
6. Quality perception; and
7. Regulatory environment.

**Minnesota has a well-established offsite regulatory process that's administered by the state Department of Labor and Industry.** Tingerthal made that statement and said the Department is responsible for inspection of units in the factory, which are not charged a local inspection fee for that portion of the construction cost. Local inspectors oversee the foundation, plumbing and other parts of the project constructed onsite.

**One of the challenging aspects in the metro area is where to store the modular units between the factory and the construction site.** Tingerthal said the modular pieces must be transported at night and then need to be stored before they are installed at the construction site.

**Why is mobile home construction not on the agenda for providing low-income housing?** An interviewer asked that question and Tingerthal responded that there is a nagging quality question: many people think modular construction is not as good in quality as onsite construction.

She said there are generally two types of factories providing offsite construction components:

- Those that focus on single-family housing that grew out of the manufactured housing business (i.e., mobile homes). Within that focus, some people are concentrating on manufactured homes, which are sold and taxed as vehicles and usually placed on a rental pad. Others are concentrating on single-family modular homes trucked out in two or more pieces and placed on a foundation on property people own.
- Those that focus on using modular technology for multifamily buildings. She said Dynamic Homes, a custom modular home-builder located in Detroit Lakes, Minn., is thinking about developing more expertise in modular methods for multifamily construction. Rise Modular is close to opening a factory in Owatonna, Minn., that will focus on modules for multifamily residential and hospitality construction.

There are a few manufacturers that provide both single family and multifamily modules, but this is not the norm around the country. Tingerthal said you can't tell the difference between multifamily rental property built with modular construction from property that's stick-built, that is, constructed onsite.

**Is there anything more efficient about offsite construction in terms of climate-change issues?** An interviewer asked that question and Tingerthal responded that there is. She said offsite factories can manage waste more efficiently and can plan the use of materials more effectively. As energy conservation materials become more sophisticated, she said, it's often easier to apply them in a factory than onsite.

**Modular construction has had many ebbs and flows over the years.** Tingerthal thinks the concept will take this time because of the focus on building multifamily projects. She said technology has made it easier to integrate the management of the construction taking place offsite with the construction taking place onsite.

**The market for selling the idea of offsite construction is broad.** Tingerthal said it includes the following:

- Policymakers. She noted that Minnesota Housing is interested in offsite construction methods and is actively talking about the topic. The agency provided someone to help plan the Construction Revolution Summit. At the federal level, she said the Energy Department is very interested in modular construction. But, she said, the federal Low-Income Housing Tax Credit program (LIHTC) includes few incentives to lower the cost of low-income housing, except for those cost-containment measures put in place by the state agencies that administer the program. (See the [June 21, 2019, Civic Caucus interview with officials of Dominion Housing](#) for an explanation of how the LIHTC program works.)
- General contractors. Tingerthal said contractors are having tremendous problems finding skilled workers and are interested in how they could use a few carpenters more effectively.
- Developers. Offsite construction may be able drive down the cost of building, she said. Some developers are looking seriously at it. Many are interested, she said, but skeptical that it will save costs.