

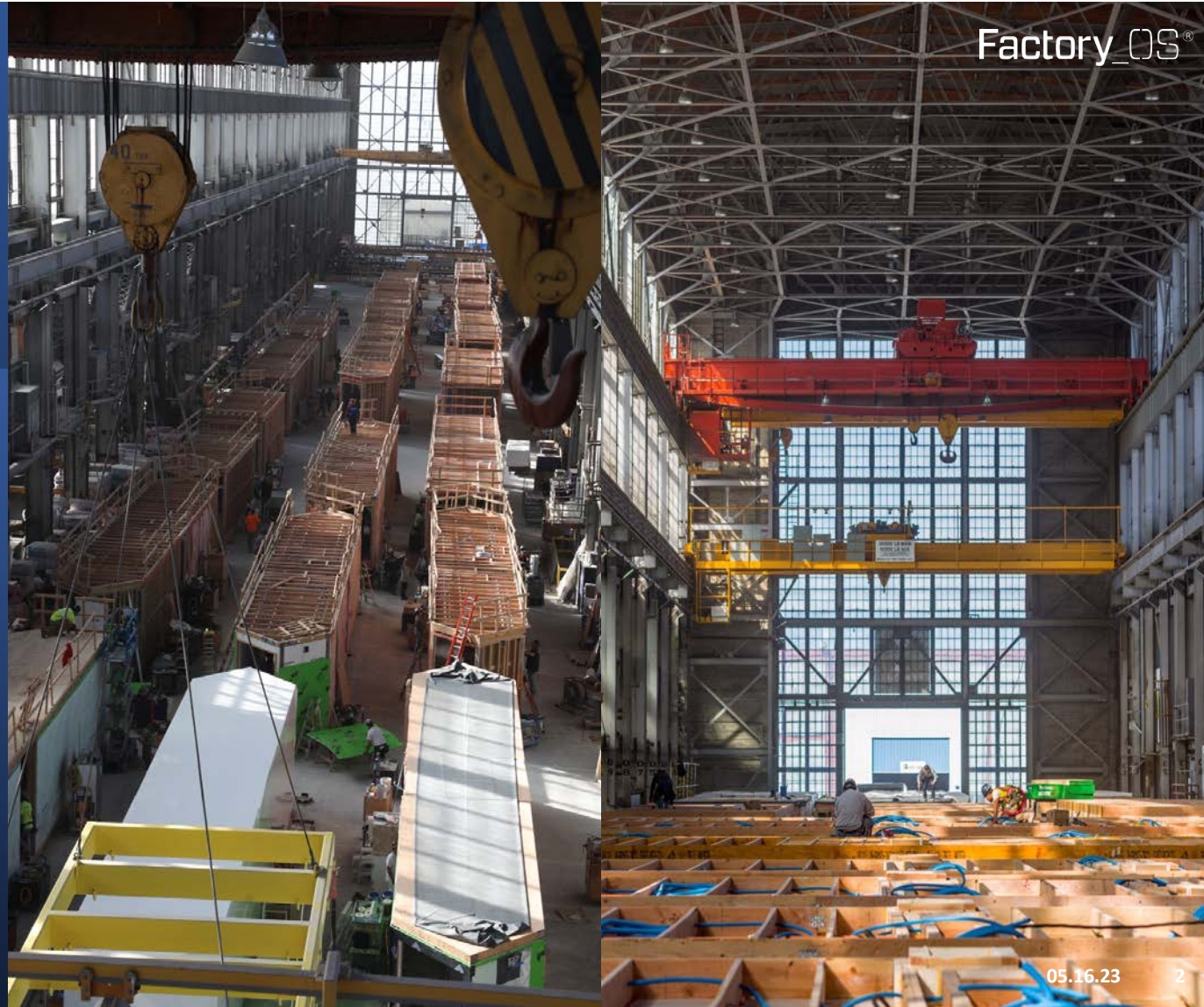
# Factory\_OS®

**The smarter way to build for a better way to live**

Wood Frame Modular  
Construction.  
Reducing the Carbon  
Footprint.

# Who We Are

- We've been around since 2018.
- We do volumetric construction: Both custom "Design Assist" and pre-designed "Catalog" dwellings.
- We're Located on Mare Island in Vallejo.
- Type V & Type III Wood frame construction.
- We serve multiple market sectors: Emergency, Supportive, Affordable and Workforce housing, as well as Student housing and Hospitality.
- More than 2,000 homes completed to date.
- Our production rate is equivalent to 6 studio units per day.





# Low Carbon By Design

## DfMA. A Carbon Perspective:

- We take a simultaneous “Fabrication Centric” approach to the building, the dwelling unit and the various sub-components, to reduce waste, accelerate production while improving habitability.





