



Project summary

Organization:
Intrepid Global Ventures

Solution:
Transmission and distribution/
telecommunications

Location:
Global

Project playbook:
OpenTower Mount Analysis

Intrepid Global Ventures validates mount analysis at scale with OpenTower®

The cell tower analysis application delivers scalable,
measurable gains across 250 real-world mount configurations

Project overview

Intrepid sought to confirm that an integrated workflow could support a volume-based engineering model while reducing manual efforts.

They conducted a large-scale engineering validation to evaluate next-generation mount analysis workflows using OpenTower.

The study benchmarked OpenTower performance against traditional FEA methods across hundreds of real-world mount scenarios.

ROI

OpenTower eliminated disconnected workflows, reducing total mount analysis time by 50%.

Working in an integrated tower and mount analysis platform reduced load computation and application efforts by 60%.

A high-volume engineering benchmark study

Operating across North America, Asia-Pacific, Australia, and New Zealand, Intrepid Global Ventures (Intrepid) delivers high-volume telecom tower engineering services focused on tower and mount structural analyses and site design services. To streamline and improve telecom tower mount analysis and modeling processes in compliance with telecom-specific TIA-222-H design standards, Intrepid conducted a large-scale engineering validation study that evaluated advanced mount analysis workflows using Bentley's OpenTower Mount Analysis tools technology. "The study evaluates platform performance against known benchmarks across hundreds of real-world mount scenarios," explained Tyler Julliard, Co-Founder and CTO at Intrepid.

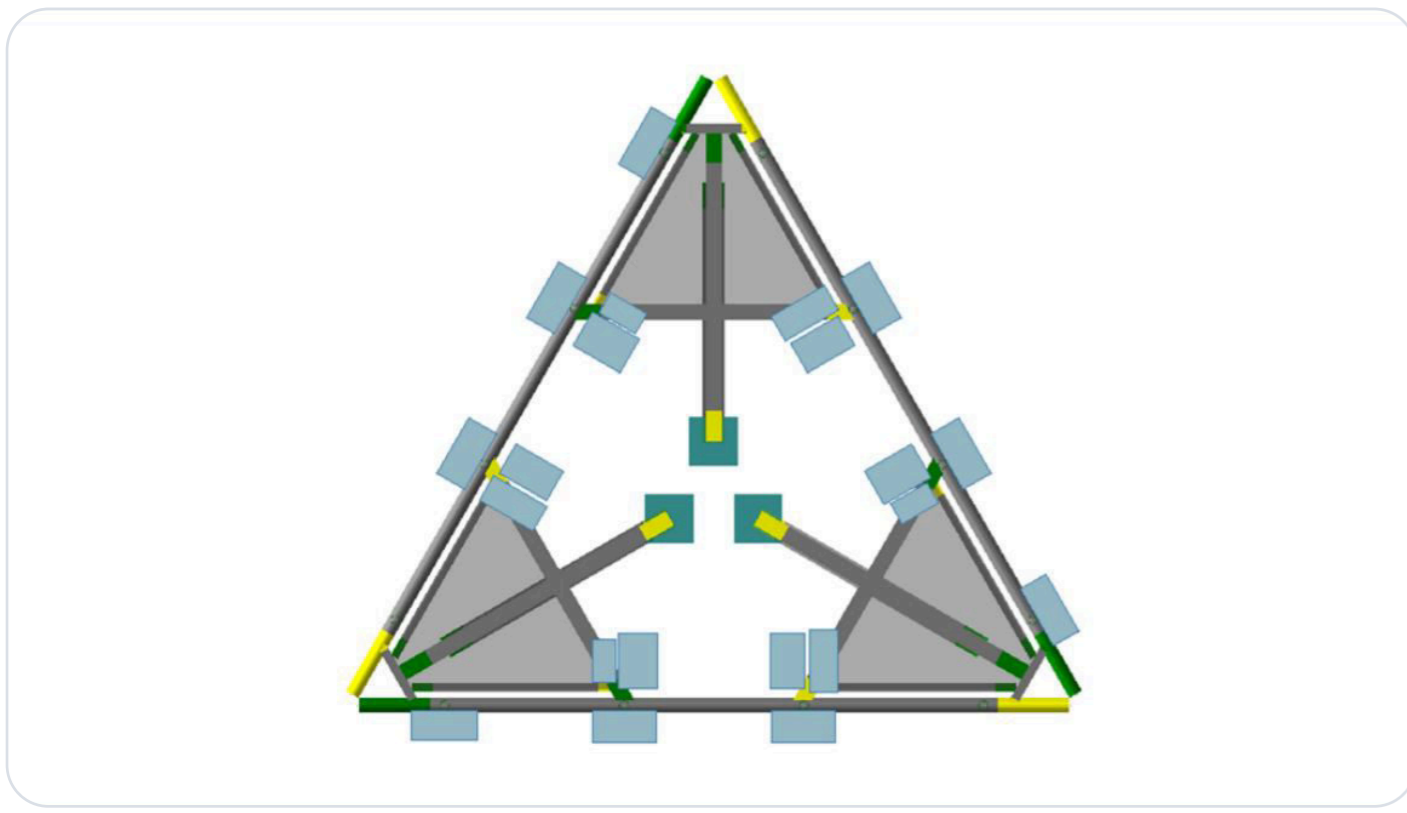
The assessment covered more than 250 mount models deployed across the United States on wireless infrastructure supporting major carriers and tower owners. "The mounts analyzed reflect diverse configurations currently deployed across U.S. carrier portfolios, ensuring that the results demonstrate real operational scalability, not theoretical performance," emphasized Julliard. Intrepid's objective was to confirm that a scalable,

