



NATIONAL HOUSING &  
REHABILITATION ASSOCIATION

# Building Affordability: Managing Construction and Labor Costs Effectively



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# Building Affordability Managing Construction and Labor Costs Effectively

## State of the Materials Market

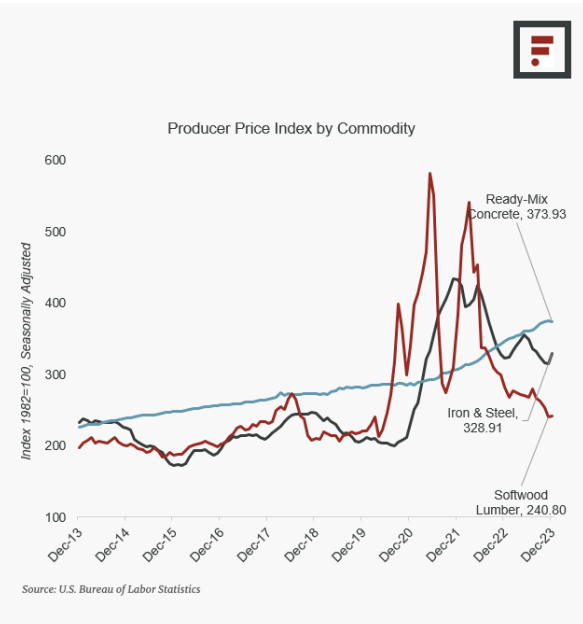
### Supply

### Material Prices

#### Key Construction and Remodeling Materials

The Product Price Index (PPI) records changes in many commodities that affect construction costs as well as finished goods. Each material's index begins at 100. If the PPI states 115 for annual production, the material costs 15% more to produce compared to last year.

The index shows a dramatic increase in production costs in three key material groups beginning in 2020. Many prices are coming down, but several inputs remain mixed.

