Volumetric Modular Construction in Bay Area Affordable Housing: Barriers, Opportunities and Insights

Executive Summary

Fifteen thousand five hundred and forty-six.

According to its draft housing element report¹, this is the number of affordable housing units, serving residents making 0 - 80% of area medium income, the City of Oakland needs to build between 2023 through 2031 as part of its regional housing needs assessment.

The potential to decrease the cost of construction by 20% and reduce the time by up to 50% to build affordable housing makes volumetric modular construction (often shorthanded to "modular") an attractive tool in addressing the growing housing crisis in the Bay Area. Through interviews with nearly a dozen practitioners, research review, and two case studies of modular projects led by Bay Area affordable housing developers, *Volumetric Modular Construction in Bay Area Affordable Housing: Barriers, Opportunities and Insights* unveils both challenges and opportunities around modular construction for affordable housing. This white paper is funded by JPMorgan Chase.

The Challenges

Prefabricated housing is commonplace in countries like Japan and Sweden, and volumetric modular specifically is prevalent in both the multi-family and single-family sectors on the East Coast. Interest has grown more recently on the West Coast, and in California in particular, as this region has seen some of the highest housing construction costs in the nation. Our research and interviews revealed multiple challenges to adopting modular more widely—many faced across the housing industry and two particular to affordable housing.

Contractor bids: As supported by EBALDC and others' experience, high contractor bids, despite cost savings at

the factory, is one of the foremost industry-wide barriers to modular construction's wider adoption. There are a range of views on what may be leading to the high bids. Other industry-wide challenges include prohibitive insurance costs and the higher risk profile of the modular process, where a factory can go dark if a project falls behind schedule.

Predevelopment Financing: Reserving a place in the modular production queue requires large up-front deposits and materials need to be ordered much sooner than in traditional construction. Structuring financing to sync with these timelines remains a major hurdle for affordable housing projects. Many modular factories cannot bond, which has posed another significant challenge for some affordable projects.

The Opportunities

Funding Innovations: Research and interviewees recommended that government and philanthropic entities offer revolving funds and flexible capital that would accommodate modular timelines. Mercy Housing California's Tahanan Supportive Housing, a success story that is the subject of one of this paper's case studies, benefitted from a large pot of flexible and unencumbered predevelopment funds from a private, philanthropic entity.

Standardization and replication: To maximize savings and efficiencies, research and several interviewees recommended the use of standardized unit layouts that can be easily replicated, as well as minimal variety in layout. Several also underscored that modular construction is best-suited to projects under 100 units on flat, rectangular sites. Some also saw potential for hybrid projects that utilized certain prefabricated elements, and for material innovations that leveraged the factory setting.

Conclusion

Our scan of the industry indicates that modular construction's potential to help solve the affordable housing crisis is limited. Still, it could become a more widely used piece of the affordable housing toolbox. Its greater adoption will be determined largely by the willingness of all players in our traditionally risk-averse industry to commit to removing the many barriers detailed in this white paper—and to fixing the many bottlenecks and broken pieces that plague affordable housing development and financing more broadly.

¹ https://cao-94612.s3.amazonaws.com/documents/HCD-Review-Draft-Housing-Element-6.30.2022.pdf

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