

Prefabulous: The Future of Homebuilding



Maine Green Realtor Day
October 5, 2022

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COO, Unity Homes

The Next 50 Minutes

- The (New) Meaning of "Home"
- The Homebuilding Challenge
- Off-site Construction
- Prefabrication Meets High Performance
- Video



The (New) Meaning of Home

- Providing **refuge, safety and health**
- Supporting **comfort**:
physical, mental and emotional
- Serving **new and different needs**
 - Remote work and schooling
 - Socializing from a distance
 - Workout spaces, "away" spaces, hobby spaces
 - Indoor/outdoor connections
- Embodying our **deepest values**





“High Performance” =

- Healthy and Comfortable
- Energy Efficient
- Sustainable
- Resilient and Adaptable
- Predictable

“200 Years of Tradition, Unimpeded by Progress”



1820



1940

CAMP BUILDINGS

Carpenters at work on a dormitory at Waiouru in September 1940

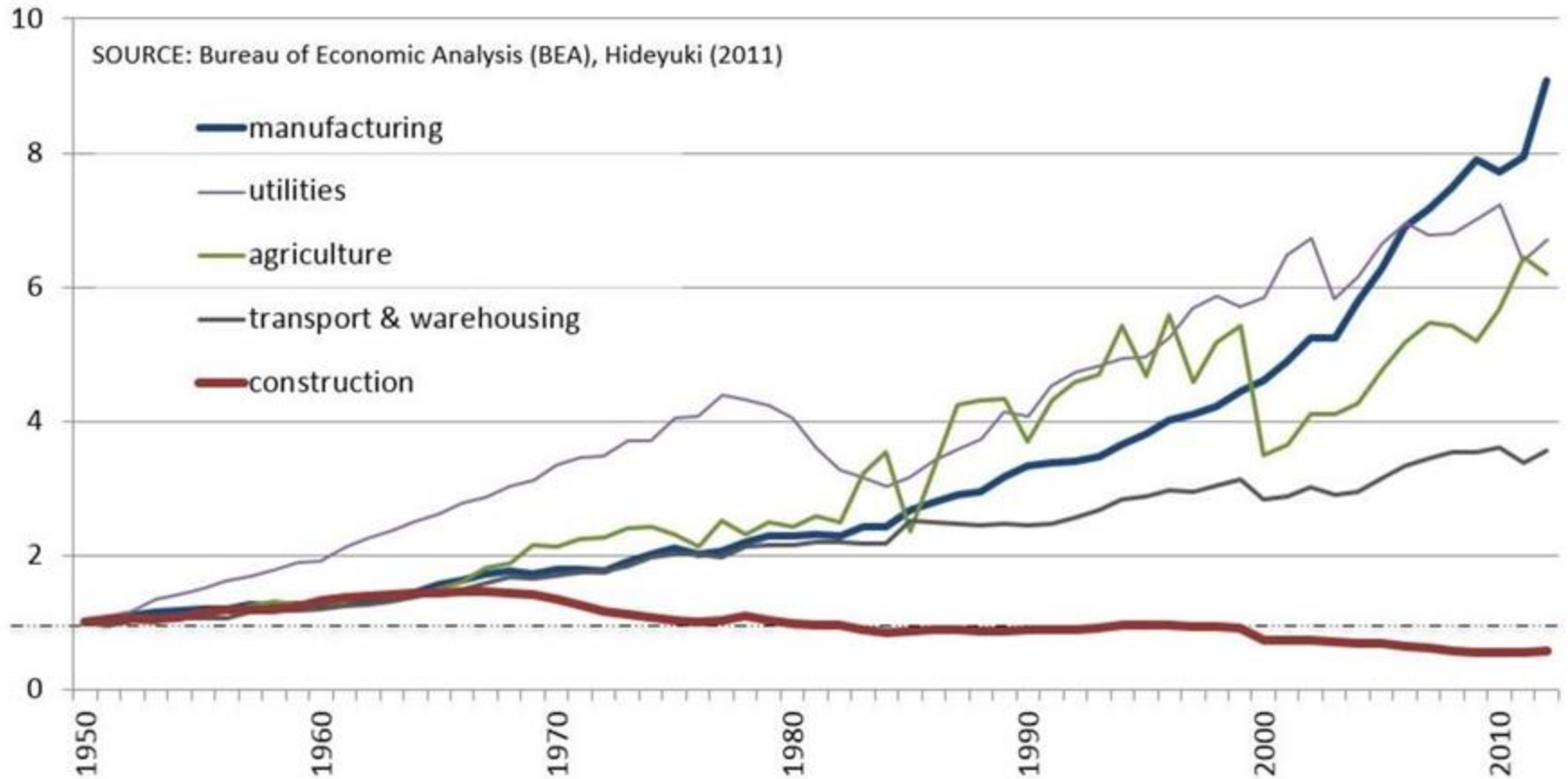


2018

ref: “Roof Framing – Production Mode” *Fine Homebuilding Online*, 2009

Construction productivity 1950-2012

Real productivity (GDP value-add per employee) by industry in the US
Indexed; 1950 = 1.0



