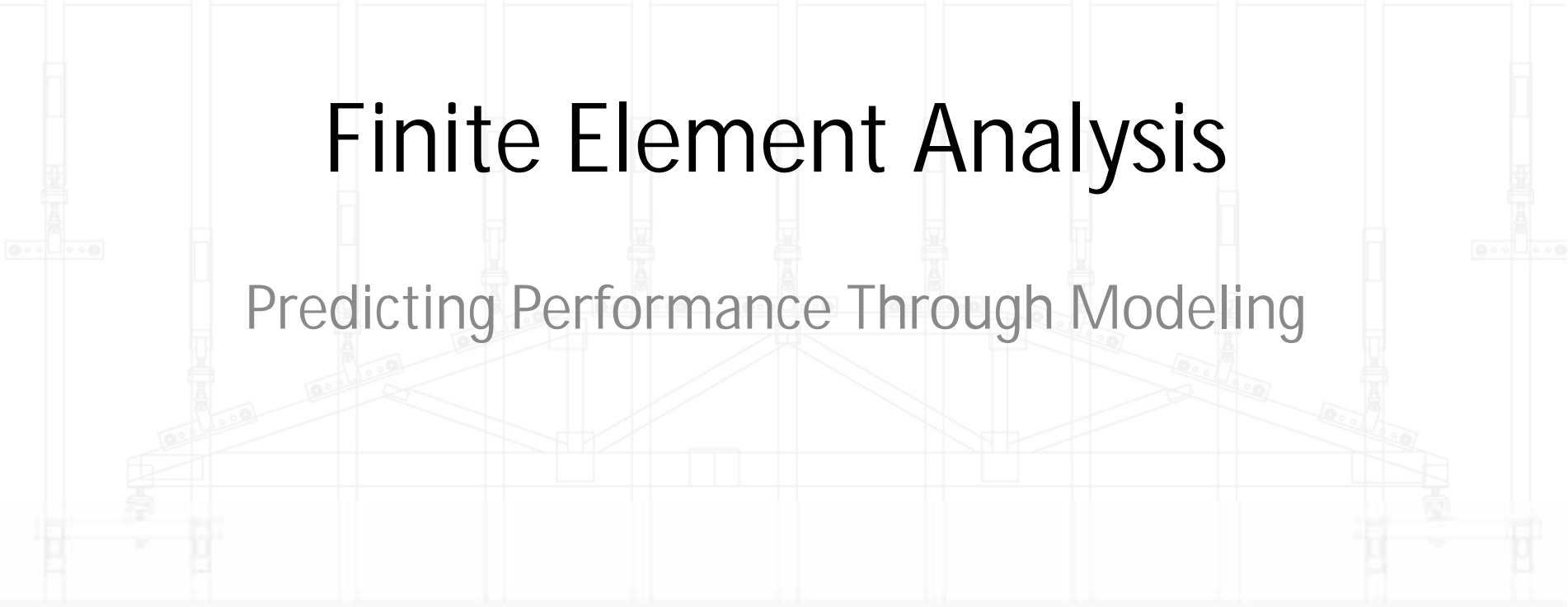


Collaborating With



# Finite Element Analysis

Predicting Performance Through Modeling



# Who Are We & What Can We Do?

- We are a code defined "Approved Source."
- 4 Professional Engineers
- 7 Degreed Engineers
- 3 Building Code Experts
- Over 70 years of combined experience.
- **Serving your finite element modeling needs** and assisting with code compliance.



