

# Welcome to the 40th Annual NPH Affordable Housing Conference!

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40th Annual NPH Conference  
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CONSTRUCTION INNOVATION:

**Boldly Go Where *Some*  
Have Gone Before**



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# Who's in the room today?

- Architects
- Developers
- Contractors
- Policy Advocates
- Others?

# Who has researched or explored using alternative construction methods for a project?

- Volumetric Modular construction
- Panelized construction
- Cross-Laminated Timber/Mass Timber construction

# Who has used alternative construction methods for a project?

- Volumetric Modular construction
- Panelized construction
- Cross-Laminated Timber / Mass Timber construction
- Other?

# PANELISTS

## Darin Ranelletti

Policy Director for Housing Security



## Lynette Dias

President & Principal-in-Charge



## Ada Chan

Regional Planner



## Michael Johnson

President & CEO



## Deanne Tipton

Senior Project Manager



## Nick Gomez

Modular Studio Director



## PRESENTATION OUTLINE:

How we define

# Innovative Construction

- Off-Site Construction
- Volumetric Modular
- Panelized Construction
- Cross-Laminated Timber
- Mass Timber
- ADU's
- 3D Printing
- Tiny Homes
- Micro Units
- Macro Units, etc.



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## INTRODUCING THE RESEARCH

### BACKGROUND

- Why are MTC/ABAG and the City interested in this topic?
- What are they hoping to accomplish?





INTRODUCING THE RESEARCH:

# Consultant Team & Methodology Overview



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## INTRODUCING THE RESEARCH

# Overview of Information Gathered To-Date

We have received **65** survey responses:

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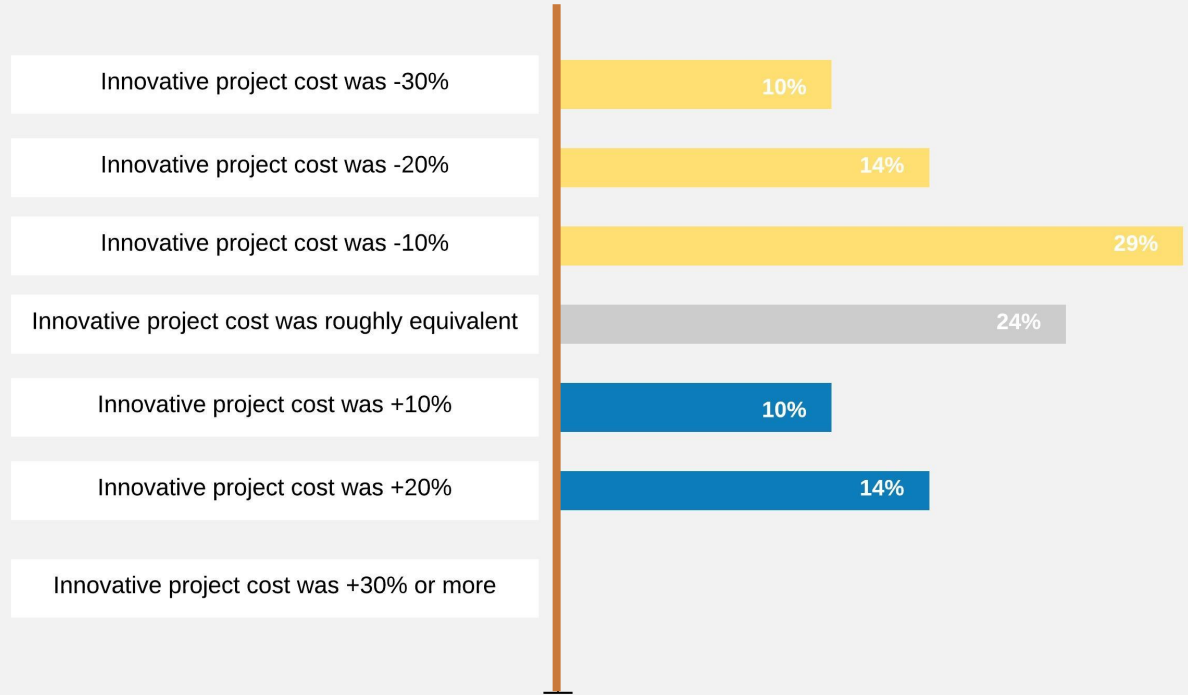
- **42%** who responded were developers
- **52%** had used innovative construction methods
- **Off-Site Construction** was the most common method

## RESEARCH SURVEY:

# Reported Cost Savings

## CONSTRUCTION COSTS:

Innovative vs. Conventional Methods



## RESEARCH SURVEY:

# Most Common Barriers

What barriers did your project(s) face during the planning and/or building process due to the use of innovative construction methods?



