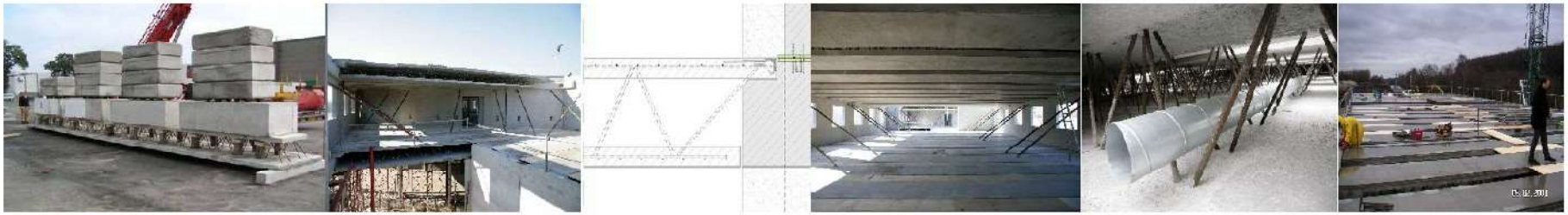


The HOLCON® concrete skeleton system
That is *durable* building

A Chiel Bartels invention
Bartels & Vedder

Objective of HOLCON® system:

New buildings to be developed give a greater future value as a result of the present conceptions of durability being fulfilled.

Multifunctional construction

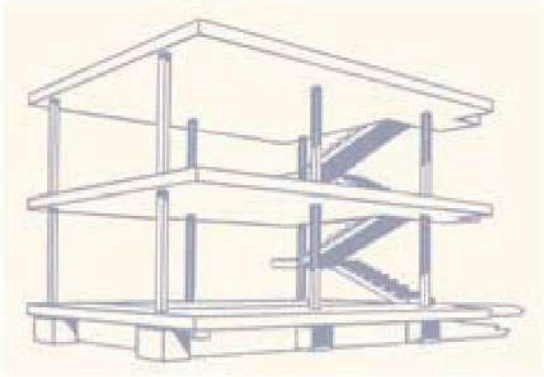
The rapidity of social changes has effects on the supply of buildings. Buildings that currently accommodate certain functions, must be able to cater for other functions when needed in the future, without complications. Besides that, the same building must be able to accommodate a variety of functions. The accumulation of functions will become more frequent, therefore, there must be a possibility to interchange these functions within a building.

Combination of residence and work

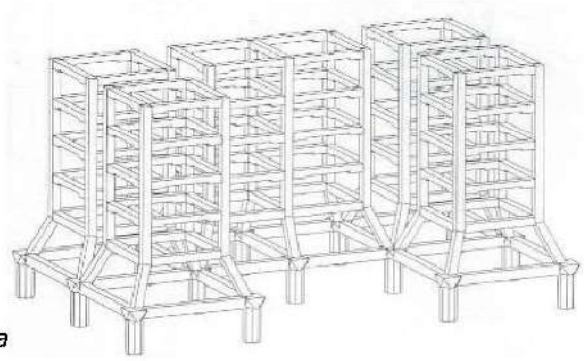
Dutch pavillion Hannover:

Layout possibilities

Also within the same function it is desirable to construct a building in such a way that there is complete freedom when it comes to adaptability. This means that changes in the measurements of the installation and positioning of functional elements are not bound to predetermined positions. In other words: "The increase or reduction in size of a number of apartments on a floor, or the repositioning of sanitary fittings are matters that should be carried out without complications."



Maison Dom-Ino of Le Corbusier



NEXT 21 in Osaka

Integral approach

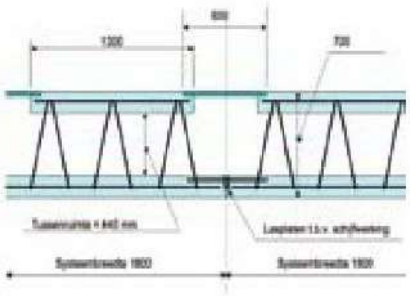
Only when the different disciplines that are involved in a building project with the development of new ideas collaborate, can it be said that there is an integral solution. The desired flexibility of use and functions brings about the need that all technical installation solutions have to be adapted for this. Furthermore it is important not to be dependant on access to other areas when having to make the necessary alterations.
That is why a solution has been chosen by which all the required provisions (water supply, drainage, electricity etc.) are organized and made accessable from out of the floor. Because of this it is not necessary to lower the ceiling, furthermore, both of the two concrete plates can be used as a climate element. By means of such a climate ceiling or floor the interior climate is supported.

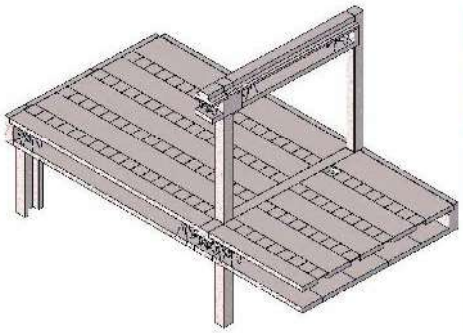
Various parties at the table during the design.

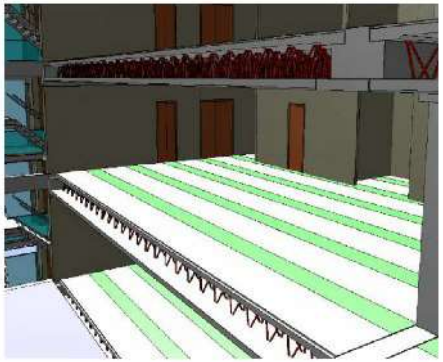
Durability

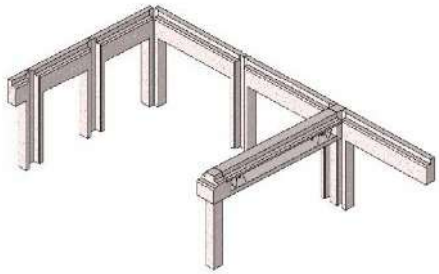
The complete assembly of a building on basis of prefabricated elements, that are dry stacked, creates the possibility that a complete building can be dismantled. Besides making it possible to change functions and rearrange areas, the dismantleability and the possibility of re-use contributes to the durability of the buildings.