# Finite Element Analysis



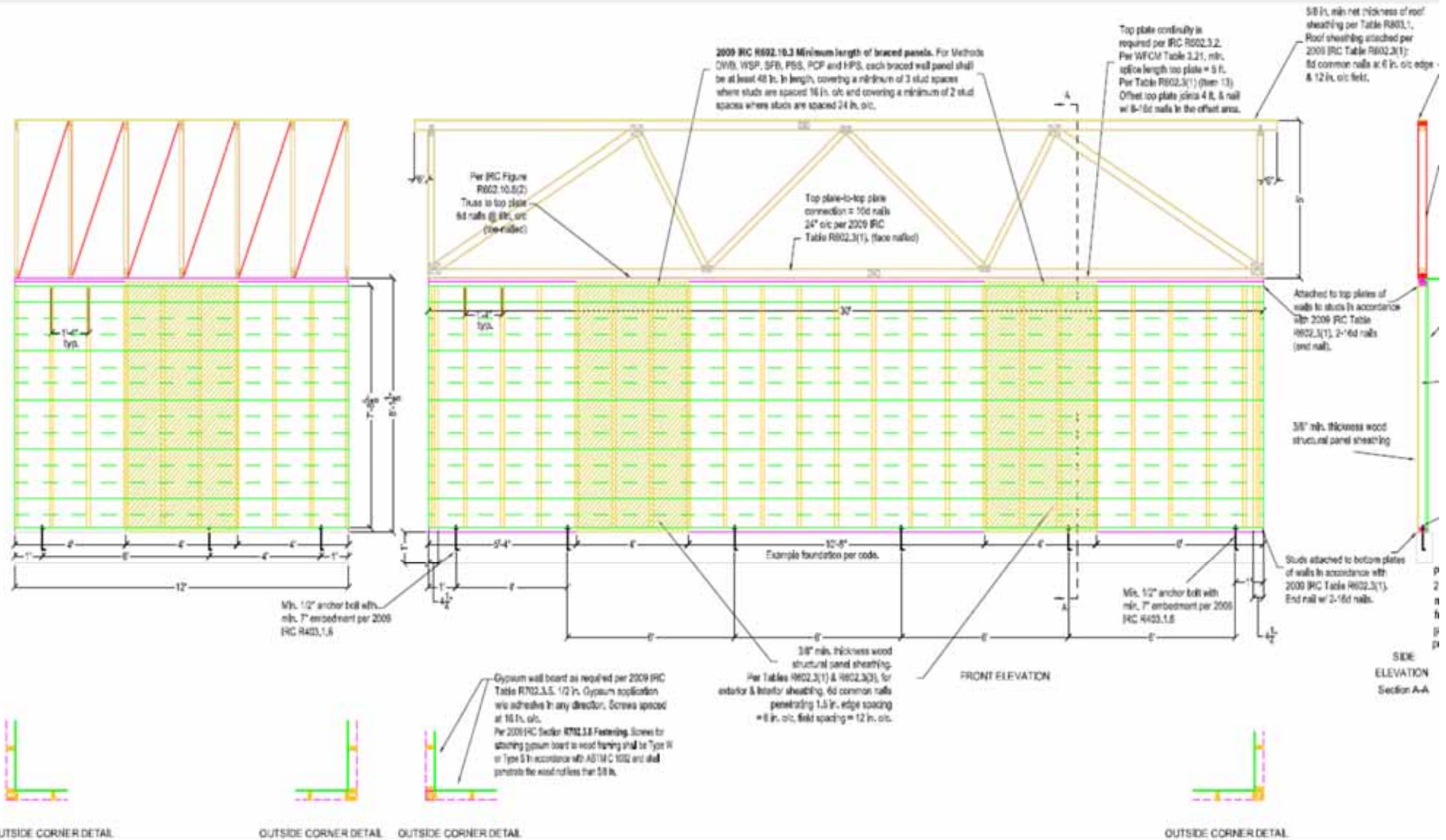
Accurate full-scale testing and analysis of any variety of construction products in real-world installations



[www.sbcricri.info](http://www.sbcricri.info)



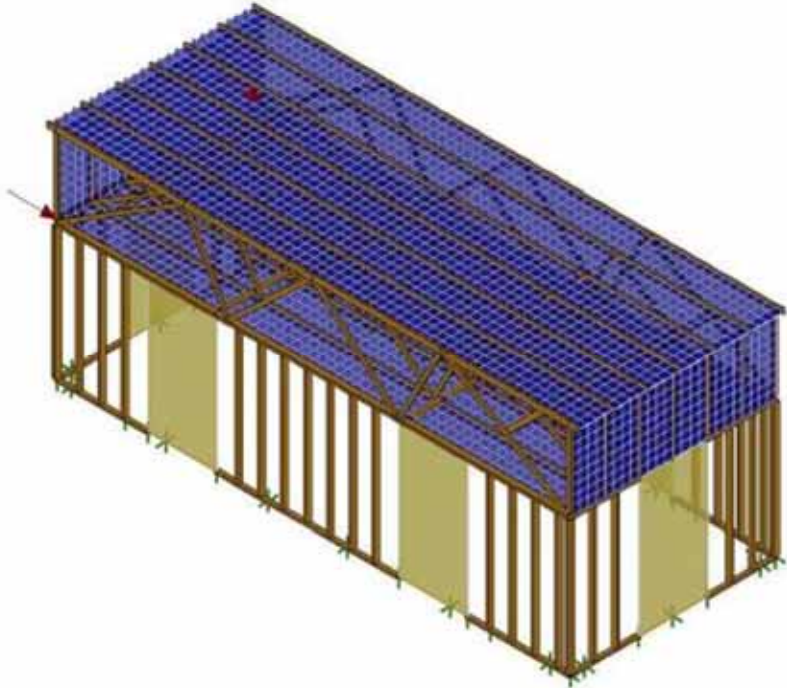
# Precisely Detailed to Code Requirements or Plans and Specifications



