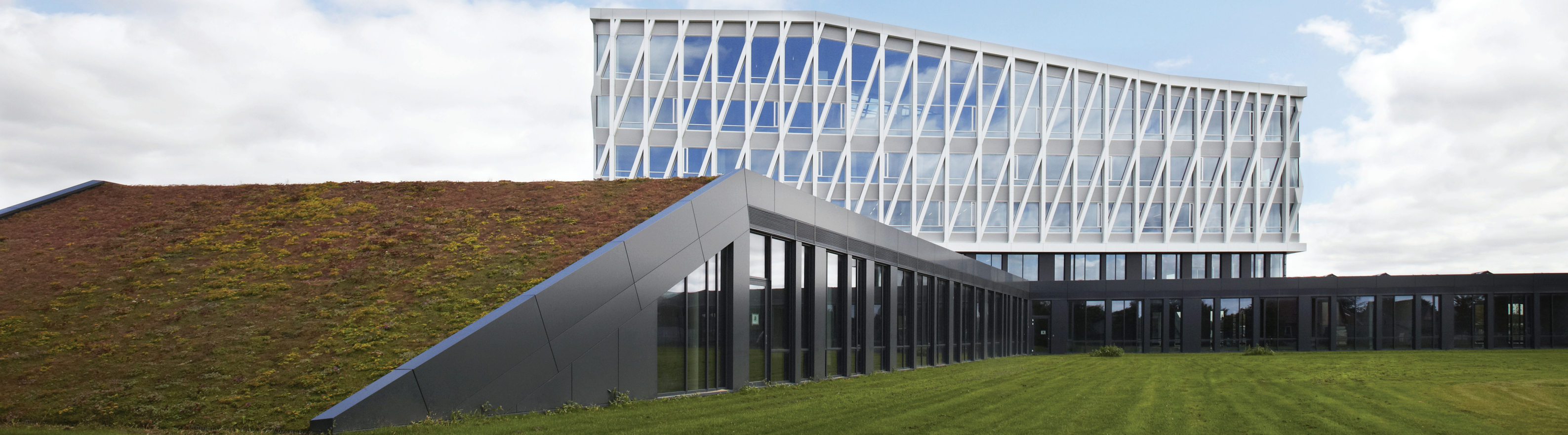


VIBORG TOWN HALL

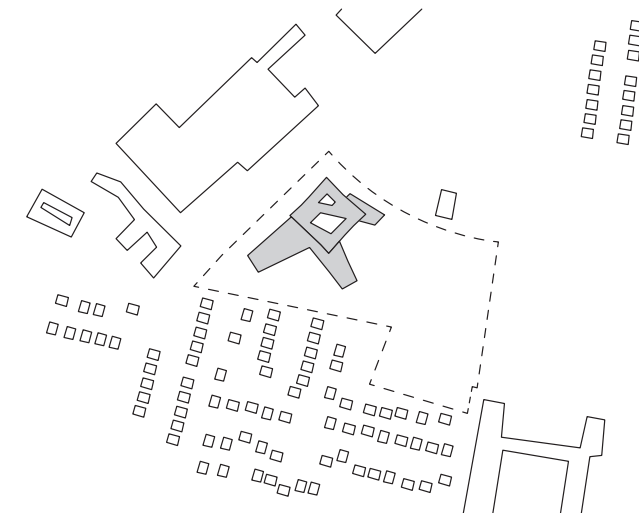
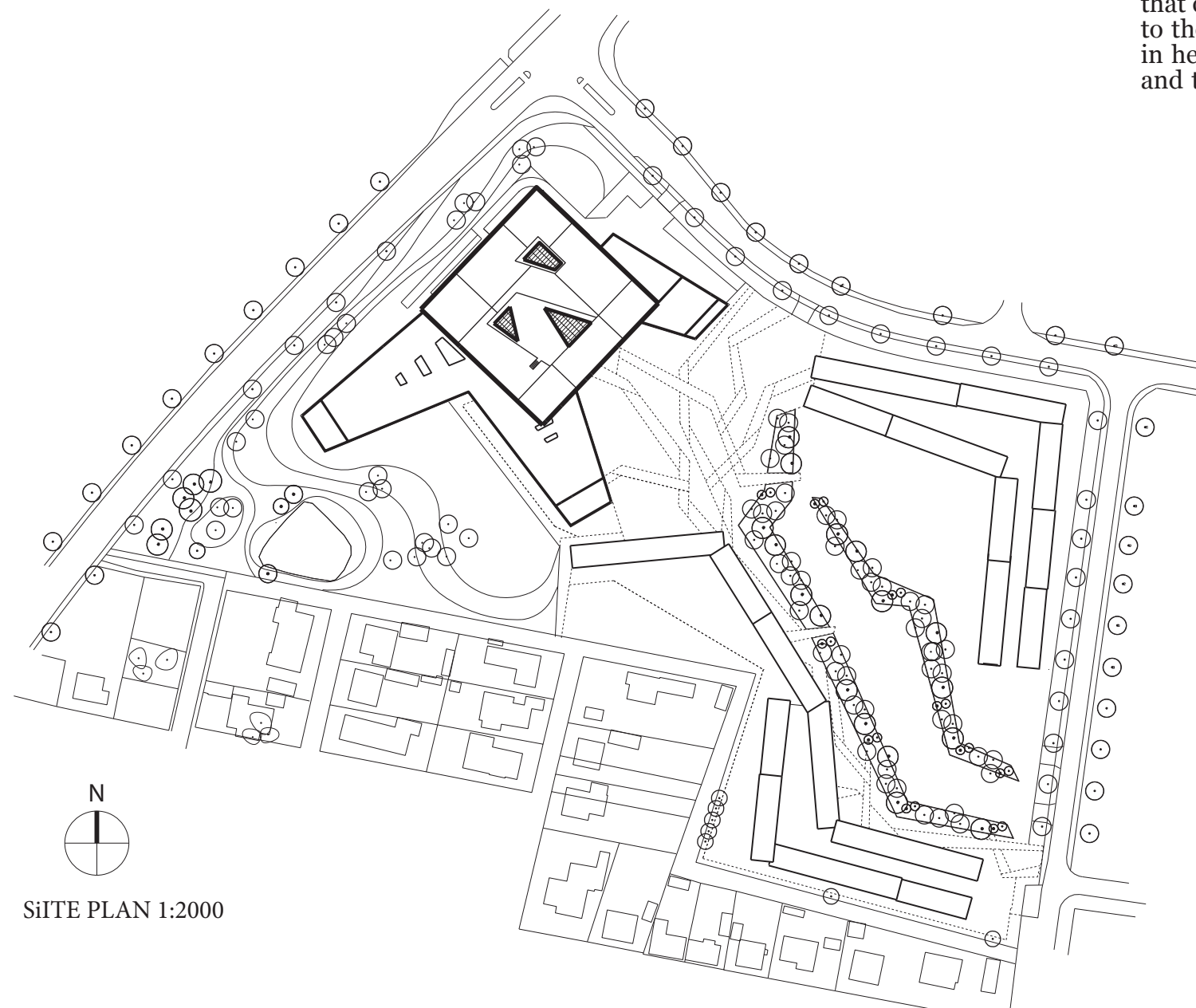
Denmark's first Low Energy Class 1 municipal building

FACTS

Location: Viborg, Denmark
Client: Municipality of Viborg
Gross floor area: 19,400 m²
Year of construction: 2009 - 2011
Photographer: Thorbjørn Hansen,
Kontraframe, Martin Schubert og
Thomas Mølvig
Team: Henning Larsen Archi-
tects, Cowi, Lisbeth Westergaard
Planning

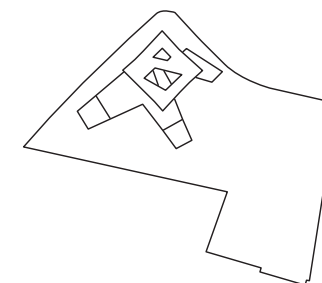


Viborg Town Hall, completed in 2011, is situated on what used to be a military area on the outskirts of the city centre. The new building forms a sculptural volume, floating above a base of lower buildings that carefully adapt to the landscape. Situated in the corner between an industrial area to the north-west and an area of single-family homes to the south, the city hall rises in height towards the hard industry, while its green 'arms' towards the family homes and their gardens serve to down-scale and soften the building expression.



