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MiTek®

IBS MFC 2025

MAXIMIZING ROI:
Integrating Open Web Floor Trusses in Your Projects

CHRIS HORWITZ, P.E.
Director, Design Optimization

MITEK AT-A-GLANCE

A Diverse Global Community for Off-Site Construction

Total Population

6,300

540
in Engineering and Software

2,700
in Services / Vietnam

19
COUNTRIES

64
LOCATIONS

31% Women

37% People of Color
(reported in the U.S. only)

6 Employee Resource Groups

600,000,000
Pounds of engineered connections stamped annually

17
Manufacturing Plants

FOUR REGIONS

9
Transformation Teams volunteer in local communities

15,000,000
Engineering designs sealed annually

5,700
Hours served in Hearts & Hands Week annual week of service

MITEK AT-A-GLANCE

Industry-Leading Solutions & Partnerships

SOFTWARE

A suite of design, production, and management apps that facilitate componentized building methods.

SERVICES

A variety of design, takeoffs, modeling, and consulting services to improve efficiency and technical output.

AUTOMATION

End-to-end machinery systems for the off-site manufacturing of built-to-spec building components.

PRODUCTS

A full range of structural connectors and lateral solutions for engineered components and general framing.

Owner / Developer

Engineer / Architect

Builder / Contractor

Component Manufacturer

Lumber & Building Materials Dealer

Industry Issues to Address

Cost Overrun

Increasing Number of Change Requests

Slow Adoption of Emerging Technologies

Two latest MiTek solutions tackle these issues head-on!

1. MiTek® TRUSS VALIDATOR™

2. **Optimized Design Support**

Floor Trusses Offer More Value for Builders

Downstream value

- Faster and safer installation
- Efficient MEP installation
- Reduce material costs

Higher margins

- Eliminate waste
- Improve cycle time
- Labor savings

Enhanced livable spaces

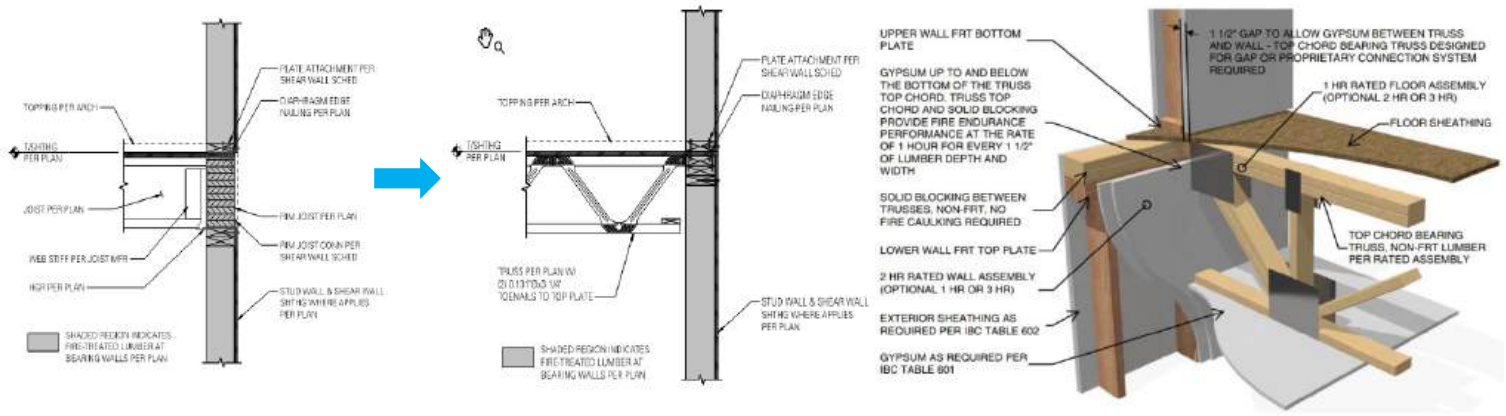
- Design flexibility
- Exceptional strength