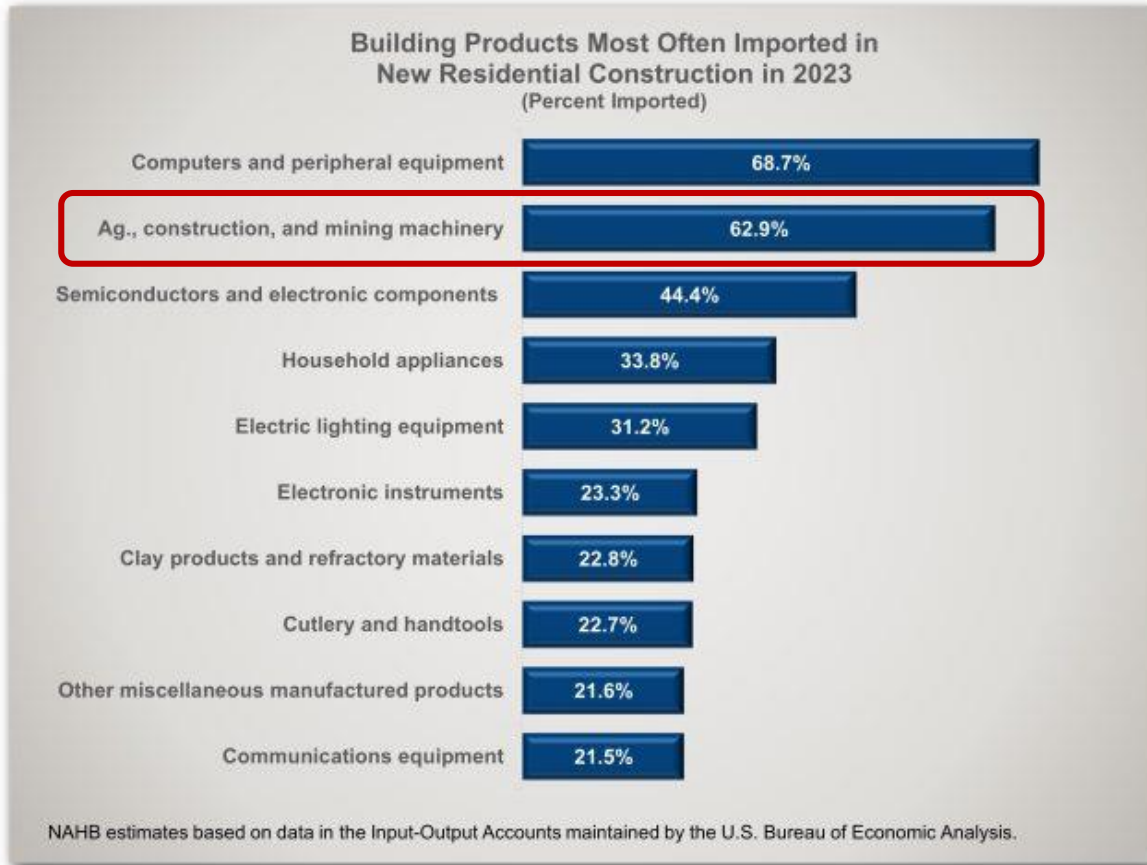


Source: The Farnsworth Group



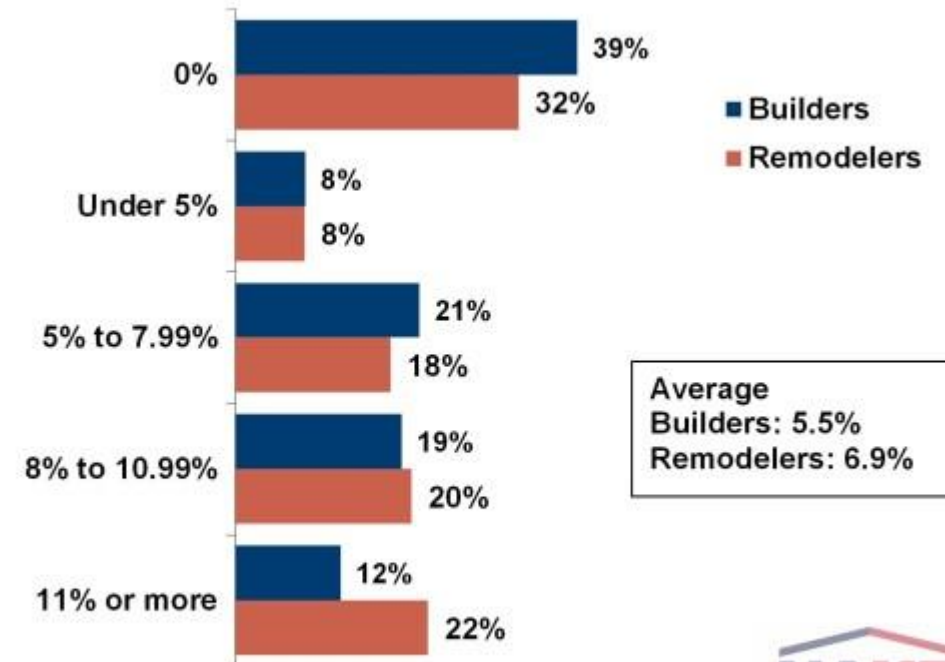
# State of the Materials Market

## Imports and Tariffs



Source: National Association of Home Builders

### Since January 20, How Much Have Suppliers Increased Their Building Material Prices Due to Impending Tariffs?



Sources: NAHB/Wells Fargo Housing Market Index, March, 2025;  
 NAHB/Westlake Royal Remodeling Market Index, 1st Qtr, 2025.