Orientation and position

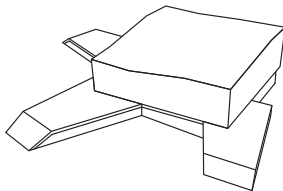
The city hall forms part of a whole, consisting of the building itself, the square and the park. The building is situated parallel to the north-west corner of the site, constituting the demarcation of the site towards the ring road. The park is situated south of the building between two green 'arms'. The city hall square is located to the east, which is also where staff and citizens arrive to the building.



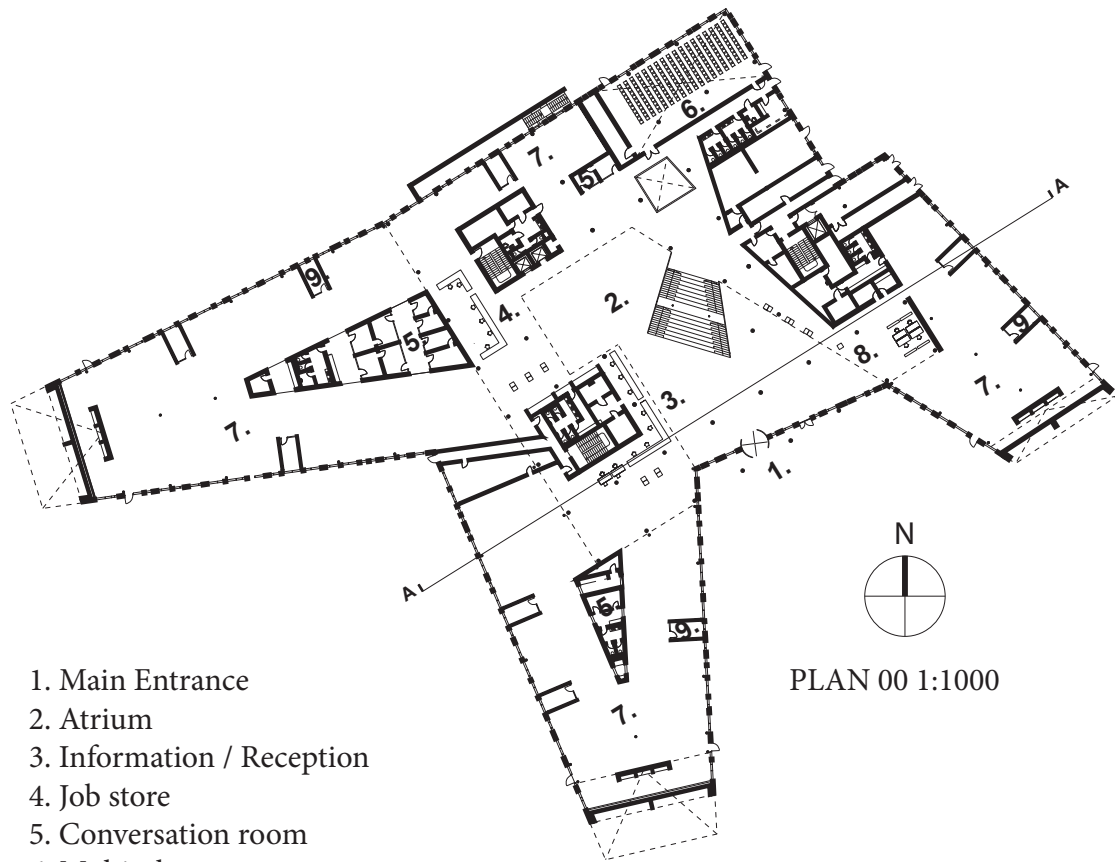
The building opens up to the town hall square and a new green park to the south.



THE GREEN ROOF of the base building absorbs sun reflection and transforms CO₂ into oxygen. In addition, its insulating properties help to reduce the need for cooling, which has a positive influence on the total energy consumption of the building. Furthermore, the green roof delays the percolation of rainwater on the site.