[www.curt.org]

Off-site Construction



Off-site Construction Advantages

1. Predictability
2. Quality
3. Speed
4. Safety
5. Site Impacts
6. Waste
7. Labor



Off-site Construction Options

1. Manufactured/Mobile Homes
2. Modular
3. Panelized



Manufactured/Mobile Home



Modular



Brightbuilt Home

Panelized



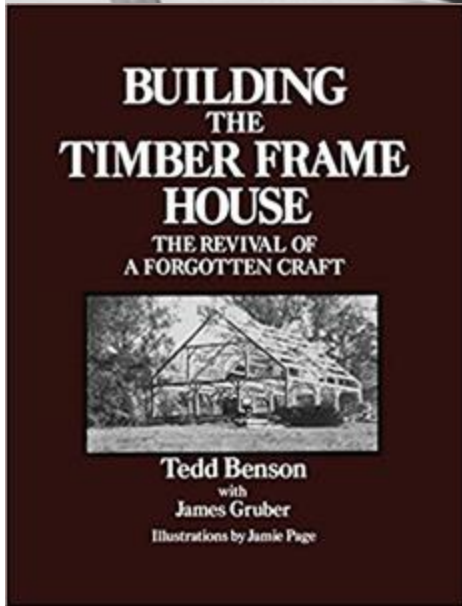
GO Home

The Search for “A Better Way to Build”



Tedd Benson, c. 1973

Early Days of Timber Framing Revival



Timber Framing as Precision Off-site Manufacturing



Melding Technology and Craft



Digitizing the Construction Process



Advanced Technology: CNC Machines



50 Years of Learning and Innovation



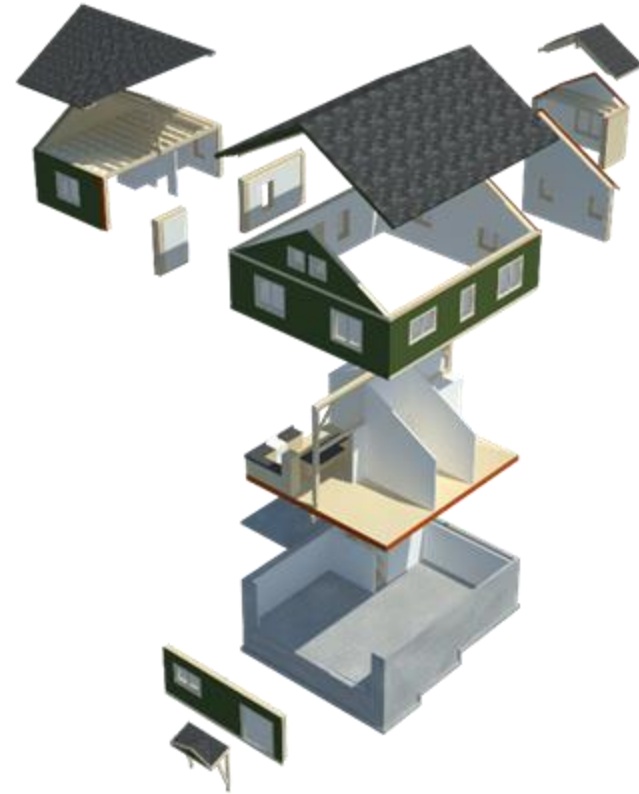
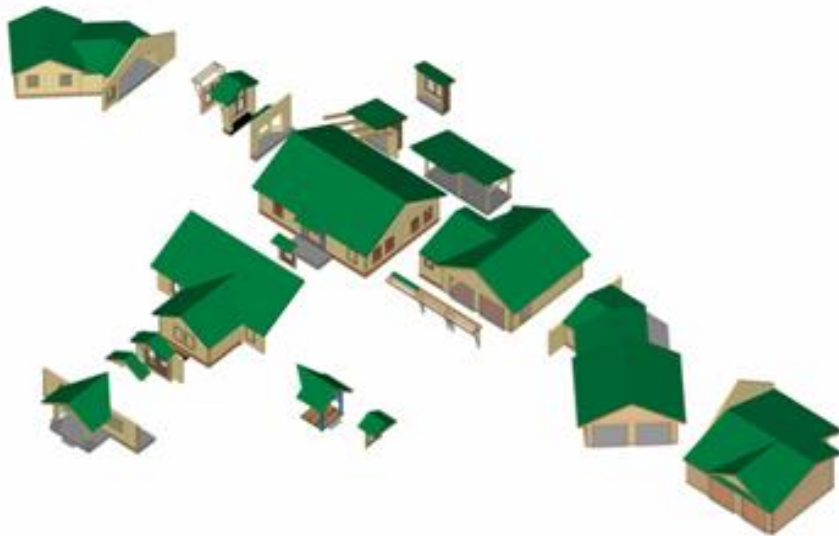
Facilities