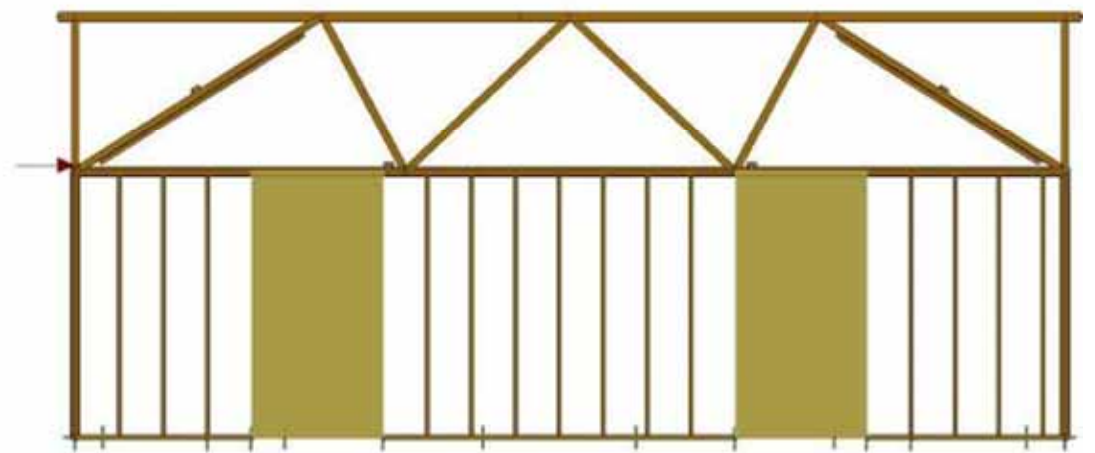
# Constructed and Tested



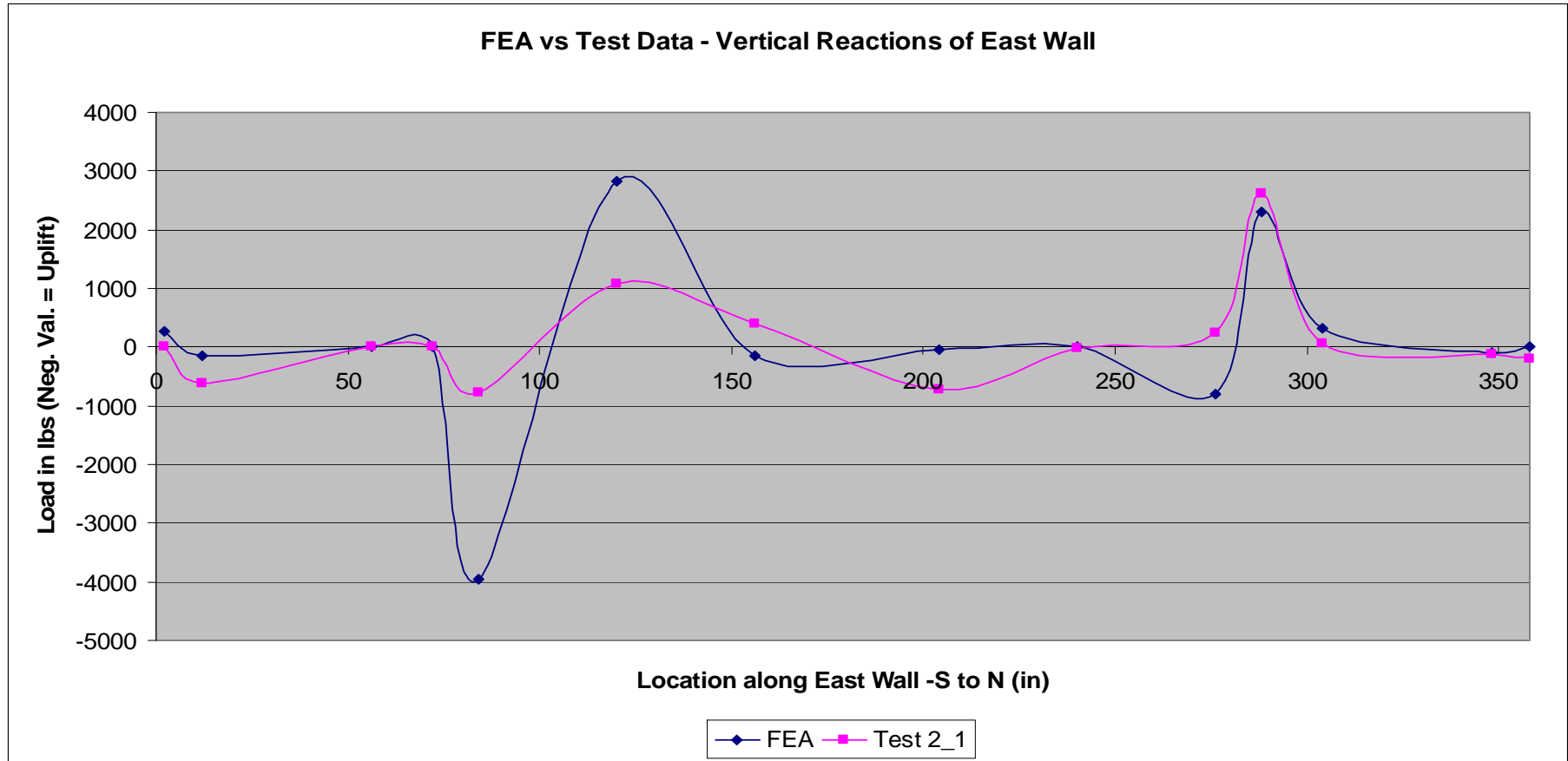
# Modeling the Test Data



- Calibrate FEA Model to in situ tested performance.
- Most precise analytics.