Durable (re)use of a building



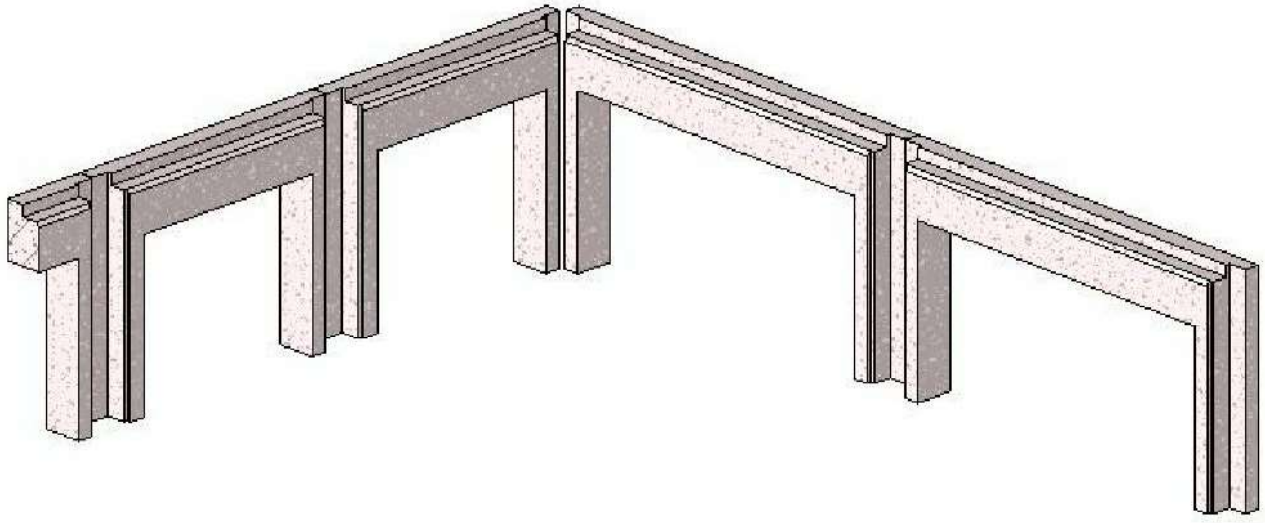


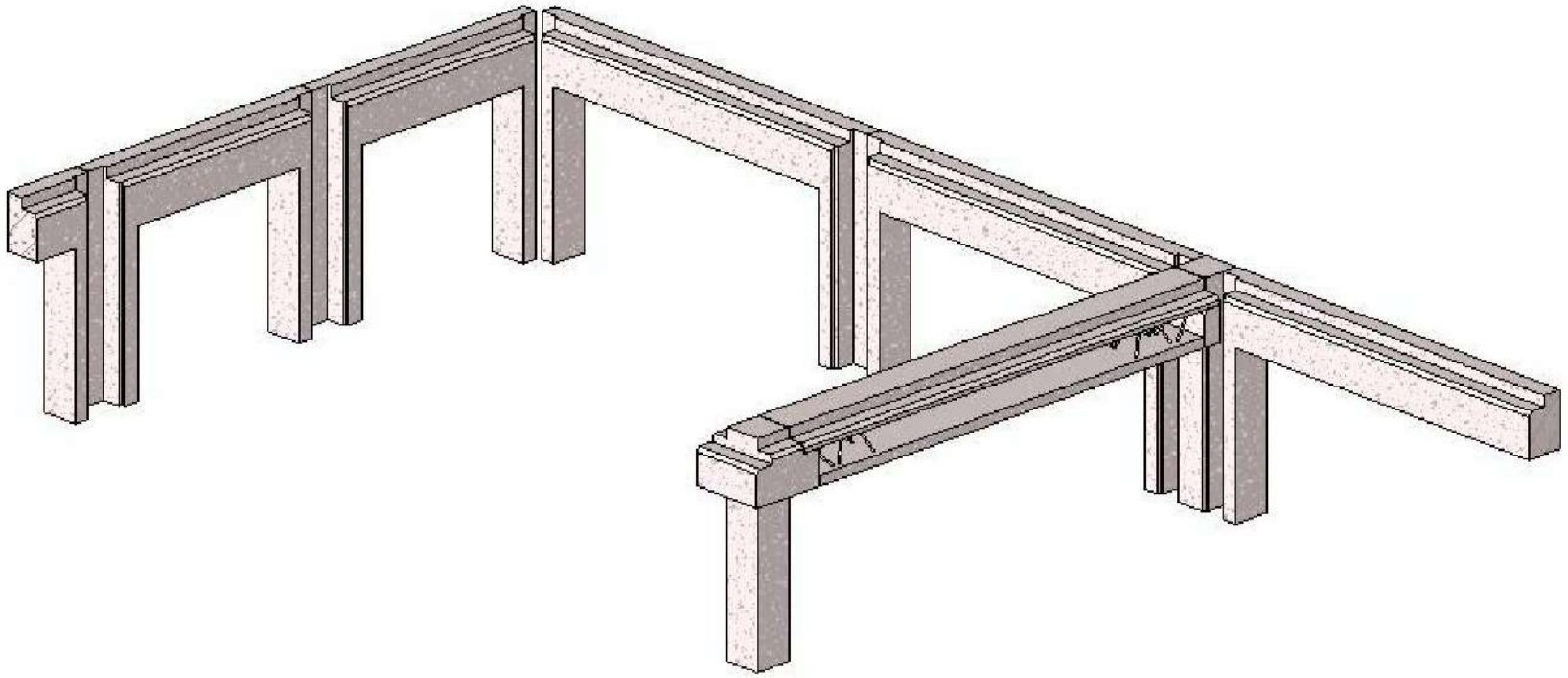




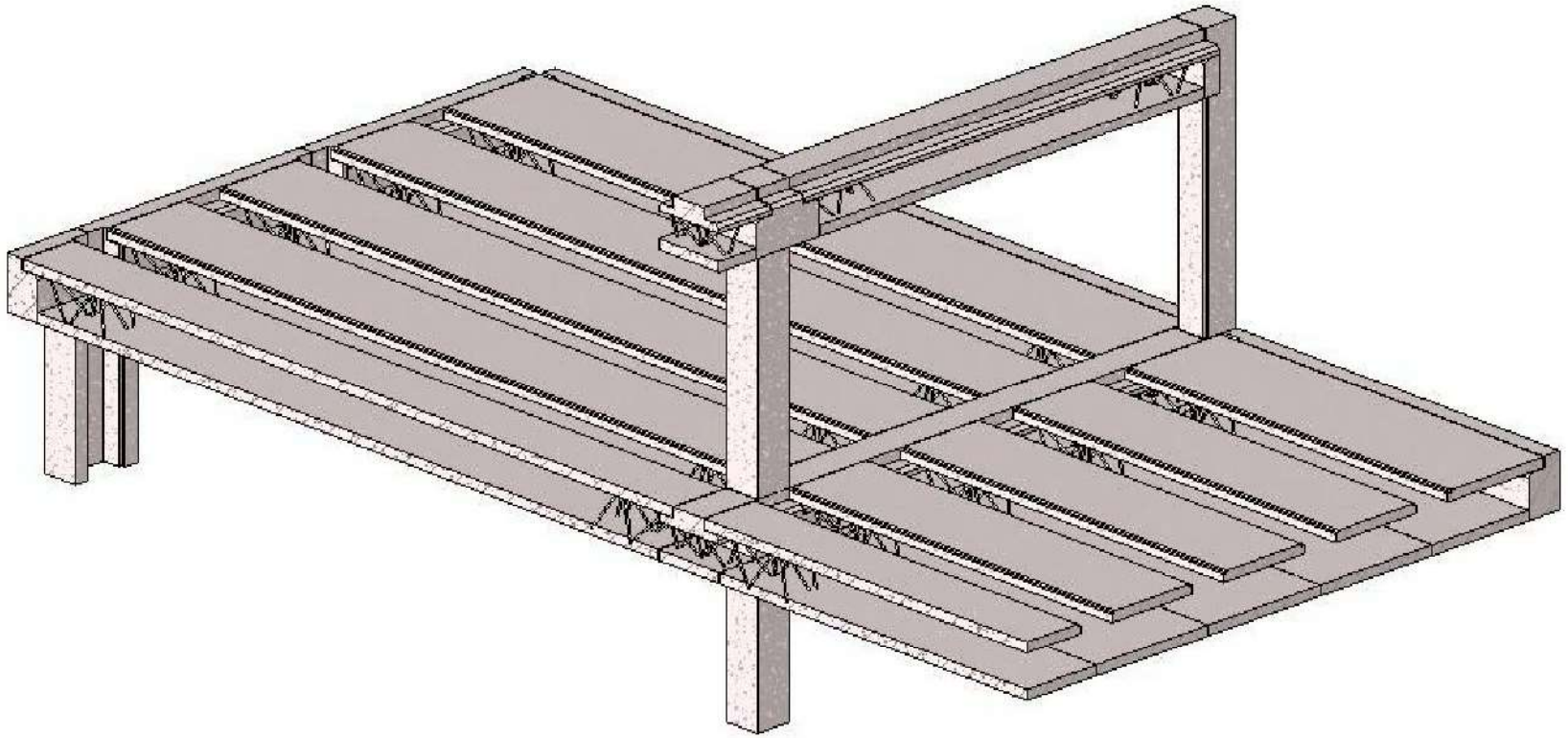
The **HOLCON®** *system*

The assembly of the HOLCON® casco

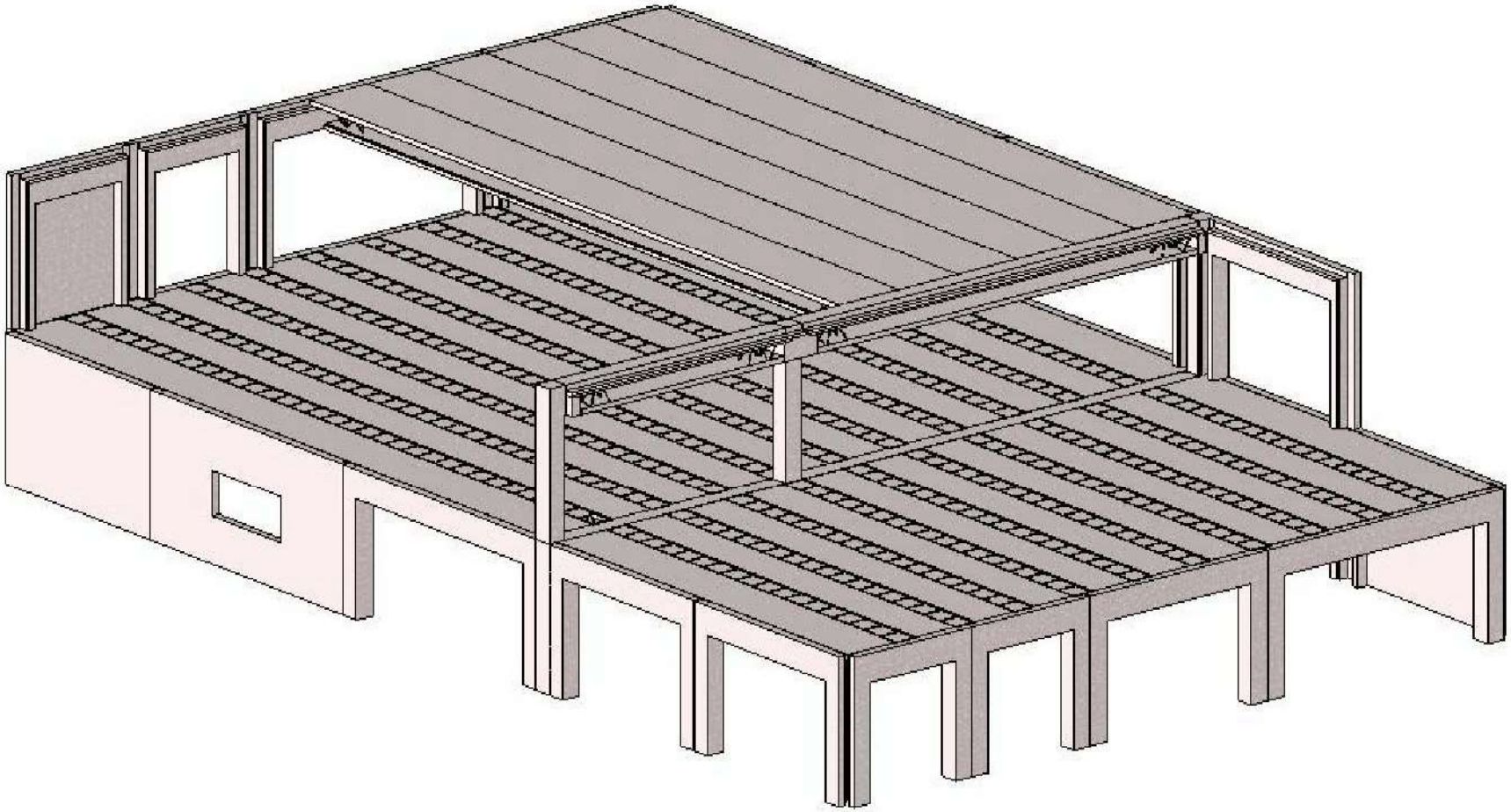


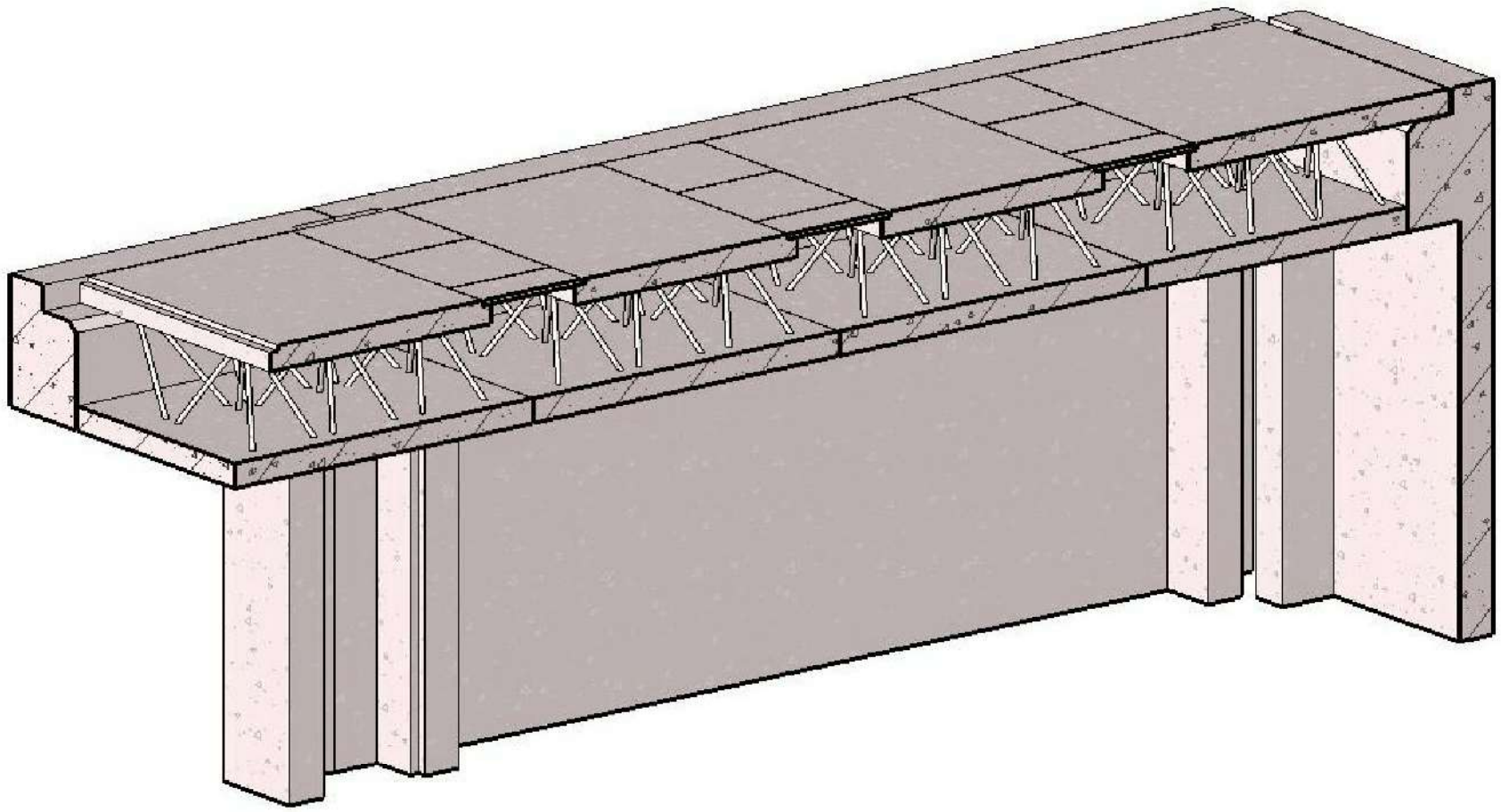


The HOLCON buildingcasco is made up of supporting inner/outer wall elements of concrete between which the special patented floor is layed.

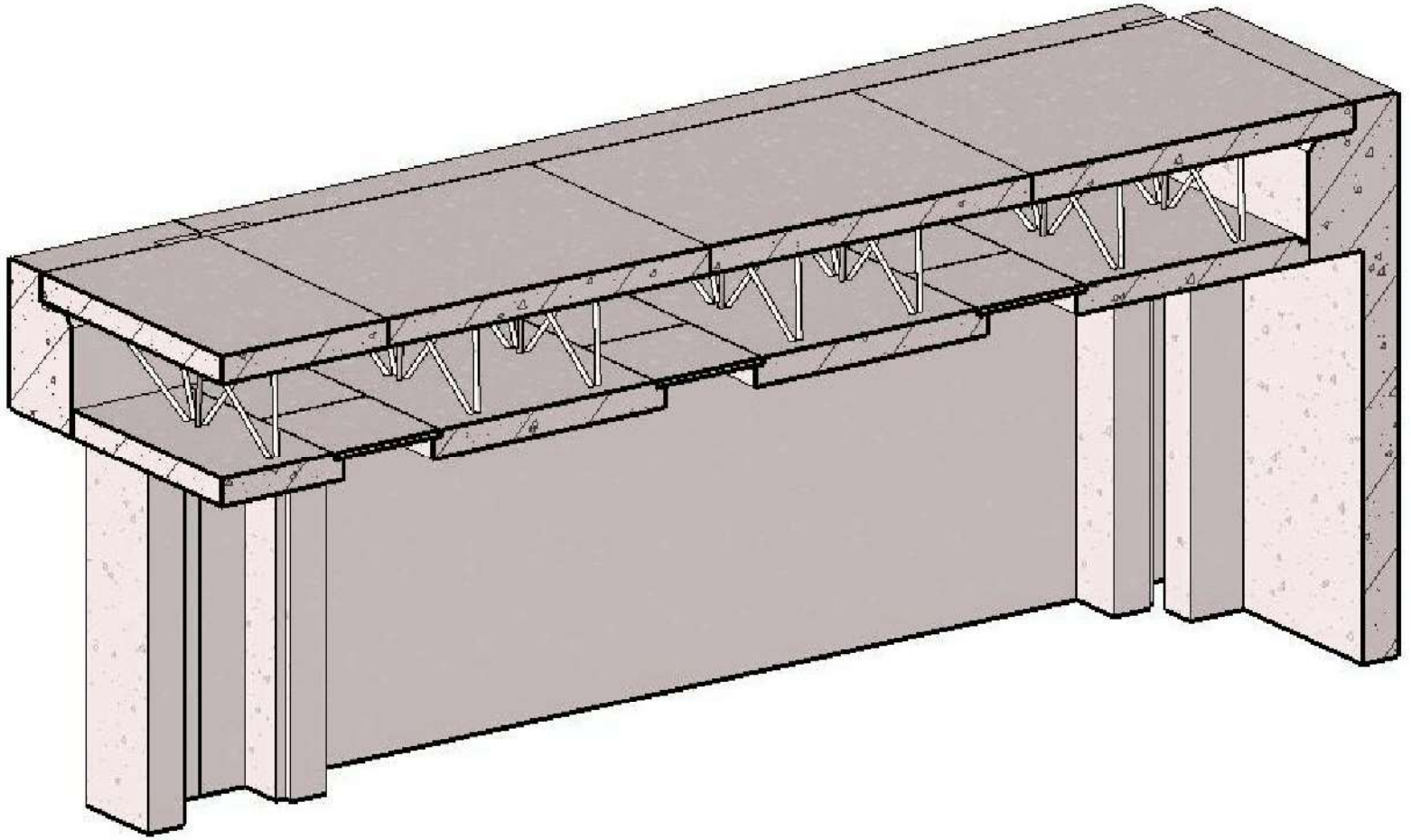


The HOLCON® *wall element is constructed with the beam being integrated in the floor, making it possible for window frames to be placed throughout the whole storey. The wall elements are supplied with integrated upper floor access points.*