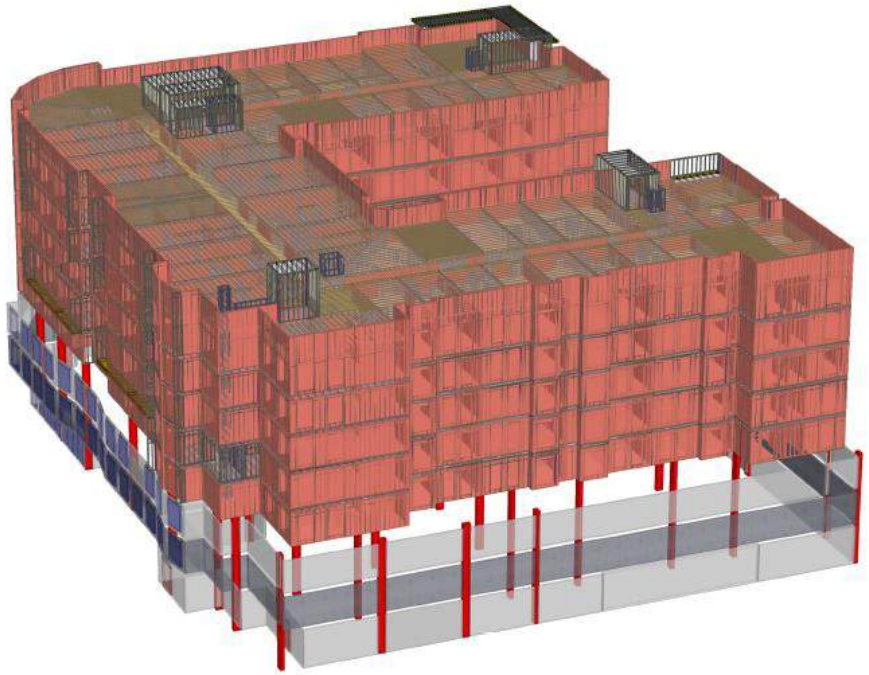
I've heard of open web floor truss advantages, but what are specific case studies that highlight the value delivered to various projects?

CASE STUDY 1

Tasman East | MF Metal Web

- $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.





Construction Document Subject Matter Experts

3D BIM Created in MiTek® Structure™

CASE STUDY 2

Rogers Apartments | MF Wood Web

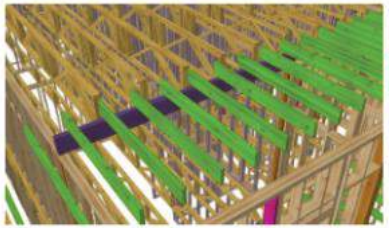
- Converted ~1200’ of conventional 2x framing to floor trusses to reduce joist count by 65%.
- Eliminated ~300’ of LVL beams and replaced with girder trusses with optimally placed chases for MEP coordination.

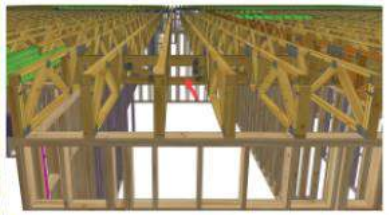
Truss Girder with Beam Pocket vs. EWP and 2x Lumber

