



# 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.

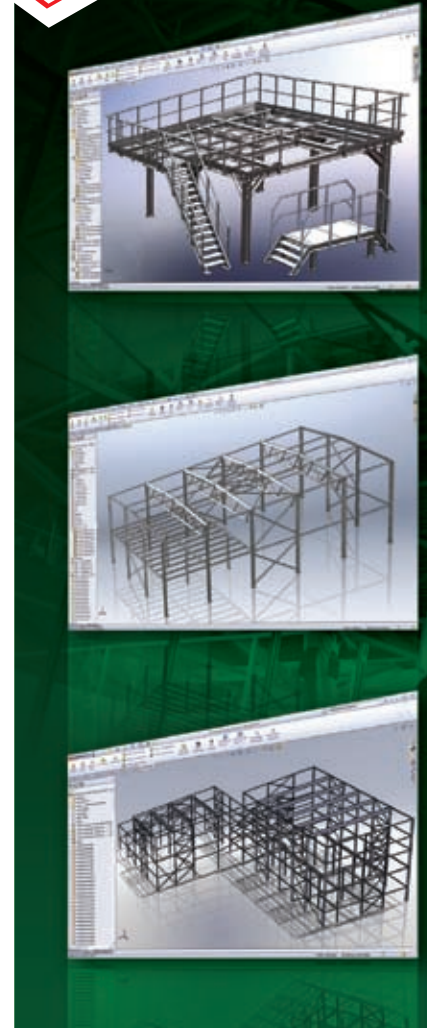
**BuiltWorks** has embedded International standard libraries of steel sections and materials available, moreover, user can choose custom Weldment and Toolbox libraries as well as create elements of arbitrary shapes and parametric sections. All structural elements are linked in an associative database, 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.

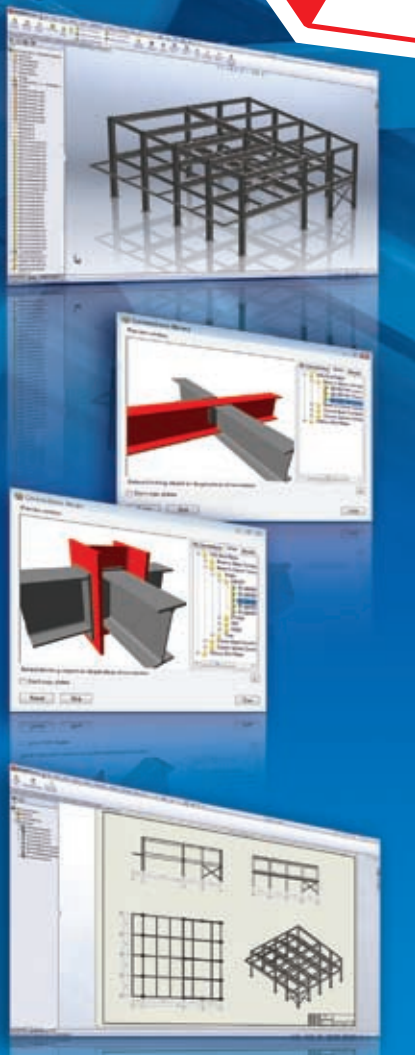
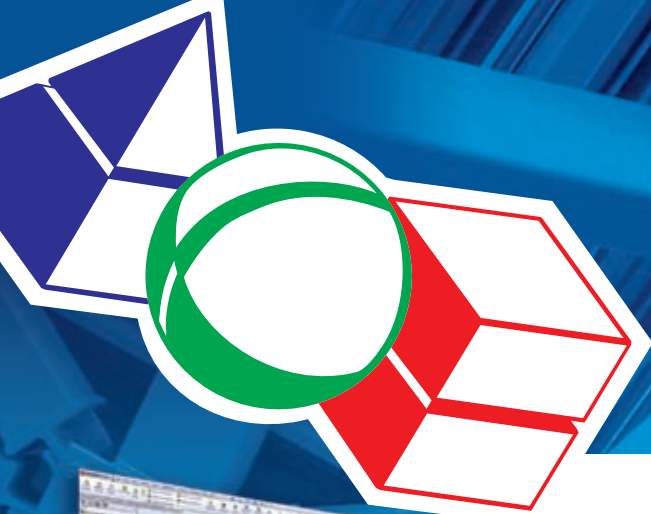
Full control of the model is available by internally established relationships and rules between the modelled objects. Virtually all of the model's elements are intelligently linked to one another by logical links, so that any change is automatically propagated to the other elements in the model. This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





## 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.

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