



Modelling

BuiltWorks maintains an intelligent and true solid model-based, SolidWorks, architecture. This enables the user to create simulated 3D real-world structures containing all the information required for the design, manufacturing and construction of steelwork structures and assemblies.

BuiltWorks uses embedded **SolidWorks** and add-in modelling tools that facilitate the creation of a 3D parametric model of a structure under design by using **SolidWorks** Weldment or/and **BuiltWorks** structural members both in Assembly and/or Part mode.

Based on the user's choice, structural members are placed as single ones, by groups or arrays in the context of a parametric wire frame sketch, building grid axes system arranged by plans and elevations or using existing nodes and elements.

BuiltWorks has embedded International standard libraries of steel sections and materials available, moreover, user can choose custom Weldment and Toolbox libraries as well as create elements of arbitrary shapes and parametric sections. All structural elements are linked in an associative database, so that a cross-section parameter and material constants constitute an integral attribute of the model.

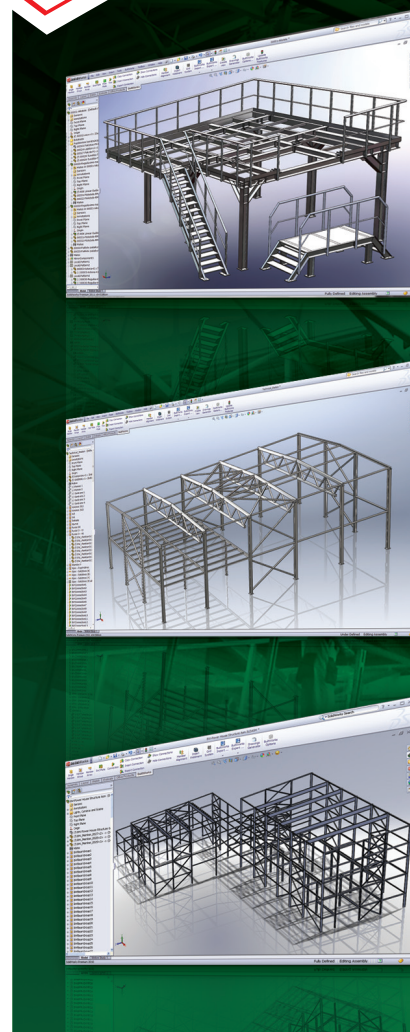
BuiltWorks has advanced possibilities for structural members sitting, positioning and editing through rotation, mirroring, in plane offsetting, shortening or elongation operations. Multifarious handy tools help the user in applying precise fitting, trimming and aligning passing through and connecting members at intersections.

Model history is consistently written to a SolidWorks Feature tree which stores all information about the model, structural elements and details, their relations and attributes. The information is easily accessible and may be updated or modified simply from the Feature tree.

Full control of the model is available by internally established relationships and rules between the modelled objects. Virtually all of the model's elements are intelligently linked to one another by logical links, so that any change is automatically propagated to the other elements in the model. This allows models to be modified quickly and effectively in any design phase.

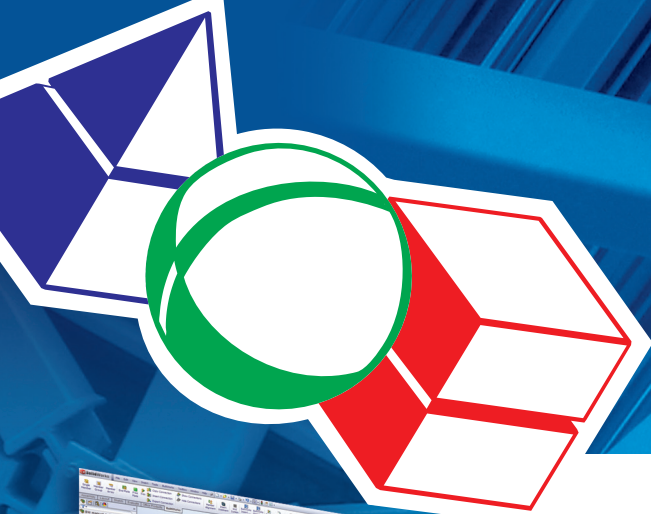
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BuiltWorks – an integrated structural steel design application working within SolidWorks environment



Solution Partner





Detailing

BuiltWorks has flexible tools for modelling of member connections. The comprehensive connection detailing functionality allows the user to create virtually any type of connection working in 3D environment.