Rogers | 401 N 1st St, Rogers, AR

3 Story Wood on Slab | Type VB | 124 Units | 124,000 sq. ft. | 3 Buildings

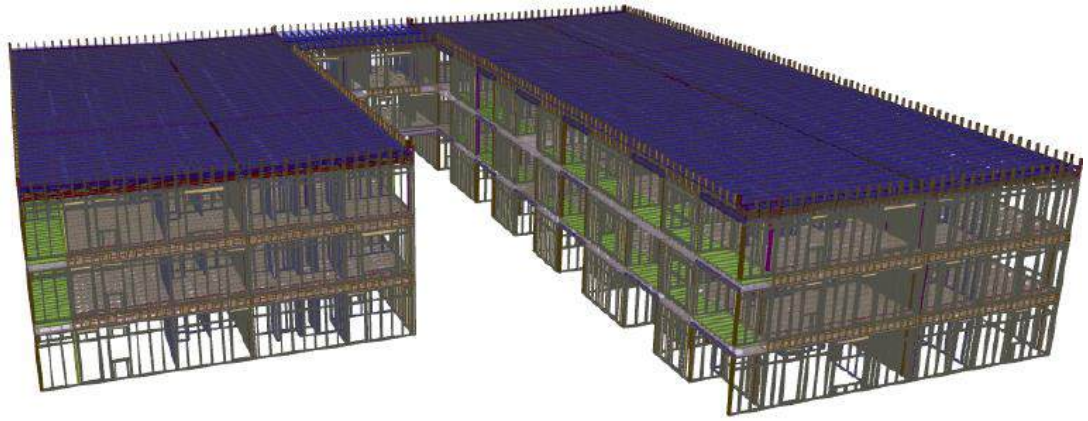
Dev: Specialized Real Estate Group | GC: Arco National Construction Co. Inc. | Arch: Modus Studio | EOR: KPFF Consulting Engineers





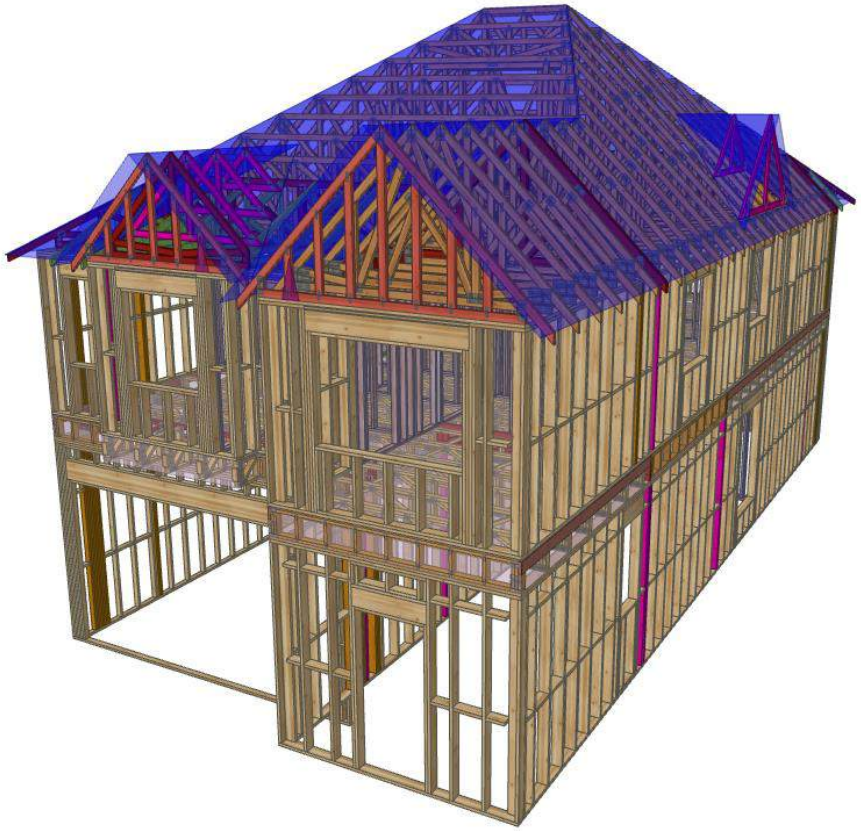
	Beam and Conventional Option	24" o.c. Trusses with 16" Girder Beam Pocket Option Recommended Option
	The first option is a standard approach in which trusses span and sit in hangers on one side of a beam, while conventional framing is used on the exterior side. While this option is feasible, this design leads to additional framing steps and an increase in material costs.	The second option extends the original floor trusses over a 16" tall girder truss with a 7" tall chase for MEP passthrough. This second option eliminates hangers, conventional framing, and replaces the original support beam. The girder will arrive at the same time as the floor trusses. This second option will reduce building costs and is a system that will save the framer many man hours on site. This is the MiTek recommended option.