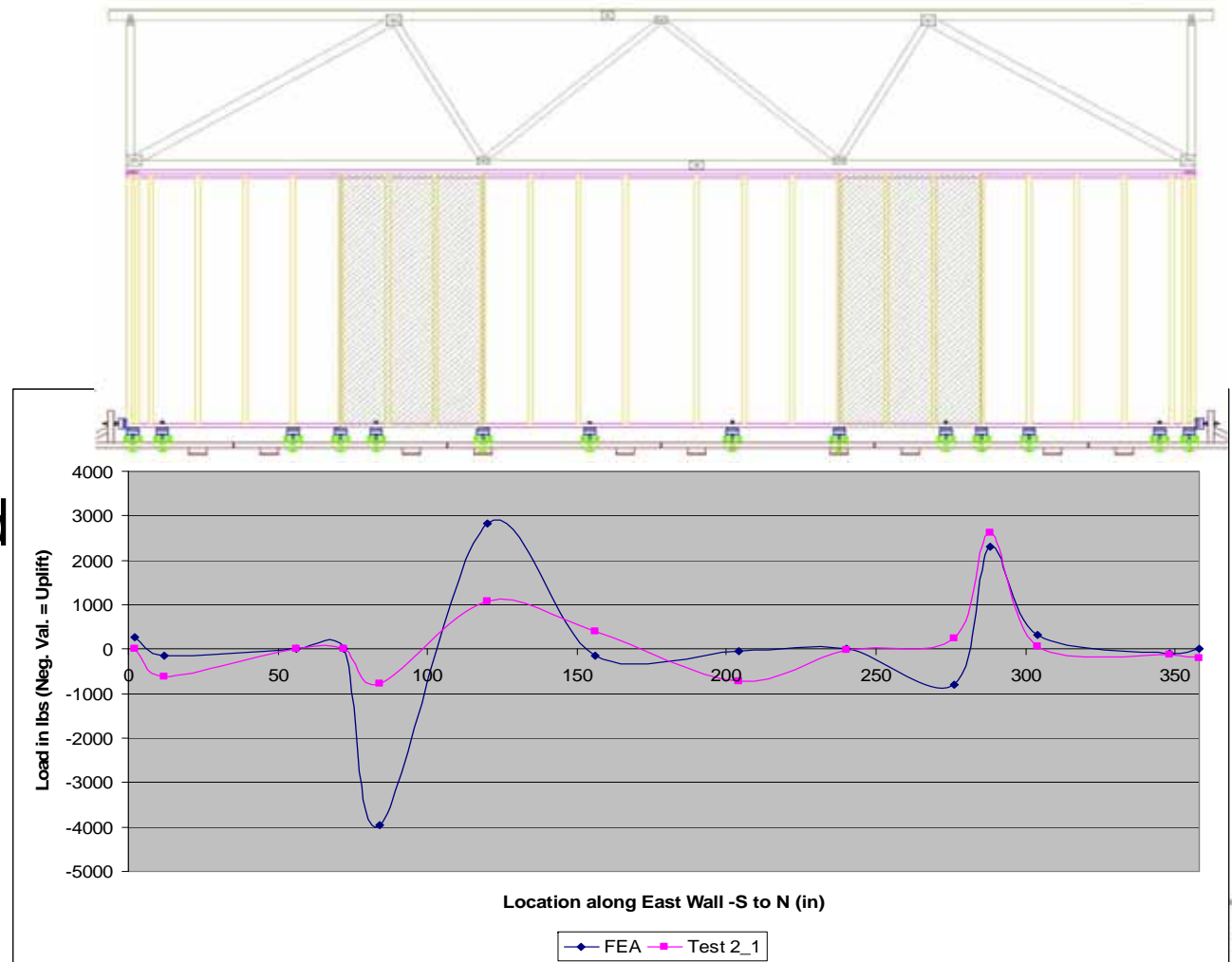


# Correlate Actual vs. Predicted Load Path



# Map Load Path Performance Characteristics

- Applied Lateral Load Left to Right
- Blue line is Existing "Woodworks" Finite Element Analysis Prediction
- Red line is as tested load path.
- "-4000" is uplift



