



# BOUNDARY CONDITIONS

[SI-MODULAR]<sup>®</sup>

## [SI-MODULAR] – A CLOSER LOOK?

### PROLOGE

The following pages are intended for all those interested in learning more about the limiting factors of statics and the topics of wind and snow loads. If the effort of reading is too much for you, just ask us if you can build with our system at your location. We will be happy to help you.

### INTRO

A building must be naturally stable and, in addition to its own weight, it must be able to withstand variable effects of usage, weather, and hereby especially wind and snow.

The applied constructions are based on a static analysis, i.e. proofs of stability. In simple terms, in Germany these parameters are defined in such a way that no cracks may occur within a building during any predictable weather event.

The [SI-MODULAR] wooden structure kit is a plug-in system with standardized components and recurring dimensions.

The structural analysis, in which every construction detail of the system has been approved, creates a determined overall setting for each building project, regardless of whether your house is to be 5, 10 or 20 meters long. This construction method therefore only works within certain boundary conditions, which thus have an impact on your planning.



# MOST IMPORTANT QUESTION: WHERE?

A good climate is not only important indoors. Germany has quite a number of different weather zones. From the rather windy coastal regions on the North and Baltic Seas to the snowy ski resorts in the Alps, buildings have to meet a wide variety of requirements.

With the key measures of the static analysis of our building structure, we have tried to cover as many different load requirements as possible.

However, in order to ensure an economical production of the components for you, there are some locations in Germany where the building construction kit can unfortunately not be erected without further ado. If you have a property in such a region, i.e. where higher loads occur, we will have to carry out a case-by-case assessment.

In order to find out at which altitude your property is located, we recommend a visit to the website [www.mapcoordinates.net](http://www.mapcoordinates.net).

After entering your address, the site will show you the height of your property above sea level, accurate to the meter. (ü. NN = above sea level)

If you would like to check the possibility to use SI on your site and it is located in a different country, please send us an Email with the ZIP-code or coordinates of your building site.

The following regions are verified \*) within SI-MODULAR static analysis:

## Normal requirements (ca. 2/3 of Germany)

Wind Zone: 1 - 2  
Snow Zone: 1 - 2  
Height above Sea Level: max. 300 m

## Snowy regions

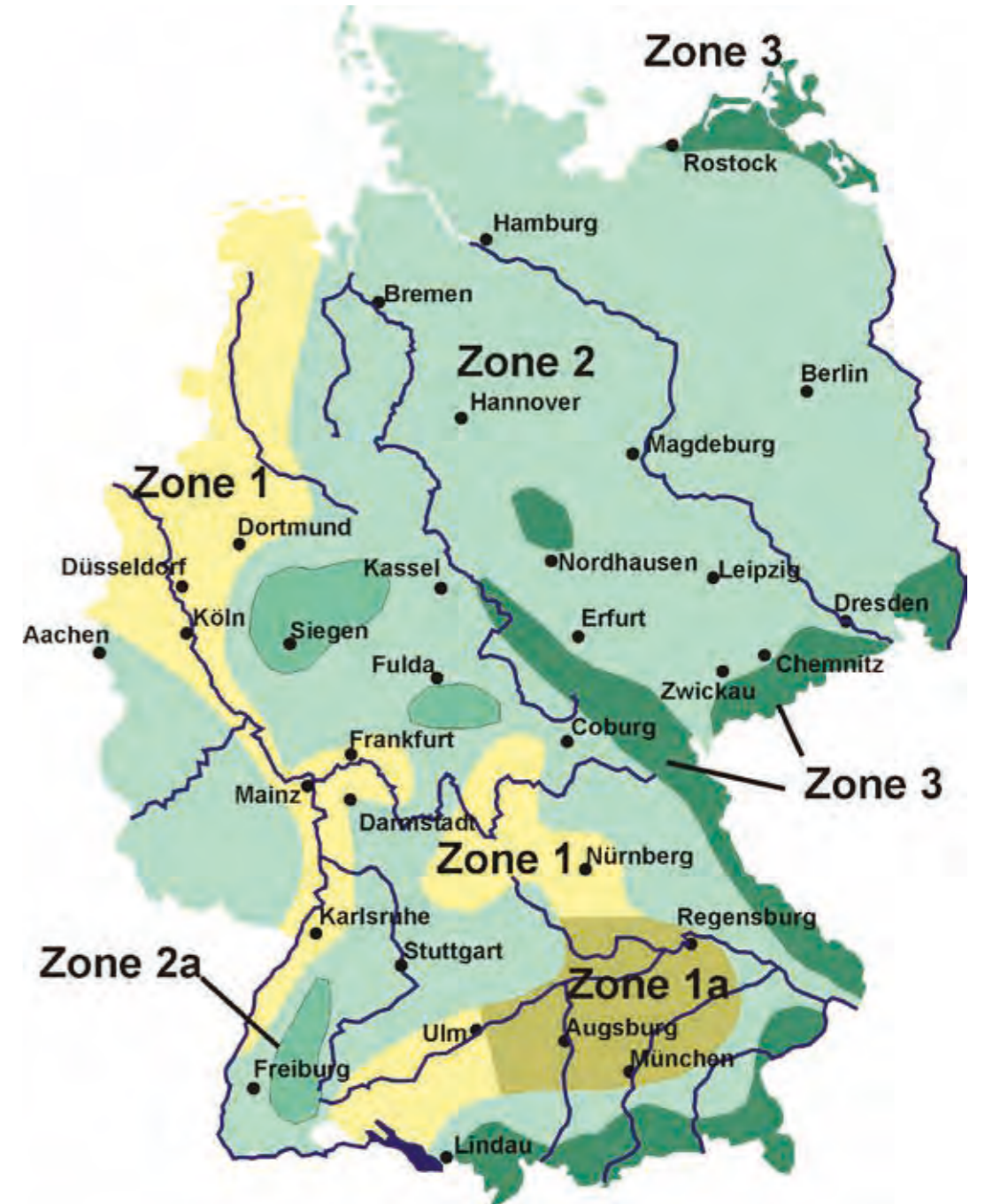
Wind Zone: 1 - 2  
Snow Zone: 1 - 3  
Height above Sea Level: max. 750 m

On the following two pages you will find the respective overview maps of the snow and wind load zones in Germany.

If you are unsure whether you may build on your property with our system, please contact us. We will check this for you free of charge.

\*) The new +MODEL structures with 6 meters width have to be evaluated for snowy and windy areas (snow zone >2 and above 300 m a.s.l. and wind zone >2) in an individual analysis.

This costs around 400,- to 500,- EURO plus VAT.