Floor System		
Miscellaneous		
Approximate Truss Board Feet	39800	45500 ▲5700 (14%)
Approximate Conventional Board Feet	4300	2800 ▼1500 (-35%)
Approximate Joist Count	520	180 ▼340 (-65%)
Approximate Beam Board Feet	3500	2900 ▼600 (-17%)
Hanger Count	1755	1325 ▼430 (-25%)
Total Piece Count Eliminated	NA	615



Forget $/ft and Think $/System

A single-family builder recently explored floor systems for his project, comparing two options: one with I-joists and the second with wood web floor trusses.



Option 1: I-Joist

11-7/8 Joists	$5,790
LVL Beam	$1,968
Rimboard	$827
Blocking Panels	$906
Hangers	$358

TOTAL: $9,849

Option 2: Floor Truss

1st & 2nd Floor Trusses	$8,740
2x6 Ribbon Material	$175
2x6 Strongbacks	$100

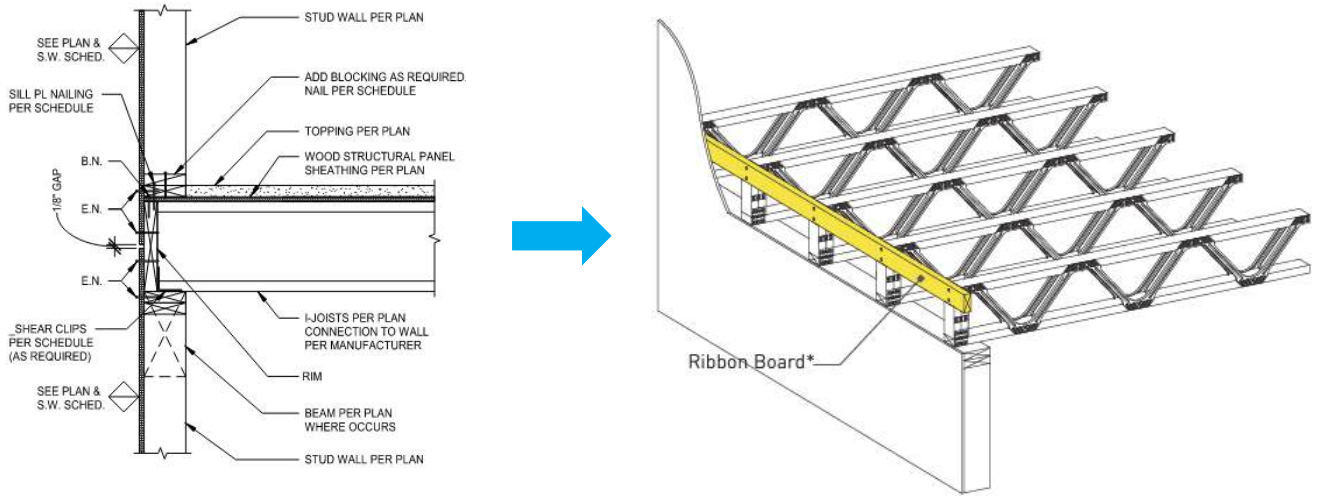
TOTAL: $9,015

This builder will save ~$830 per home by switching to a floor truss system.

CASE STUDY 3

Plan Oak | HB Solutions

- Eliminate 75% of EWP rims and beams.
- Reduce joist count and linear footage by 20%.
- Eliminate dropped ceilings and cutting holes in TJI joists by leveraging the Rheia duct system.



