HTW+

Timber Wall Diaphragms

The software application allows the calculation of wall panels in accordance with Eurocode 5 and the relevant National Annex.

The variety of definable systems ranges from simple walls with regular web spacing and identical panelling on both sides to irregular column placement with different panelling and different panel grids on each side. A horizontal butt joint can be defined for individual, several or all panels. A different material and/or cross section can be assigned to each web and each panelled side.

Continuous vertical end webs (without transversal compression on the base frame) are also available.

Available standards

The following standards are available for the calculation and the design:

- DIN EN 1995
- ÖNORM EN 1995
- BS EN 1995
- UNI EN 1995/NTC
- EN 1995
- DIN 1052:2008

Basis of calculation

The panelling is calculated as a shear field (9.2.4.2 method A) , which bears the horizontal loads in wall direction. Vertical forces are borne by the vertical webs.

In addition to the standard safety verifications, also the decisive anchoring forces for the position stability and the deformations are calculated in the serviceability verifications including creep.

Fasteners and support, bending and shear stiffness are taken into account.

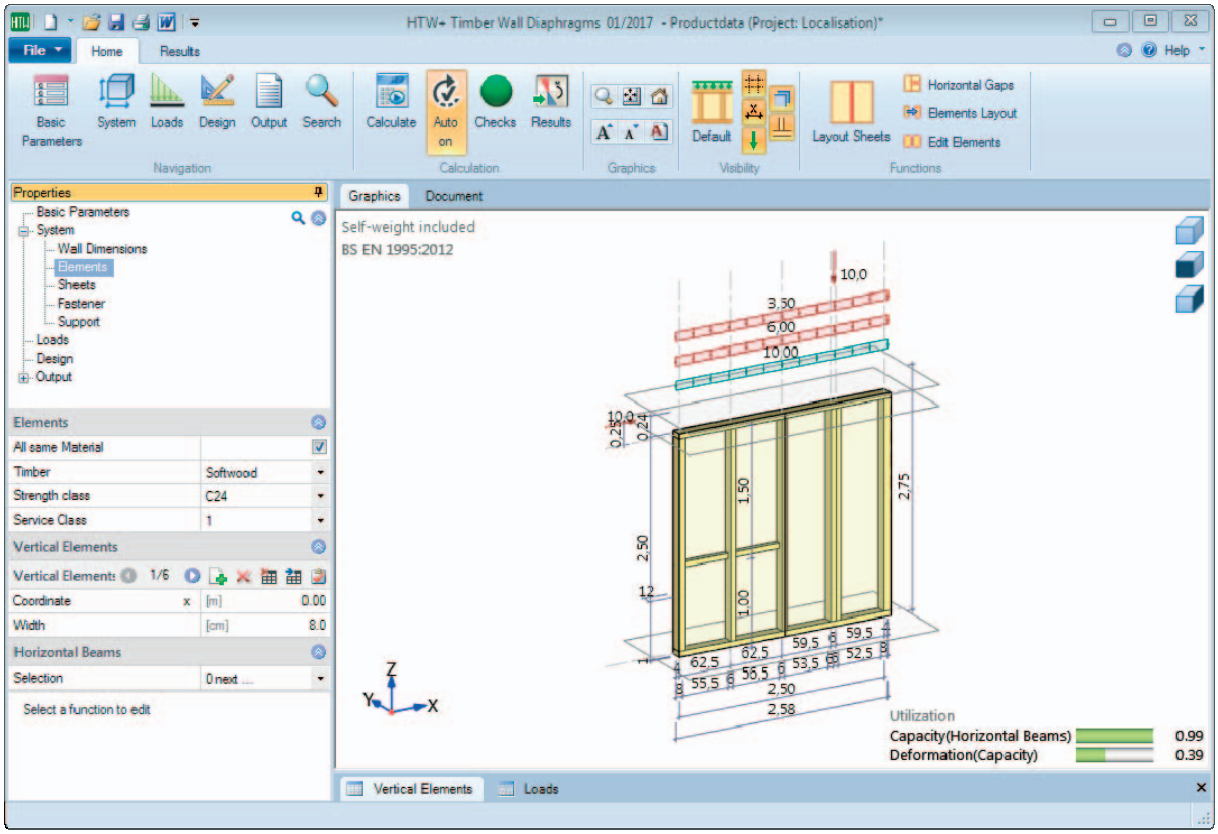
The stiffness types including the required reductions are calculated for all components.

Support stiffness (specified by the user) is handled with separate tension and compression springs on the end webs.
The compression springs of the base frames can be calculated optionally.

Loads

Available load are vertical loads (concentrated, uniformly distributed and trapezoidal loads), horizontal concentrated loads applying in direction of the wall and area loads applying over the wall height in transverse direction.

In addition to typical actions, accidental loads due to earthquake loading can be defined.



Fasteners

The available fasteners are nails, screws and staple fasteners.