MAP OF SNOW LOAD ZONES IN GERMANY

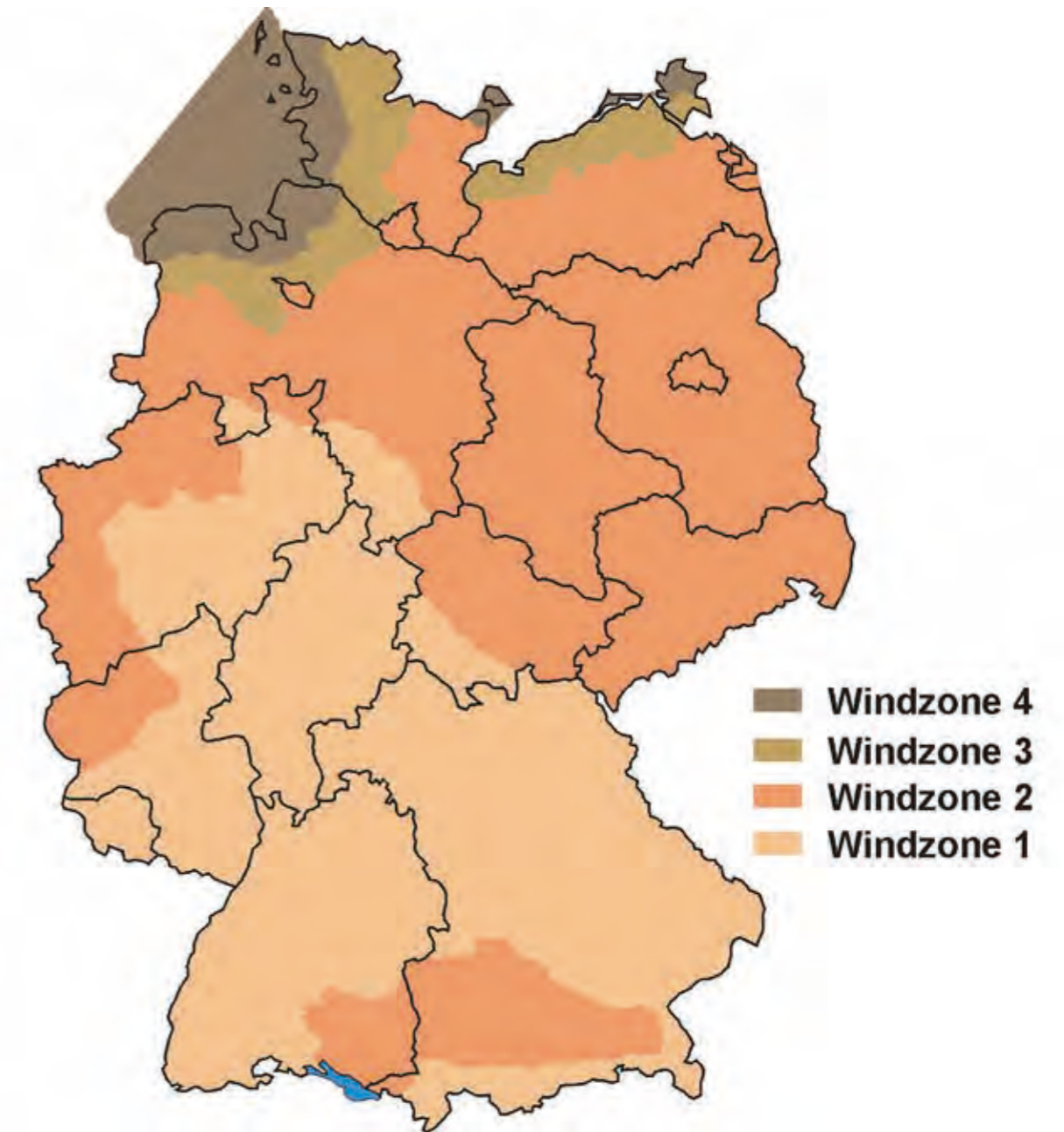
# WIND

Since our construction method is to be evaluated as rather light in comparison, especially the wind loads are a regionally critical quantity.

However, not only the values of the individual zones play a role here, but also the so-called terrain category, which is determined with the topography and the condition of the surrounding terrain around your property.

For example, a site in wind zone 3 may be considered to be built on with one of our structures without any further upgrades if the surrounding area is characterized by a forest area or dense building development, for example.

Again, if in doubt, just ask.



# BRACING INTERNAL WALLS

An exterior wall can only ever stand freely up to a certain length. At some point, the distance between the braced corners that „hold“ the wall in the gables becomes too great. In this case, the wall lacks enough „restraint“ to withstand the wind pressure acting on it laterally without any movement.

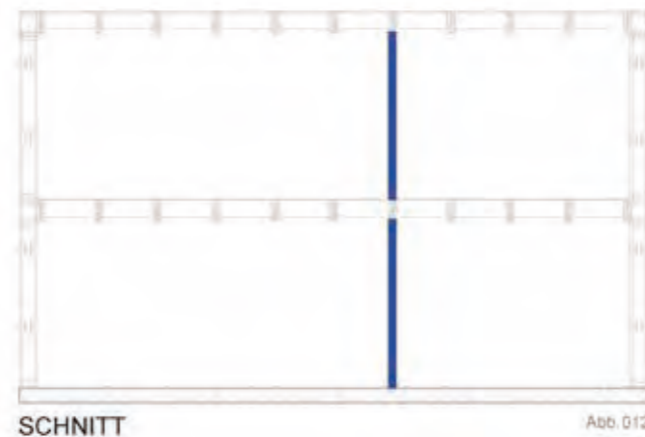
For this reason, the system statics prescribe a bracing interior wall, which is built after a room depth of 5-6 meters. This wall connects the foundation, column and floor joists and forms a shear wall, so it is erected parallel to the gables.