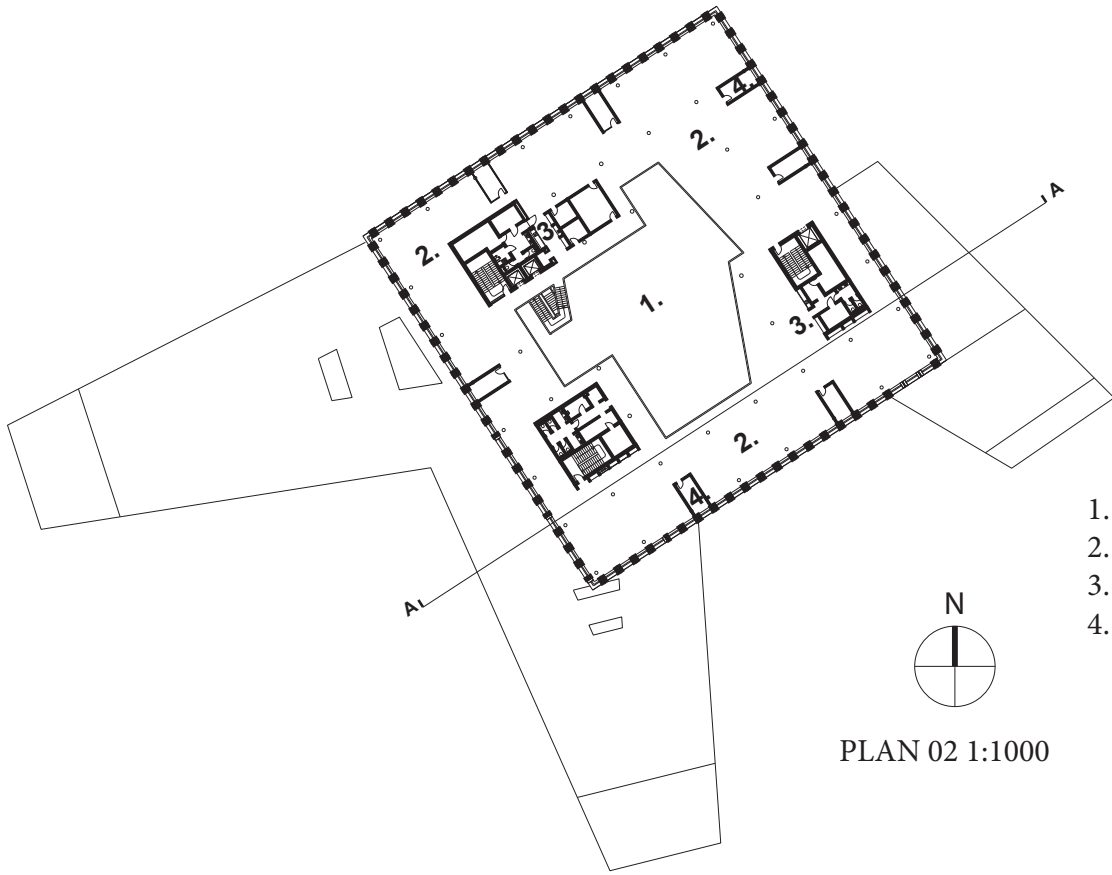


Geometry
The sculptural building shape resembles a moulded cube that rises from three 'arms', thus creating a smooth transition between building and landscape. The slightly sloping roof of the building provides it with a dynamic outer expression and an interior characterised by unique spatial qualities.



- 1. Main Entrance
- 2. Atrium
- 3. Information / Reception
- 4. Job store
- 5. Conversation room
- 6. Multisal
- 7. Office workspaces
- 8. Service offices
- 9. Flex room

PLAN 00 1:1000



- 1. Atrium
- 2. Office workspaces
- 3. Kitchenette
- 4. Flex room

PLAN 02 1:1000

INTEGRATED ENERGY-REDUCING SOLUTIONS

5/15
HENNING **LARSEN** ARCHITECTS

The building's exemplary energy performance is achieved through the incorporation of a number of sustainable features, and the holistic design approach is based on a socially sustainable mindset.