Verifications

- Stress resistance and stability verifications of the webs (6.3.2)
- Transversal web compression on top and on bottom (6.1.5)
- The verification model (base frame pressure or bearing pressure) is optionally selectable
- The verifications of the panelling (shear) and the fasteners include the relevant increasing and reducing factors (9.2.4.2).

  The increasing factor can optionally be disabled.
  If panelling on both wall sides was defined, different stiffness on either side can be taken into account (optionally with consideration of the real stiffness)
- Serviceability verifications on the basis of the calculated stiffness

Graphical definition options

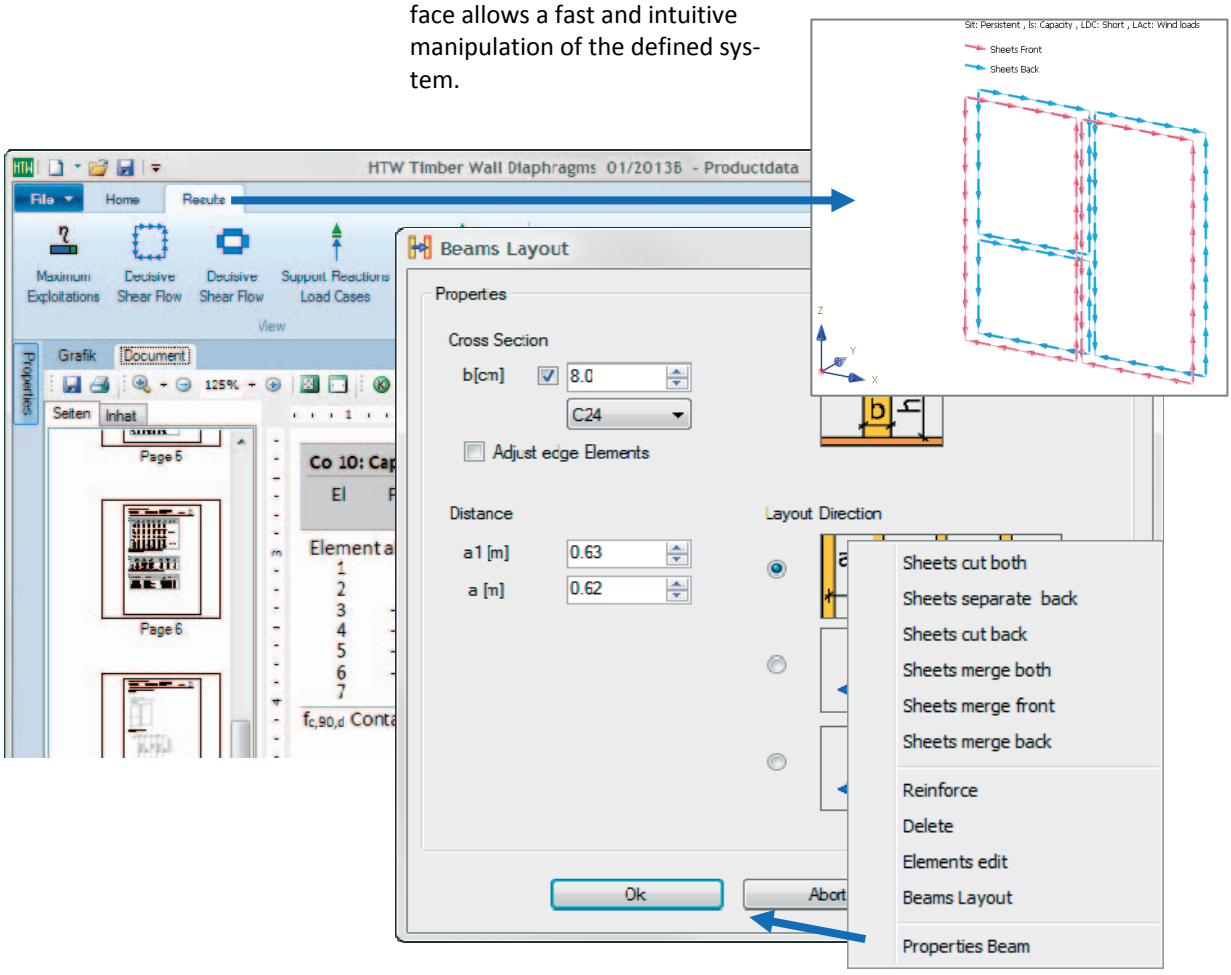
In addition to the standard definition options via the menus and input fields as well as the context-sensitive menu (right mouse button), the 3D graphical user interface allows a fast and intuitive manipulation of the defined system.

Output

The output control functions allow the user to configure the scope of data to be put out. The options provide for detailed results or summarized versions. Graphical representations are added to the text in a context-sensitive manner.

The newly implemented **Maximum utilization** "all-in-one" graph reveals the decisive utilizations at a glance.

Ill.: Representation of the maximum utilization



Comfortable input functions:
The user can comfortably install the panelling and the webs via dialog-supported input screens and assign properties to various elements.