# To-Date, we've conducted four focus groups with industry professionals:

- Factory-built, Modular, Higher Density Development
- Smaller-scale, Unconventional Architecture
- Traditional Construction
- Builders of Color
- Will hold a fifth focus group with City staff members

## FOCUS GROUPS

# What we've heard:

*“I have had remarkable access to senior staff. The early proactive collaboration, ability to talk to a human being in timely fashion who’s experienced and can make decisions is excellent.”*

*“There is not a culture that is supportive of innovation. We are not educating staff about the housing crisis and if someone has a creative way of adding units, we should bend backwards to figure out how to get it done.”*

## FOCUS GROUPS

# What we've heard:

*“If you want to drive innovation, you have to have the credit structure to support it. Some modular builders have gone out of business. It’s not a tried and true process and there is no ‘Plan B.’ If there’s a way to mitigate some of the worst-case scenarios, that would help.”*

*“The ease at which you get through entitlements is not consistent. It would be great to have a graphic, like a flow chart, or an online tracking system to see where your project is in the queue and what the process looks like.”*

## FOCUS GROUPS

FINDINGS:

# Development Community

1. Cost savings are not guaranteed and may be smaller than expected.
2. There is a learning curve.
3. Large lenders have hesitations with methods that are still evolving.



FOCUS AREAS:

# Development Community

- 1. Professional Development**  
Mentoring, partnerships, education, etc.
- 2. Research on Benefits**  
Cost-savings, environmental sustainability
- 3. Update Job Training Programs**

## FOCUS GROUPS

### FINDINGS:

# Cities & Local Government

1. There is not a clear and consistent plan check process or communication between departments.
2. City champions and relationships with City staff are key.
3. There are regulatory challenges specific to different kinds of innovation.
4. Strong leadership is needed to establish a culture of innovation/tone for approving housing.



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FOCUS AREAS:

# Cities & Local Government

1. **Clear, Efficient, Effective & Customer-Friendly Permitting**
2. **Staff Training**
3. **Update City Codes**
4. **Funding for Job Training Programs**

FINDINGS:

# The Region

1. A large labor pool is key.
2. Clarity on the process of what the City vs. State inspects.

FOCUS AREAS:

# The Region

1. **Training for Local Governments**
2. **Funding for Job Training Programs**
3. **Unified Regionwide Building Code**



CASE STUDY | MODULAR PROJECT

DEVELOPER'S PERSPECTIVE:

# Using Alternative Construction Methods



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110 Units – Mixed Income  
55 Market Rate; 55 Affordable  
Transit Oriented Development  
Project Cost: \$56 million  
Ground Lease with BART  
1st Phase of Master Plan

