

# Top 10 Reasons Autodesk Robot Structural Analysis Professional software extends building information modeling (BIM) for structural engineering.

## **1. Seamless Bidirectional Links with Autodesk® Revit® Structure**

Seamlessly import and export structural models between Autodesk Robot Structural Analysis Professional software and Autodesk Revit Structure software with the Revit® Extensions for Autodesk Revit Structure analysis integration tool. Bidirectional linking helps enable the more accurate structural analysis and design results to be updated throughout the building information model (BIM) for more coordinated construction documentation.

## **2. Advanced Finite Element Auto-meshing Capabilities**

Powerful mesh generation techniques help enable a structural engineer to more effortlessly work with even the most complex models. Automatic mesh generation and manual definition of meshing parameters can be manipulated independently for each panel. This helps to provide the ability to create a high-quality finite element mesh for more precise analysis results.

## **3. Wide Range of Analysis Capabilities**

Investigate the linear and true nonlinear behavior of any structure. The software helps to allow the simple and effective analysis of many types of nonlinearity, such as P-delta analysis; tension/compression members; and supports, cables, and plastic hinges. Also explore the response of your structures to dynamic loading such as harmonic frequencies, seisms, and earthquakes.

## **4. State-of-the-Art Analysis Solvers**

State-of-the-art fast dynamic solvers help ensure that structural dynamic analysis can be more easily carried out for any size of structure. The more efficient analysis algorithms of Autodesk Robot Structural Analysis Professional are designed and optimized for quad-core and multi-core computer processors, giving structural engineers the calculation speed to deliver more accurate results for demanding structures in minutes versus hours.

## **5. Extensive Output of Analysis Results**

Autodesk Robot Structural Analysis Professional provides flexibility in obtaining analysis results. Review results as visualizations and raw data in varying outputs, including:

- Tabulated, which enables easy filtering and sorting
- Diagrams on bars
- Cuts through shells

- Illustrated color maps
- Stresses for the entire structure in a beam or column
- Illustrated stresses in a selected direction shown for solids and shells

Documents can be presented in Microsoft® Word® format or as an HTML document. Table contents can be saved to a Microsoft® Excel® format file.

## **6. Multiple Languages and Units for Global Markets**

Autodesk Robot Structural Analysis Professional supports multinational design teams using many languages, including English, French, Romanian, Spanish, Dutch, Russian, Polish, Chinese, and Japanese. Structural analysis can be performed in one language and output in another, and Imperial and metric units can be used in combination within the same structural model.

## **7. Country-Specific Preferences and Design Codes**

Autodesk Robot Structural Analysis Professional includes more than 60 sections and materials databases from around the world. With an array of 70 built-in design codes, structural engineers can work with country-specific section shapes, Imperial or metric units, and country-specific building codes within the same integrated model.

## **8. Integrated Design Solution for Reinforced Concrete and Steel**

Autodesk Robot Structural Analysis Professional contains integrated reinforced concrete design and steel design modules based on more than 40 international steel codes and 30 reinforced concrete codes, helping to simplify the design process and assist with the selection, verification and optimization of structural elements.

## **9. Integrated Workflow from Structural Analysis and Design to Fabrication Drawings**

Create structural models and perform structural analysis and design within Autodesk Robot Structural Analysis Professional and seamlessly transfer the model and results to AutoCAD® Structural Detailing software to generate fabrication drawings. Within this ecosystem of structural engineering software, the structural engineer can take advantage of an integrated workflow from design, through analysis, to fabrication.

## **10. Open and Flexible API**

Autodesk Robot Structural Analysis Professional uses Microsoft COM (Component Object Model) technologies, enabling an open and flexible API (application programming interface). Possible uses include:

- Integrating Autodesk Robot Structural Analysis Professional with external programs, such as Microsoft® Excel, Microsoft® Word, and AutoCAD® software.
- Extracting results from Autodesk Robot Structural Analysis Professional
- Writing post-processing software, such as special codified analysis for steel, concrete, timber, and aluminum
- Creating parametric structures in Autodesk Robot Structural Analysis Professional

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