BuiltWorks Connection is a smart feature that carries three important kinds of information: what can be connected; what the connection consists of; and how the connection is composed in response to various contexts. Full set of connection elements like end cuttings (copes) of incoming members with connection plates, fasteners, holes, and weldlines can be stored as objects. Once created, connection can be propagated within the model by copying it to other joints or storing to the library for repetitive use.

Rather than just editing the geometry, **BuiltWorks** Connection modelling engine defines and applies the set of engineering rules for the connection of structural elements, assigning chosen priorities on intersected members ('who cuts who') and standards of cutting shapes ('how to cut'). This innovation allows precise and smooth allocation of structural elements with the inherent ability to manipulate them fully in a bundle by setting relations, joining, trimming and cutting definitions in one batch command.

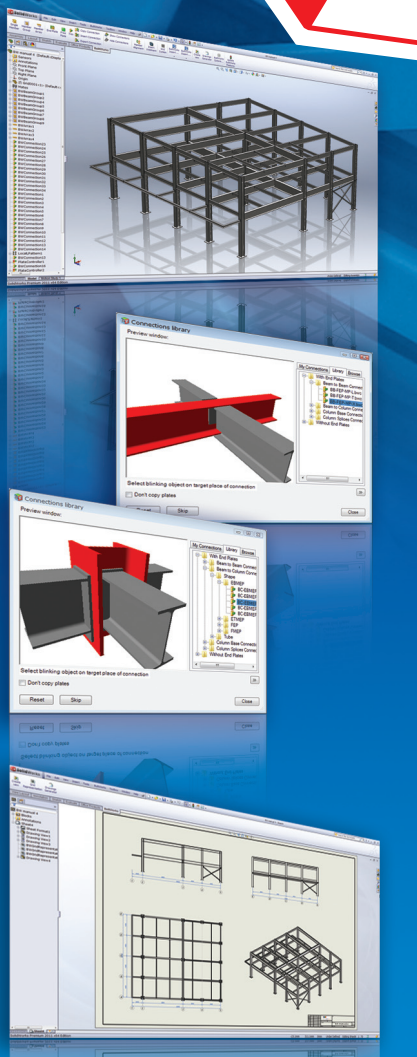
BuiltWorks can generate and manipulate parametrically various types of connection plates like end plates, base plates and top plates. Flexible and powerful **BuiltWorks** Free plate feature enables user to create any type of connection plate, like fin plates, seating plates, stiffeners, angle cleats and a variety of other standard shapes.

BuiltWorks provides a sample library of standard connection types, which are easily expandable by user with new customised solutions. Because of fully parametric nature of connection object, the number of connections stored in library is defined only by amount of required forms and patterns, and then it can be applied to any corresponding connection regardless the size of the member or differences of the shapes.

BuiltWorks allows automatic generation of design stage general arrangement drawings, erection drawings, detailed fabrication drawings of steel assemblies as well as component workshop drawings at any time throughout the process. Project drawings like plans, elevations, cross-sections, and other standard or user-defined 2D views are created directly from a general 3D model of a structure. Due to the associative link to the model, 2D views can be edited directly in 3D model.

BuiltWorks enhances bills of materials (BOM) in the form of **SolidWorks** Cut lists with standard structural requirements. Number of industry specific variables, such as profile standard name, length, mass, surface (painting) area, as well as formula calculated expressions, are updated to Cut list properties and can be obtained by defined methods.

BuiltWorks – an integrated structural steel design application working within **SolidWorks** environment





Analysis and Design

BuiltWorks as a software product was developed to meet the Architectural, Engineering, Construction (AEC) and Plant industries requirements for high performance flexible and versatile tools that include extended capabilities of integration with analysis and simulation software.

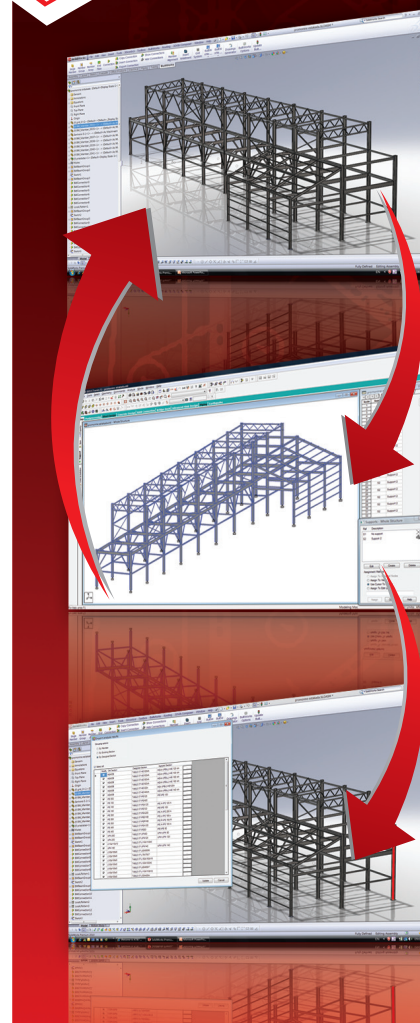
BuiltWorks ensures the seamless bi-directional integration between the **SolidWorks** environment and **SolidWorks Simulation** for the FE analysis of steel structure. In addition, bi-directional links are available to the leading third-party structural Analysis and Design software like STAAD.Pro and compatible systems.