Collaborating With



# 7/16" OSB Testing, 8d Nails, 6/12

Constructed IRC/IBC Compliant



















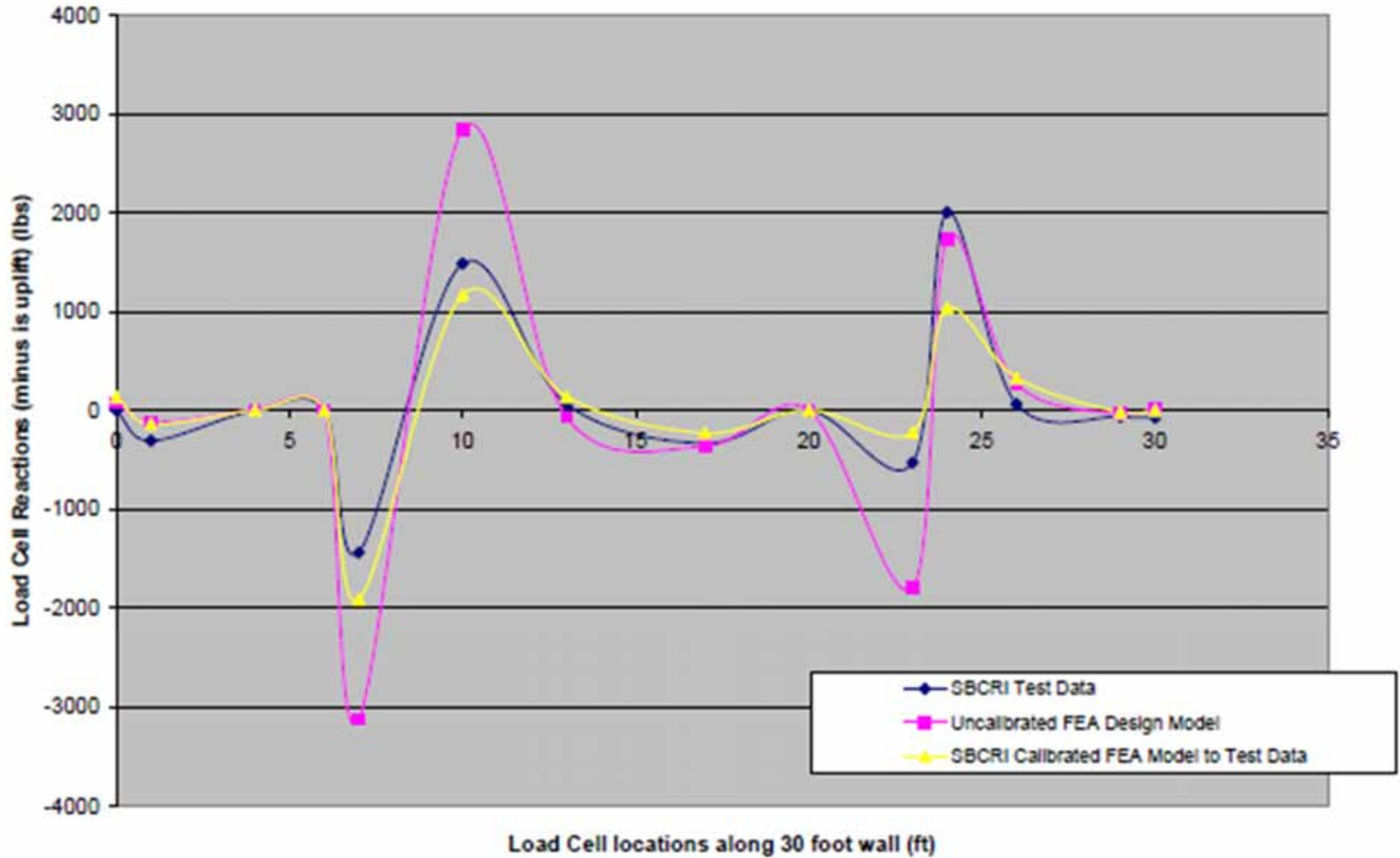
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Load Path for 7/16" OSB Placed  
6' in from Each Corner as Shown  
in Previous Photos

Constructed IRC/IBC Compliant

7/16" OSB at 6' from corner in a 12x30 foot building built to IRC  
Comparing SDPWS FEA, Test Data and SBCRI Full Scale FEA Model at ASD level