As a rule, the measures of these interior walls must add up to 3 meters in width. The division for this is entirely up to you. Graphics 1 and 2 on the right show two possibilities in a floor plan of 5 x 10 meters. The position of the openings is variable in both cases. Two separate openings are also possible. Only type B2 normally requires a center wall width of 4 x 1.00 m (Graphic 3).

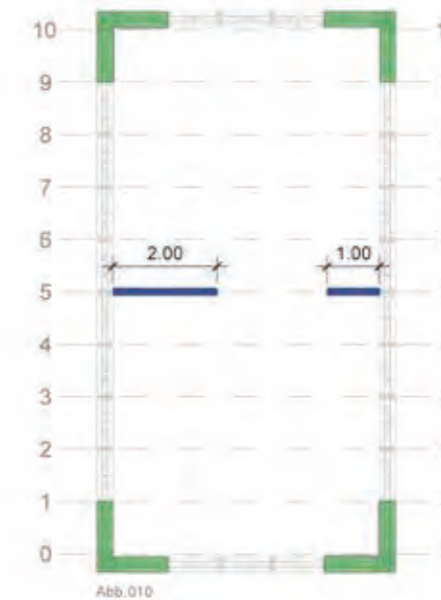
In case you wish to limit these walls in width, it is possible that we do a pre-evaluation to approve the minimum sizes needed.

When it comes to the two-story buildings like MODEL C2 or B2, it is also essential that the bracing internal walls are on the same axis / one above the other, i.e. that they are connected to the same beam of the intermediate ceiling. This is the only way to ensure that the the wind forces acting on them are transfered into the ground.

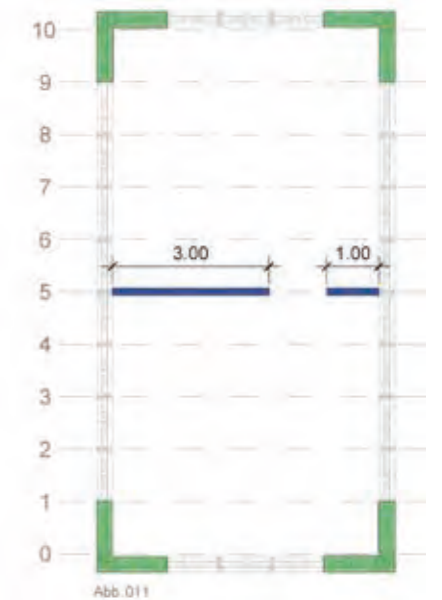
If you would like to know how exactly these walls need to be build, we have also a technical drawing we may send you upon request. The material needed to raise these walls is included in a framework extension when needed.



GRAPHIC 1



GRAPHIC 2



GRAPHIC 3

How such a wall must be constructed in order to meet the requirements is described on the following page.

# CONSTRUCTION OF THE BRACING

During set-up, the sill timber of the bracing wall is first aligned plumb under the floor joist and fastened with heavy-duty dowels.

Then, one of the upright supports is fixed to the outer wall i-beam support. This is followed by the other props at a distance of 50 cm, measured from the OSB outer wall to the center of the prop, which are positioned between the sleepers and the floor joist using metal brackets.

The connection between the wooden posts and the floor joist is made with wood construction screws screwed at a 45° angle. Two stronger wooden beams (KVH160/90), which are connected to the foundation at the base with two tie rod fittings, form the end towards the center of the building. Finally, the planking is done with OSB3 (min, 18 mm; 22 mm is SI-standard). Detailed instructions for the assembly of these wall elements are part of the assembly instructions.