## PROJECT TEAM

**DEVELOPER:** UrbanCore/OEDC

**ARCHITECT:** Pyatok Associates

**MODULAR DESIGN FIRM:**

Prefab Logic

**MODULAR BUILDER:**

Guerdon Modular Buildings

**CONTRACTOR:** Cahill Contractors

# Coliseum Connections

Oakland, CA



**Chase Bank:**  
\$29M Construction Loan

**RBC:**  
\$10M in Tax Credit Equity

**Commonwealth MF Housing:**  
\$2.5M Loan

**City of Oakland:**  
\$12M

**State of California:**  
\$10M Grant & Loan

**County of Alameda:**  
\$2.5M Loan

**HUNT Mortgage/Freddie Mac:**  
\$17M Perm Loan

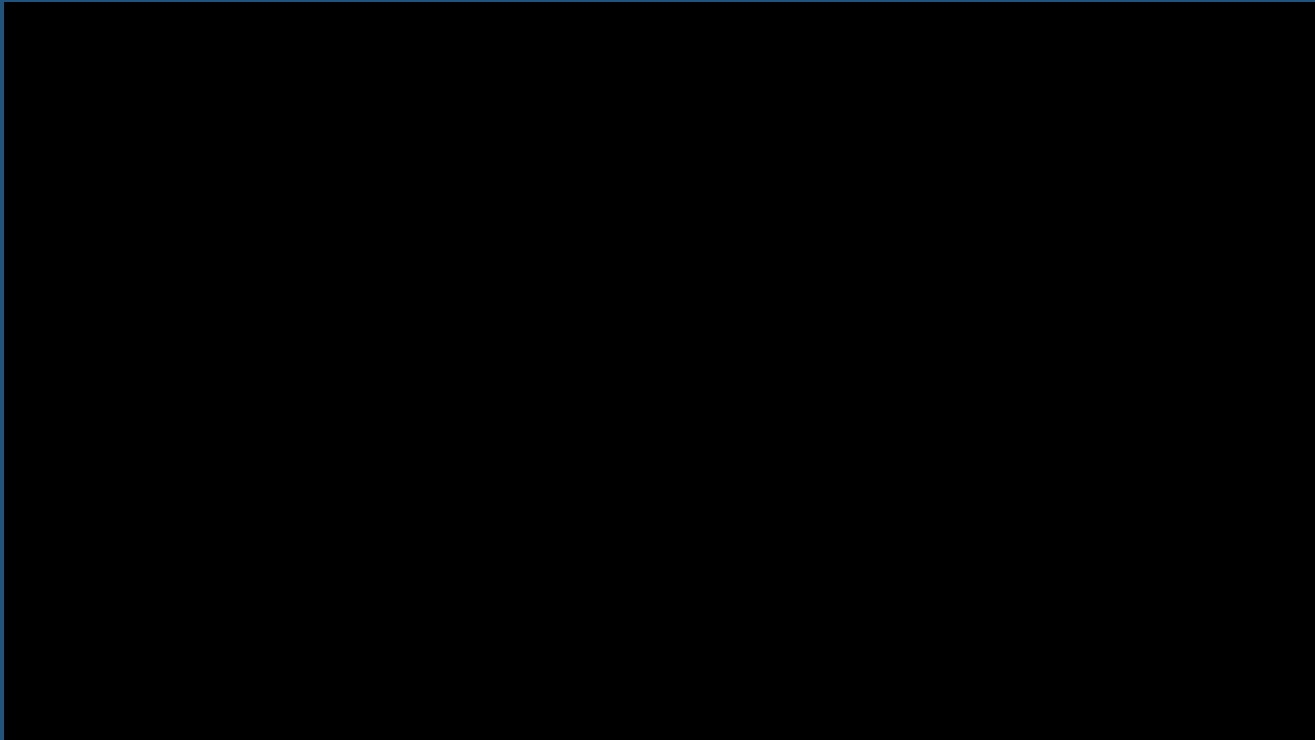
# Coliseum Connections

Oakland, CA





# CASE STUDY | MODULAR PROJECT



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# Coliseum Connections

Oakland, CA

## INTERIOR SPACES



# Coliseum Connections

Oakland, CA

## LESSONS LEARNED:

- Commit to modular design from the start.
- Choose an experienced architect and contractor.
- Finalize budget with all soft costs including additional inspection and security cost.
- Select a lender with modular experience.
- Ensure that the architect and modular builder coordinate the design details.
- Budget adequate hard and soft cost contingencies.