# Low Carbon By Data Management

## DfMA. A Carbon Perspective:

- Tagging and tracking – Each piece of cut material is tagged and tracked, including seemingly scrap pieces. These “left over” components are utilized for sub-assemblies either immediately being installed or those that may occur much further down stream in the production schedule.

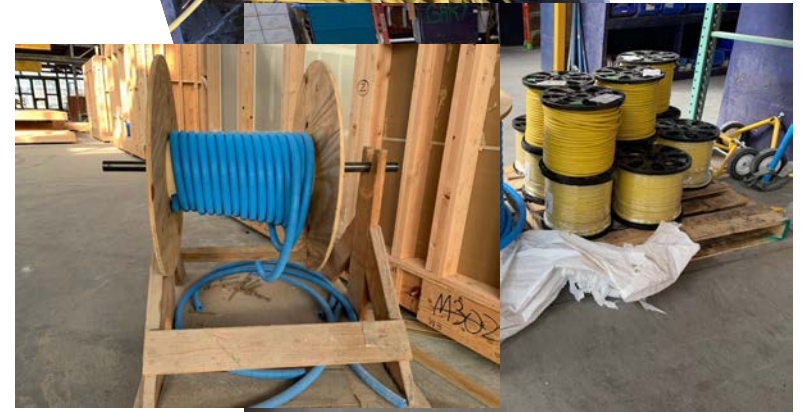




# Low Carbon By Fabrication

## DfMA. A Carbon Perspective:

- Consumables – Many materials such as wiring, sealants, and flexible flashings, which in conventional construction could typically have a 10% waste factor due to the inherent limitations of on-site installation and storage, are able to be used w/o any waste, as the material is pre-cut to fit.



# Improved Quality = Improved Habitability

## Manufacturing best practices

- Each wall panel, floor panel and ceiling panel is inspected for QII (Quality Insulation Installation)
- 5% of the dwellings typically get a blower door test by a HERS rater before the volume leaves the factory. And then again after set.
- 5% -10% of the windows are water tested. In the factory and then again after set.
- These quality control tests and inspections drive a reduced operational carbon home after occupancy

## LEED Field-Verification Report

**HERS Verification Measures;**  
 -Blower Door Testing  
 -Quality Insulation Installation with Thermal Imaging Observation

**Conducted Date: 08/24/2022**

On the date referenced above, VCA Green conducted HERS measures shown above. Each of the units tested represents a sample group of seven units. The intent of these tests is to help meet Title-24 energy compliance documents and worldwide accepted LEED for Homes Standards. HERS testing was completed as quality assurance only; VCA Green tested 5 units and was able to pass all HERS measures shown below.

Below are the results from our testing:

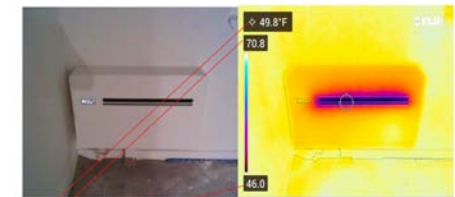
### Tests Conducted: Blower Door

| PASS/FAIL | FOS # | BERNARDS # | Blower Door Threshold (CFM) | Blower Door Tested (CFM) | Notes: |
|-----------|-------|------------|-----------------------------|--------------------------|--------|
| PASS      | 406   | 420        | 416                         | 383                      |        |
| PASS      | 306   | 320        | 416                         | 398                      |        |
| PASS      | 306   | 319        | 416                         | 412                      |        |
| PASS      | 207   | 222        | 416                         | 397                      |        |
| PASS      | 207   | 221        | 416                         | 364                      |        |

Many of the practices involved with envelope tightness and blower door testing are completed during the framing and insulation stage. It is important that all penetrations are sealed, doors and windows caulked, and all doors and windows weather stripped. Air infiltration is caused by gaps in framing and any pathways that lead into interstitial wall space. Therefore, air sealing of all gaps and framing should also be included for QII as well as blower door testing. A blower door test is used on buildings in order to quantify the amount of air leakage through its enclosure. Digital gauges compare the difference in air pressure between the inside air and the outside air to determine how much air is leaking into the house.



All pictures were taken with a FLIR C5 thermal camera. These two pictures were taken inside a unit with the air conditioning on. The first image is of the ac unit with the camera targeting the supply air shown at 48.8°F degrees. The second image shows an overview of the exterior wall the same ac unit is mounted on. Rather than targeting the supply air, the window now is being targeted (68.7°F) by the thermal camera.



- 49.8°F: The temperature of the targeted area (○)
- 70.8- The hottest temperature within the camera's sensors
- 46.0 The coldest temperature within the camera's sensors



05.16.23