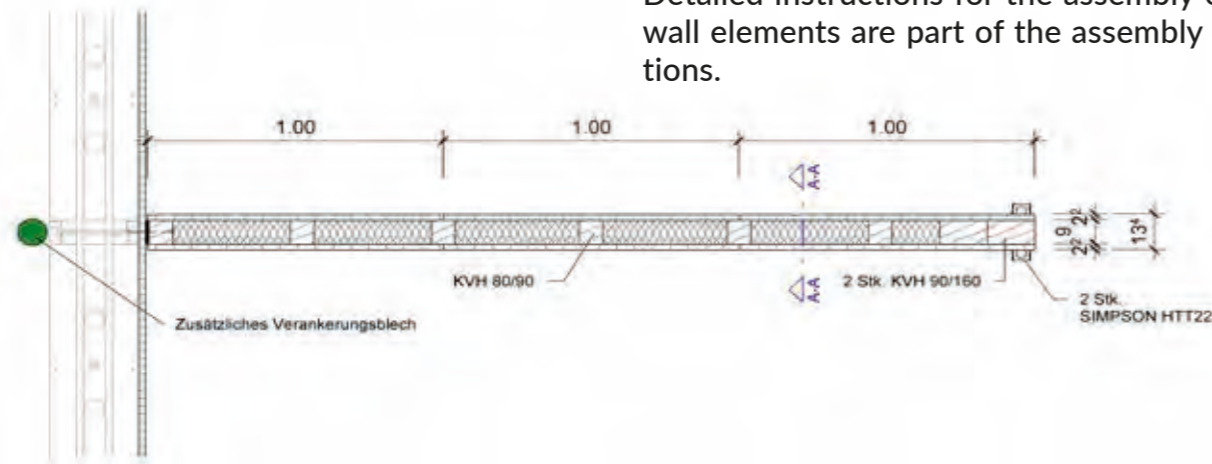
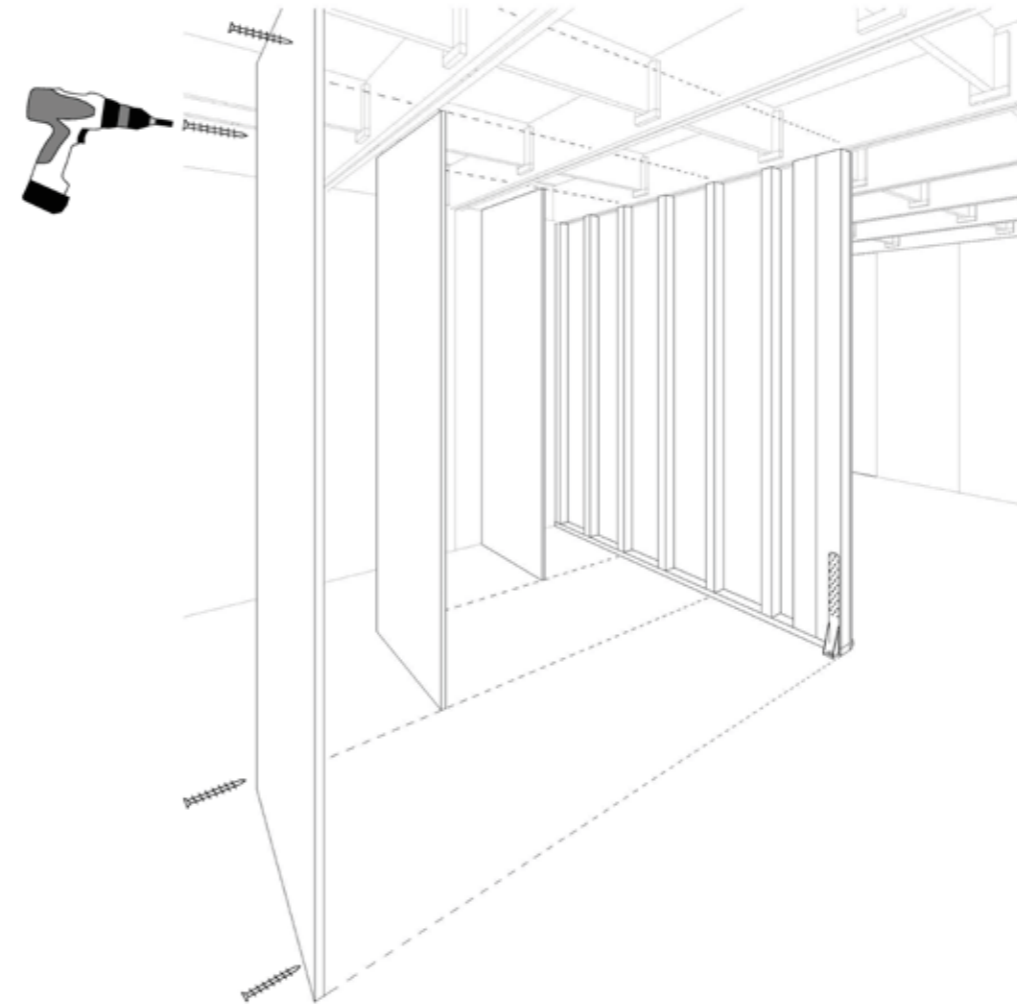
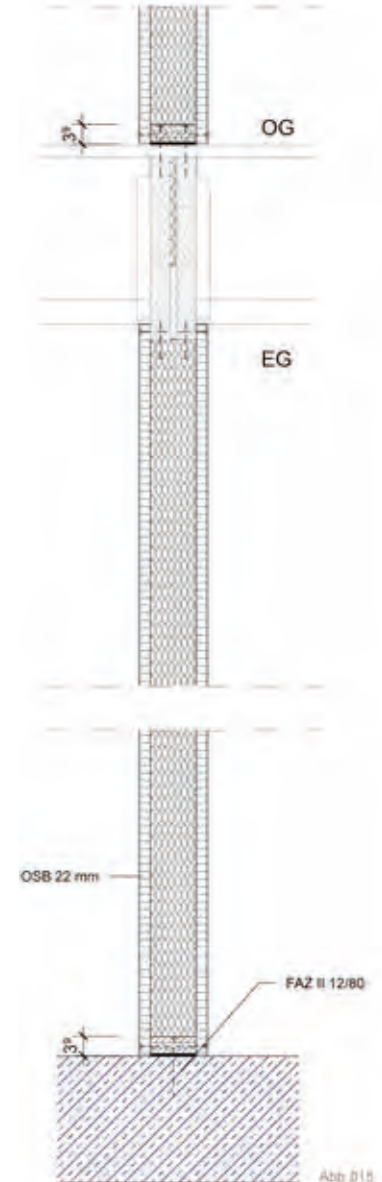