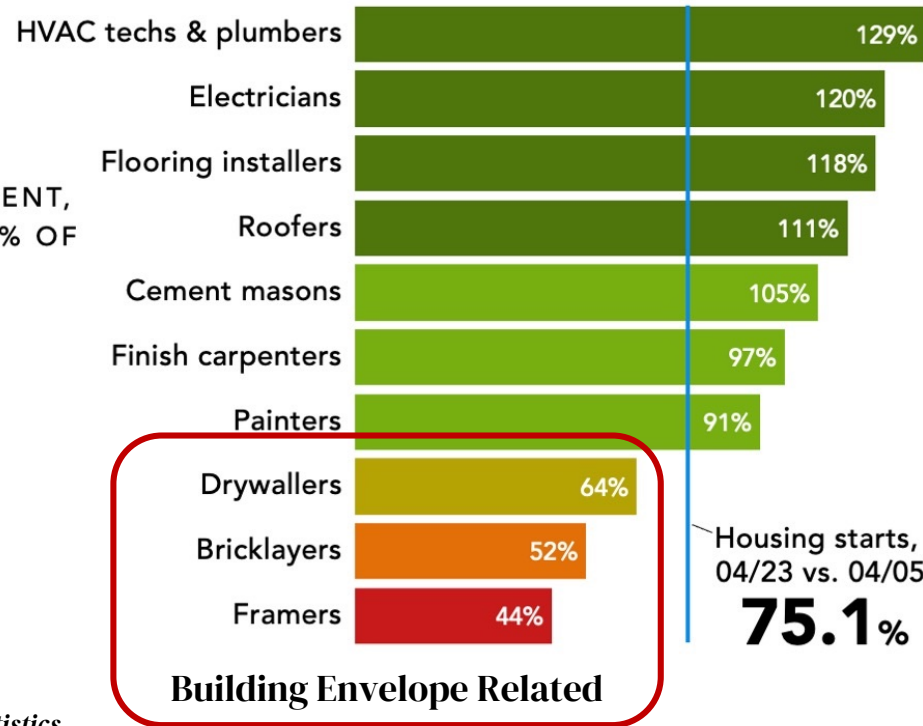
# Building Affordability Managing Construction and Labor Costs Effectively

## State of the Labor Market



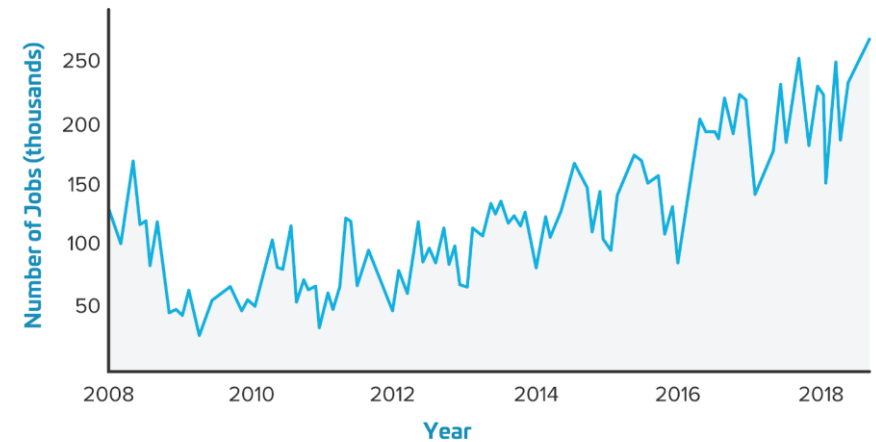
TRADE EMPLOYMENT,  
APRIL 2023 AS A % OF  
APRIL 2005

Production and  
non-supervisory  
workers employed  
by subcontractors



Source: Bureau of Labor Statistics

Number of Unfilled Jobs in Construction

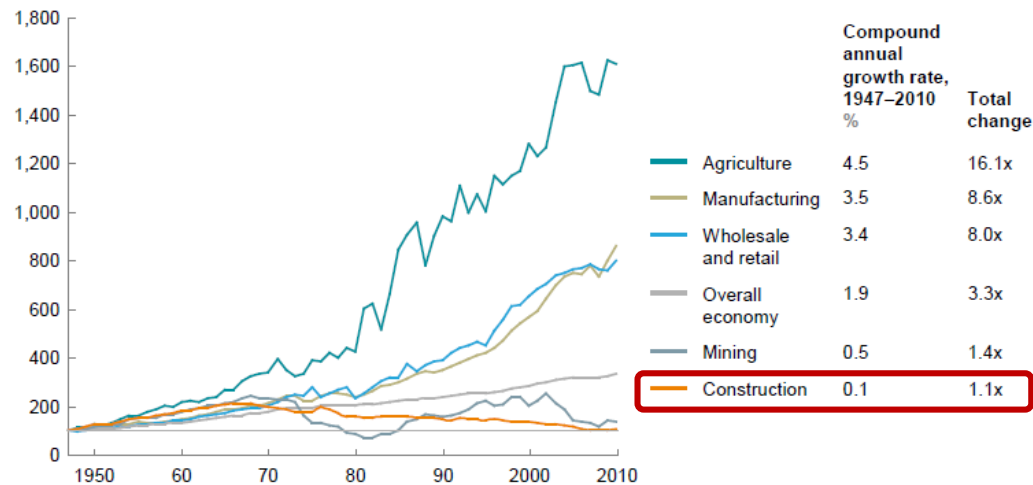


# Building Affordability Managing Construction and Labor Costs Effectively

## Technology Gap Innovation

In the United States, labor productivity in construction has declined since 1968, in contrast to rising productivity in other sectors