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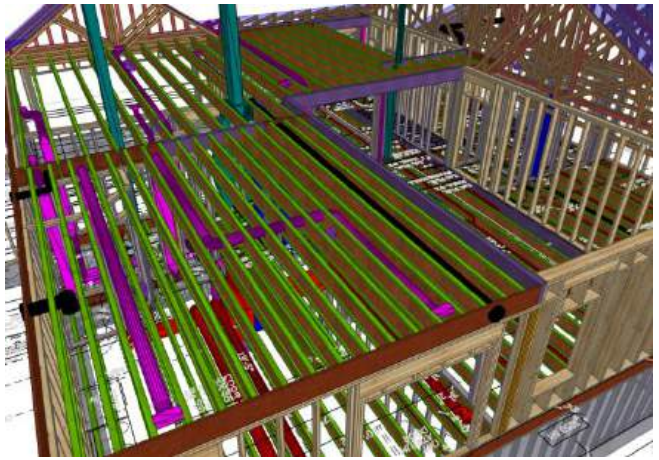


3D BIM MEP and Structural Integration

How can my team capture the value of open web floor trusses?

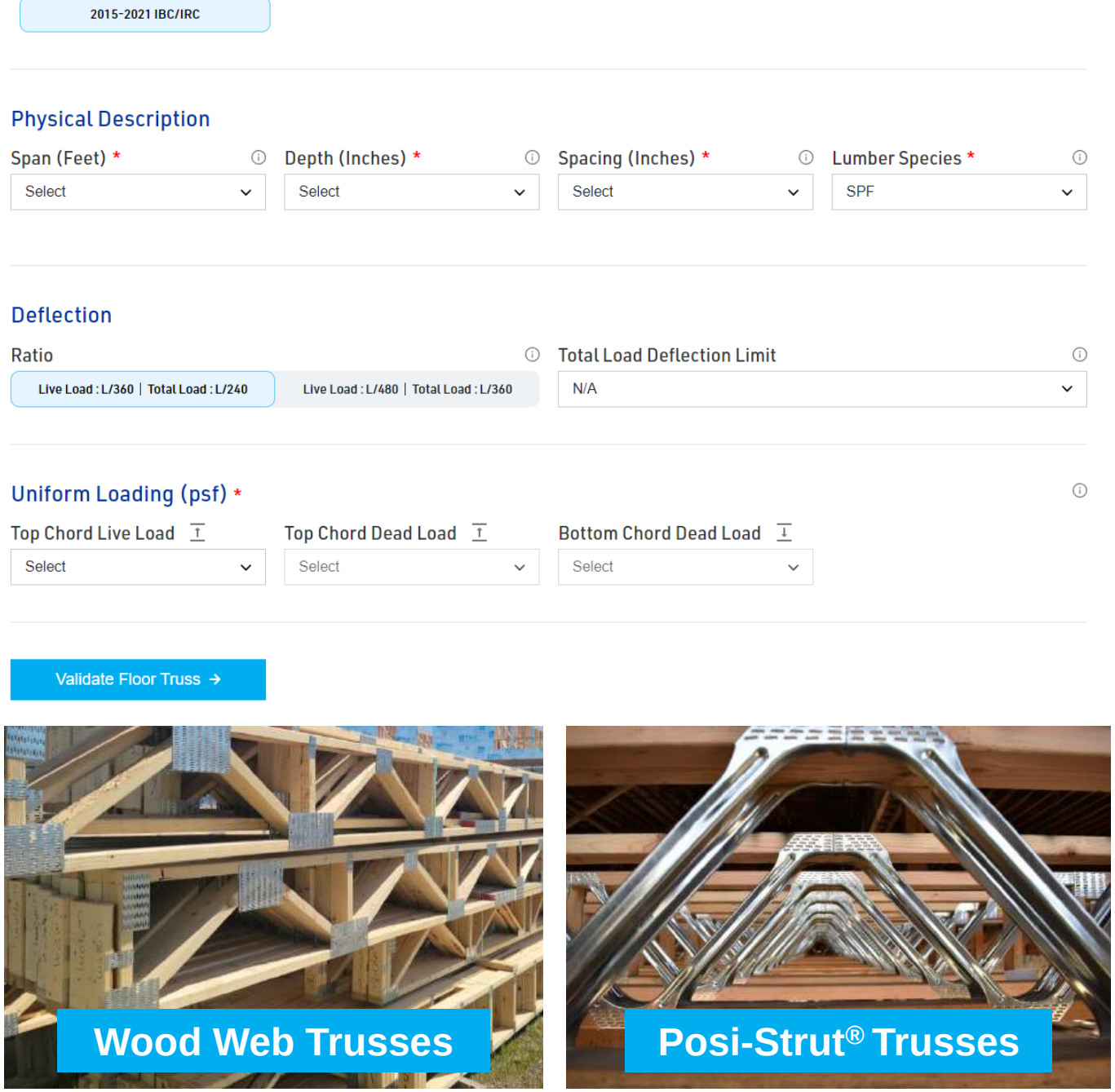
MiTek® TRUSS VALIDATOR™

Engineers and Architects can now confidently specify the use of floor trusses.

Input truss and project parameters to receive immediate confirmation of floor truss feasibility.

- ✓ Traditional Wood Web and MiTek Posi-Strut Trusses
- ✓ Clear Span Conditions
- ✓ Uniform Loading
- ✓ Consideration to Deflection Limits
- ✓ Custom Detailed Reports

MII.COM/TRUSS-VALIDATOR



MiTek
TRUSS VALIDATOR

Project : Apex Apartments Truss Desc: Unit 2A

Project Location: California Building Code: IBC2021 Report Creator: John Smith

Input Parameters

Span(ft): **20'**	Depth(in): **14"**	Spacing(in): **19.2"**
Lumber Species: **SPF**	Top Chord LL/Top Chord DL/Bottom Chord DL: **40/10/5**	
Live Load Deflection Limit: **L/360**	Total Load Deflection Limit: **L/240**	Total Absolute Deflection Limit (in): **0.75"**

PASS

Type: **Posi-Strut Web**
