An Introduction to

Volumetric Modular Housing Technology

(as used with Multi-Family Projects)

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The Pacific Companies

NH&RA 2025 Summer Institute

The Modular Building Process

1. Modules Built in Factory

2. Shipped by Truck to the Project Site

3. Craned and Connected

4. Siding & Roofing Outside, MEP & Finish Inside

5. Completed Building

Typical Module Factory-Shipped Condition

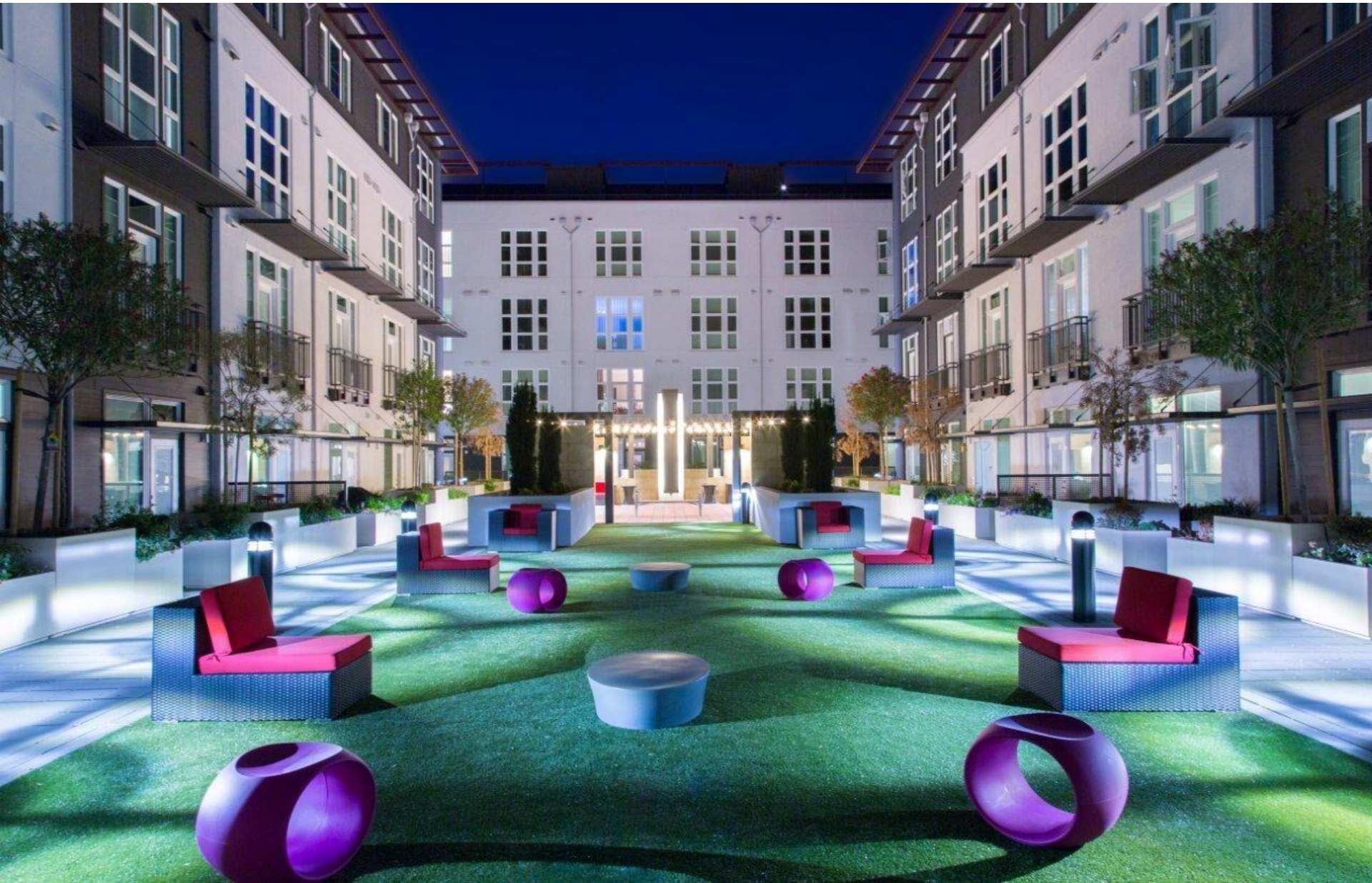
- ✓ Paint
- ✓ Cabinets
- ✓ Countertops
- ✓ Flooring
- ✓ Appliances
- ✓ Doors
- ✓ Windows
- ✓ Fixtures
- ✓ Finish Hardware
- ✓ Insulation