Gross value added per hour worked, constant prices  
Index: 100 = 1947



Source: McKinsey Global Institute

Thinking about the major issues facing the United States today, please tell me which of the following two is more important to you:

	All 18-29	Male	Female	White	Black	Hispanic	Dem	Rep	Ind
Inflation	64%	66%	61%	66%	66%	58%	58%	76%	63%
Healthcare	59%	57%	58%	59%	58%	58%	58%	51%	58%
Housing	56%	55%	57%	49%	68%	60%	62%	49%	56%
Gun violence	54%	56%	50%	51%	58%	52%	57%	41%	51%
Jobs	53%	55%	51%	53%	52%	54%	49%	60%	53%
Corruption	52%	56%	49%	54%	49%	51%	48%	57%	54%
Protecting democracy	52%	56%	48%	55%	46%	49%	57%	53%	48%
Women's reproductive rights	50%	42%	58%	47%	54%	52%	68%	24%	49%
Education	50%	52%	47%	54%	46%	45%	45%	54%	54%
Immigration	47%	51%	43%	50%	31%	48%	37%	71%	44%
Crime	47%	47%	47%	44%	48%	49%	42%	60%	45%
Climate change	43%	37%	47%	41%	43%	45%	55%	22%	44%
Taxes	43%	48%	40%	45%	41%	42%	39%	56%	41%
Free speech	40%	44%	37%	44%	34%	36%	30%	54%	42%
Israel/Palestine	34%	31%	36%	35%	32%	35%	37%	32%	32%
Student debt	26%	24%	27%	24%	31%	25%	29%	22%	26%

% that each issue wins against the field  
Source: Harvard IOP Youth Poll; Spring 2024 • Created with Datawrapper



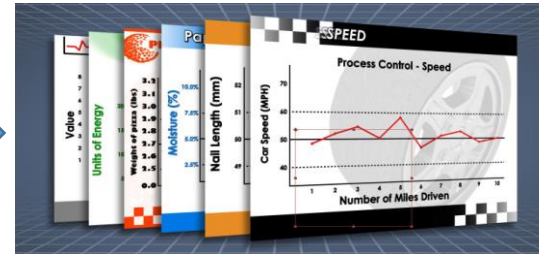
# Technology Gap Innovation

## Offsite Prefabrication Process

- Cost Effective
- Optimized Material Use
- Safe and Simple Assembly
- Onsite Labor Reduction
- Schedule Compression
- Minimize RFIs and Change Orders
- Reliable and Predictable Results



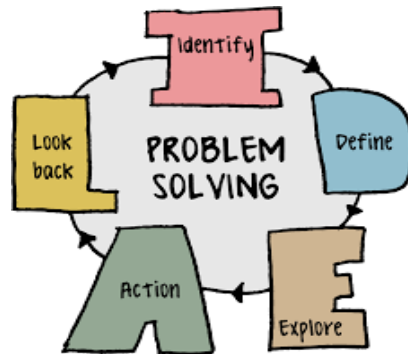
Project Design



Information Gather & Planning



PreFab Design & Conflict Identification



Review & Collaboration



Pre Fab & QC



Component Install

# Technology Gap Innovation

## What Ails Our Industry?



	Plane	ICE Car	EV Car	House
Number of parts	600,000	30,000	15,000	17,000
Time to build	9 days	20 hours	90 minutes	7 months
Time per part (sec)	1.3	2.4	0.4	1,067.3
Value Added Work	N/A	40-80%	50-80%	<5%

**Thought exercise – if it takes 60 seconds to process each piece of a house, The whole house can be built in 29, 10-hour days.**

Sources: [www.boeing.com](http://www.boeing.com) factsheet; [wired.uk](http://wired.uk); [www.motorbiscuit.com](http://www.motorbiscuit.com); [www.blogproautomotive.com](http://www.blogproautomotive.com); [www.motorandwheels.com](http://www.motorandwheels.com); Thrive Homes, [www.evannex.com](http://www.evannex.com).