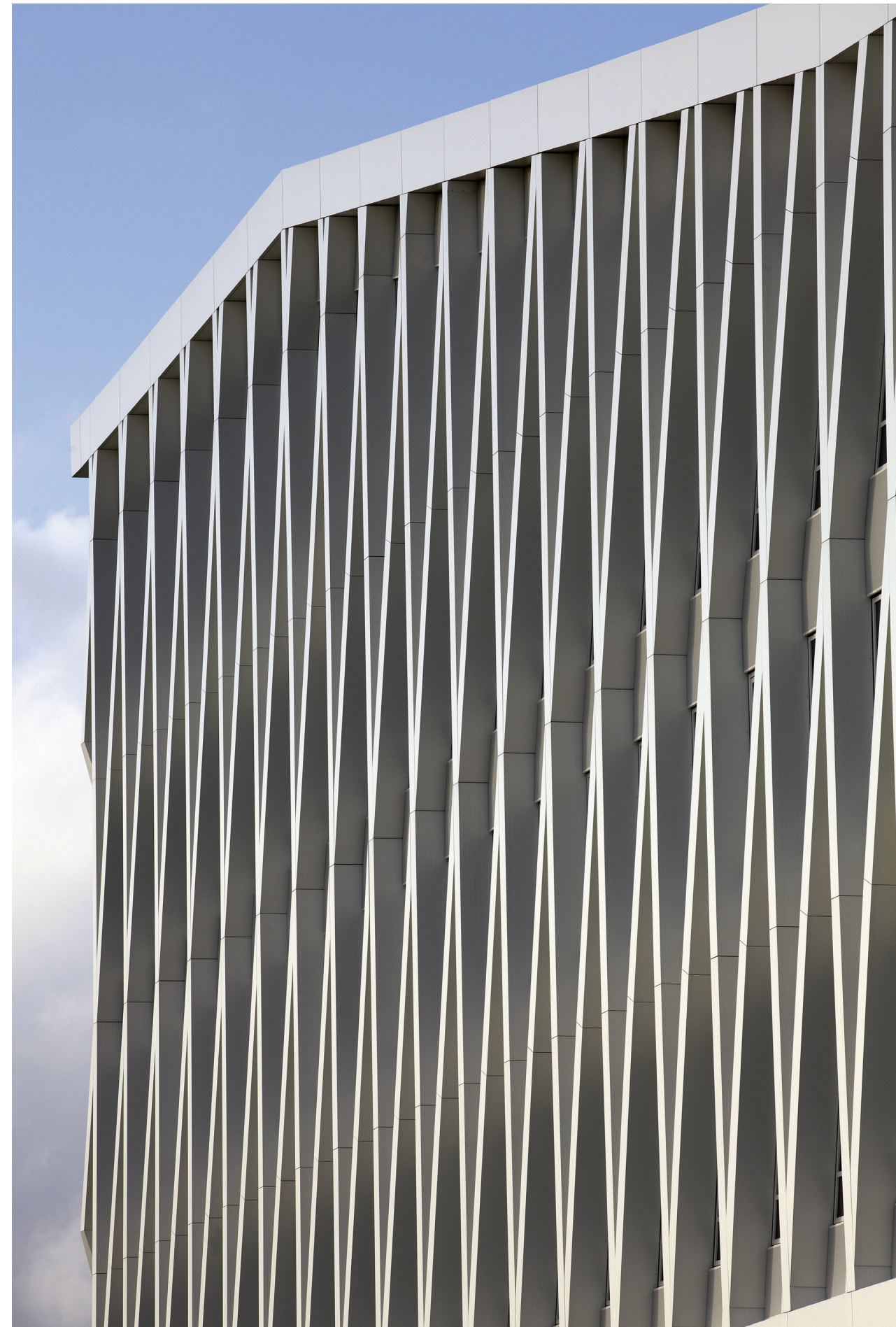
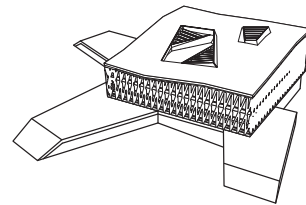
A compact building geometry and comprehensive daylight strategy are passive, energy-reducing solutions integrated into the building. This energy efficiency is supplemented with energy-producing elements such as solar cells and groundwater cooling and heating.