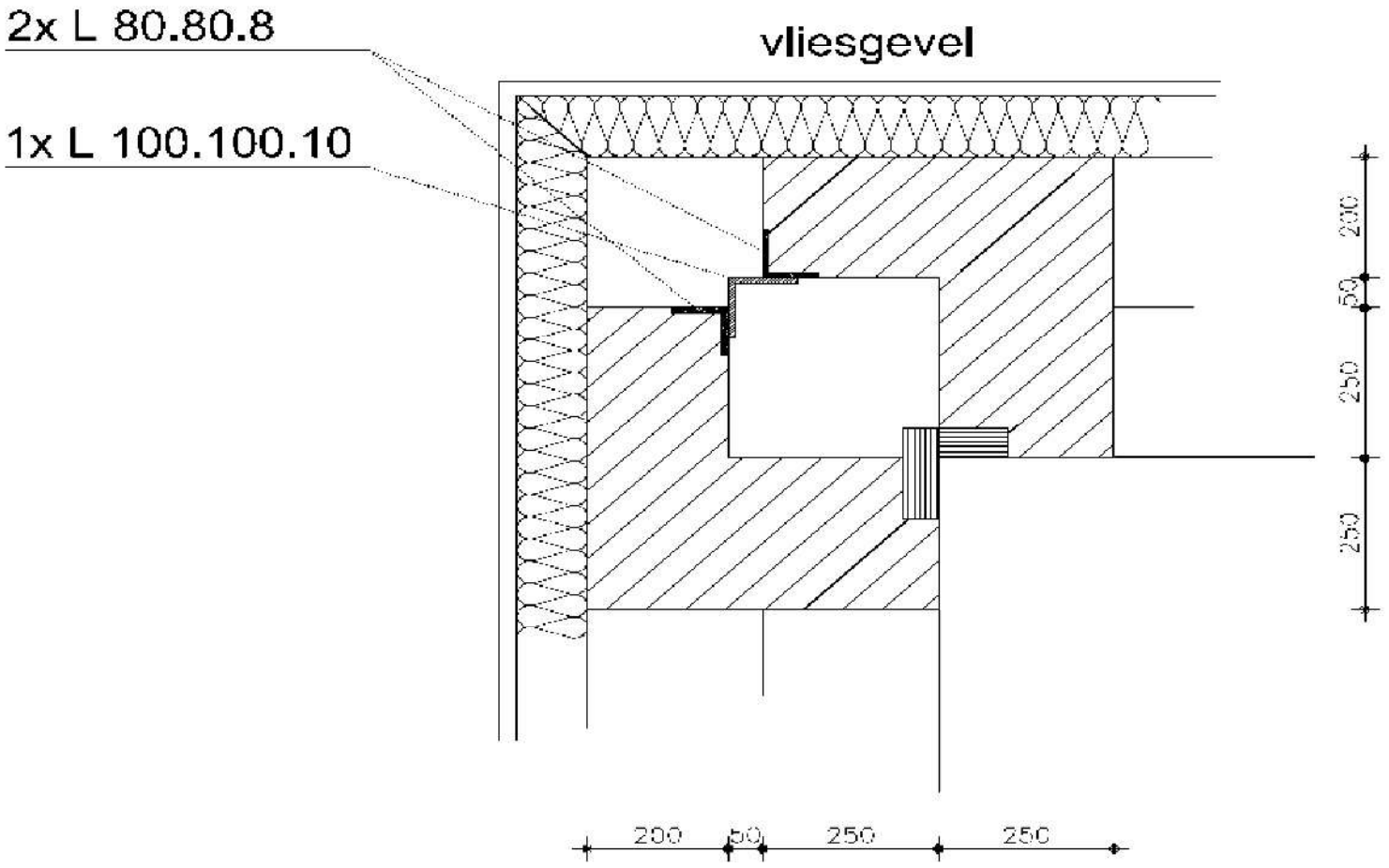




The HOLCON® *floor is made up of a double concrete floor with, in between, two 3 dimensional reinforcements of welded reinforcement steel. Both upper and lower concrete plates are 130 mm thick. The lower plate has been prestressed. The total height is 700 mm. The standard plate length is a multiple of 1800mm. (centre to centre gable/wall portals). The breadth of the lower concrete plate being 1800 mm. And the upper plate being 1300mm.*

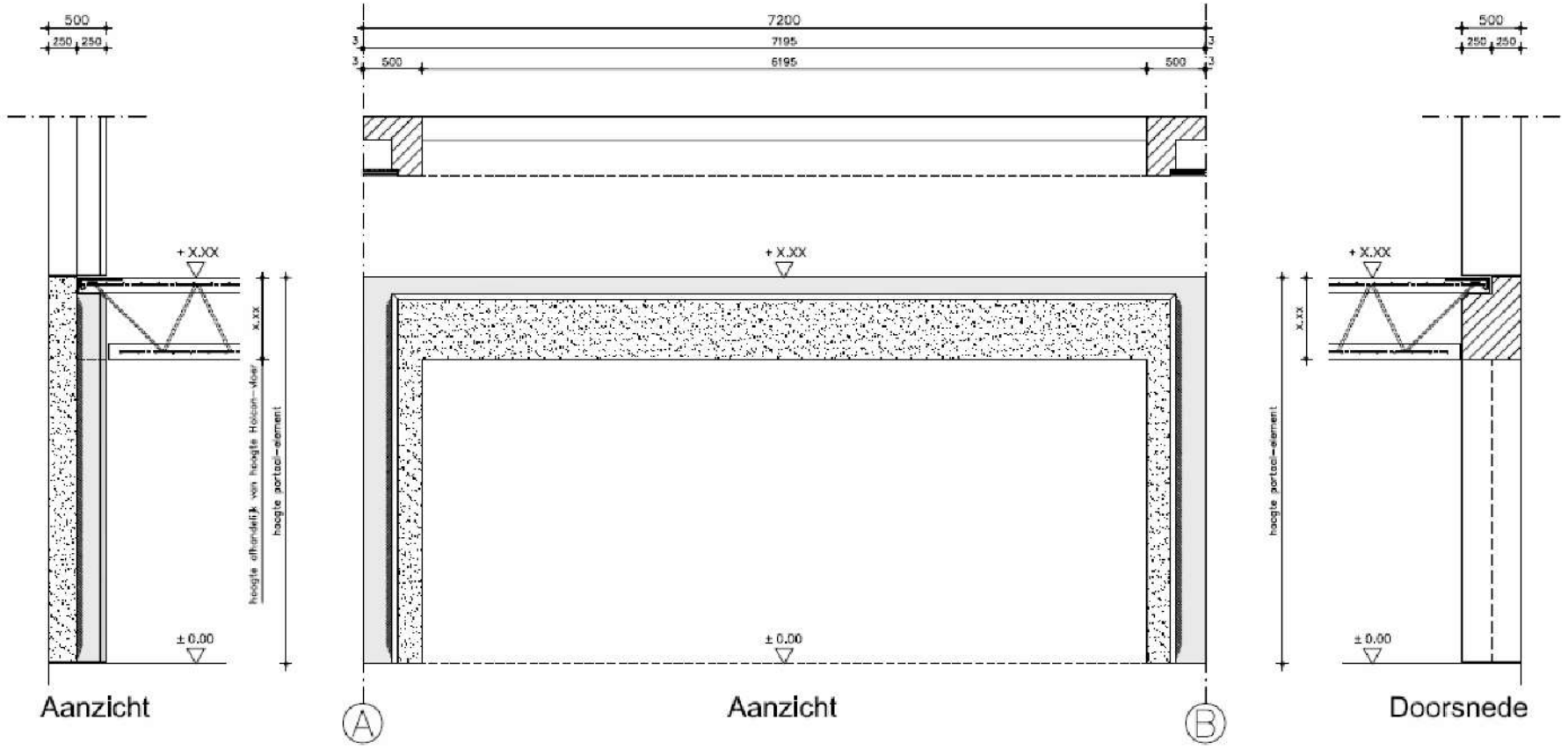


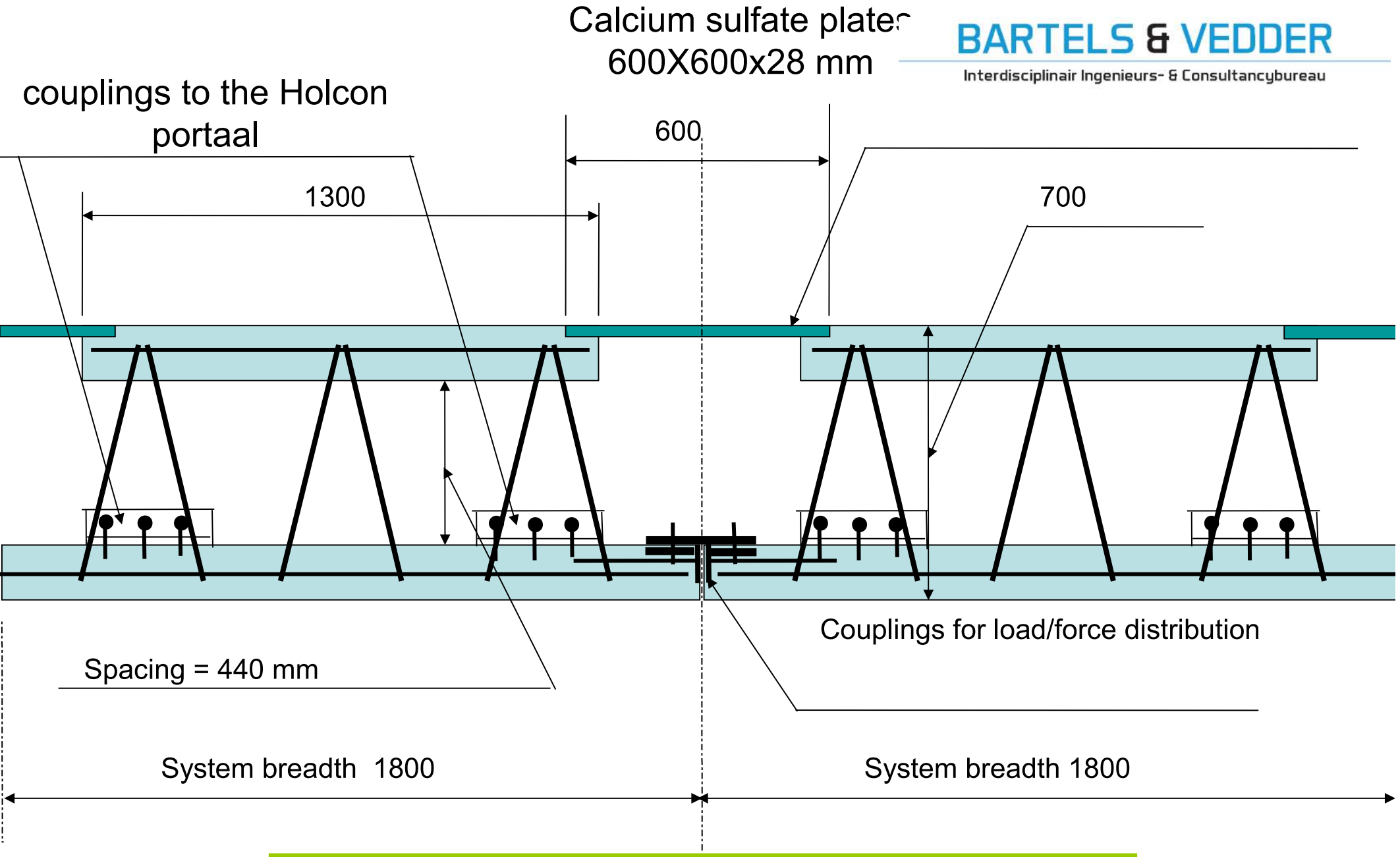
Corner detail portals



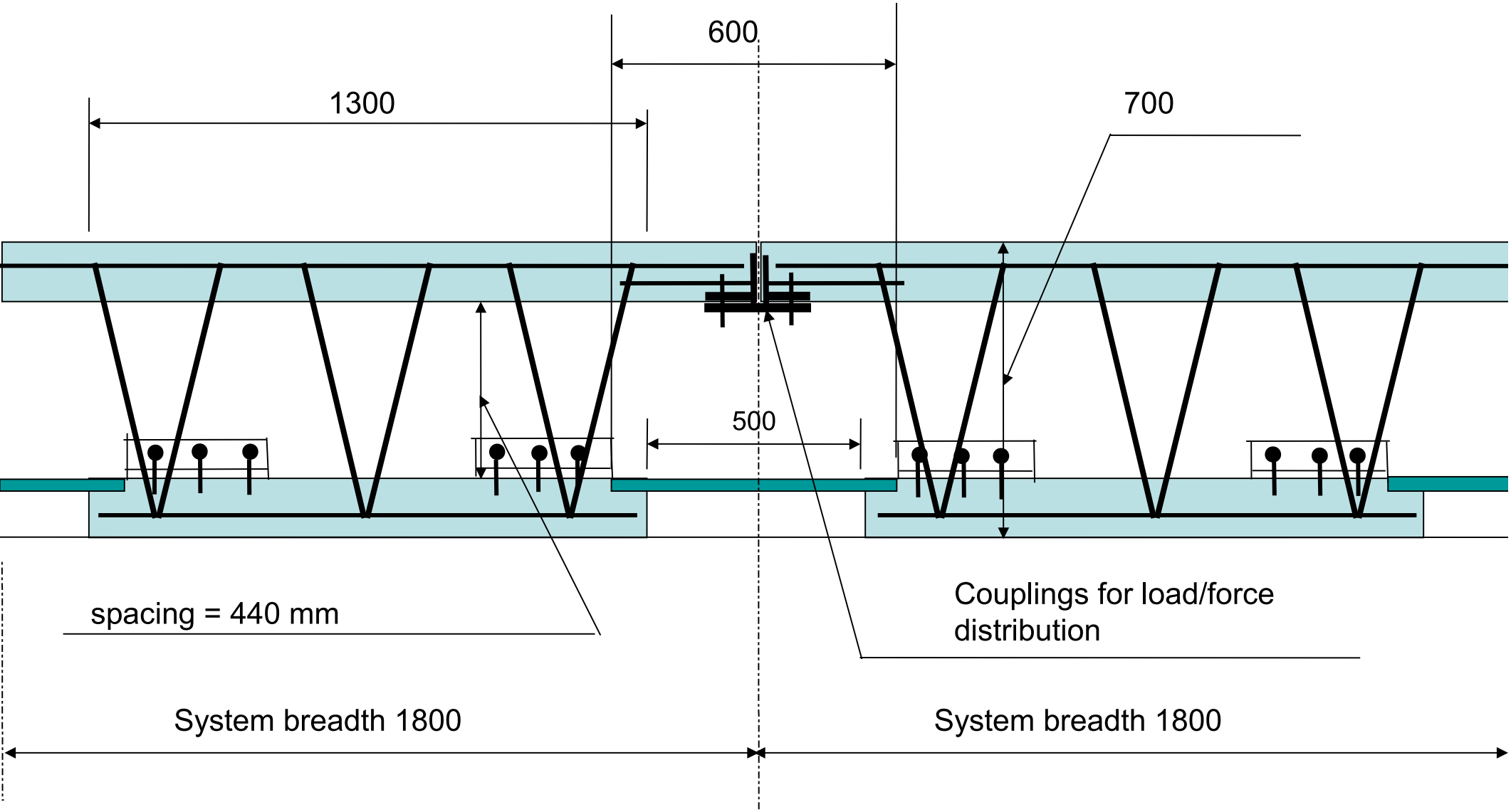
Portal breadth 7200 mm. Height 3600 mm.