Collaborating With

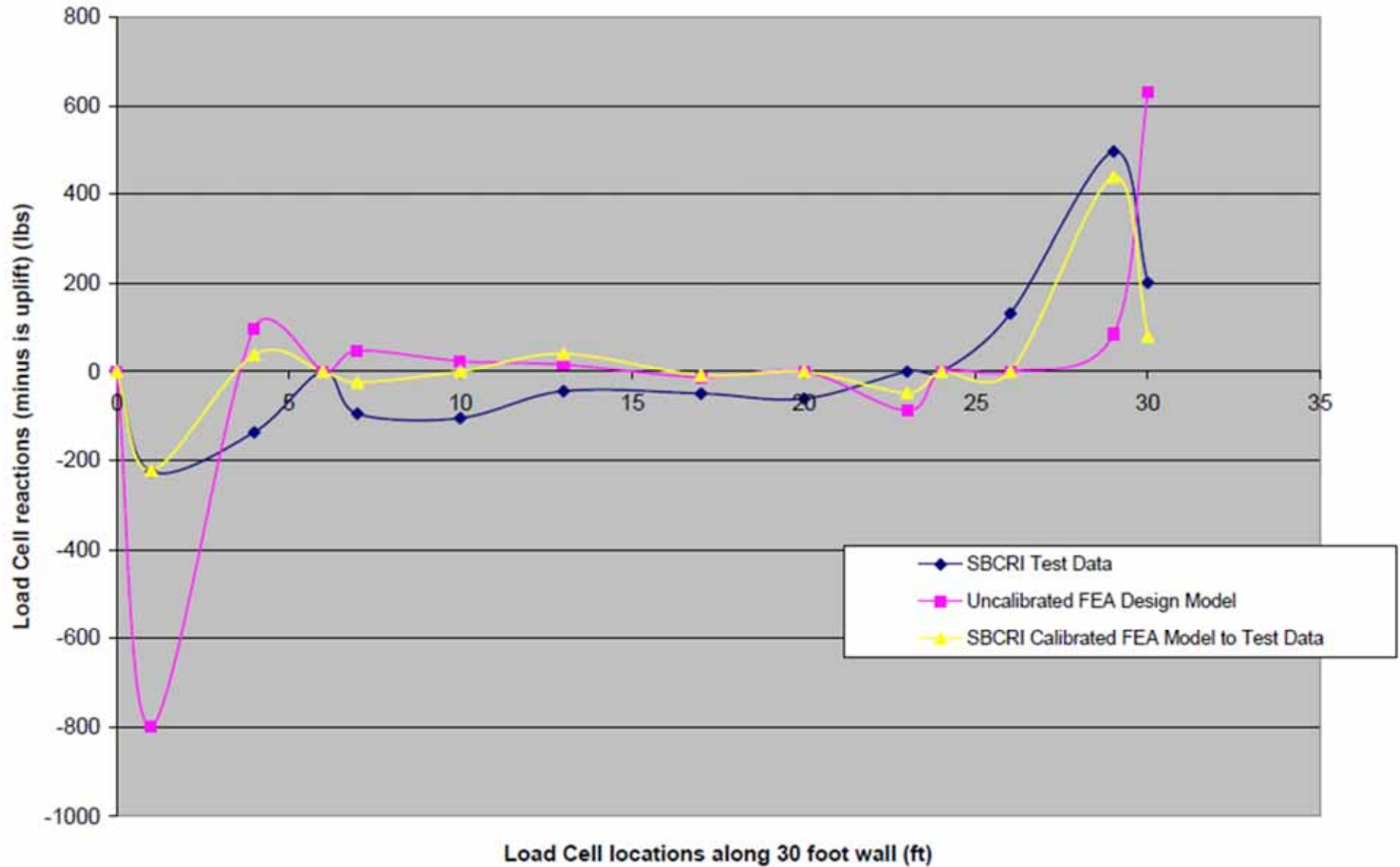


# Load Path for 30' of Gypsum Wall Board

Constructed IRC/IBC Compliant



1/2" gypsum on interior face using 1-1/4" type S screws @ 16/16 in a 12x30 foot building built to IRC  
Comparing SDPWS FEA, Test Data and SBCRI Full Scale FEA Model at ASD level



