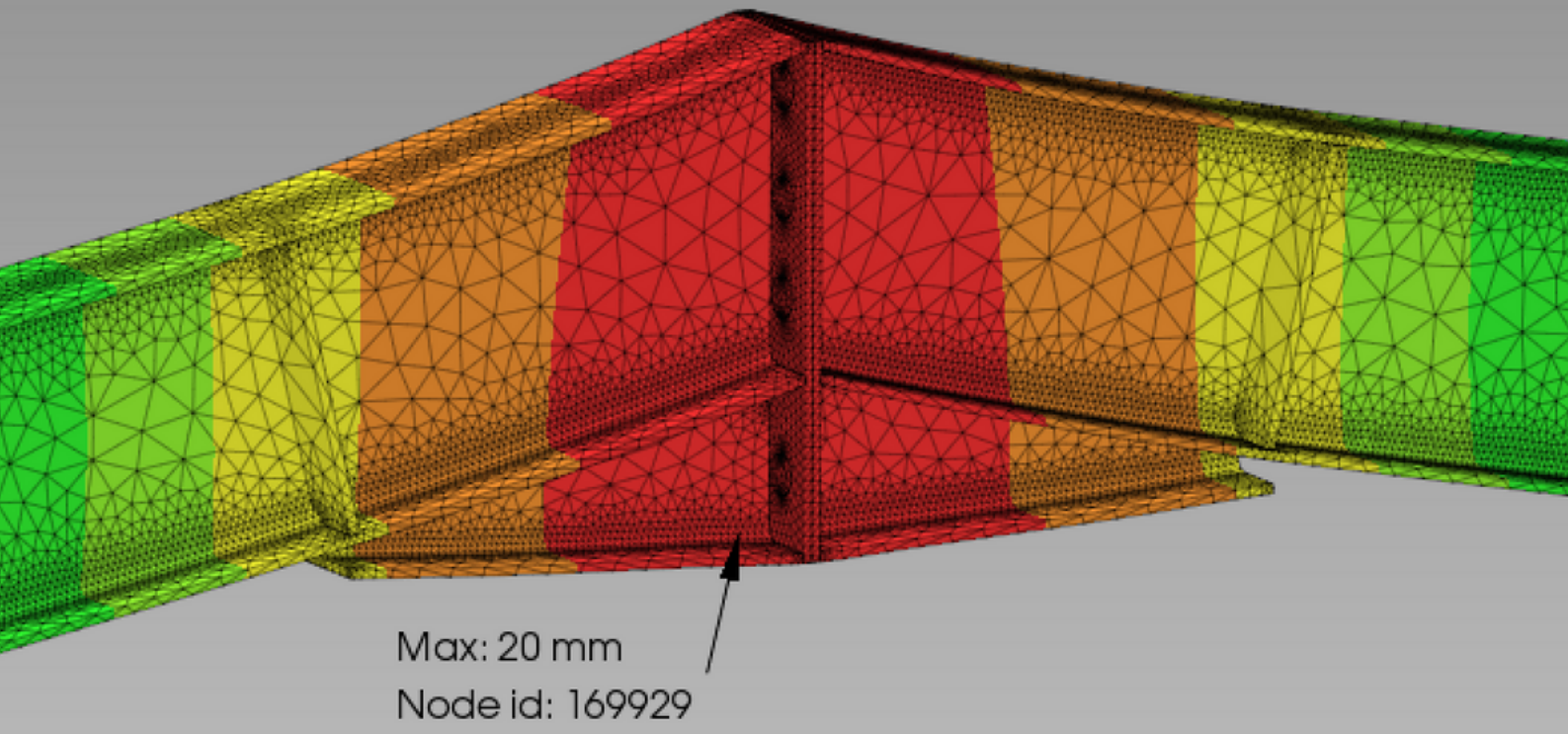


SolidFEA

Product Overview
2024

About Us

BIMWERX Limited, headquartered in New Zealand, has been at the forefront of creating innovative software and tools for the Architecture, Engineering, and Construction (AEC) industry since its inception in 2015.

SolidFEA is our innovative solid finite element analysis tool, designed to make advanced structural engineering design both accessible and affordable. Powered by the Calculix engine, it offers detailed sub-model analysis with lower cost and hardware requirements than competitors like Abaqus. Ideal for complex engineering challenges, including steel connections and bridge engineering, SolidFEA democratizes specialty software with ease of use and IFC file format compatibility, complementing our GenFEA software for comprehensive structural analysis.

"We are changing the way Engineers work by democratizing high-end software technologies"

Chris Vorster - Founder and Lead Developer

SolidFEA marks a transformative step in structural engineering design, bridging the gap that has long existed due to the prohibitive costs, complex learning curves, and high-end computing requirements associated with solid finite element analysis (FEA). Historically, these barriers have confined the use of detailed FEA to well-resourced firms, forcing smaller practices to rely on traditional hand calculations and simplified models. While essential for basic compliance and initial designs, these methods lack the comprehensive insights that come from detailed, real-world modeling.