HOLCON Portaal (open, type 2.1)

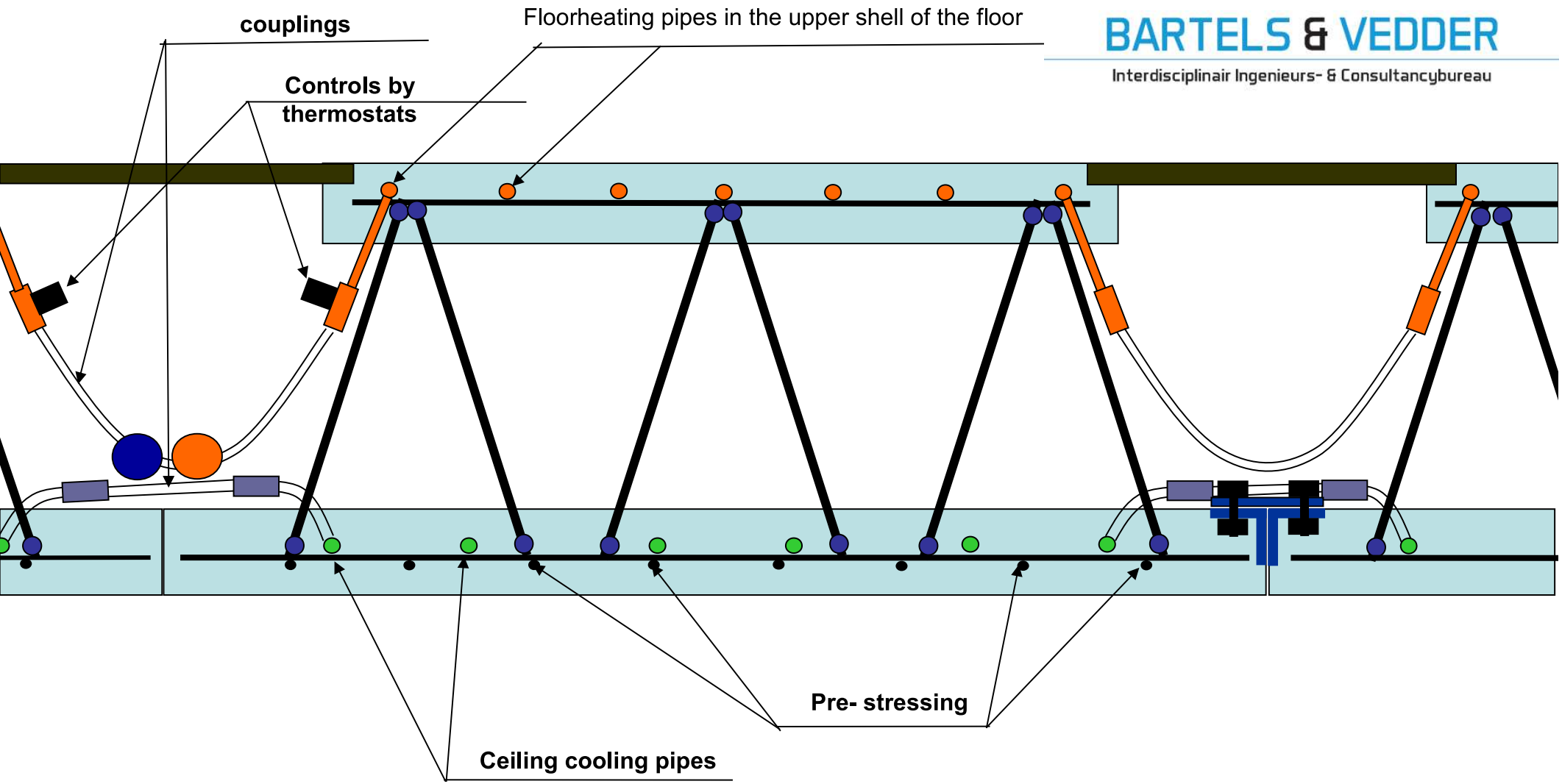




Holconfloor reachable from the top

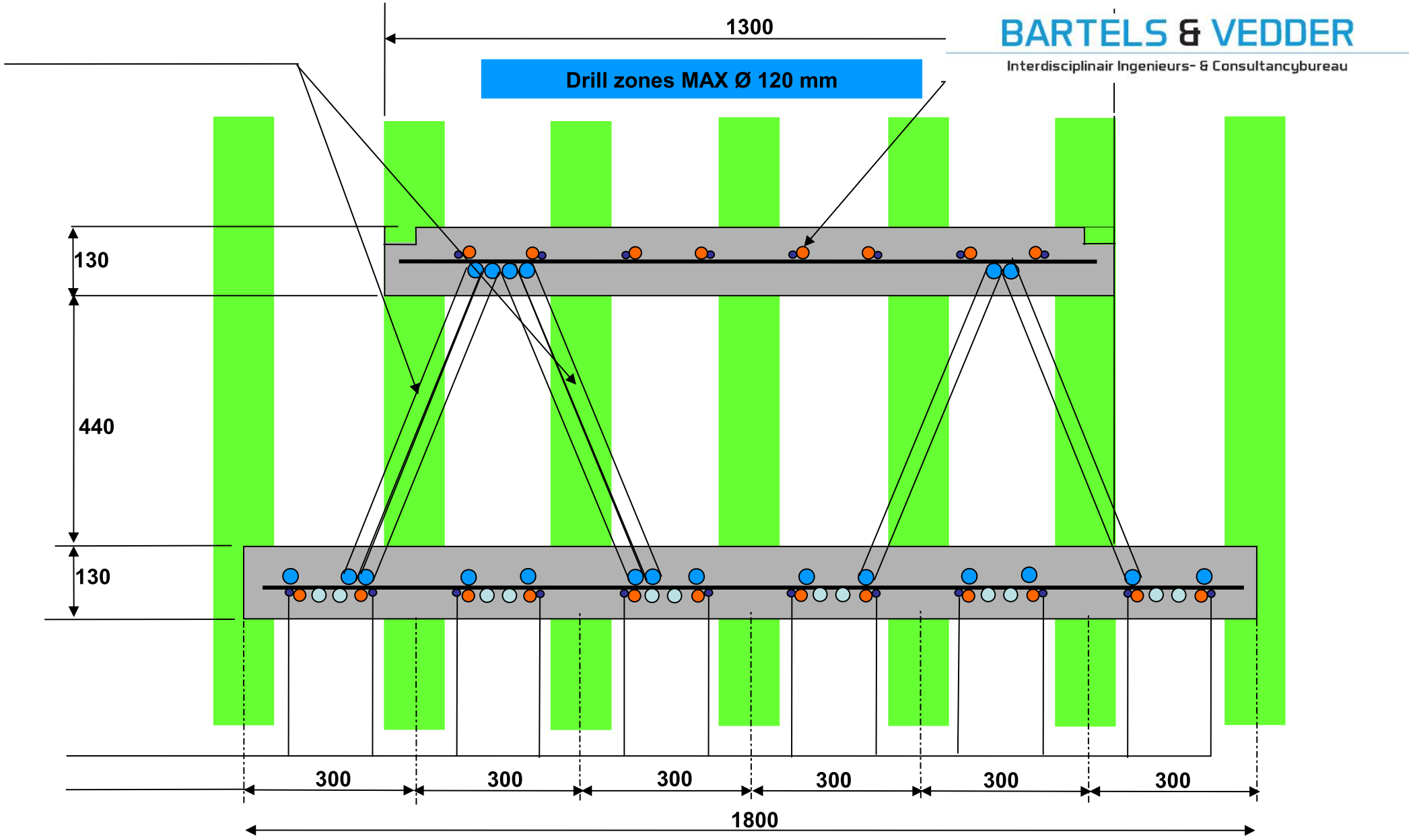


Holcon floor reachable from below



Principles for floor heating and ceiling cooling

Floor heating and ceiling cooling to be installed in the factory


1300
Drill zones MAX Ø 120 mm
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440
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300
300
300
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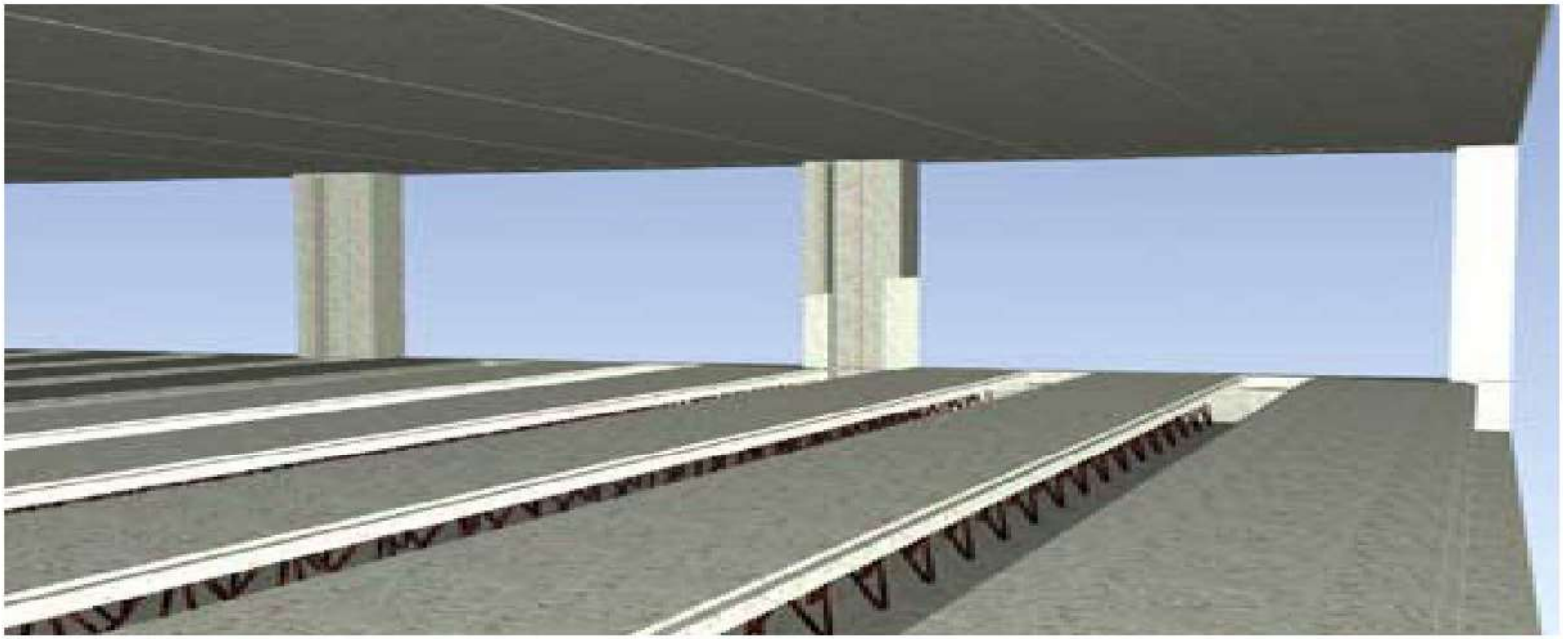
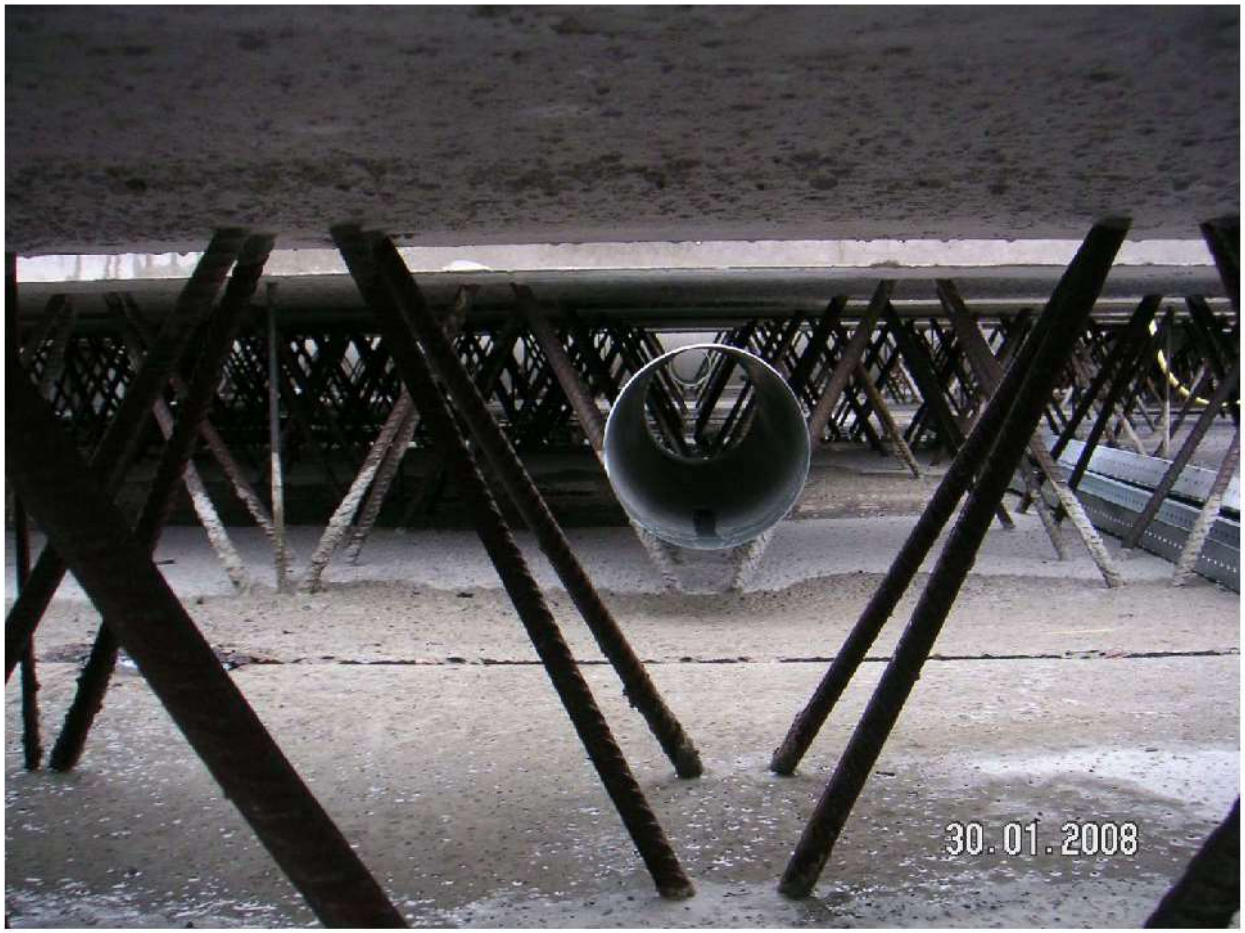
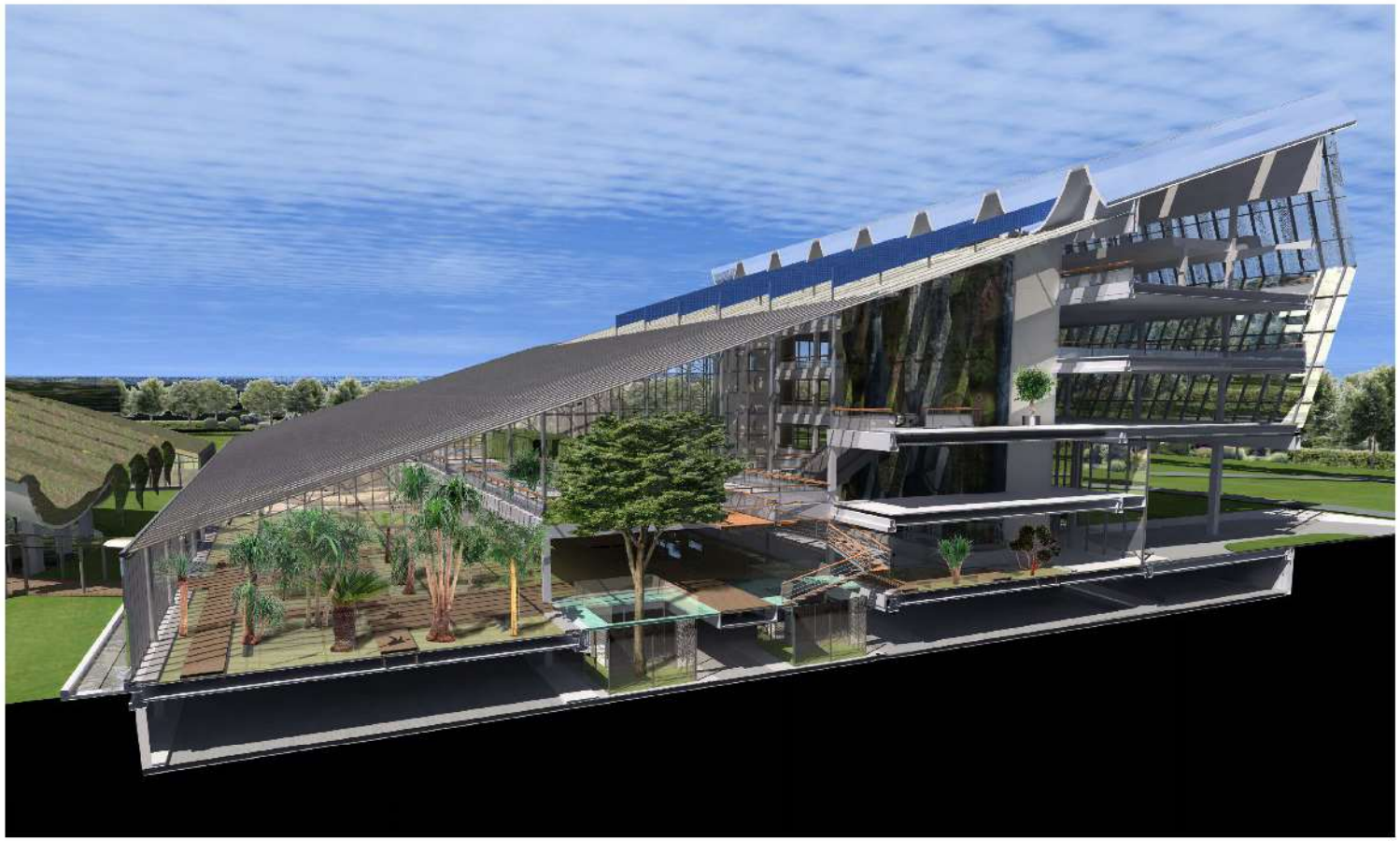
300
300
1800