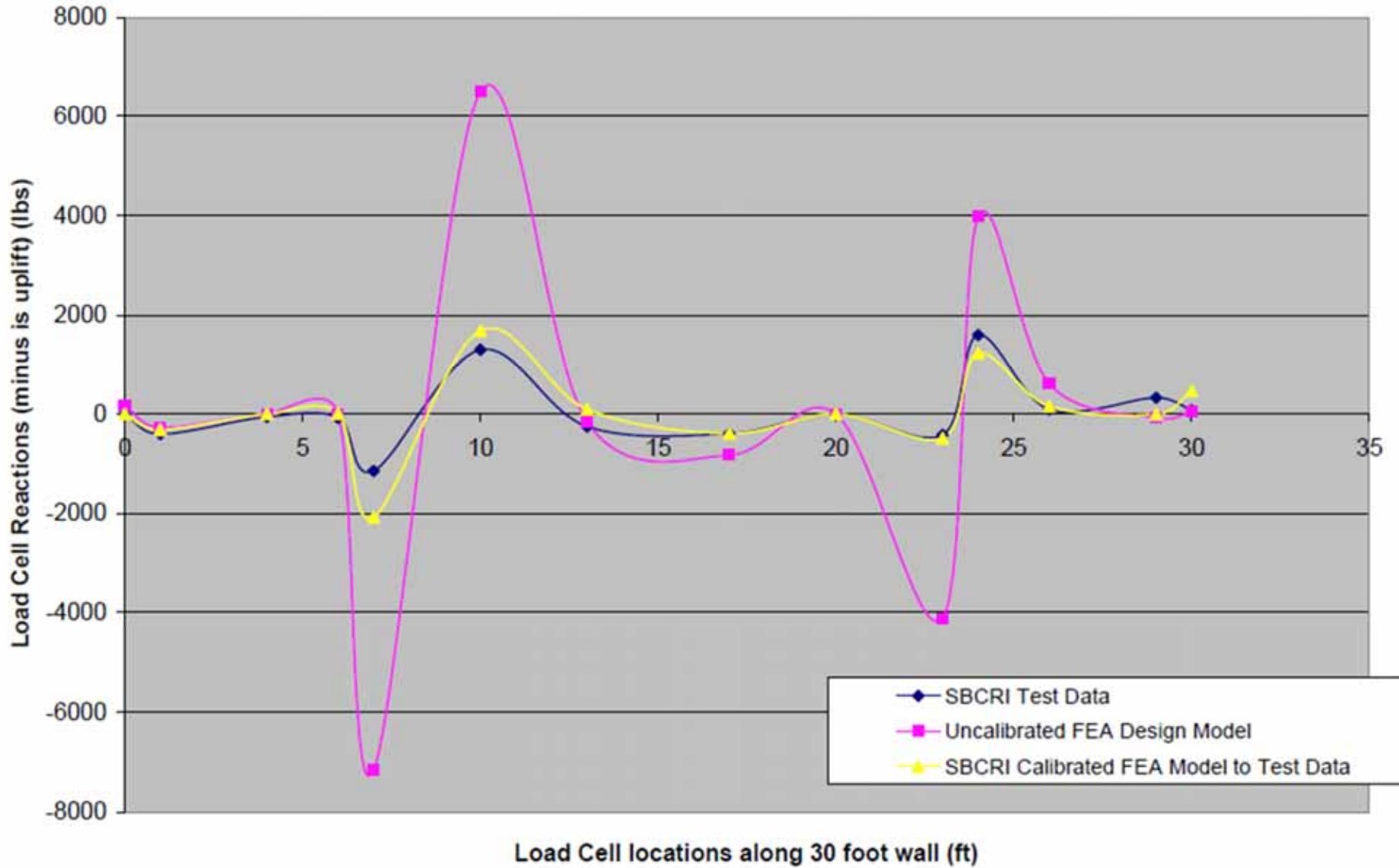
Collaborating With



# Load Path for 7/16" OSB Placed 6' in from Each Corner and 30' of Gypsum Wallboard

Constructed IRC/IBC Compliant

7/16" OSB at 6' from corner with interior gypsum in a 12x30 foot building built to IRC  
Comparing SDPWS FEA, Test Data and SBCRI Full Scale FEA Model at ASD level