Bearing Reaction: **(L) 864 lbs. (R) 864 lbs.**
Top Chord Material: **No.2**
Bottom Chord Material: **SS**
Live Load Deflection: **L/554**
Total Load Deflection: **L/403**
Live Absolute Deflection (in): **0.43"**
Total Absolute Deflection (in): **0.59"**
Warning: **Span to Depth ratio may exhibit objectionable vibration/deflection**

PASS

Type: **Wood Web**
Bearing Reaction: **(L) 864 lbs. (R) 864 lbs.**
Top Chord Material: **No.2**
Bottom Chord Material: **SS**
Live Load Deflection: **L/610**
Total Load Deflection: **L/444**
Live Absolute Deflection (in): **0.39"**
Total Absolute Deflection (in): **0.53"**

Results produced from this tool should be viewed as a starting for specification guidance, but not a substitute. It is the responsibility of the engineer to determine the most viable and appropriate solution based on an evaluation of the designs of the building and the component trusses at issue.

Custom Detailed Report

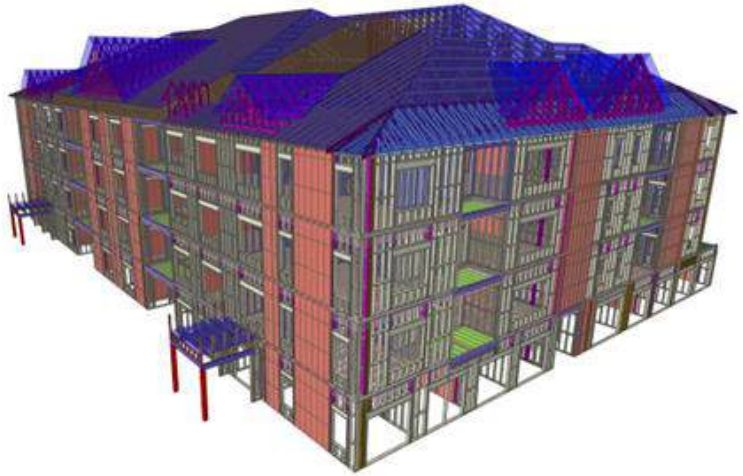
- ✓ Sent Directly to your Inbox
- ✓ Clear Results
- ✓ Bearing Reactions
- ✓ Deflection Results