## CASE STUDY 1

# Rally Flats | Boulder, CO

- 100 Permanently Affordable Apartment Homes (10 Units Reserved for Unhoused People)
- Pre-Construction and Construction Cycle Time Success
- Sustainability and Design-Make-Build Focused Design



3D BIM Created in MiTek® Structure™

# Rally Flats Apartments

## Project Details:

- 100 units of permanently affordable housing with 10 dedicated to individuals & families exiting homelessness
- Community room, leasing office, and common courtyard for residents
- Closing October 2023
- Occupancy March 2025
- Coburn as Architect
- Milender White as General Contractor
- Construction Cost: \$339K/unit



## Sources & Uses

<b>Rally Flats Sources &amp; Uses</b>	
<b>Sources of Funding</b>	<b>Amount</b>
State & Federal LIHTC Equity	\$ 21,194,202
Permanent Debt	\$ 10,400,000
Seller Carryback Note (BHP)	\$ 8,750,000
City of Boulder	\$ 12,000,000
Boulder County Worthy Cause	\$ 700,000
BHP MTW Funds	\$ 700,000
CDOH	\$ 3,500,000
Deferred Developer Fee	\$ 1,686,944
Soft Debt Interest Carry (non-cash source)	\$ 167,000
<b>Total Sources</b>	<b>\$ 59,098,146</b>
<b>Uses of Funding</b>	<b>Amount</b>
Land/Acquisition	\$ 8,750,000
Construction Contract	\$ 33,919,609
Owner Contingency	\$ 1,695,980
Professional Fees & Soft Costs	\$ 4,687,500
Financing & Construction Period Costs	\$ 3,892,730
Reserves	\$ 1,128,327
Developer Fees Total	\$ 5,024,000
<b>Total Uses</b>	<b>\$ 59,098,146</b>

## AMI & Unit Mix Table

	<b>0-Bedroom</b>	<b>1-Bedroom</b>	<b>2-Bedroom</b>	<b>Totals</b>
<b>30% AMI</b>	0	5	5	10
<b>40% AMI</b>	2	3	0	5
<b>50% AMI</b>	4	15	3	22
<b>60% AMI</b>	18	39	6	63
<b>Totals</b>	24	62	14	



