Efficient Analysis and Design for Structures
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Design without limits

Engineers can now harness the power of physical modeling, comprehensive load generation, powerful analysis solvers, integrated design, and BIM interoperability for a complete structural engineering solution.

STAAD.Pro CONNECT Edition, the staple for Structural Enterprise... is not just for plants. Whether it’s transportation, water, or building projects, that you are designing, you’ll have what it takes with STAAD.Pro to deliver your projects on-time.
Civil Structures

Analyze transportation elements such as signage structures and retaining walls for roads and highways using STAAD.

Roads and highways often have adjacent features that require structural engineering. Examples include retaining structures, signs, walkways, and culverts. These structures can be subjected to widely varying loads, including soil weight and lateral pressure, impact, snow, ice, and earthquakes. The models for these structures can be part of an information model with which the structural design can be integrated.

With STAAD you can:

- Build models and make revisions efficiently using physical-based modeling.
- Model complex geometries quickly using macros and easy-to-use wizards.
- Automate the application of loads such as hydrostatic, seismic, soil pressure, vibration, and more.
- Design structural components such as trusses, retaining walls, masonry walls, and foundations.
- Model the support that soil provides using nonlinear springs.
- Streamline multi-discipline workflows with Bentley’s unique interoperability across the broadest range of applications.
Stations and Airports

*Analyze and design metro stations or airports with STAAD.*

Designing and constructing metro stations or airports requires careful integration with the surrounding environment, including adjacent roads and buildings, utilities, and tunnels.

Engineers like you need to consider moving loads imposed by trains, traffic, and pedestrians. You also need to incorporate the architectural vision, which often includes curved and sweeping forms in the structure.

*With STAAD you can:*

- Model complex geometries quickly using macros and easy-to-use wizards.
- Perform analysis through various stages of construction.
- Capture the behavior of walls and foundations using shell elements as well as the effects of soil on the structure using nonlinear springs.
- Solve large models quickly with advanced, high-speed solvers.
- Automate application of hydrostatic and soil pressure loads with purpose-built capabilities.
- Streamline multi-discipline workflows with Bentley’s unique interoperability across the broadest range of applications.
- Take advantage of over 90 international design codes with no additional fee.
Tunnels

*Analyze and design metro, highway and railway tunnels using STAAD.*

Tunnels require careful coordination across many disciplines and sectors of infrastructure, including geotechnical, structural, underground utilities, roads and highways, and drainage.

Engineers like you need to account for several different categories of loads including soil weight and lateral pressure, hydrostatic, moving and vibratory loads from vehicles and trains, and earthquakes. The variation of soil properties and ground profile along the length of the tunnel make the problem inherently three-dimensional. Further, varying construction methods and construction sequencing require careful analysis of many different structural conditions and loading states.

**With STAAD you can:**

- Model and analyze tunnel structures, including concrete linings, using plates and solid entities.
- Use nonlinear springs to model the soil support accounting for nonlinear soil properties.
- Automate the application of hydrostatic and soil pressure loads with purpose-built capabilities.
- Model the interface between the tunnel and structures, such as stations, buildings, and more.
- Streamline multi-discipline workflows with Bentley’s unique interoperability across the broadest range of applications.
Culverts

*Analyze and design culverts using STAAD.*

When designing culverts, you need to account for various types of loads, including soil weight and lateral pressure, hydrostatic, moving loads from traffic, and earthquakes.

Tapered geometries as well as the variation of soil properties and ground profile along the length of the culvert can make the problem inherently three-dimensional.

**With STAAD you can:**

- Analyze for various loads such as vehicle, seismic, soil pressure, hydrostatic, vibration, and more.
- Accurately capture 3D effects using shell elements and the effects of soil using nonlinear springs.
- Streamline multi-discipline workflows with Bentley’s unique interoperability across the broadest range of applications.
- Take advantage of over 90 international design codes with no additional fee.
Tanks and Basins

Analyze water storage tanks or basins using STAAD.

Storage tanks and structures, whether for water distribution, water treatment, chemicals, or hazardous materials, require a top-to-bottom structural design.

The stability of the tank in resisting gravity, wind, earthquake, and fluid loads must be assured. Stress distributions in the tank under the combined effects of these loads must be assessed. Structural connections between elements and between the superstructure and foundation must be designed.

With Structural Enterprise you can:

- Establish geometry in a physical model quickly and then automatically convert to an analytical model.
- Automate the application of loads such as hydrostatic, seismic, soil pressure, vibration, and more.
- Design foundations for all loadings determined in the structural analysis.
- Seamlessly integrate foundation and connection design through enhanced interoperability.
- Capture the effects of soil using nonlinear springs.
Bridges

Analyze and design bridges of various types including pedestrian, steel truss, and more.

There are many things to account for when designing and analyzing your bridge project. You need to account for seismic, wind, vibration, traffic loading, and more as well as plan for construction sequencing.

Many bridges involve irregular shapes, curves, and other complex geometries. 3D models are helpful in gaining stakeholder buy-in.

With STAAD you can:

• Model complex shapes easily using OpenSTAAD macros, eliminating massive amounts of manual work.
• Perform advanced analysis such as load-rating and non-linear analysis.
• Streamline multi-discipline workflows with Bentley’s unique interoperability across the broadest range of applications, including ProStructures for detailing.
• Perform analysis through various stages of construction.
• Take advantage of over 90 international design codes with no additional fee.
Buildings

*Analyze and design buildings using Structural Enterprise.*

STAAD is offered through Structural Enterprise, the most comprehensive, value-packed software bundle in the industry.

With Structural Enterprise, you can design in any infrastructure sector with multiple materials, using any analysis method that is appropriate for the job – including buildings.

**With Structural Enterprise you can:**

- Analyze and design buildings of all types using new physical modeling for simplified BIM workflows.
- Capture the behavior of walls and slabs using shell elements.
- Solve large models quickly with advanced, high-speed solvers.
- Create and apply loads with purpose-built capabilities.
- Streamline multi-discipline workflows with Bentley’s unique interoperability across the broadest range of applications including AECOsim, Revit and Tekla.
- Take advantage of over 90 international design codes with no additional fee.
Plants

*Analyze and design plants using STAAD.*

A broad range of powerful structural applications are bundled into Structural Enterprise, the industry’s most comprehensive, value-packed software package.

With Structural Enterprise, you can design in any infrastructure sector with multiple materials, using any analysis method that is appropriate for the job – including plants.

**With Structural Enterprise you can:**

- Analyze and design plants of all types using new physical modeling for simplified BIM workflows.
- Capture the behavior of walls and foundations using shell elements as well as the effects of soil on the structure using nonlinear springs.
- Solve large models quickly with advanced, high-speed solvers.
- Automate application of hydrostatic loads with purpose-built capabilities.
- Streamline multi-discipline workflows with Bentley’s unique interoperability across the broadest range of applications including AutoPIPE, Revit and Tekla.
- Analyze machine vibration and settlement.
- Take advantage of over 90 international design codes with no additional fee.
Learn more or request a free trial of STAAD.Pro CONNECT Edition.

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