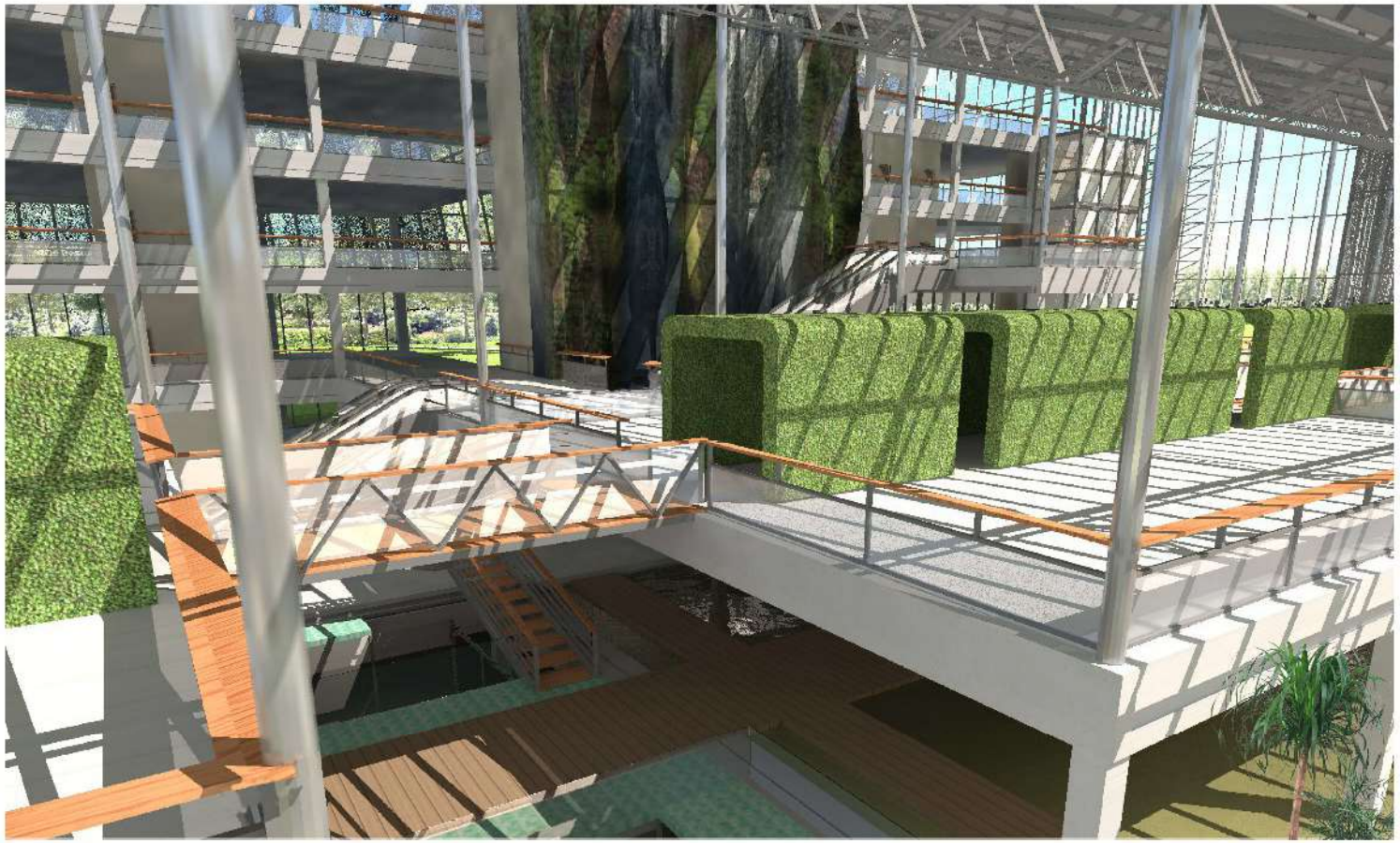





30.01.2008

Examples of projects





Floriade Venlo Portals

Arrival in Venlo the Netherlands harbor from Frankfurt Germany

Portals aligned

Holcon floor weights 12.000 kg

Concrete core activation can be seen here

Soffit of the floor is the soffit of the beams

Photo Holcon system in Villa Flora Venlo

Photo Holcon system in Villa Flora Venlo

Photo Holcon system in Villa Flora Venlo

Photo of installations in Holcon system in Villa Flora Venlo

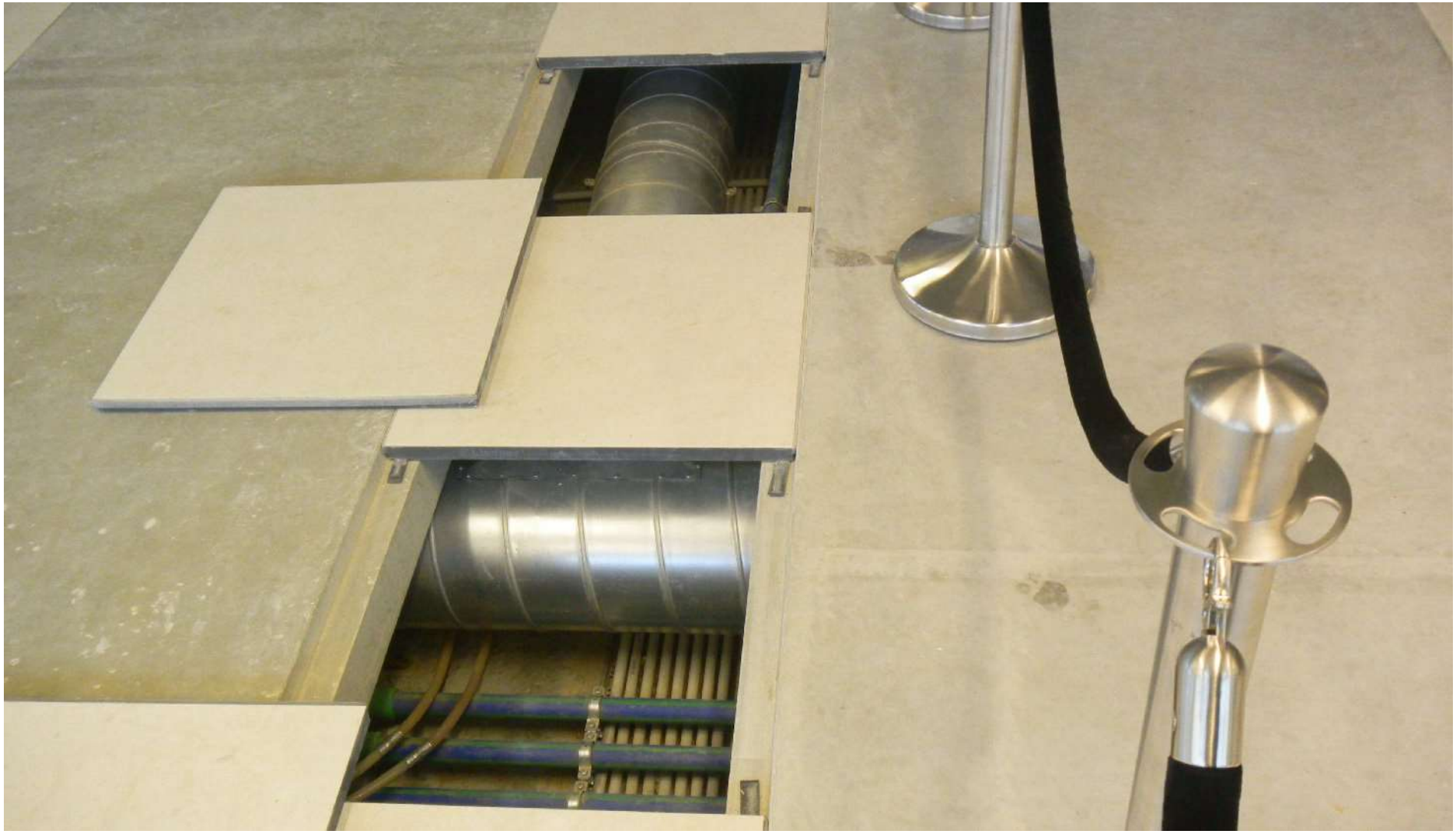


Photo Holcon floors with retainer plates in Villa Flora Venlo

BARTELS & VEDDER
Interdisciplinair Ingenieurs- & Consultancybureau

Foto HOLCON system in Villa Flora, Venlo the Netherlands

IAA ARCHITECTEN | CONCEPTEN, HOLCON BOUWSYSTEEM | 03.03.2009

IMPRESSIE
GEVELBEELD

CONCEPT LOW BUDGET HOTEL A&B


Definitief Ontwerp
Werken op Land VU
Amsterdam
van Mourik architecten
BK BOUW
W1187 27.03.2009

Design vision

Building system

Within the starting points of the preliminary-design of Op ten Noort Blijdenstein architects and advisors sought for possibilities to work out the design into a building system that would have the following qualities:

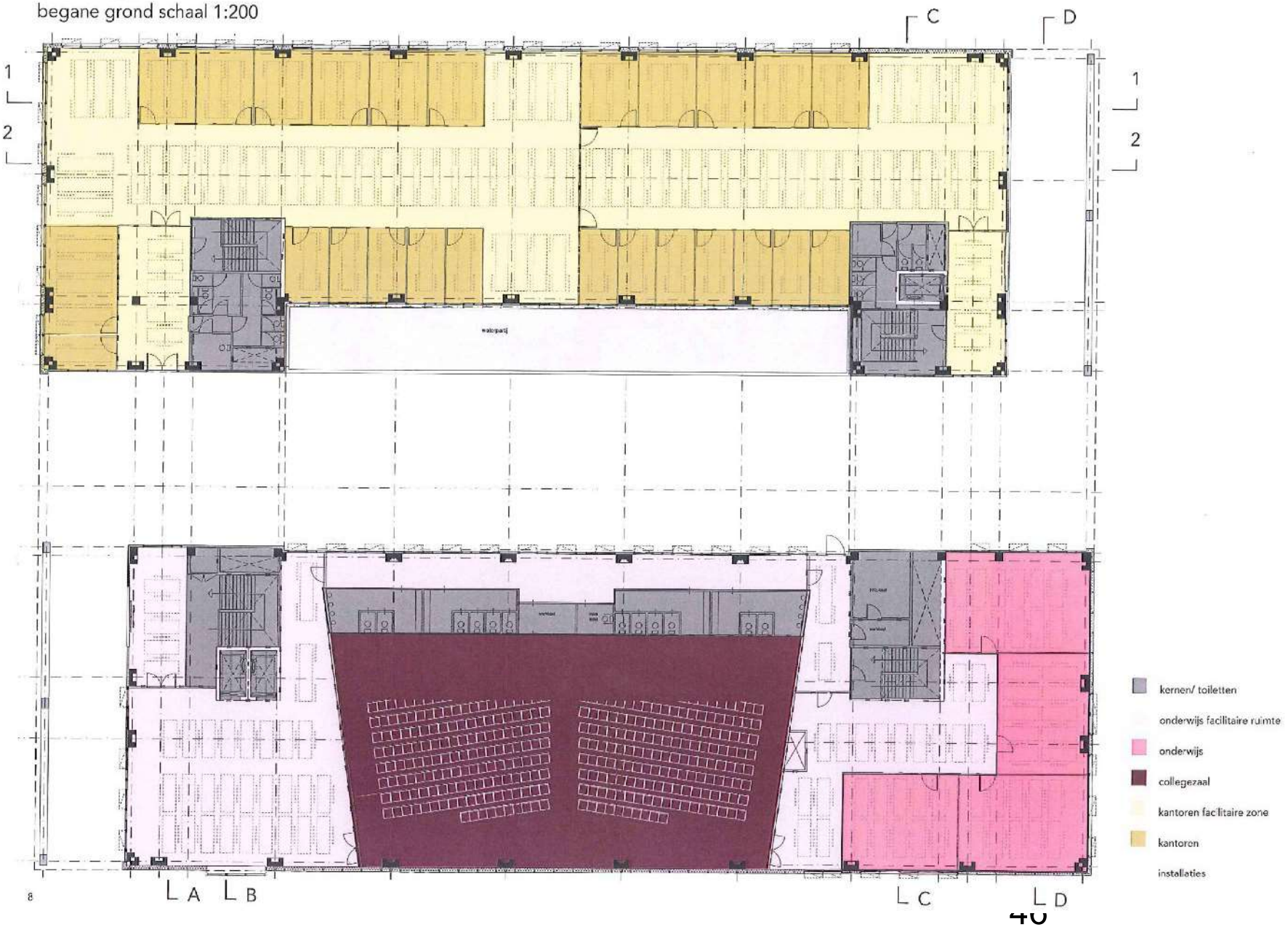
- *Competitive building in an economical sense*
- *Setting up a building in a very short time*
- *The carcass must have a high quality finish so that only the bare necessities are needed for the completion*
- *The proposed functionality in the preliminary design may not be obstructed*
- *The flexibility in the preparatory phase specially in the layout variations and after realization the possibility of changes of layout must be as easy as possible*
- *The building system, qua durability, must be in conformity to the intended limited user period and therefore dismantleable for reuse*

The proposed Holcon prefab concrete system offers attractive possibilities with the above criteria.