Principles and Strategies

1. Component-based Design
2. Virtual Before Actual
3. Off-site Fabrication, On-site Assembly
4. Appropriate Technology
5. Lean Manufacturing - Continuous Improvement

“Assembled” Designs

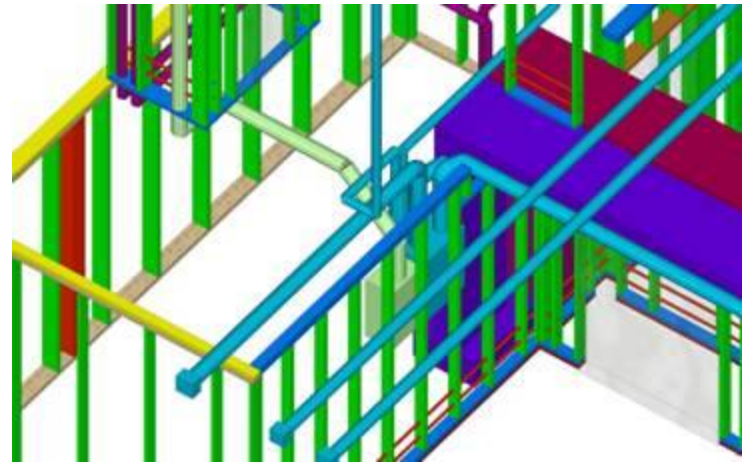
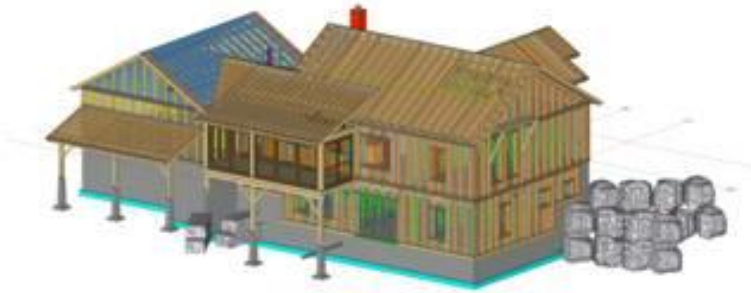


“Mass Customization”