automated mount analysis approach could improve engineering performance, accelerate turnaround times, and maintain code-compliant structural results at high volumes. By benchmarking OpenTower's digital methodology against traditional tower engineering processes, their study aimed to validate both analytical accuracy and workflow efficiency at scale.

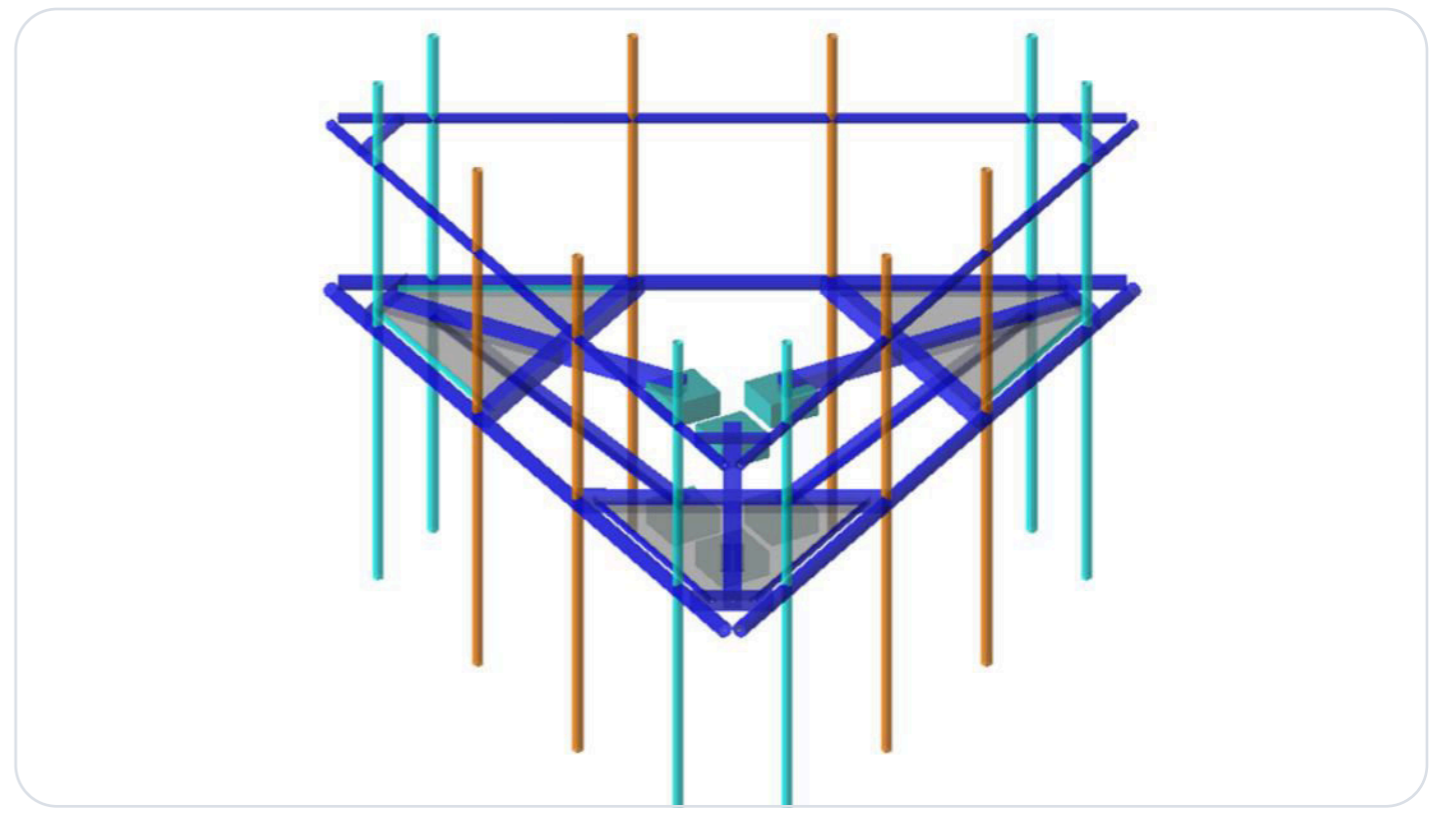
Manual, disconnected analysis workflows

Intrepid's traditional mount analysis processes relied on general finite element analysis (FEA) tools that operated separately from the tower modeling environment. This fragmented approach required manual load calculations and repetitive work, creating inefficiencies when applied across high volumes of mount configurations.

The lack of a unified modeling environment presented challenges performing comprehensive structural load analysis, necessitating labor-intensive workflows to accurately evaluate tower mount structural integrity and design code compliance at scale. These constraints prompted Intrepid to evaluate a more integrated and automated digital engineering solution. "Intrepid sought to confirm that an integrated workflow could support a volume-based engineering model while reducing manual effort," said Julliard.



Intrepid Global Ventures conducted a large-scale engineering validation to evaluate next-generation mount analysis workflows using OpenTower.



OpenTower eliminated disconnected workflows, reducing total mount analysis time by 50%.



We evaluated and validated the structural results and calculations produced by OpenTower MFA for potential future adoption in tower and mount analysis workflows.

— Tyler Julliard, P.E., Co-Founder and CTO, Intrepid Global Ventures

Leveraging OpenTower to advance tower mount analysis

“Bentley solutions were deployed to support repeatable mount analyses across hundreds of configurations,” stated Julliard. Intrepid evaluated the capabilities of OpenTower against traditional FEA workflows used in telecom engineering. Leveraging the software’s mount frame analysis (MFA) module, they performed integrated and comprehensive tower and mount modeling and analysis at scale within a single, unified environment. Unlike traditional general-purpose FEA applications, OpenTower provides a user-friendly interface built specifically for telecom mount analysis workflows aligned with TIA-222-H design standards.

OpenTower streamlined mount modeling and report generation, enhanced visualization of mounted equipment, and modernized tower mount analysis workflows. Working in Bentley’s integrated digital platform allowed engineers to automatically incorporate equipment geometry and orientation into mount-level structural analysis during the tower modeling process. These automated load and seismic analysis features, combined with assured design compliance, enabled recalculations of structural capacity during antenna swaps or carrier co-location scenarios. The digital telecom solution replaced manual data transfer and calculations with standardized workflows that support decision-ready analysis across high-volume configurations.