- The Holcon system competes with the building method proposed by Op ten Noort Blijdensteijn by using channel plates and supporting prefab façade elements.
- The whole plan is built with standard Holcon prefab elements, these are produced using existing standard molds, and can be delivered at very short notice. The Holcon system is based on dry concrete connections, this makes the carcass assembly very fast. Stability is secured by "on site" welding of the connections on the prefab elements and later ground off for dismantling.
- With the construction of the floor elements, both upper and lower floor plates, when they come out of the mold, are optimally flat and smooth on both sides and time consuming covering is not necessary. The integrated system of hollow columns and hollow floors cuts out the need for channels and jamb forms in the interior walls and therefore is completely independent of installations and/or fixtures.
- Because Holcon floors have a pipe system in zones for cooling or heating, it is possible, when reorganizing the spaces or areas, easy to adapt the underfloor heating/cooling system to the area and to set the adjustment mechanism/thermostat accordingly.
- The Holcon system makes large spans possible, like the sought-after 18 meter span which can be done without support columns. The Holcon system has floor elements 1,80 meters wide and a 1,80 meter module. The column structure is drawn to 7,20 meters and 3,60 meters, so that the proposed 1,20 meter inner wall module size is maintained.
- The areas without columns, the smooth /uniform concrete ceilings and double floor joined to the hollow columns provide unobstructed possibilities for the positioning of inner walls and bringing in channels tubes and pipes for installations. This also applies for changes after realization.
- Because the carcass is built with standard Holcon elements that have dry connections all the elements can be reused after dismantling.

