

Materials

The materials used in the construction have a low environmental impact throughout the entire lifecycle of the building. Every detail of the building is highlighted to show the sizes limit property damage measures taken. Also, all the used timber is legally produced.

Energy use building

The ambition of the client is: a building that is as sustainable as possible, within what is realistically feasible. The highest cost in a distribution centre in terms of use is primarily the lighting. In order to reduce this energy use as much as possible we have taken 2 measures. The first is a structural solution. By using translucent façade panels in strips in the façade that correspond with the gangways between the shelves. In this way we are able to ensure that more daylight enters the building, so that the lighting can even be turned off on light/sunny days. In view of the security of a distribution centre it is not desirable to use transparent (clear) glazing. In addition, the artificial light is completely LED, which is the most energy efficient at this time.

For the office we continued searching for an optimal heating and cooling installation. The offices are fitted with a HAC system (heating and cooling). The production hall is fitted with heating only. This is done by means of radiant panels. No cooling will be fitted in the production hall.

In addition to the translucent façade cladding in the production halls, the offices are also fitted with as much daylight as possible. Beside the floor at the level of the office functions a continuous window frame strip has been designed, with a minimum parapet of approx. 40cm. Ceiling-high glass was designed afterwards.

Flexible construction

The building was designed according to the following construction principle: steel construction combined with precast unit floors. By opting for this principle, the building has a high degree of flexibility. This flexibility is only assured when consideration is also given in this way to the design of the installations.

In order to be able to make full use of the flexibility of the building, the decision was taken to add the installations to the bearing construction completely independently.

Several basic ducts have been created at strategic locations in the building. (In general, this means a shaft in the vicinity of the lift and near the wet groups).

All installation components for the office are fitted between the structural ceiling and the suspended ceiling. The installations hang loose, above the suspended ceiling, on the steel structure or on the floor. In this way the installation can easily be modified and the layout can also easily be modified and extended. The design of the façades is also conceived to easily change functions, or extend the office m².

The fire concept has also been conceived on this basis. By using a sprinkler system, changes can be made more flexibly. However, the user/lessee does need to remember that the sprinkler document should be amended for large changes in function.

FSC wood

All the wood used in the building has the FSC label. In view of the fact that Heembouw is also FSC certified, the wood that is used during construction (and not definitely attached to the building) is FSC wood.

The building design includes wooden façade cladding. This façade cladding is made from thermal sustainable ash. The ceiling at the entrance is fitted with this type of wood.

Charging station electric cars.

The personal parking spaces include 10 charging stations for electric cars. These charging stations are fully fed by sustainably generated energy. The charging stations are available for both the personnel and visitors. The PV panels on the roof of the building provide the power supply to the charging stations.

The structure

The basic structure of the building consists of a steel skeleton with optimized dimensioning. The size of the steel structure is fully tailored to the usage. The column positions are positioned to correspond with the shelving plan. The least possible columns are visible in the halls. Where the columns are visible and may be driven into, they are fitted with column shields, so that the structure is damaged less and is more durable.

The ground floor is a poured concrete floor, which is directly poured on rubble granulate.

The rubble granulate serves as a foundation. We call this a floor on steel. The bearing load for the floor is partly taken from the rubble granulate foundation and partly from the soil improvement used. An advantage of this is that no pile driving is necessary for the concrete floor. This makes a difference in material usage for the entire building. In addition, the rubble granulate is made from high-quality recycled material and thus better than applying an expensive and much less sustainable layer of sand.

The skin of the building

The façade of the building is compiled of Kingspan insulated wall panels with an extremely high Rc value (5,0 m²K/W). Vertical panel distribution was selected at the location of the industry hall, so that the translucent façade panels (also Kingspan) can also be mounted in this rhythm. These translucent façade panels have the same fixing principle as the insulated wall panels.

At the office façade the panels are horizontally mounted and in terms of distribution are included in the window frame size. The window frames are designed for the panel size, which means that there is virtually no waste.

The plinth of the building is fitted with a prefab concrete insulated element that is also fitted with a high Rc value (5.0 m²K/W). This plinth also serves as robust crash protection. The height of the panels is equal to the level of overhead doors, so that a neat line continues throughout the design. The insulated wall panels start above the concrete plinth.

For the airtightness of the building and particularly at the location of the offices, extra compribands are included between the offices. These connections have all been practically tested using an airtightness measurement and compared with the Qv-10 value using the EPC calculation. The result of this measurement is a Qv-10 value of 0.42.

The office façade is located to the south. In the design, consideration has been given to the later placement of fixed wooden louvres on the exterior of the building for permanent sun blinds. At this time, sun blinds have only been applied on the inner side.

The roof has a traditional roof structure (appropriate to a steel structure). The basis is a steel profile plate fitted with hard press insulation and roof cladding. This also has a high insulation value, such that we can achieve an Rc = 5.0 m²K/W. The roof cladding is a light PVC roof cladding. The light colour ensures that the sunlight is initially reflected as much as possible, before the warmth of the sunlight can penetrate the building.

Water usage

The front terrain is equipped with multiple grey-water tanks, which will provide the toilets with flushing water. The toilets have a maximum flush use of 4 litres /flushing.

From the usage water-free urinals are in use. Also, all men's toilet facilities are fitted with more urinals than toilets in order to further reduce water usage.

Also, all spaces where water usage occurs are fitted with intermediate metering, so that water usage can be monitored well and any leaks can be quickly signalled.