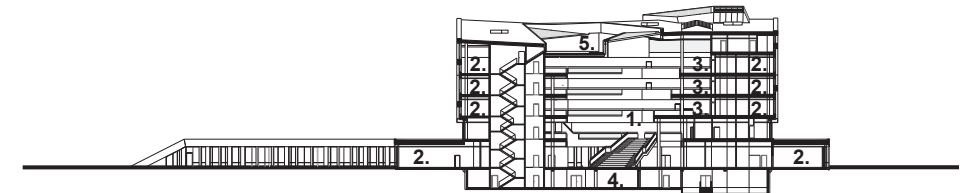
An artificial lake gathers rainwater from the roof.

The daylight strategy ensures a reduced need for additional lighting, cooling and heating.

The unique façade design features treble glazing, serving both aesthetic and functional purposes; while its deep relief serves as sun protection. The façade structure, with its deep surfaces and white finish, brings indirect daylight far into the building by means of a silky matt surface. Not least, the facade design contributes to giving the building a dynamic, vibrant expression.



LUMINOUS INTERIOR



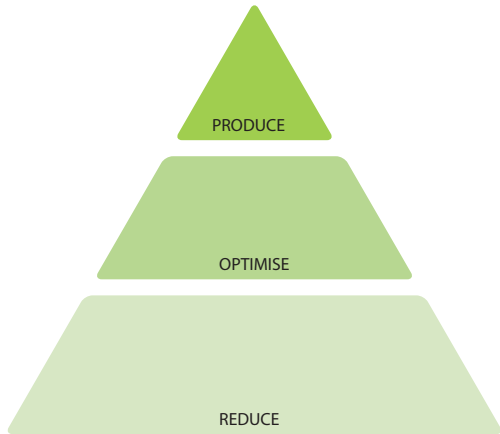
Section_AA 1:1000

1. Atrium
2. Office workspaces
3. Kitchenette
4. Installations
5. Roof terrace

Three skylights in the large atrium allow the daylight to penetrate into the far corners of the building and create a light and open gathering point, open to the public. Everyone has a right and is welcome to experience and use the lofty, six-floor-high atrium space.

REDUCE, OPTIMISE, PRODUCE

The practical work with sustainability can be described by means of a pyramid structure where the different agents are divided into reducing, optimising and producing measures.

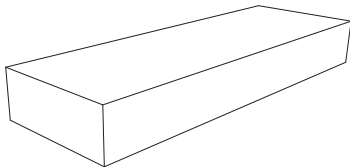


1. REDUCE by means of good design
2. OPTIMISE by means of technical solutions
3. PRODUCE by means of integrated, renewable energy

The process of creating a design and integrated energy reducing solutions

REFERENCE:

95 kWh/m²/year

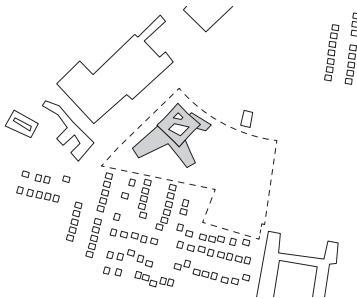


The project is based on the standards for traditional building as provided for in Danish building regulations BR08. This corresponds to an energy consumption of 95 kWh/m²/year. The objective for the project is to meet the 2015 energy requirements of Danish building regulations, corresponding to approx. 42 kWh/m²/year.



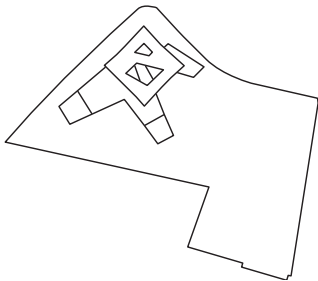
REDUCE:

95 kWh/m²/year → 71.2 kWh/m²/year



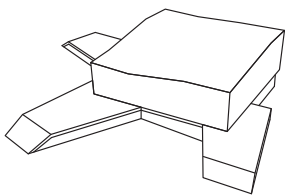
Context

The building is located in a desolate military area along the inner ring road of Viborg. Situated in the corner between an industrial area to the north-west and an area of single-family homes to the south, the city hall rises in height towards the hard industry, while its green 'arms' towards the family homes and their gardens serve to down-scale and soften the building expression.