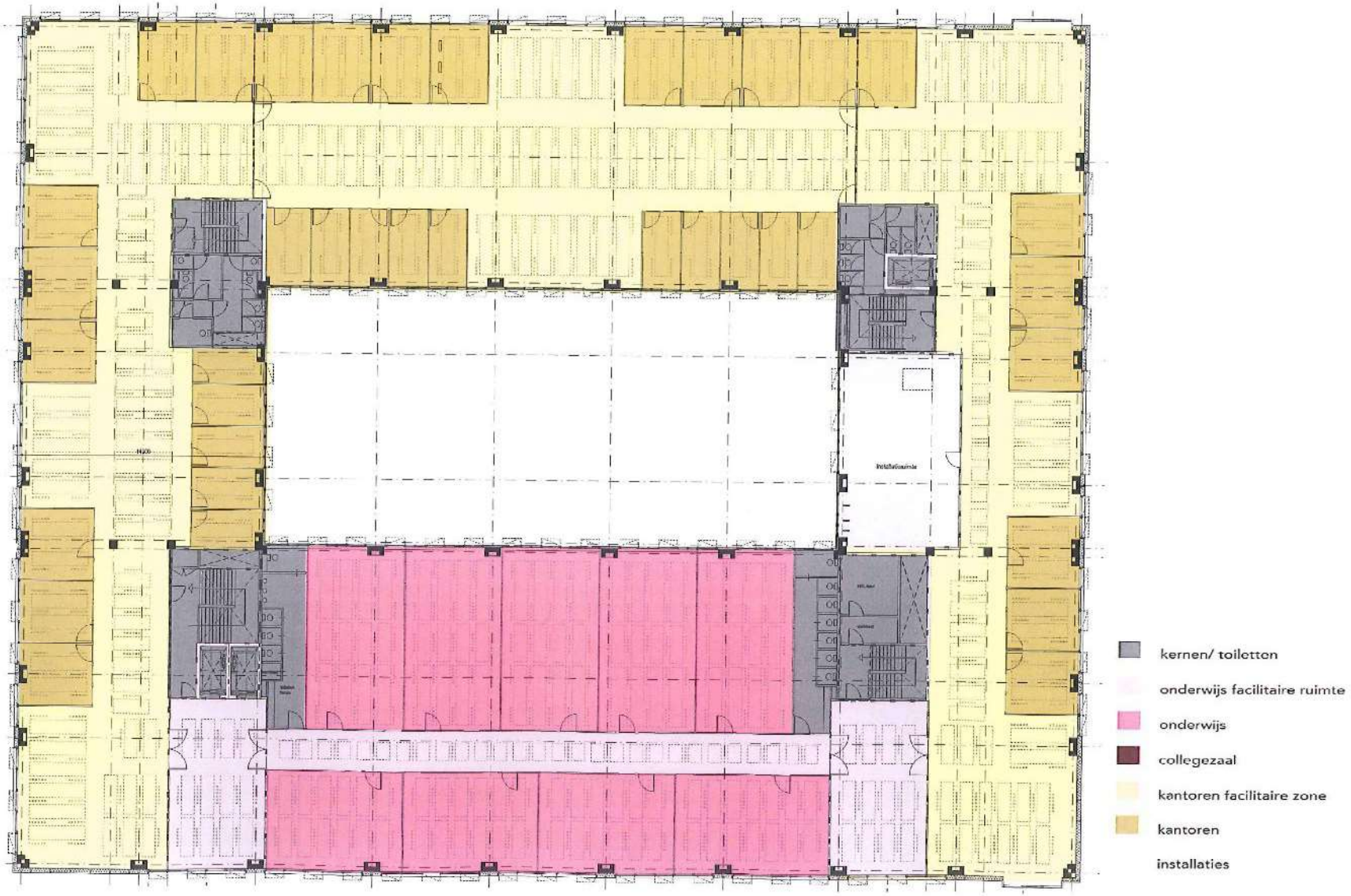
plattegronden

begane grond schaal 1:200

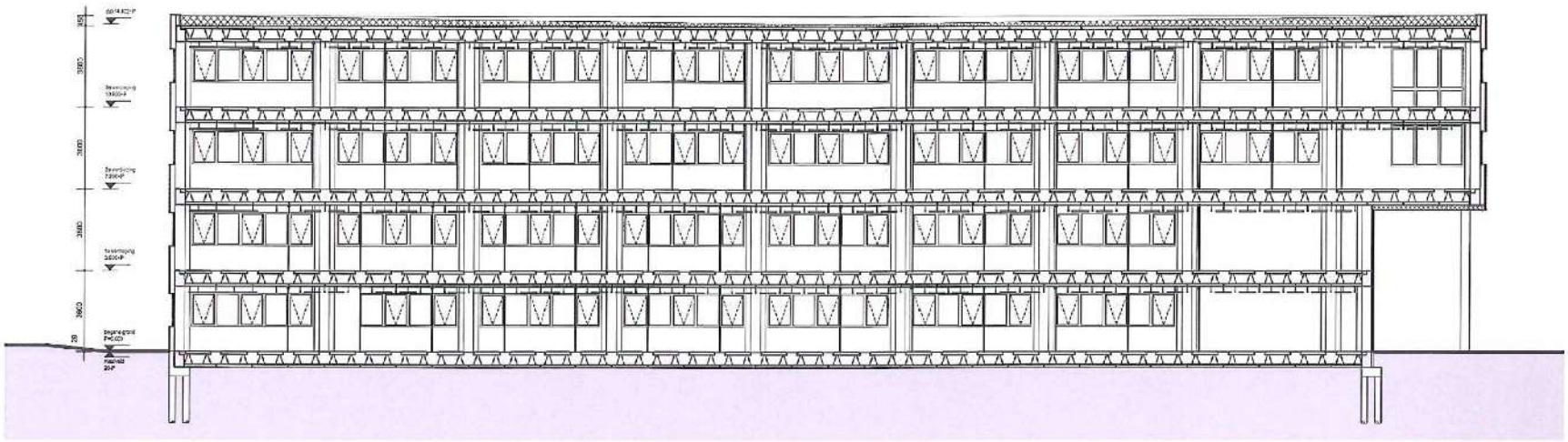


plattegronden

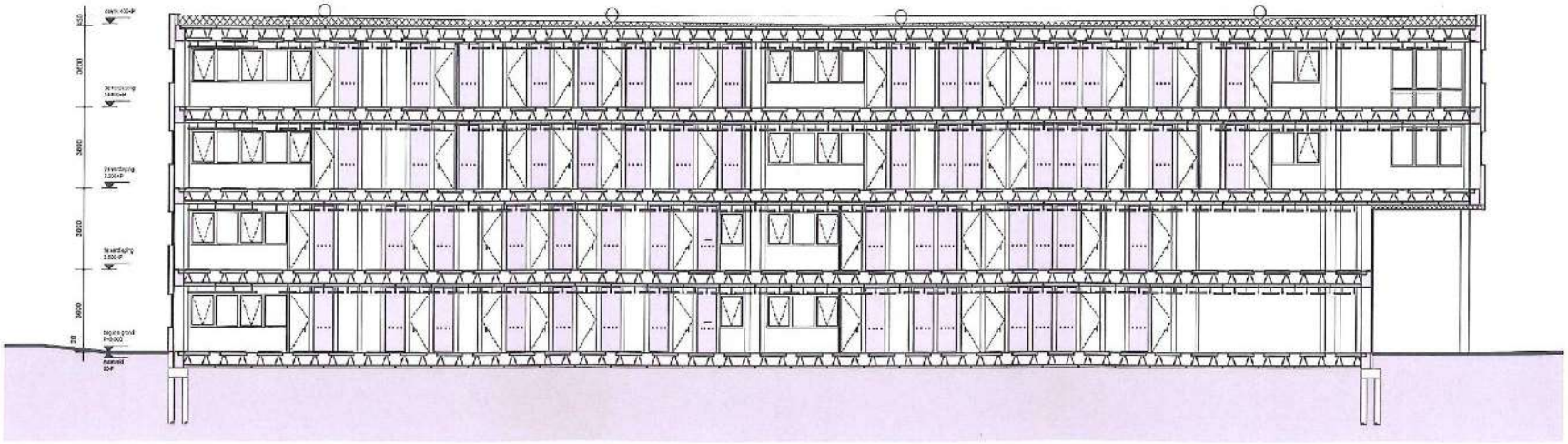
3e verdieping schaal 1:200



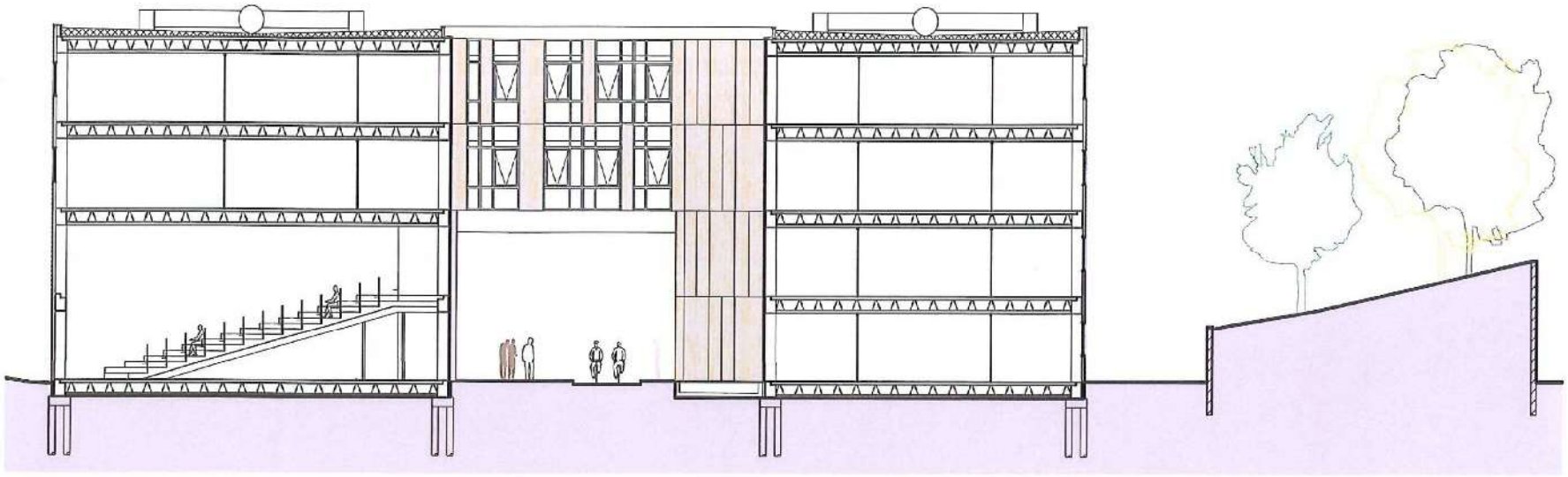
doorsneden



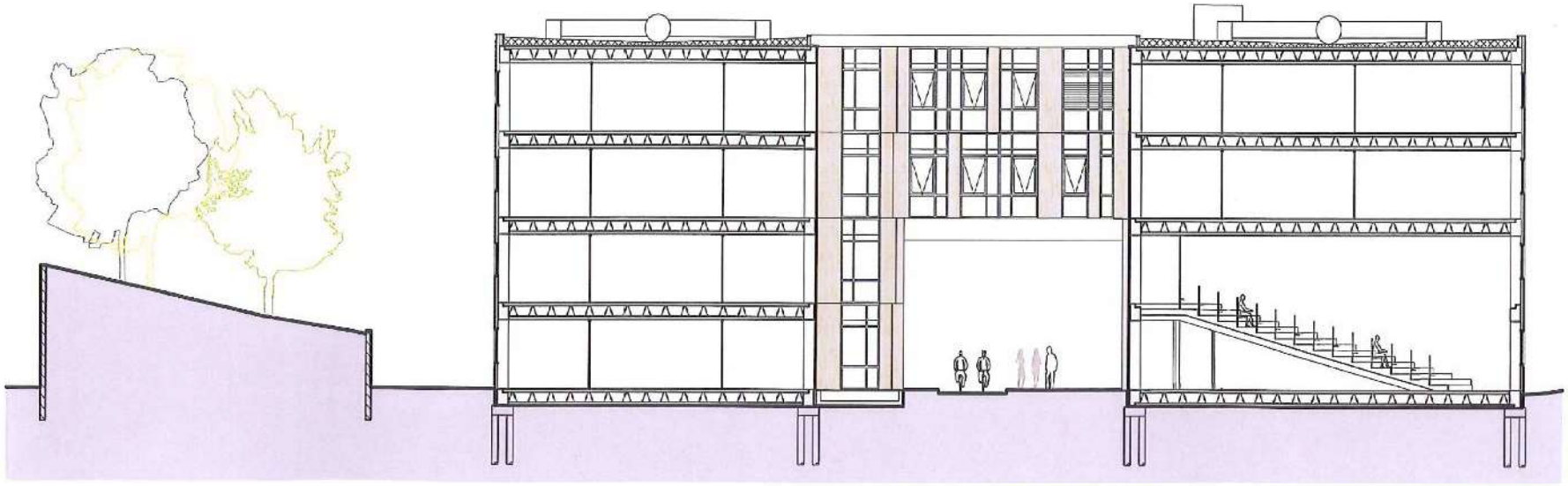
doorsnede 1



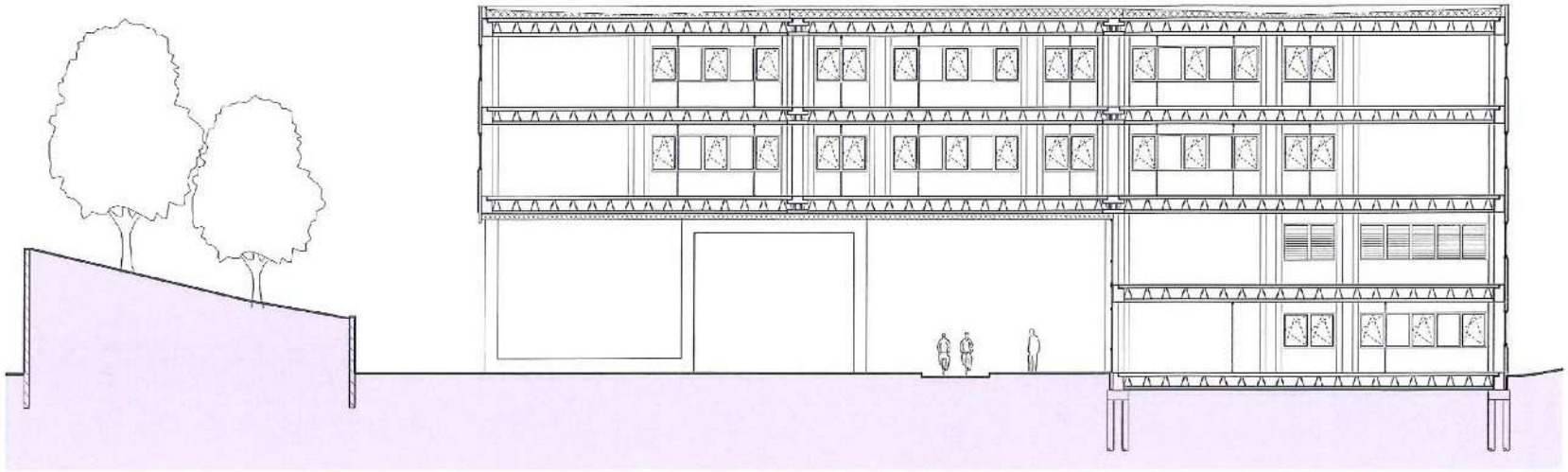
doorsnede 2



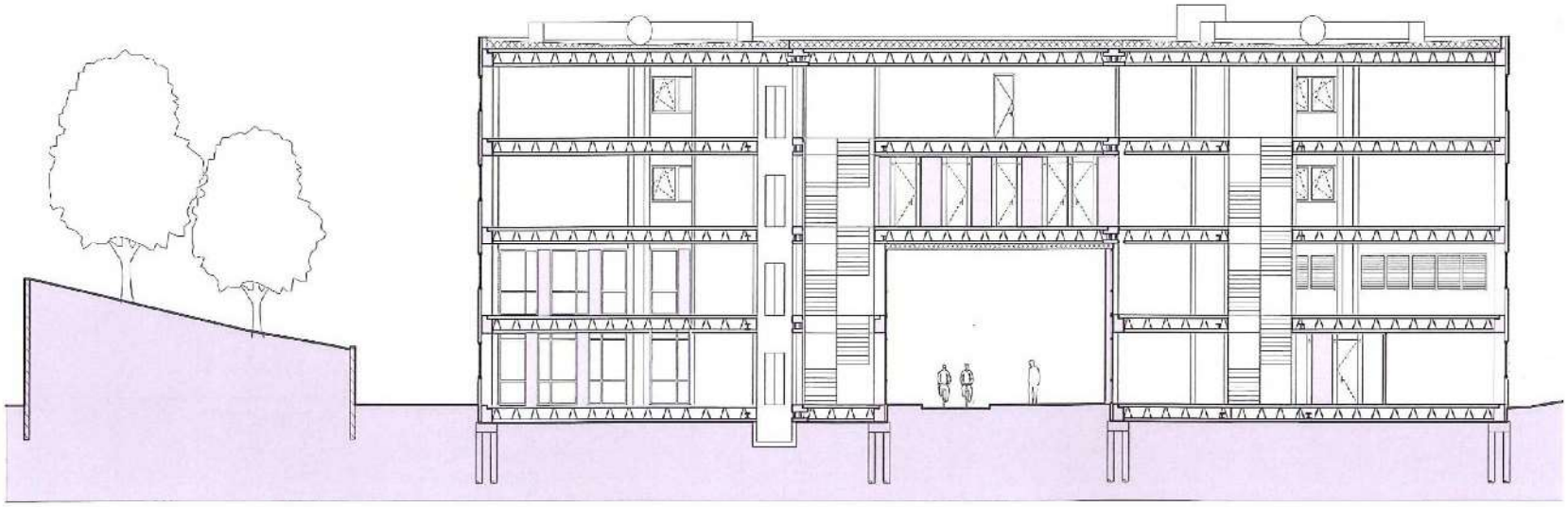
aanzicht oost



aanzicht west



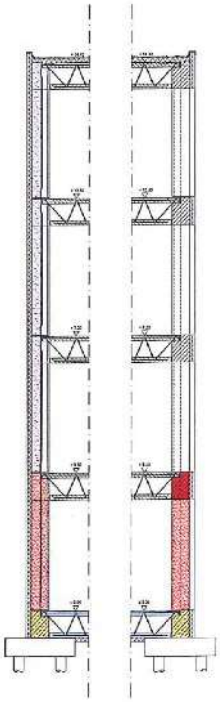
doorsnede D



doorsnede C

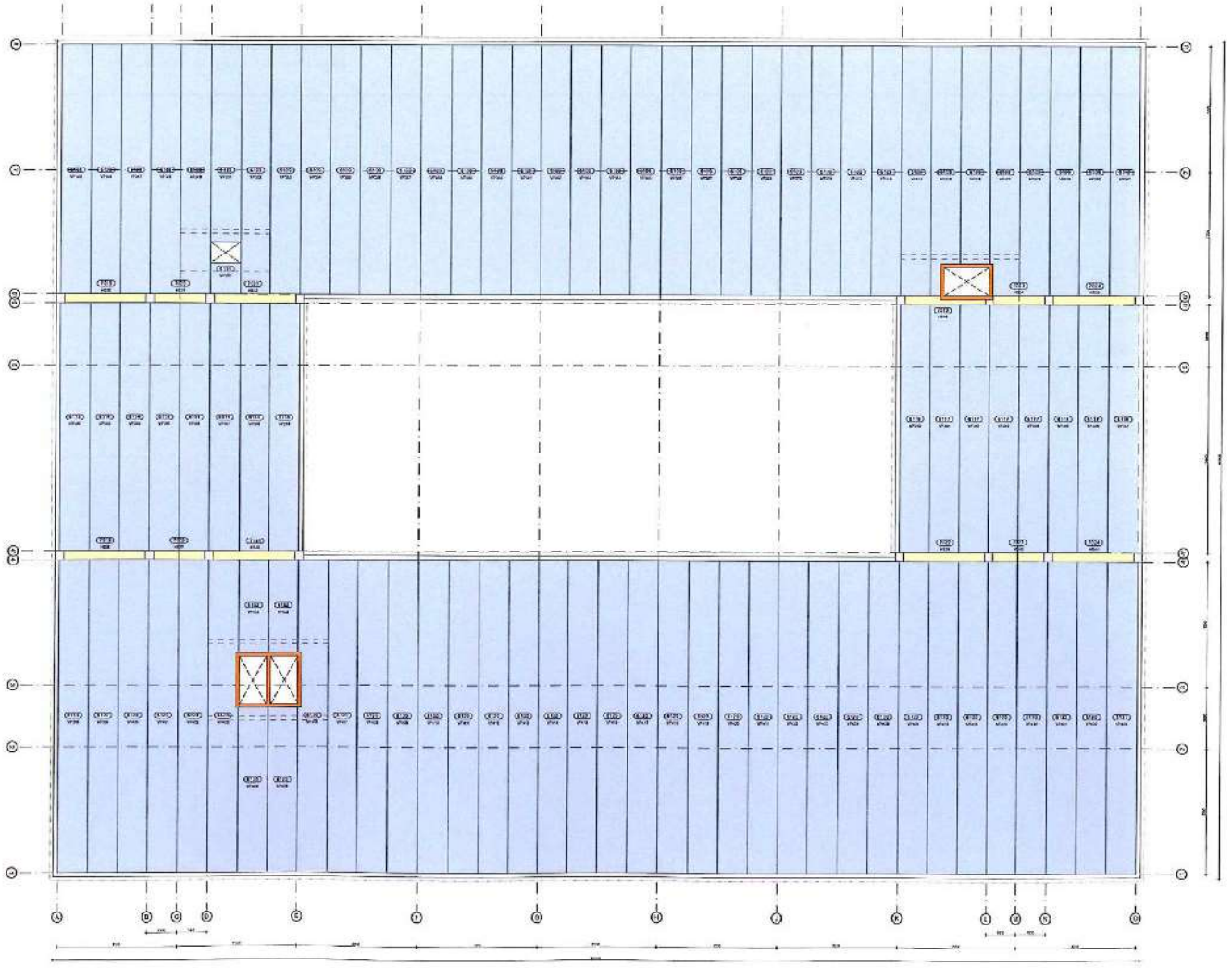
constructieprincipe

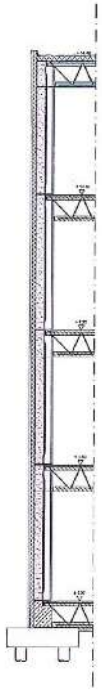
holcon, funderingsplan

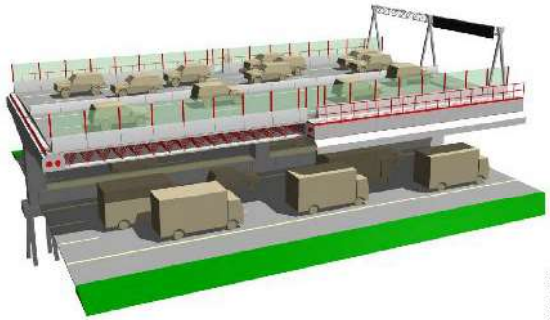


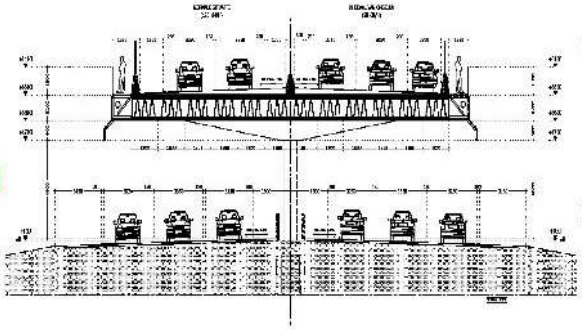
constructieprincipe

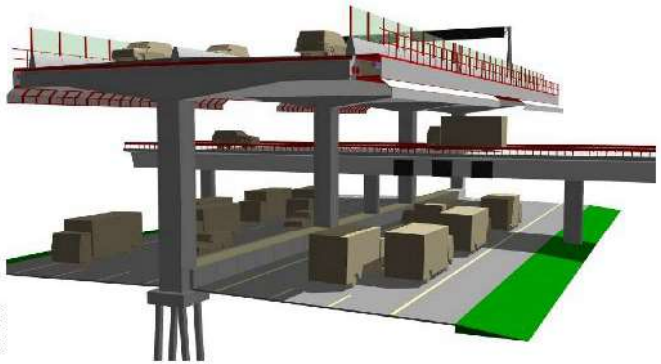
holcon, dak



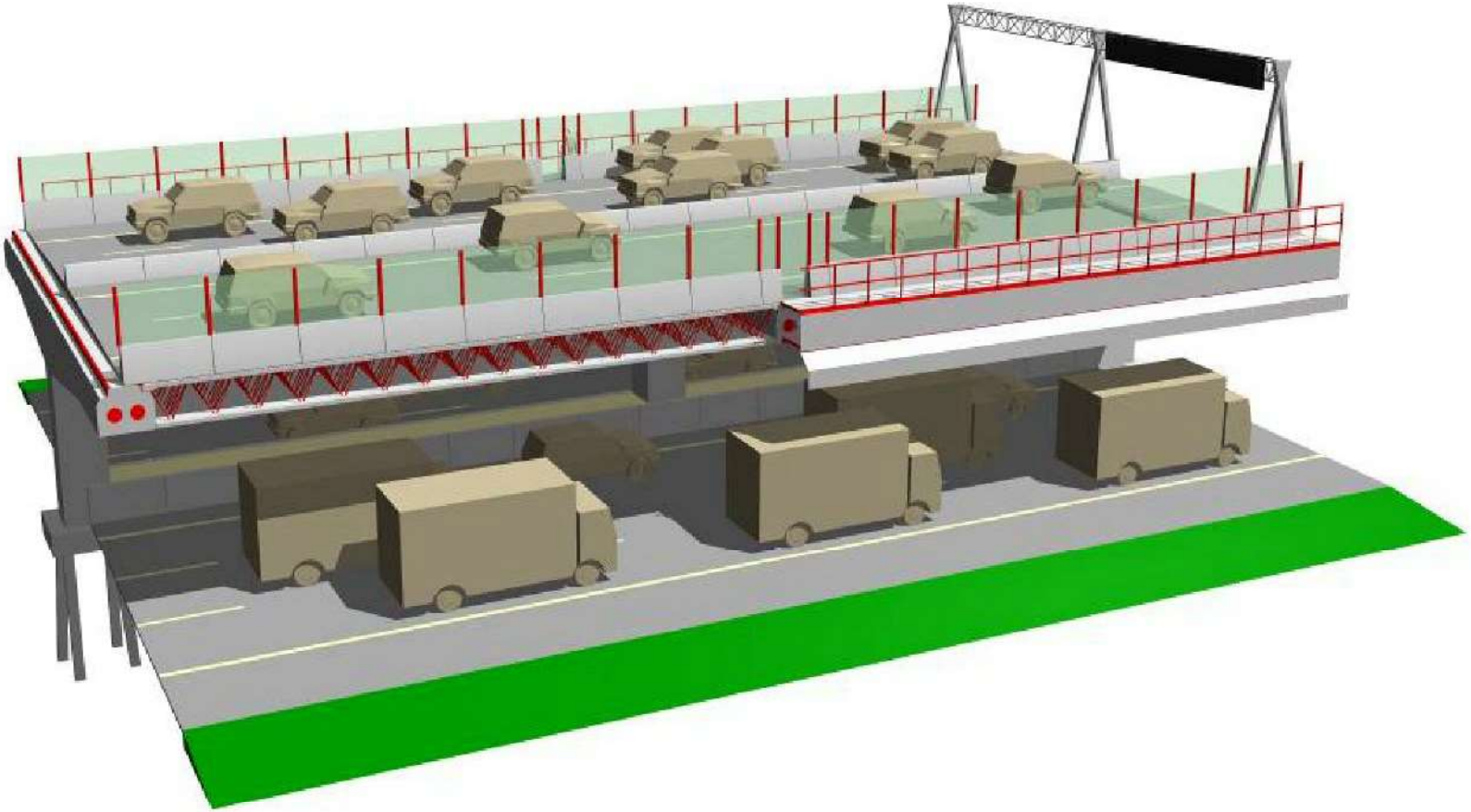