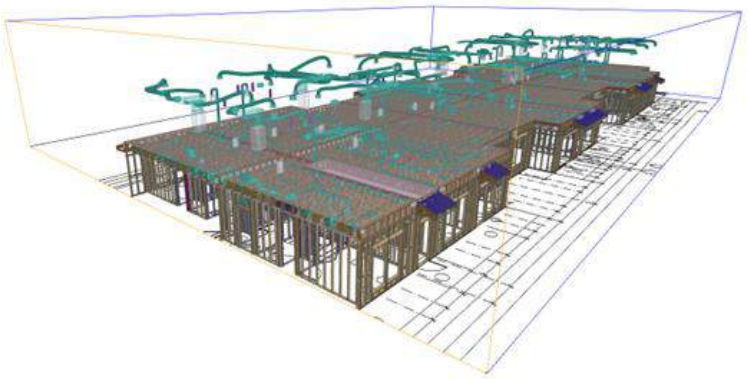
Increase your specification confidence and reduce the potential for late-stage rework!

Optimized Design Support (ODS) is a MiTek service that evaluates various structural solutions for both gravity and lateral loads. It employs 3D modeling and analytical design tools to compare options for roof, floor, and wall framing.

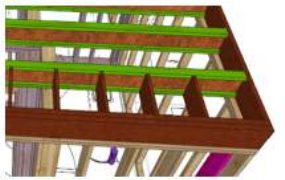
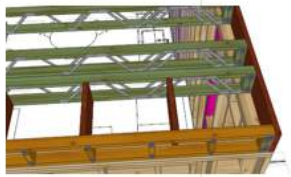
MII.COM/ODS

Optimized Design Support





3D BIM Created in MiTek Structure

					
	9 1/2" TJI 230	**9 1/4" Posi Web Truss**		**9 1/4" Posi Web Truss**	
	16" o.c.	24" o.c. (BC Bearing)		24" o.c. (TC Bearing)	
Floor System					
Area (sqft):	728	728		728	
Floor Framing					
Joists: (1), (2)					
Count:	32	23	↓9 (28%)	21	↓11 (34%)
Lineal Feet (ft):	518	356	↓162 (31%)	338	↓180 (35%)
Nominal Volume (bdft):	1018	595		626	
Total Price of Joists ($ CAD)	$1,813	$1,812	↓$1 (0%)	$1,720	↓$93 (5%)
Rim (2), (3)					
Lineal Feet (ft):	133	111	↓22 (16%)	0	↓133 (100%)
Nominal Volume (bdft):	222	185	↓37 (16%)	0	↓222 (100%)
Price of Timber ($ CAD)	$438	$139	↓$299 (68%)	$0	↓$438 (100%)
Blocking					
Lineal Feet (ft):	64	57	↓7 (11%)	97	↑33 (51%)
Nominal Volume (bdft):	107	95	↓12 (11%)	162	↑55 (51%)
Price of Timber ($ CAD)	$80	$71	↓$9 (11%)	$122	↑$42 (51%)
Hangers: Joist to Beam (5)					
Count:	17	12	↓5 (30%)	12	↓5 (30%)
Price of Hangers ($ CAD)	$41	$34	↓7 (17%)	$34	↓7 (17%)
Total Price Per Sqaure Foot	**$3.26**	**$2.82**	**↓$0.44 (13%)**	**$2.58**	**↓0.68 (20%)**

Custom Comparison Reports

Q&A

MiTek®

Visit booth **C5924** to learn more about MiTek solutions

For any additional questions, please contact me at:

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PRESENTATION MATERIALS