- To fit the site
- To fit the budget
- To fit the design program



Virtual before Actual



Off-site Fabrication; On-site Assembly



Appropriate Technology



Lean Manufacturing



Panelization Factory for Unity & Bensonwood



Panel Bundles



First Floor Panels



First Floor Walls



Second Floor Panels



Second Floor Walls



Roof Panels



Rapid On-Site Assembly



Weathertight Shells





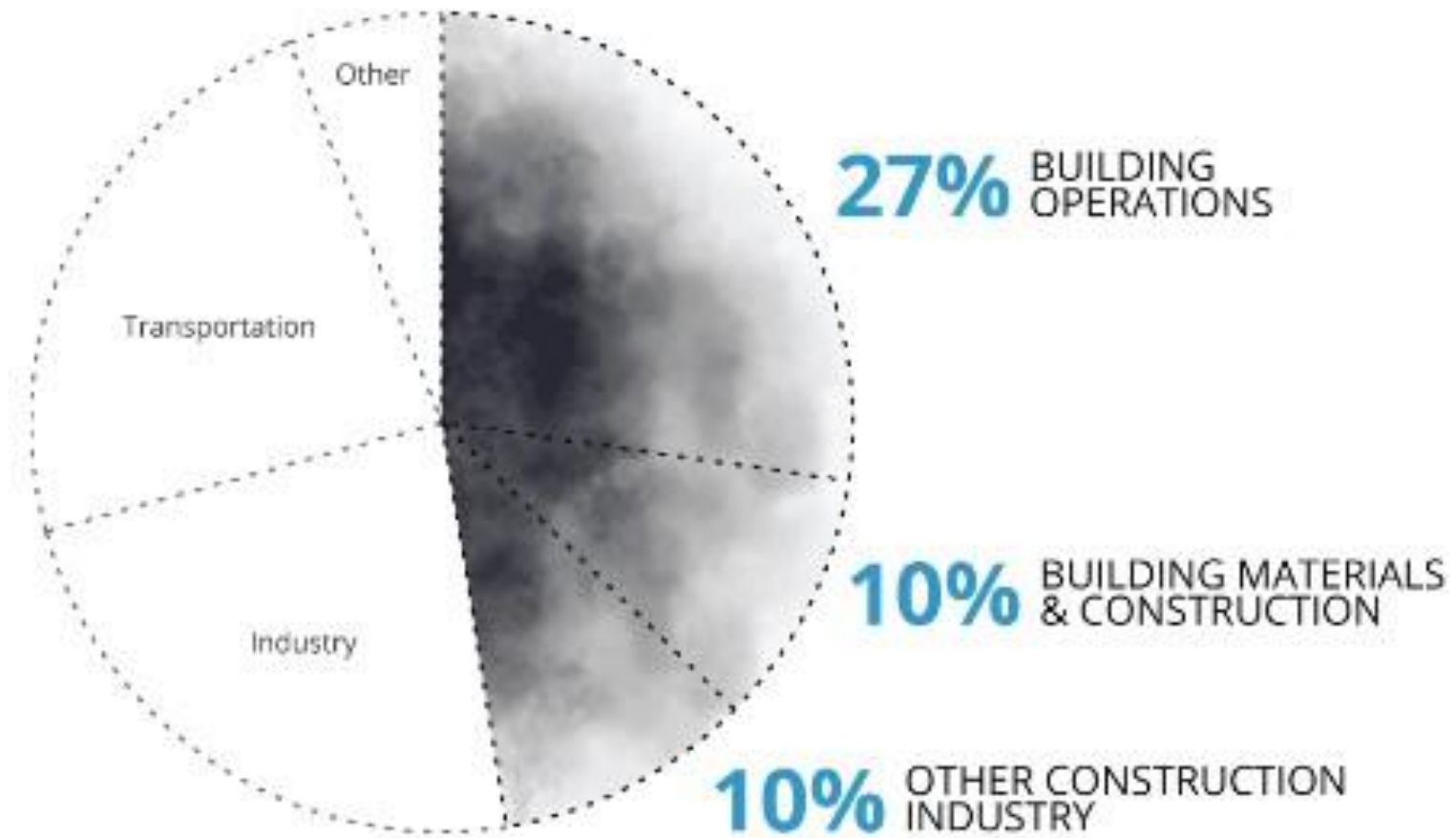
futurehouse

**MACHINE-BUILT
HOUSES**

WITH **TEDD BENSON**



Annual Global CO2 Emissions



© Architecture 2030

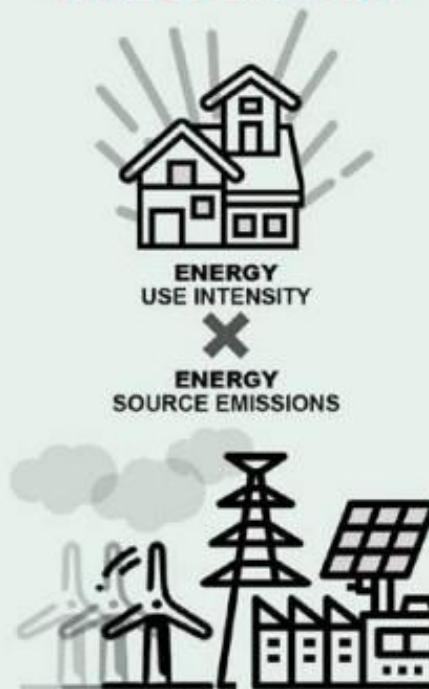
Carbon Use Intensity

**MATERIAL
CARBON EMISSIONS**



+

**OPERATIONAL
CARBON EMISSIONS**



=

**CARBON USE
INTENSITY**

CUI

High Performance ADU



High Performance ADU



A large group of people, including men and women of various ages, are gathered in a well-lit workshop. They are standing behind a long, narrow wooden structure that appears to be a boat hull or a large wooden frame. The structure is supported by metal blocks and has a yellow strap tied around it. The people are smiling and waving, some with their arms raised in celebration. The workshop is filled with various tools, workbenches, and equipment. The overall atmosphere is one of accomplishment and teamwork.

Thank you!

Andrew Dey

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Additional Resources

- www.unityhomes.com
- Unity's [YouTube channel](#)