BuiltWorks automatically applies intelligent transformation of **SolidWorks** physical model to STAAD.Pro analysis reading and converting model geometry, cross-section data, housing all the true physical parameters and materials. Additional information, such as member orientation, connection offsets, grouping options, units system, parameters of preferred design code are read and evaluated.

Using **BuiltWorks** the STAAD.Pro analysis and design system is launched directly from the **SolidWorks** environment. After structural analysis and design of the model is performed, results for steel sections received during code check are transferred and automatically assigned to the elements of the structural model. The elements are updated in accordance with the parametric modelling.

Also **BuiltWorks** ensures alternative design workflow when the existing analysis model from STAAD.Pro compatible software is imported directly to the **SolidWorks** environment, automatically transforming wireframe analytical model to 3D solid model built from Weldment or **BuiltWorks** structural members for future modelling and detailing.

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BuiltWorks enables vertical markets products to be linked to SolidWorks hence creating an open environment



 **SOLIDWORKS**

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Translators

BuiltWorks is flexible to enable external best of breed vertical market products from AEC and Plant industries to be linked to SolidWorks establishing communication chain within and between companies involved in the design, analysis, fabrication and construction of industrial facilities, buildings and structures.

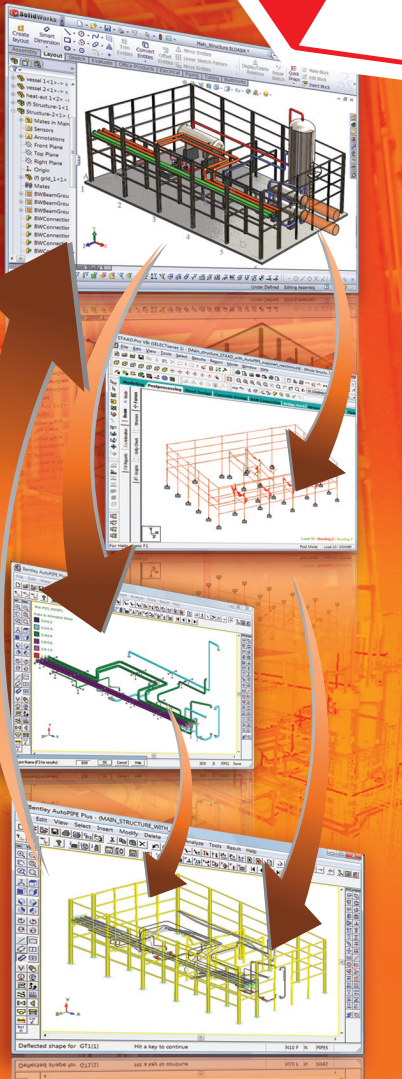
BuiltWorks can read and save data in popular industrial formats – SDNF (Steel Detailing Neutral Format), and CIS/2 (CIM steel Integration Standards). Also **BuiltWorks** generates DSTV NC files directly from **SolidWorks** environment. This ensures seamless and integrated data information flow between **SolidWorks** and Industrial design systems including those for structural steel detailing, analysis and fabrication.

BuiltWorks fully supports the industry-standard SDNF format, which enables steel detailers to read your exported **SolidWorks** models. By importing SDNF files from 3rd party industrial systems **BuiltWorks** allows to manage data transfer and provides user a high degree of control over mapping options to determine which members are imported thus enabling complete, round-trip data exchange.

BuiltWorks supports CIS/2, the product model and electronic data exchange file format for structural steel project information. CIS/2 export and import capabilities are intended to create a seamless and integrated information flow between **SolidWorks** and many steel design, analysis, engineering, fabrication, and construction software packages from different Industries.

BuiltWorks supports DSTV NC file format, widely-used in digital machine-tool control applications, which allows steel manufacturers to use models or drawings generated with **SolidWorks** CAD system, communicating design information to CNC machines used for structural steel component fabrication.

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