“AI-enabled data extraction streamlined the creation of mount models, while the integrated analysis environment automated load calculations, compliance checks, and reporting, enabling standardized engineering workflows without disconnected tools,” confirmed Julliard.

Quantified metrics confirm scalable engineering performance

By integrating mount analysis directly into the tower modeling process in a single platform, OpenTower eliminated disconnected workflows

and repetitive tasks, minimized manual data transfer, and accelerated execution time. “Automated load computation, built-in code compliance checks, standardized mount libraries, and telecom-specific reporting significantly reduced manual effort, minimized data transfer errors, and accelerated re-analysis for co-location and antenna swaps,” explained Julliard. Through advanced modeling and automated compliance checks, Intrepid streamlined engineering workflows, delivering measurable benefits, including significant time savings, reduced operational risk, and increased reliability throughout the telecom infrastructure sector.

Across more than 250 mount analyses, OpenTower realized a 50% reduction in total mount analysis time and shortened load computation and application efforts by 60%. In addition to time savings, the application verified that wind force and member capacity calculations complied with the design code. Based on the data, the study revealed structural rating variances ranging from 2% to 9%, compared to conventional FEA software, remaining within acceptable industry tolerance thresholds. “These gains demonstrate meaningful productivity improvements and scalable operational benefits,” confirmed Julliard.

Intrepid’s validation study clearly demonstrates through quantified metrics that OpenTower enables faster turnaround times, improved consistency, and more reliable engineering decisions, allowing them to deliver decision-ready results more efficiently to clients. While Intrepid has yet to use OpenTower directly for a client project, they estimate that, based on a typical mount analysis project involving approximately 500 mount analyses per year, they would save USD 100,000. “We’re excited about using Bentley’s OpenTower Mount Frame Analysis (MFA) to accelerate impact to our clients through greater speed to market and cost savings. This can revolutionize operator and tower company project workflow experiences in the evolving digital infrastructure ecosystem,” concluded Julliard.