By leveraging the powerful Calculix engine, SolidFEA delivers advanced volumetric finite element analysis capabilities at a fraction of the cost and hardware requirements of leading competitors like Abaqus. Designed for ease of use, it supports IFC file format imports, making it a seamless addition to engineering workflows. SolidFEA is specifically tailored to enhance our existing GenFEA suite, offering detailed insights into complex structural challenges such as steel connections, bridge engineering, moving loads, and contact elements.

Our aim with SolidFEA is to democratize access to high-level structural analysis software, making it an indispensable tool for a broader range of engineering projects. This initiative not only expands the scope of design exploration and optimization but also serves as an essential sanity check against traditional calculation methods. SolidFEA empowers engineers to achieve a deeper understanding of structural behaviors, making sophisticated analysis a standard practice accessible to all.

What is SolidFEA?

SolidFEA revolutionizes structural engineering by democratizing advanced finite element analysis, making it accessible, affordable, and indispensable for engineers seeking to push the boundaries of design and innovation. Capabilities include:

- Automatic volumetric mesh generation
- IFC format model import
- Linear and Non-Linear geometry engine
- Time-History Analysis
- Amplitude Loading
- Staged Loading
- Steel Connectors (Welds and Bolts)
- Contact Elements
- GenFEA shared material library

CumulusGate

Cloud-based, single sign on, floating licensing for single- and enterprise users, together with a web-based license management tool

IFC Import

Import IFC 3D model geometry directly from Autodesk Revit, Autodesk Advance Steel, or Tekla Structures

Steel Connectors

Create welds and bolted connections between steel components and contact elements to simulate real-world scenarios

Volumetric Mesher

Automated volumetric mesher with second order and mid-node meshing capabilities for faster and reliable output

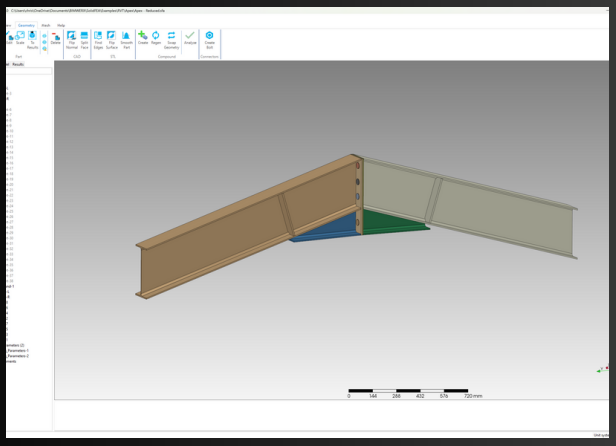
Visual Results

Impressive visual result outputs and animated simulations for quick visualisations and reporting

Features

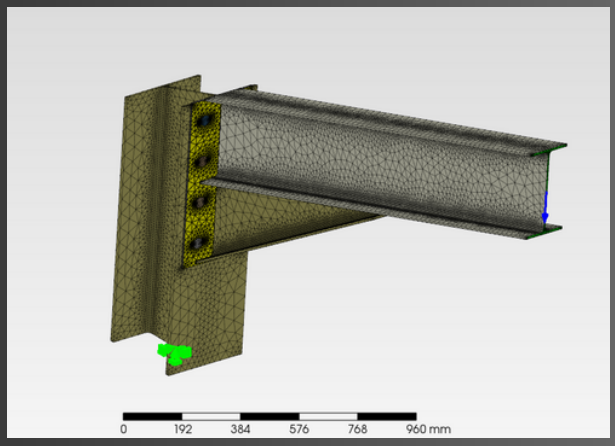
SolidFEA redefines structural engineering analysis by offering an affordable, user-friendly solution with the power of the Calculix engine for detailed finite element analysis. It simplifies complex tasks with features like automatic volumetric mesh generation, IFC model imports, and a comprehensive analysis suite for linear and non-linear geometries, time-history, amplitude, and staged loading.

Integrated with GenFEA's shared material library, SolidFEA facilitates seamless transitions between frame and solid analyses, catering to a wide range of engineering needs from steel connectors to contact elements. This integration empowers engineers to tackle sophisticated design challenges efficiently, making advanced analysis accessible to all.