Abb. 013  
GRUNDRISS M. 1:20



SCHNITT A-A M. 1:10  
Abb. 015

# TENSION ANCHORAGE

Since our construction is comparatively light, our supporting structures must be provided with tie plates on the outside at each of the 2 i-beams of each corner - and also always where bracing interior walls are built.

The upper lug of these stainless steel plates is nailed to the i-beam support with comb nails. The lower „wings“ need to be connected to the concrete foundation by two heavy-duty dowels. Therefore, according to statics requirements, concrete foundations must have a minimum thickness of 20 centimeters.

In case of deviating conditions, such as a so-called thermo-floor slab or a wooden platform as foundation, these tension anchors can be created by other means. Please clarify such detailed solutions with us at an early stage of your project.

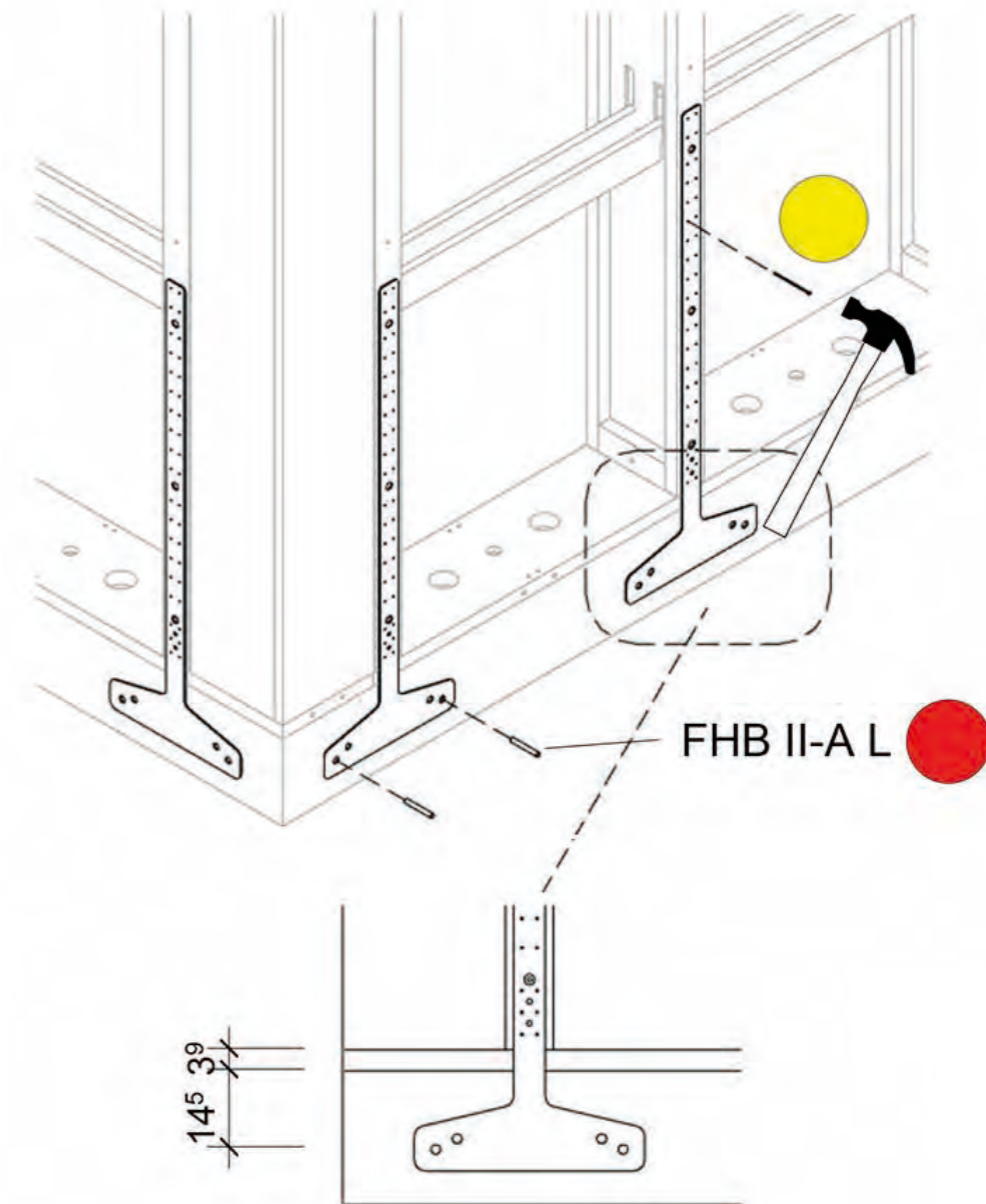
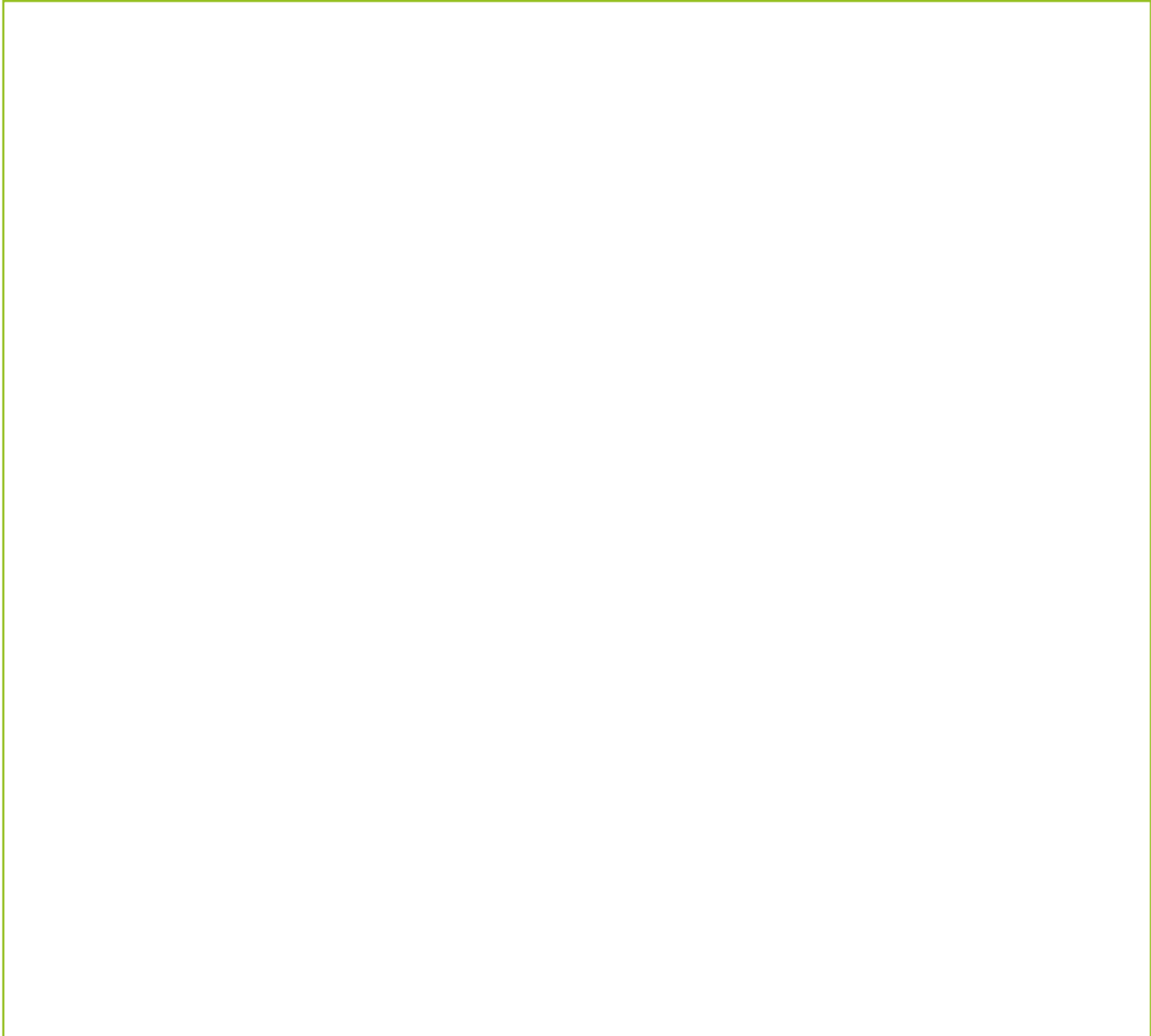