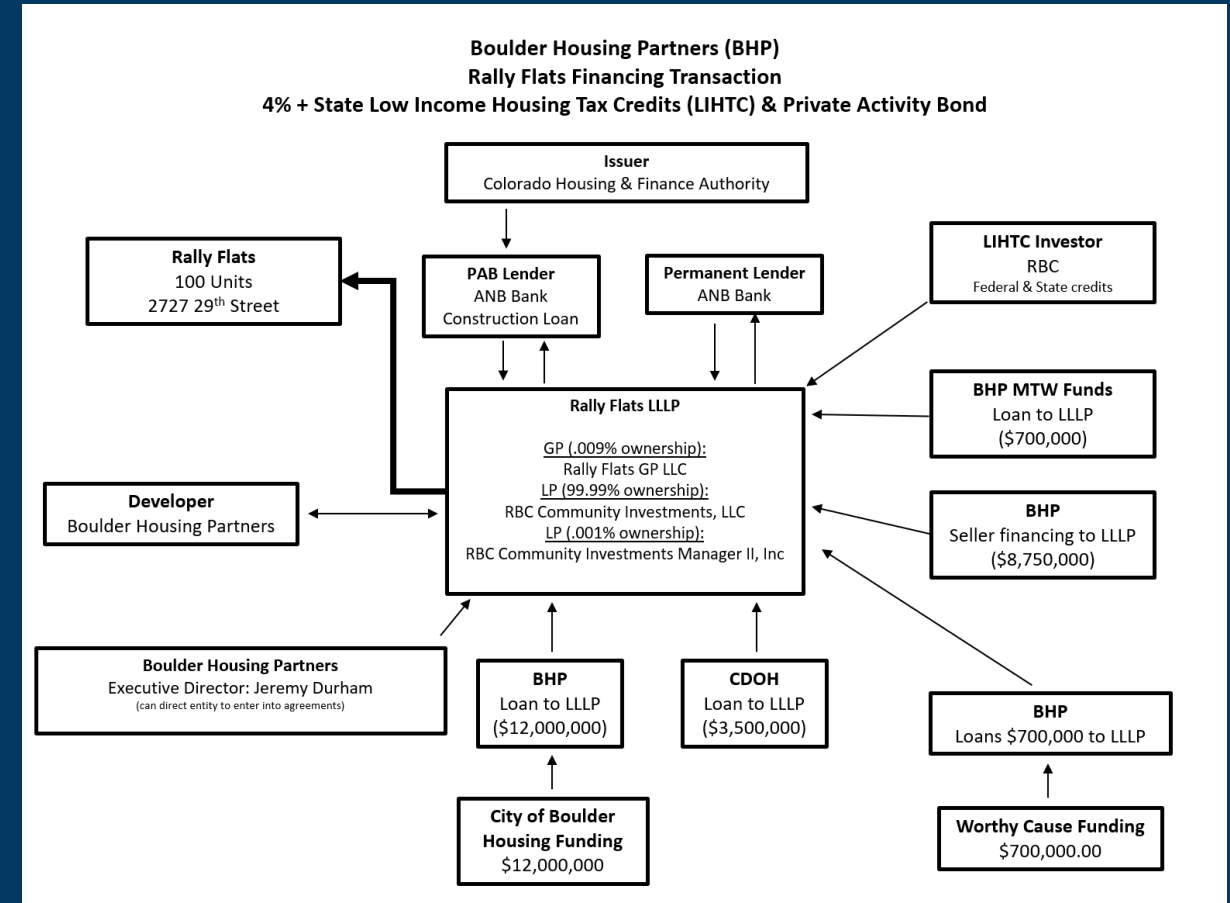
# Rally Flats – Financing Structure Details

## Partners

- RBC Community Investments, LIHTC Investor for both Federal and State Tax Credits
- ANB Bank, Construction & Permanent Debt
- City of Boulder, Affordable Housing Gap Financing
- Colorado Division of Housing, HDG funds (loan) for Gap Financing
- Boulder County, Worthy Cause funds for Gap Financing
- BHP, land, MTW funds, and Deferred Developer Fee

## Terms

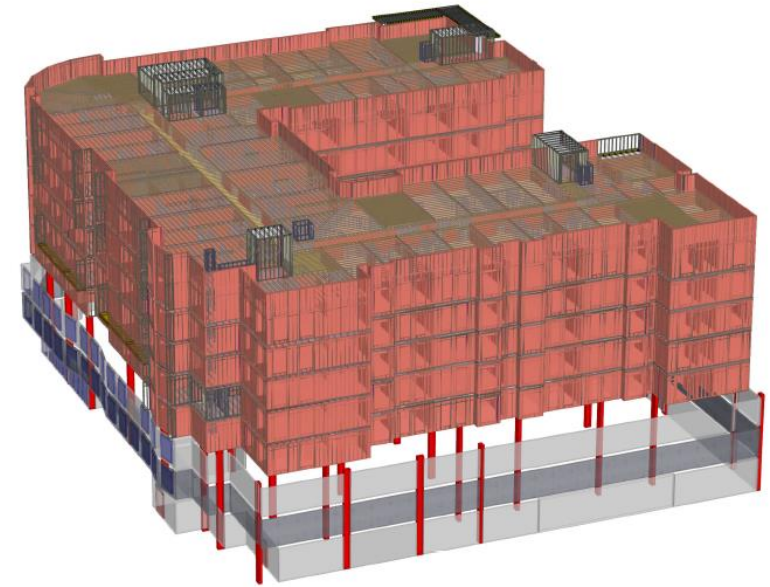
- .9125 in Federal Tax Credits
- .72 in State Tax Credit pricing
- 4.94% interest rate for construction & permanent debt
- 34% Deferred Dev Fee