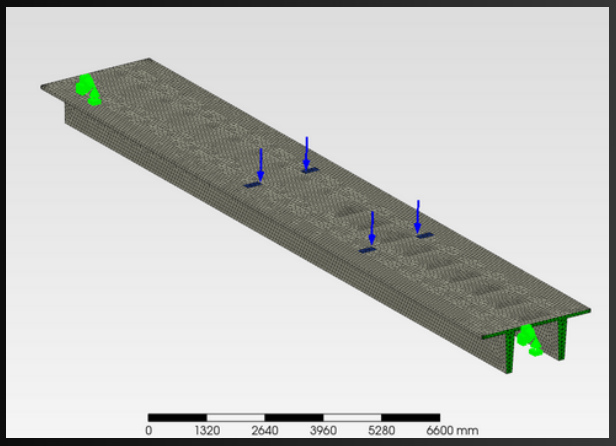
Geometry Import
IFC format support

Import IFC models from Revit, Advance Steel, Tekla Structures and more



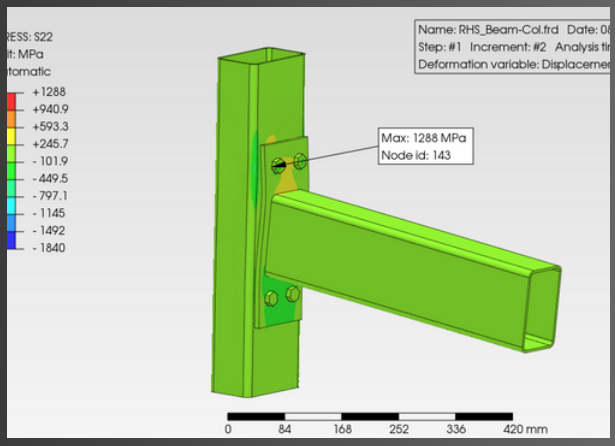
Meshing
Automated Meshing

Automatic volumetric meshing of geometries, including second order element support



Analytical Elements
Simulate realistic problems

Define time-based analysis steps with amplitude loading, enabling more realistic problem definitions



Visualisation
Visualise Results

Generate impressive results visualisations directly from analysis outputs

Get In Touch

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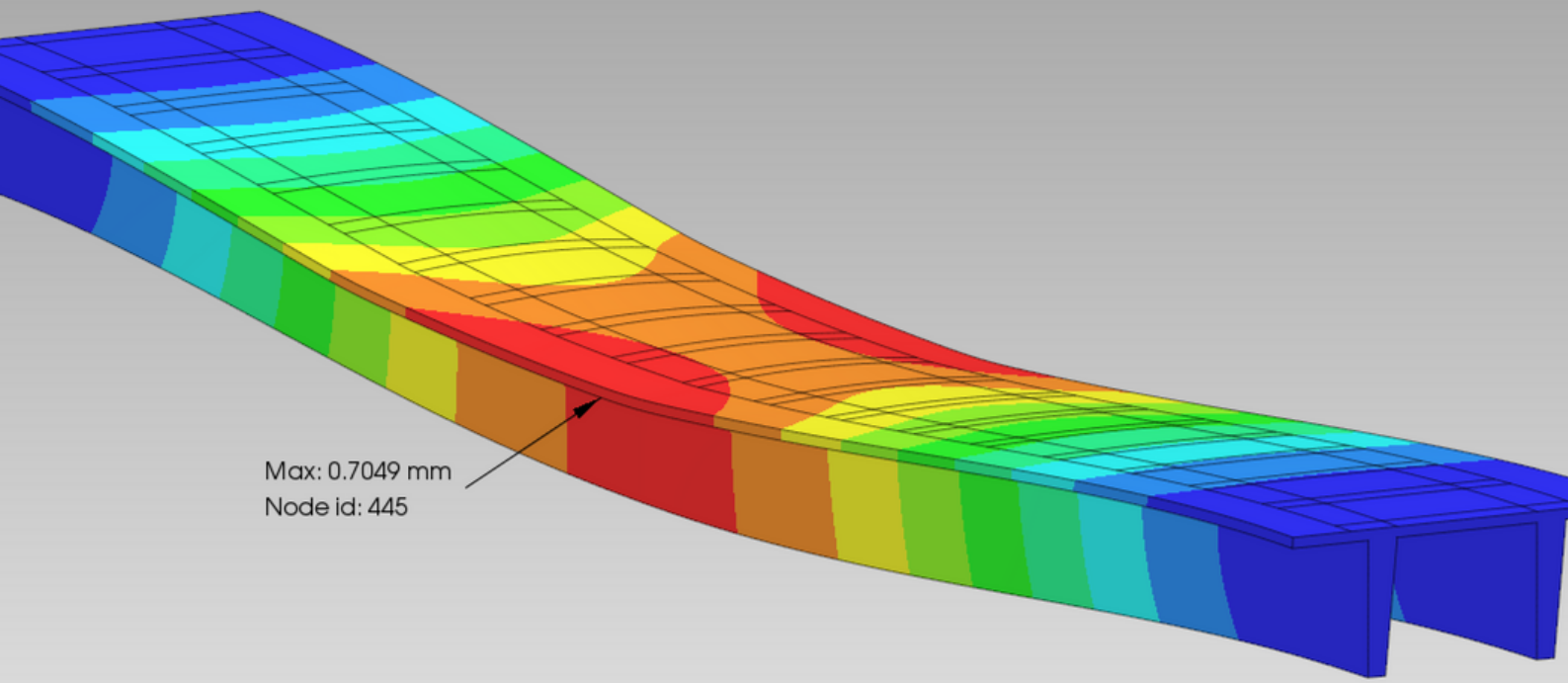

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