

New version of Steel CONnections : 2012.025

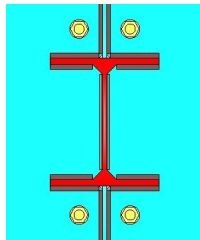
Dear colleagues,

A new version of the "Steel CONnections" program for the design of bolted and welded steel connections has been released.

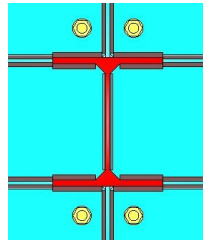
The new versions provides the ability to analyze and design a new family of connection types which is :

- **Column Base Moment Connections, stiffened for major axis bending with a mid stiffener along the column section's web.**

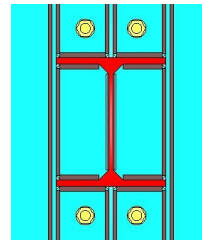
As far as the stiffeners are concerned, the following stiffener configurations are available:



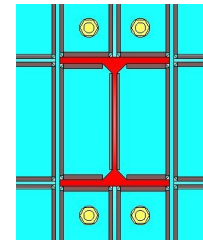
Single mid stiffener



Single mid and weak axis stiffeners



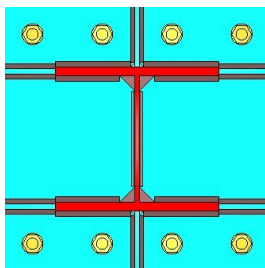
Mid and side major axis stiffeners



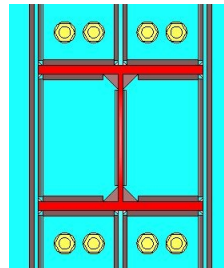
Mid and side major axis stiffeners and weak axis stiffeners

As far as the bolt layout is concerned, the following bolt configurations are available:

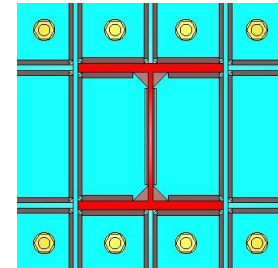
- **2 rows / 2 columns.** In all stiffener configurations apart from the "single mid stiffener", the bolts can be within or outside the column's width.
- **2 rows / 4 columns.** 2 or all 4 bolt columns can be placed within the column's width.
- **4 rows / 4 columns.**



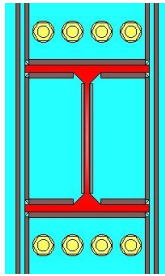
2 rows / 4 columns connection with mid major axis stiffeners and weak axis stiffeners



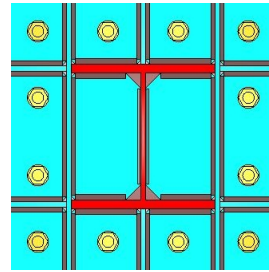
2 rows / 4 columns connection with mid and side major axis stiffeners



2 rows / 4 columns connection with mid and side major axis stiffeners and weak axis stiffeners



2 rows / 4 columns connection with side major axis stiffeners



2 rows / 4 columns connection with mid and side major axis stiffeners and weak axis stiffeners

All the connections can transfer biaxial bending and shear as well as axial force. The program evaluates the connection's:

- **strength, providing a full biaxial bending - axial force interaction diagram,**
- **stiffness,**
- **classification according to stiffness as rigid or semi-rigid**
- **detailed multilinear moment-rotation diagram.**

All calculations are performed according to the final provisions of EN 1993-1-1 and EN 1993-1-8. In particular, the following components are examined:

- **end plate in bending and concrete in compression**
- **end plate in bending and anchor bolts in tension**
- **welds in shear and axial**
- **stiffeners in bending and shear**
- **column section in biaxial bending, shear and axial**
- **anchoring system in tension - calculation of the required anchorage length**
- **base plate in bearing**
- **anchor bolts in shear**
- **shear nib in bending and shear**
- **shear nib bearing on the concrete foundation**

Another feature that has been added in the new version concerns the calculation of the **resistance in shear** of the **beam to column, apex** and **beam to beam bolted end plate connections**. An option has been added to allow the user to utilize the **full shear resistance of the bolts**, without applying any reduction due to interaction with tension. This option is suitable for cases where insignificant or no bending moments and tensile forces are applied to the connection.

Shear Resistance of the Connection

The shear resistance of the connection will be the minimum of the following:

- 50% of the plastic shear resistance of the beam
- The shear resistance of the beam's web weld

Shear resistance of the bolts

- The shear resistance of the bolt rows in compression only (including bearing)
- The full shear resistance of all the bolts

The minimum shear resistance of a bolt row (reduced due to shear tension interaction and including bearing) multiplied by the number of rows (EN 1998-1-8 3.7(1))

What is this?

SteelCON is SOFiSTiK Version 25 (2010) as well as Version 27 (2012) compatible and can be operated within the SSD integrated SOFiSTiK environment. All geometrical and topological data as well as forces will be imported from the overall structure. Connection design results are then a part of the SOFiSTiK Output Report.

Installs the following Plugins :

- SSD V27 Plugin (and SSD V25 plugin)
- Revit structure 2012 plugin (and Revit structure 2010 plugin)

24.02.2012, Munich Germany