Collaborating With

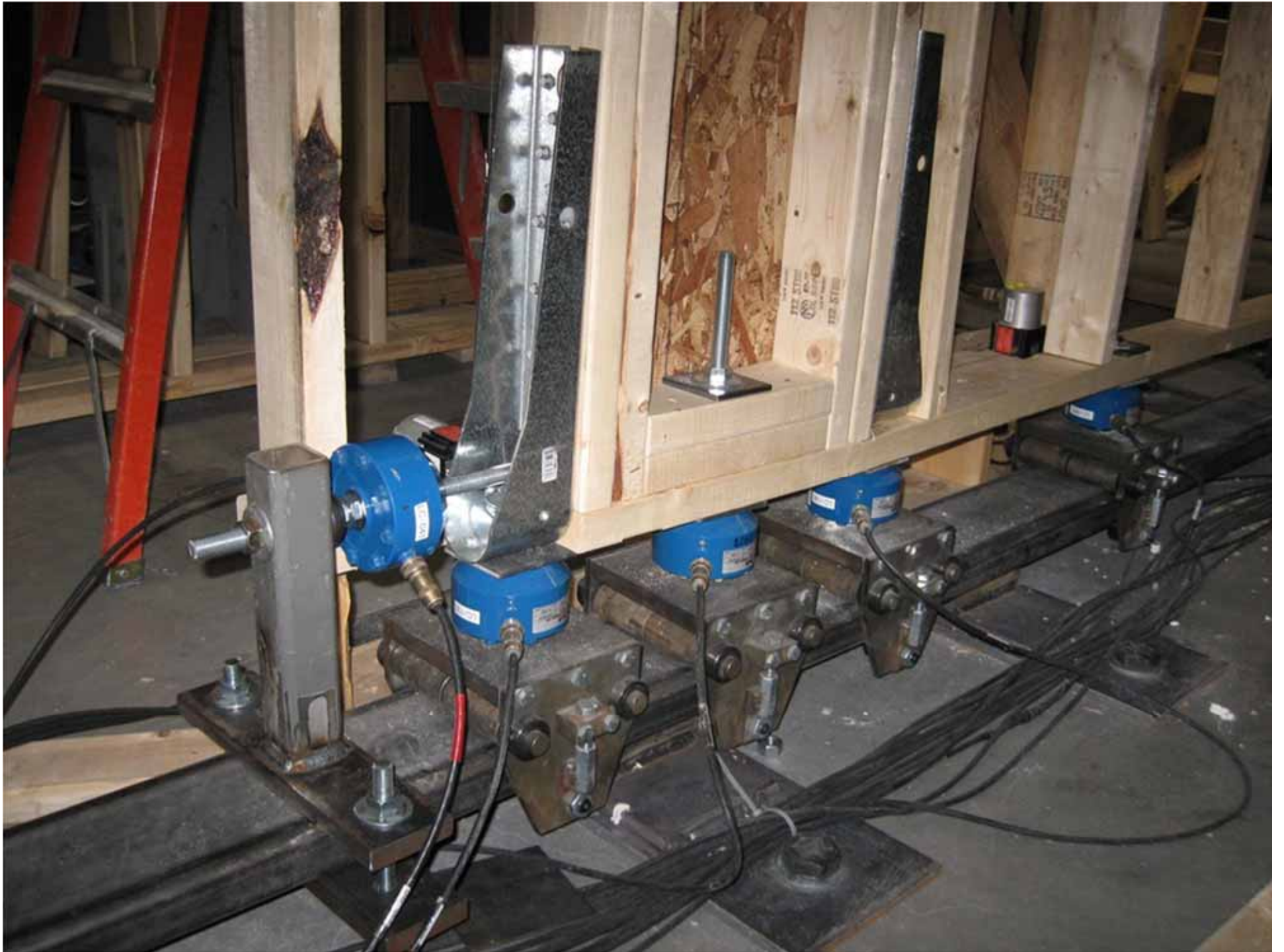


# IRC PFH Test (Portal Frame Hold-down) Photos Showing Load Path Testing

Constructed IRC/IBC Compliant





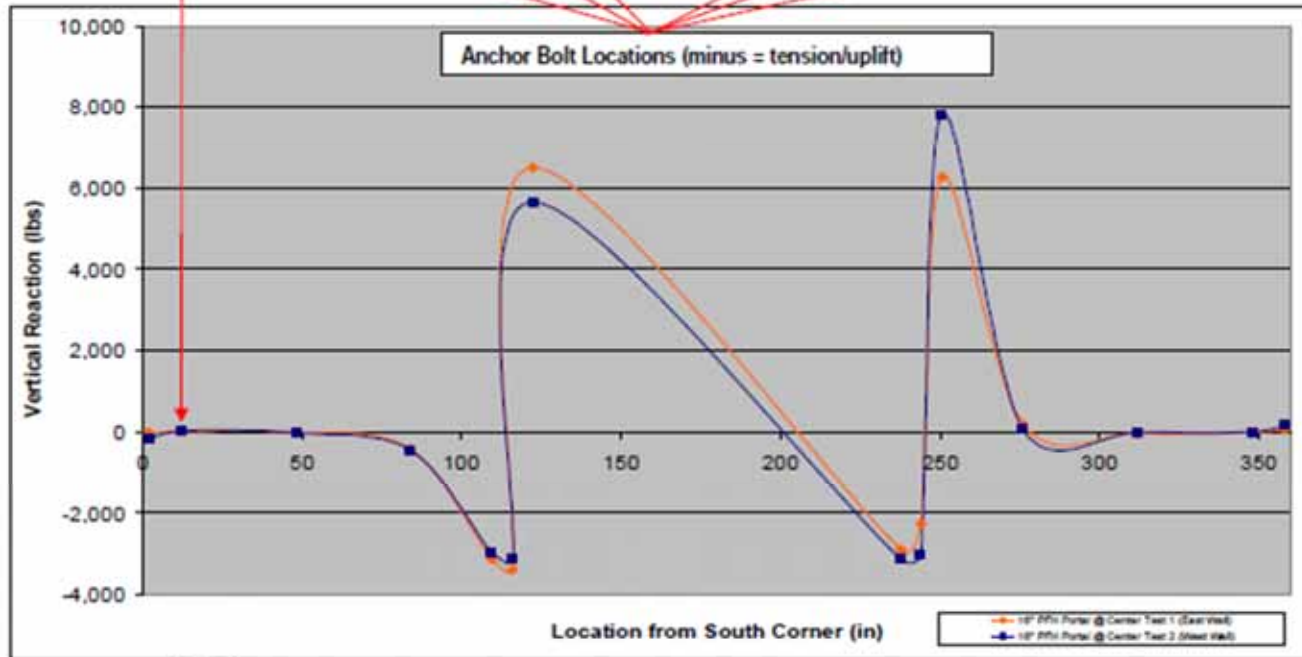








Lateral load applied to the bottom of the truss.



GRAPH 6: Combined Vertical Load Path to the Foundation – Reaction Loads at Test Applied Ultimate Load ( $P_u$ )