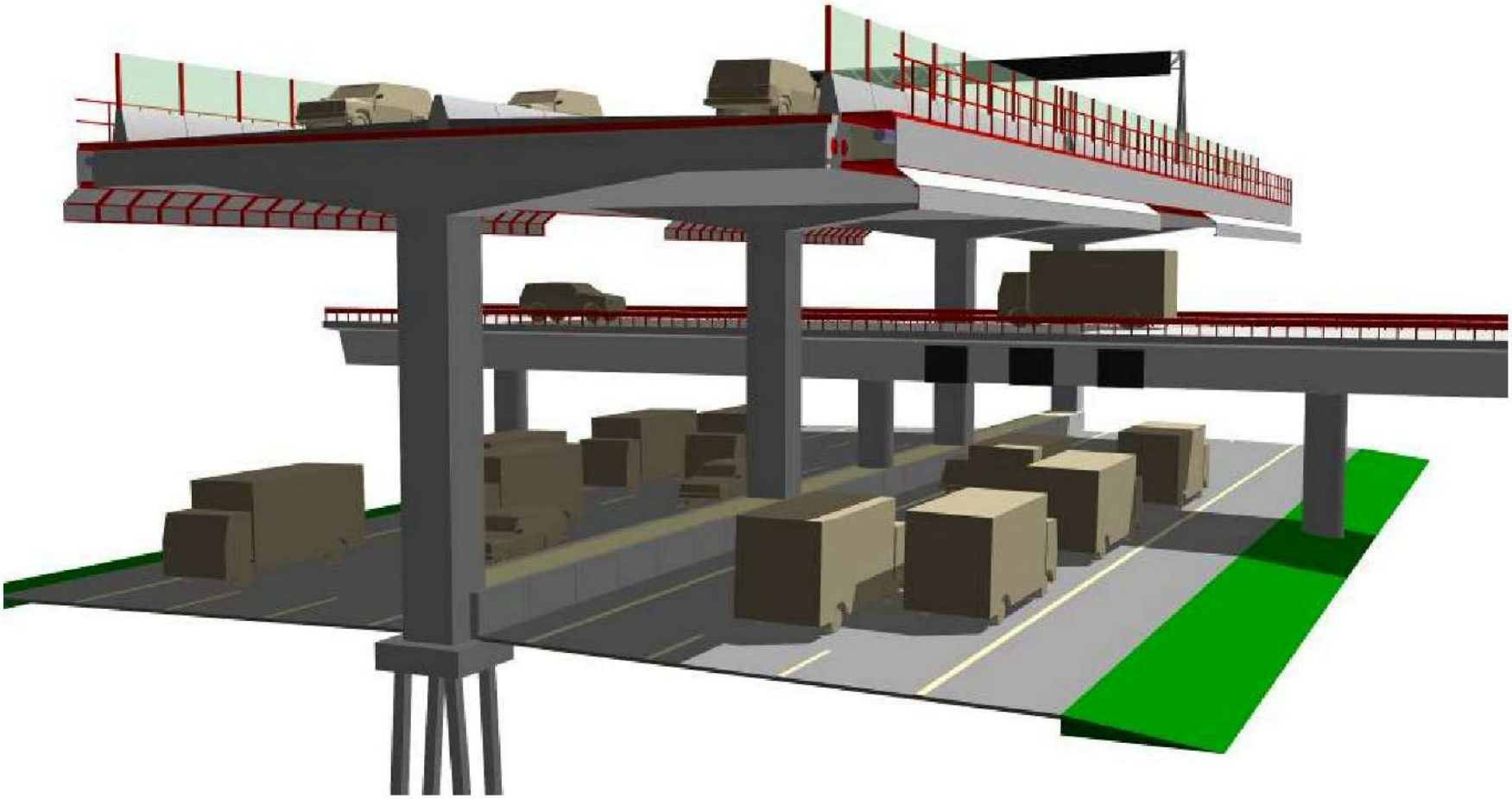


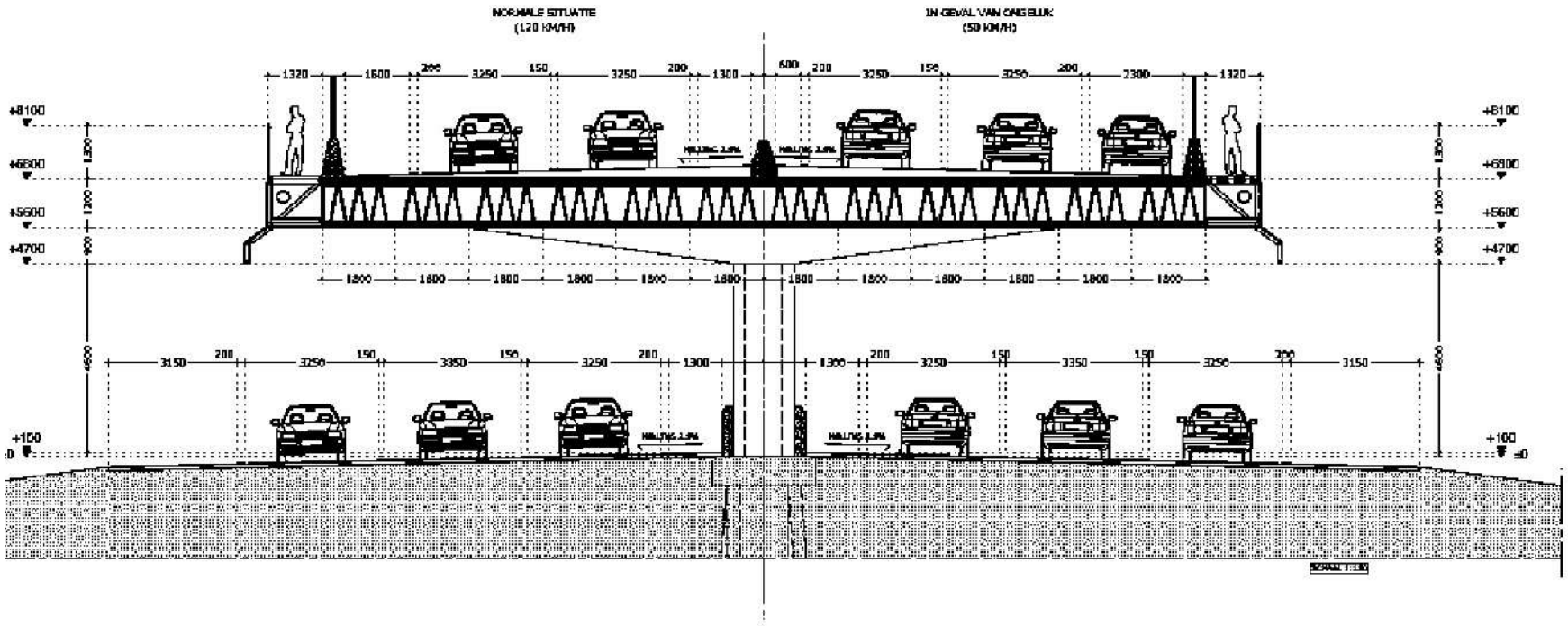


Alternative applications



doubledecker motorway




NORMALE SITUATIE
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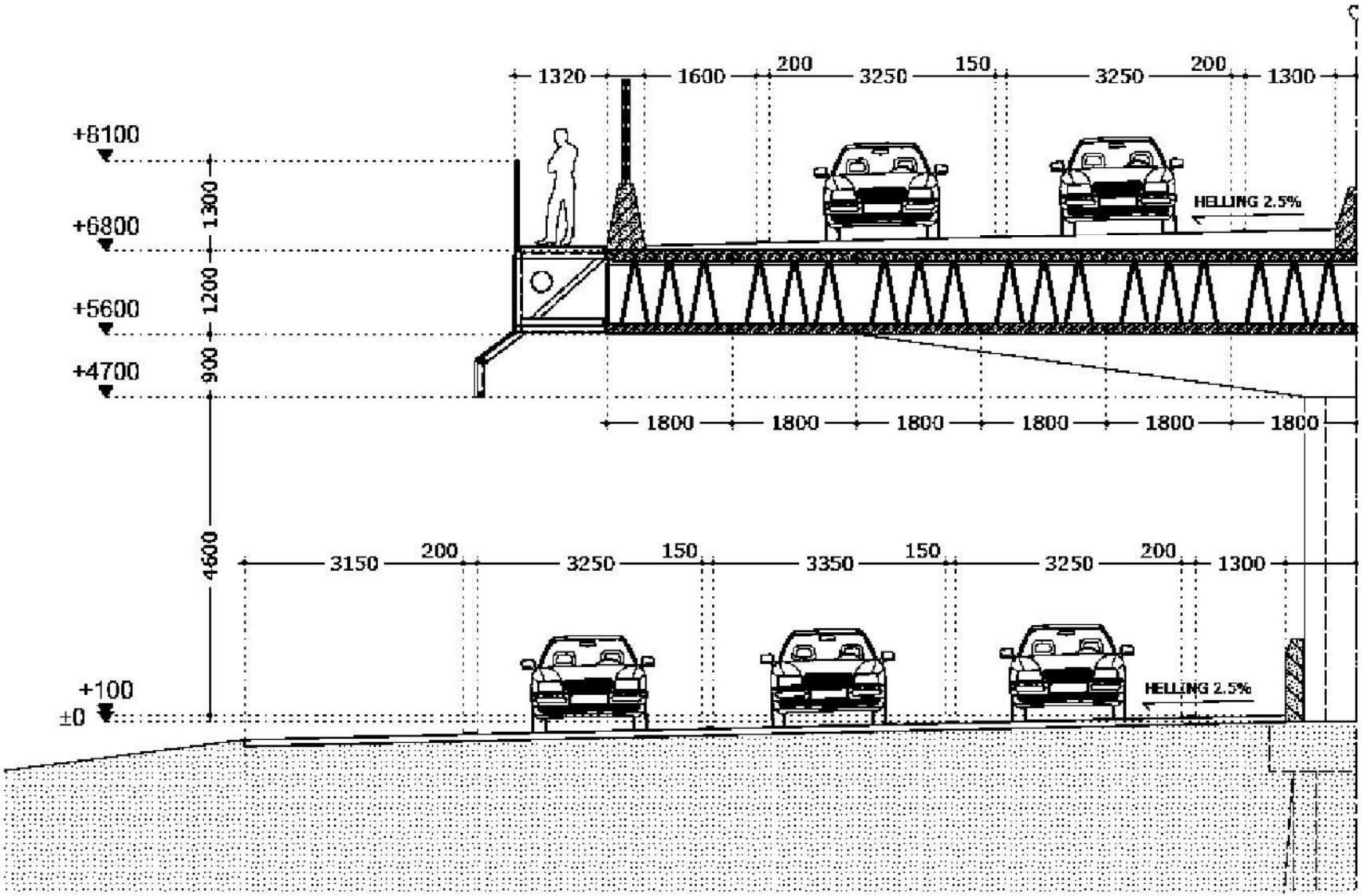
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±0
HELLING 2.5%

Advantages of double-decker motorways

- **Light weight and big span up to 25 meters**
- **No extra property purchase**
- **CO2 and microdust absorbtion**
- **Dry and snow-free lower deck**
- **Quick construction**
- **Pleasant driving on a smooth level roadway**
- **Easy to repair by simply changing elements, mostly possible in one night**
- **Easy crossings**
- **Can always be driven on by making use of geothermal warmth**

BARTELS & VEDDER B.V.

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