Typical Module Factory-Shipped Condition

Typical Module Factory-Shipped Condition

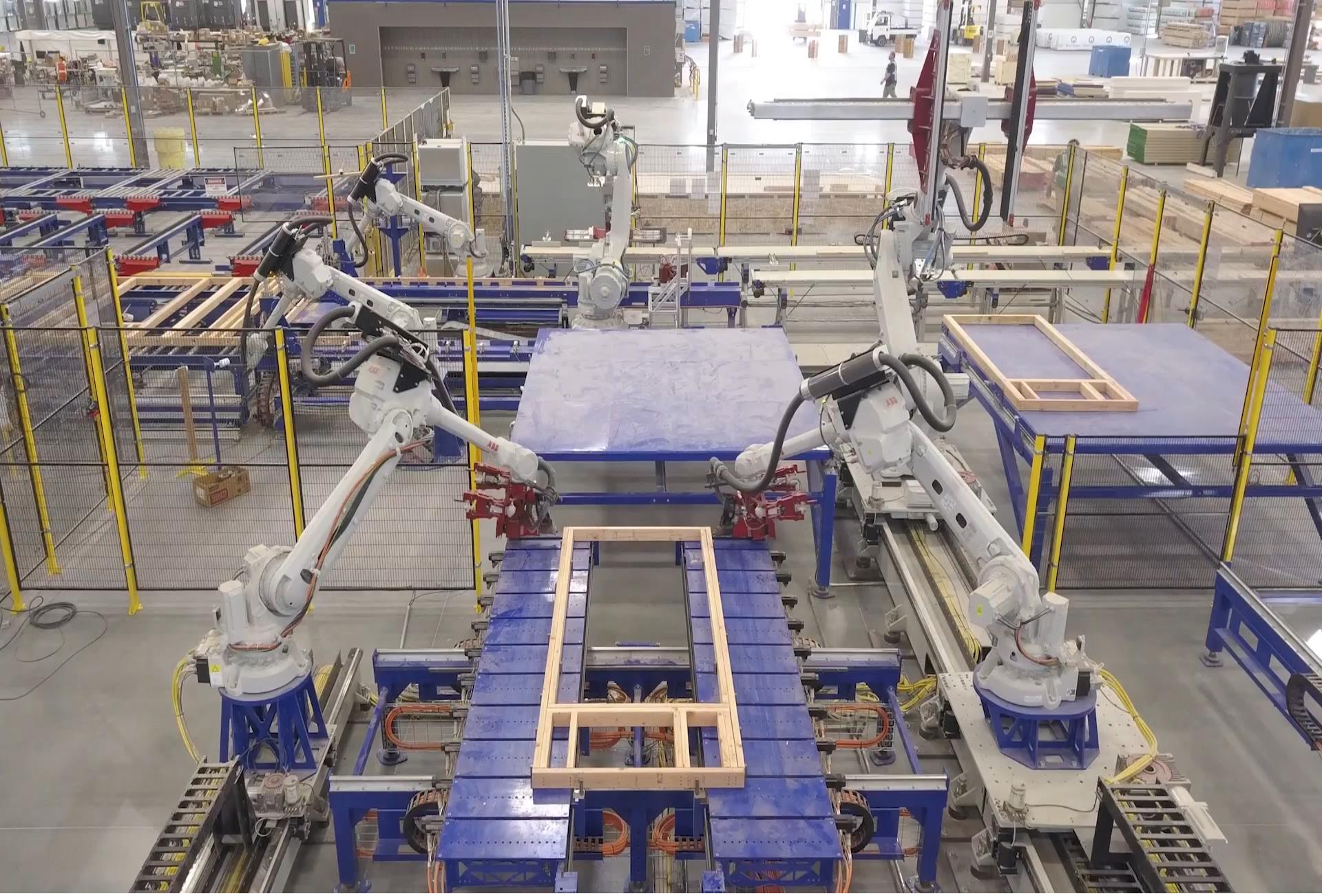
Aspen Village – Mammoth Lakes, CA

Domain Apts. – San Jose, CA



Virginia Studios – San Jose, CA


AVM
Autovol
VOLUMETRIC MODULAR
Autovol



Primary Value of Modular

(when applied correctly)

- Reduce construction costs
  Good target is 20% better than conventional
- Compress construction schedule
  Schedule reduction of 25% should be achievable
- Build in difficult climates
- Lessen prevailing wage costs
- Improve product quality
- Address labor shortages

Modular vs. Traditional Construction Case Study Comparison Highlights

Data	Conventional	Modular
Location	Daly City, CA	Oakland, CA
# of Units	206	324
Design Type	5 over 2	5 over 1
Unit Types	Studio	1- & 2-bdrm
Sq. Ft.	122,742	218,000
Cons. Costs	$43,355,000	$58,961,000
Cost / Sq. Ft.	$353	$270
Cost Savings		23% ($18MM)

The Value of Modular - Secondary

(when applied correctly)

- Enhanced worker safety
- Reduce neighborhood impacts
- Reduce city inspection burden
- Improved sound attenuation
- Increased structural stability
- Easier quality control process
- Lower construction-related VMT's

Evaluating Your Project for Modular

Environments that Support Modular