Abb. 080

NOTES





# GET IN TOUCH

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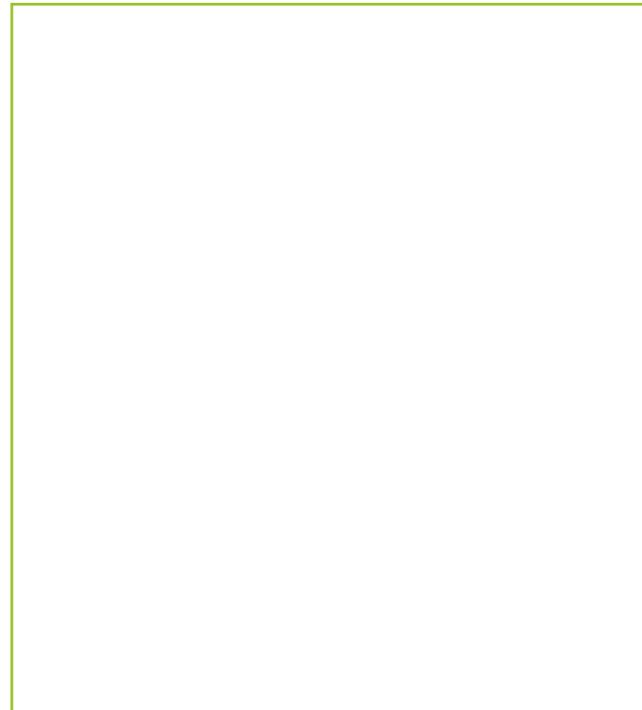


YouTube Channel

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