CONTRACTOR'S PERSPECTIVE:

# Delivering a Project Using Alternative Construction Methods



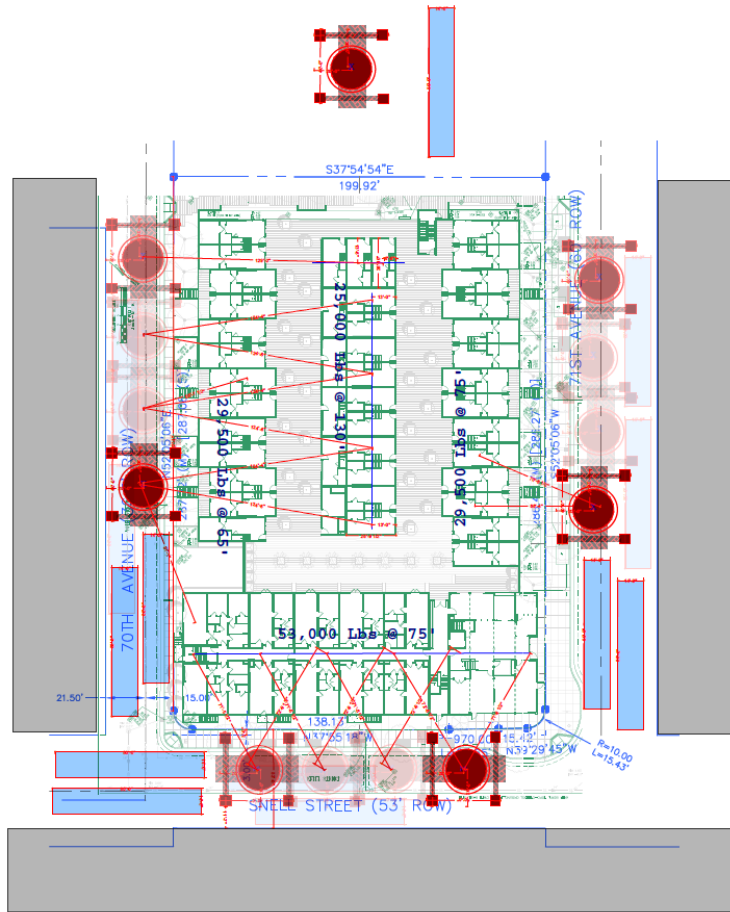
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# MODULAR BUILDING LOGISTICS & SETTING

1. Figure out the hoisting plan
2. Determine Set Sequence
3. Site Storage and Logistics
4. Site Pictures

# 1. FIGURE OUT THE HOISTING PLAN



# 2. DETERMINE SET SEQUENCE



## 2. DETERMINE SET SEQUENCE





## 3. SITE STORAGE & LOGISTICS

**84 Mods Staged as shown. Given actual sizes of units, expect to stage 84 to 95 units.**

Any chassis length = 78'  
Any mod width used = 13'  
Maximum Row width = 5'  
Total width = 18'  
Total Length = 82'

Way Exit

66th Ave

Parapet Construction and Layout area.

Emerald Steele

The aerial site plan shows a grid of modular units, each labeled with a unique alphanumeric code and a number in parentheses. The units are arranged in rows and columns, with a 'Way Exit' marked on the left side. The site is bounded by 66th Ave on the top and right. A yellow box on the right side of the plan indicates a 'Parapet Construction and Layout area'. The 'Emerald Steele' logo is visible in the upper left quadrant of the site plan.

## 4. SITE PICTURES



# AUDIENCE POLL:

<https://www.polleverywhere.com>



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Which of the following would best encourage you to pursue innovative construction methods in the future?

## Which of the following would best encourage you to pursue innovative construction methods in the future?

- A. Certainty there would be cost savings involved.
- B. Certainty there would be time savings involved.
- C. Better access to financing.
- D. Receiving education or training on innovative construction methods.
- E. A mentor or partner with experience using innovative construction methods.
- F. Revised city construction codes, standards, or regulations that better accommodate innovative construction methods.
- G. Improved city permitting process for innovative construction methods.

To help make housing production more efficient and cost-effective, and to keep pushing the industry forward, which of the following would you be most willing to do this year?

To help make housing production more efficient and cost-effective, and to keep pushing the industry forward, which of the following would you be most willing to do this year?

- A.** Do (bid on, design, manage, build, etc.) a project that uses an innovative construction method.
- B.** Use a new tool or technology to improve construction productivity.
- C.** Interview someone and/or go on a site visit to a facility to learn about next steps for using an innovative construction method.
- D.** Sign up for project updates to learn more about findings and solutions for innovative construction in Oakland.