- High-cost urban centers (esp. coastal)
- Limited building season length
- Areas with high prevailing wages
- Markets with labor shortages
- Temporary storage locations available
- City/county with modular experience
- Factory location within 800 miles

Evaluating Your Project for Modular

Sites that Support Modular

Adequate street frontage
Module stripping and prep area
Pre-pick staging location
Crane reach and pick locations
Power line interference
Timing of power line undergrounding
Reasonably close temporary storage site

ARCHITECTS ORANGE

LICENSED ARCHITECT
R.C. ALLEN
C 22598
STATE OF CALIFORNIA

PACIFIC WEST COMMUNITIES
430 E STATE STREET, SUITE 100
EAGLE, ID 83616

CITY RE-SUBMITTAL
02-04-2020

DATES

Plan Check Date
Bid Set Date
Permit Date
Project Number
Plot Date

SHEET


PACIFIC
WEST
BUILDERS

Evaluating Your Project for Modular

Project Designs that Support Modular

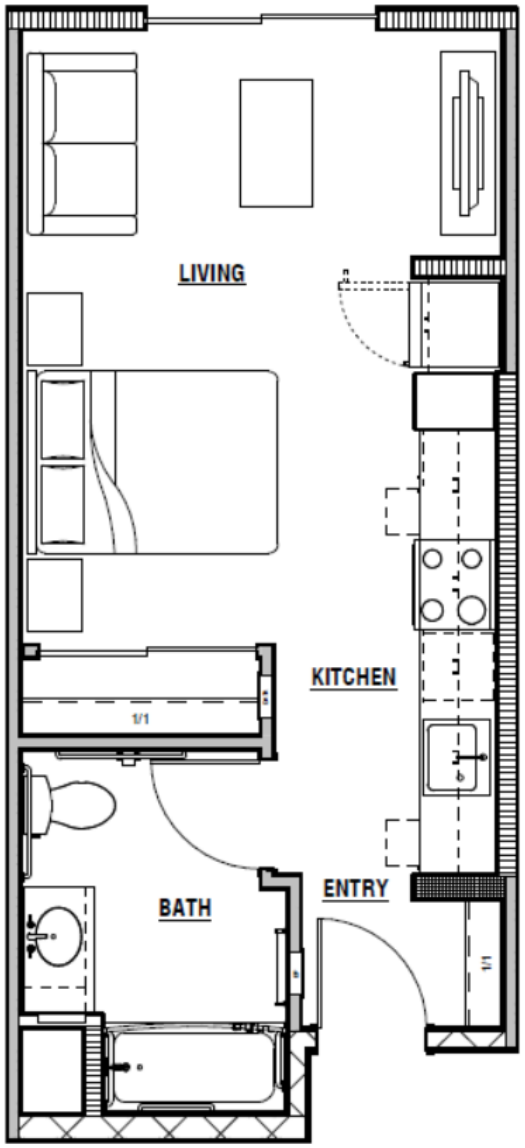
- Use factory-friendly modular dimensions
  - 12’ to 14’ x 60’ to 74’
- Plan for increased floor heights – 11’
- Plan for increased building width
- Double-loaded corridor buildings
- Larger projects (>100 units)
- Standardized floor plans
- Studio units / supportive housing
- Modern building style w/ flat roof