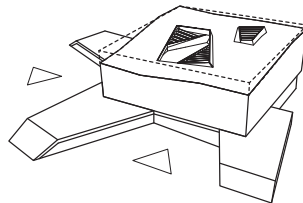
Orientation and position

The city hall forms part of a whole, consisting of the building itself, the square and the park. The building is situated parallel to the north-west corner of the site, constituting the demarcation of the site towards the ring road. The park is situated south of the building between two green 'arms'. The city hall square is located to the east, which is also where staff and citizens arrive to the building.



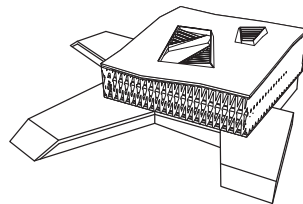
Geometry

The sculptural building shape resembles a moulded cube that rises from three 'arms', thus creating a smooth transition between building and landscape. The slightly sloping roof of the building provides it with a dynamic outer expression and an interior characterised by unique spatial qualities.



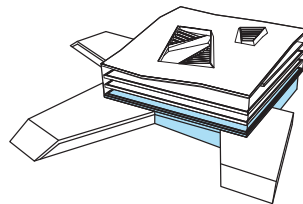
Daylight

The three skylights of the large atrium allow the daylight to penetrate into the far corners of the building. The light flowing across the white balconies of the displaced floors changes the character of the interior space during the course of the day. The largest skylight is divided in two by a roof terrace, situated in connection with the staff cafeteria.



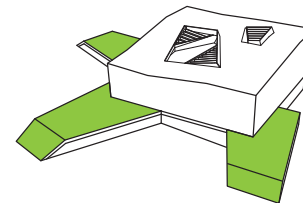
Facade design

The patterned facade features deep treble glazing, serving both aesthetic and functional purposes. The deep relief serves as sun protection, while at the same time bringing the daylight far into the building by means of its silky matt surface. Not least, the facade design contributes to giving the building a dynamic, vibrant expression.



Zoning

Viborg City Hall is a democratic building, which is also reflected in its organisation. Thus, the main space of the building – the atrium – is open to the public. Everyone has a right to experience and use this space, which also serves as arrivals area. The further into and up the building you go, the more private the functions become.



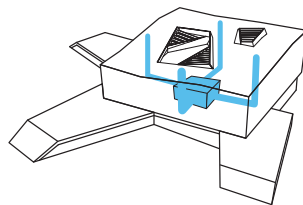
Green roof

The green roof reflects the sun rays away from the building and transforms CO₂ into oxygen. In addition, it helps to reduce the need for cooling, which has a positive influence on the total energy consumption of the building. Likewise, the green roof delays the percolation of rainwater on the site.



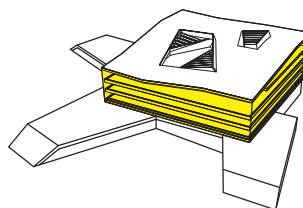
OPTIMISE:

71.2 kWh/m²/year → 61 kWh/m²/year



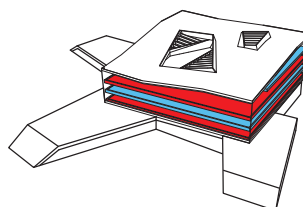
Natural ventilation

The entire city hall offers natural ventilation, with the exemption of a few large meeting and conference rooms. The ventilation intakes are situated above ceiling level.



Lighting

The lighting is regulated in accordance with the daylight. Motion sensors and energy-reducing light sources further reduce the energy consumption.



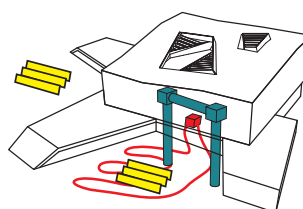
Thermo-active constructions

Heating/cooling tubes are embedded in the concrete slabs. The slabs are exposed where possible to fully exploit the thermal properties of concrete. This reduces large fluctuations in room temperatures and improves the indoor air quality.



PRODUCE:

61 kWh/m²/year → 41 kWh/m²/year



Groundwater cooling and heating

Groundwater is collected from 90 metres below ground level and used for heating and cooling. Three different systems ensure use of the most efficient method available at the time. 760 m² solar cells are installed on the building roof. The solar cells produce 76,000 kWh on an annual basis.