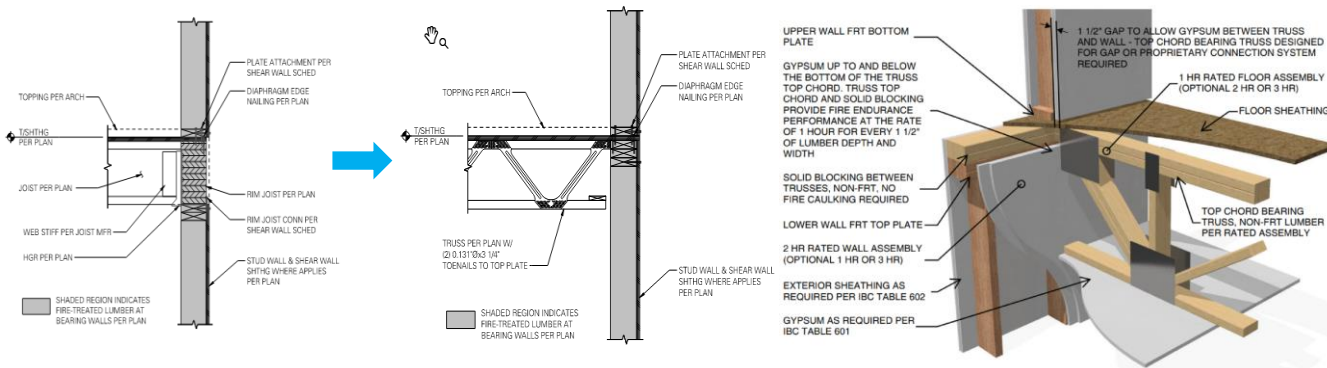
## CASE STUDY 2

# Tasman East | Santa Clara, CA

- \$500k+ in material cost reduction due to elimination of rim joist due to top chord design.
- ESL 1388 was published to permit the use of ceiling radiation dampers in shallow floor truss systems.



3D BIM Created in MiTek® Structure™



Construction Document Subject Matter Experts

	9 1/2" TJI 230 16" o.c.	9 1/4" Posi Web Truss 24" o.c. (BC Bearing)	9 1/4" Posi Web Truss 24" o.c. (TC Bearing)		
<b>Floor System</b>					
Area (sqft):	728	728	728		
<b>Floor Framing</b>					
<b>Joists: (ft, c)</b>					
Count:	32	23	21	↓9 (28%)	↓11 (34%)
Lineal Feet (ft):	518	356	338	↓162 (31%)	↓180 (35%)
Nominal Volume (bdft):	1018	595	626		
Total Price of Joists (\$ CAD)	\$1,813	\$1,812	\$1,720	↓\$1 (0%)	↓\$93 (5%)
<b>Rim (ft, c)</b>					
Lineal Feet (ft):	133	111	0	↓22 (16%)	↓133 (100%)
Nominal Volume (bdft):	222	185	0	↓37 (16%)	↓222 (100%)
Price of Timber (\$ CAD)	\$438	\$139	\$0	↓\$299 (68%)	↓\$438 (100%)
<b>Blocking</b>					
Lineal Feet (ft):	64	57	97	↓7 (11%)	↑33 (51%)
Nominal Volume (bdft):	107	95	162	↓12 (11%)	↑55 (51%)
Price of Timber (\$ CAD)	\$80	\$71	\$122	↓\$9 (11%)	↑\$42 (51%)
<b>Hangers: Joist to Beam (c)</b>					
Count:	17	12	12	↓5 (30%)	↓5 (30%)
Price of Hangers (\$ CAD)	\$41	\$34	\$34	↓7 (17%)	↓7 (17%)
<b>Total Price Per Sqaure Foot</b>	<b>\$3.26</b>	<b>\$2.82</b>	<b>\$2.58</b>	<b>↓\$0.44 (13%)</b>	<b>↓\$0.68 (20%)</b>

Custom Comparison Report

# Building Affordability Managing Construction and Labor Costs Effectively

## Cost Drivers

- Subcontractor Goes 'Bust'
- Schedule vs. Delays
- Improve Budgeting and Estimating
- Right Sized Risk vs. Return
- Regulatory Compliance and Tax Planning
- Funding Difficulties and Alternative Financing Options



Source: Procore Financials



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## Q&A



# MiTek®





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