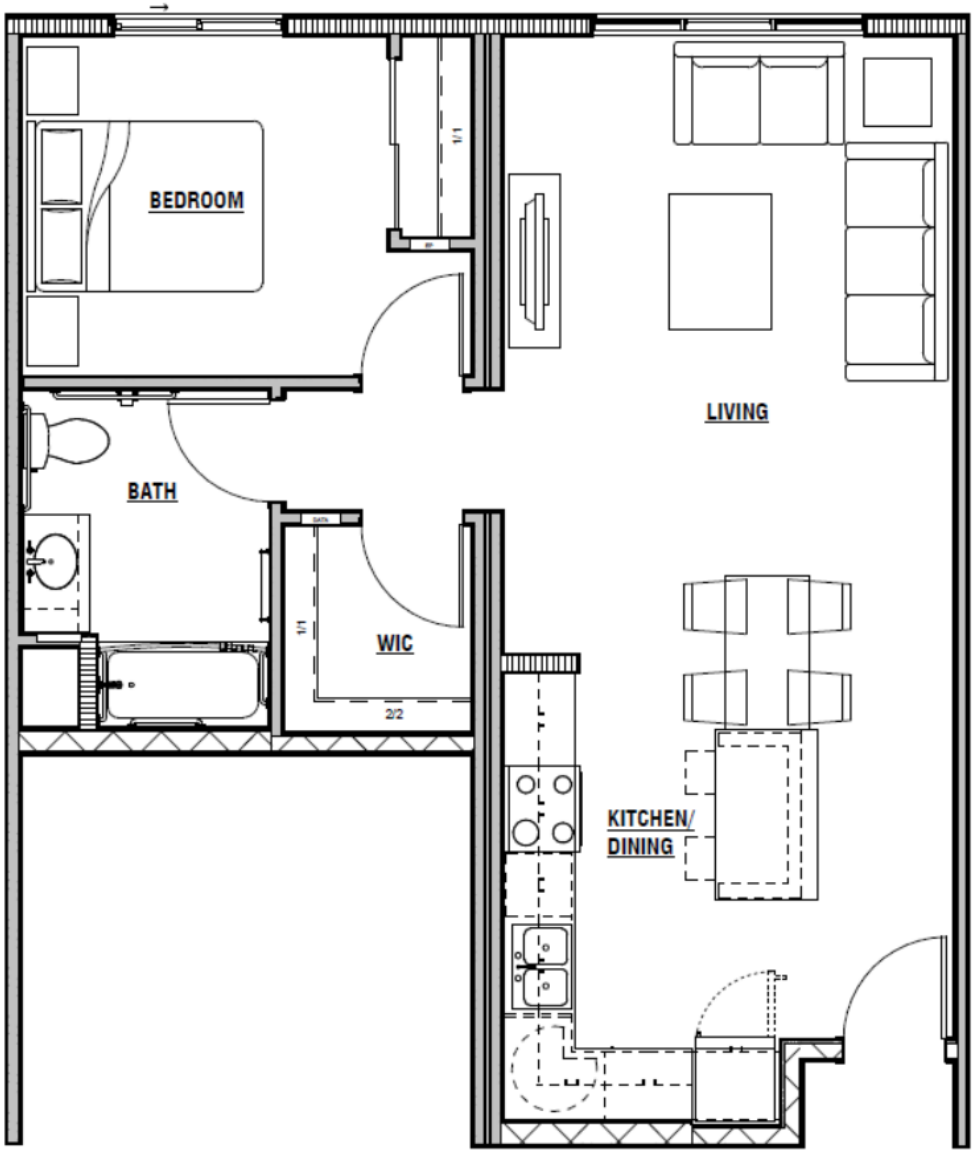
Designing Buildings for Modular

Grid alignment is important for efficiency

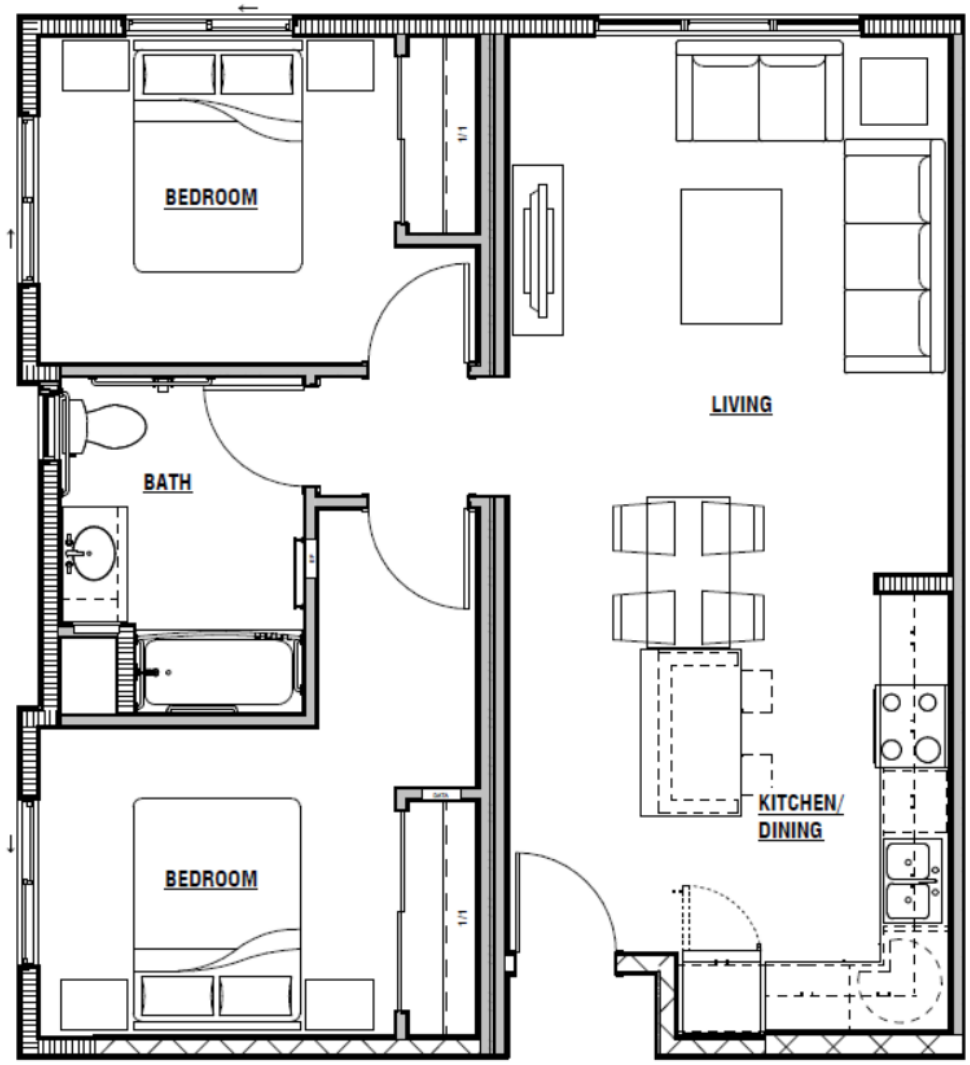
Full length module includes corridor *(red box is a single module that includes 2 studio units)*

Designing Buildings for Modular





Designing Buildings for Modular



Designing Buildings for Modular

Thank You!

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