

MJØSTÅRNET-

The worlds tallest timber building

Øystein Elgsaas/Voll Arkitekter

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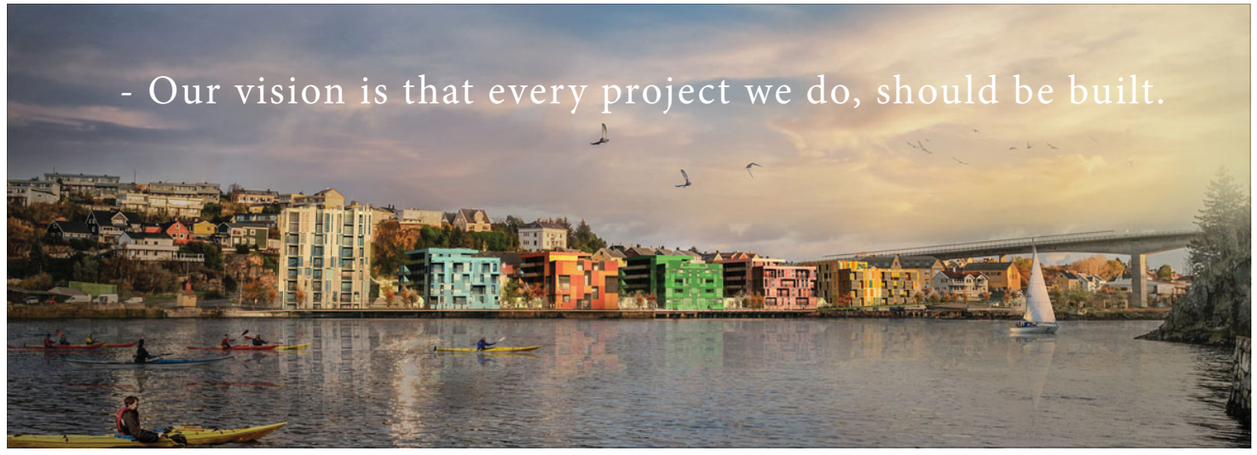
Scandic



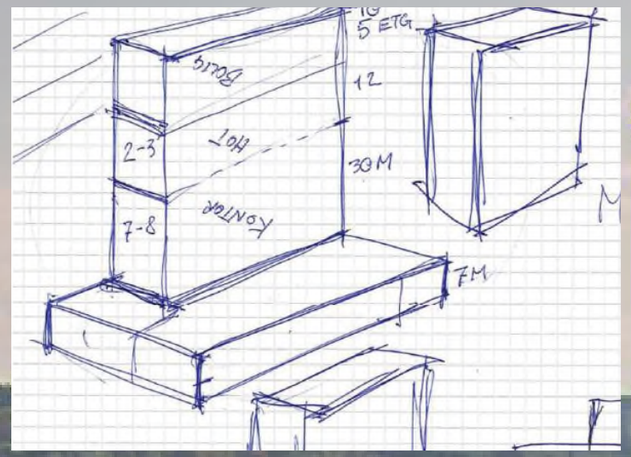





- Our vision is that every project we do, should be built.


19


vallarkvia



First Sketch February 2015
(Arthur Buchardt)

Last Glue-lam beam Septemer 2018
(Moelven)

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Foto Moelven



























Foto Moelven


Brumunddal
Trondheim
Brumunddal
Oslo
Stokholm
København

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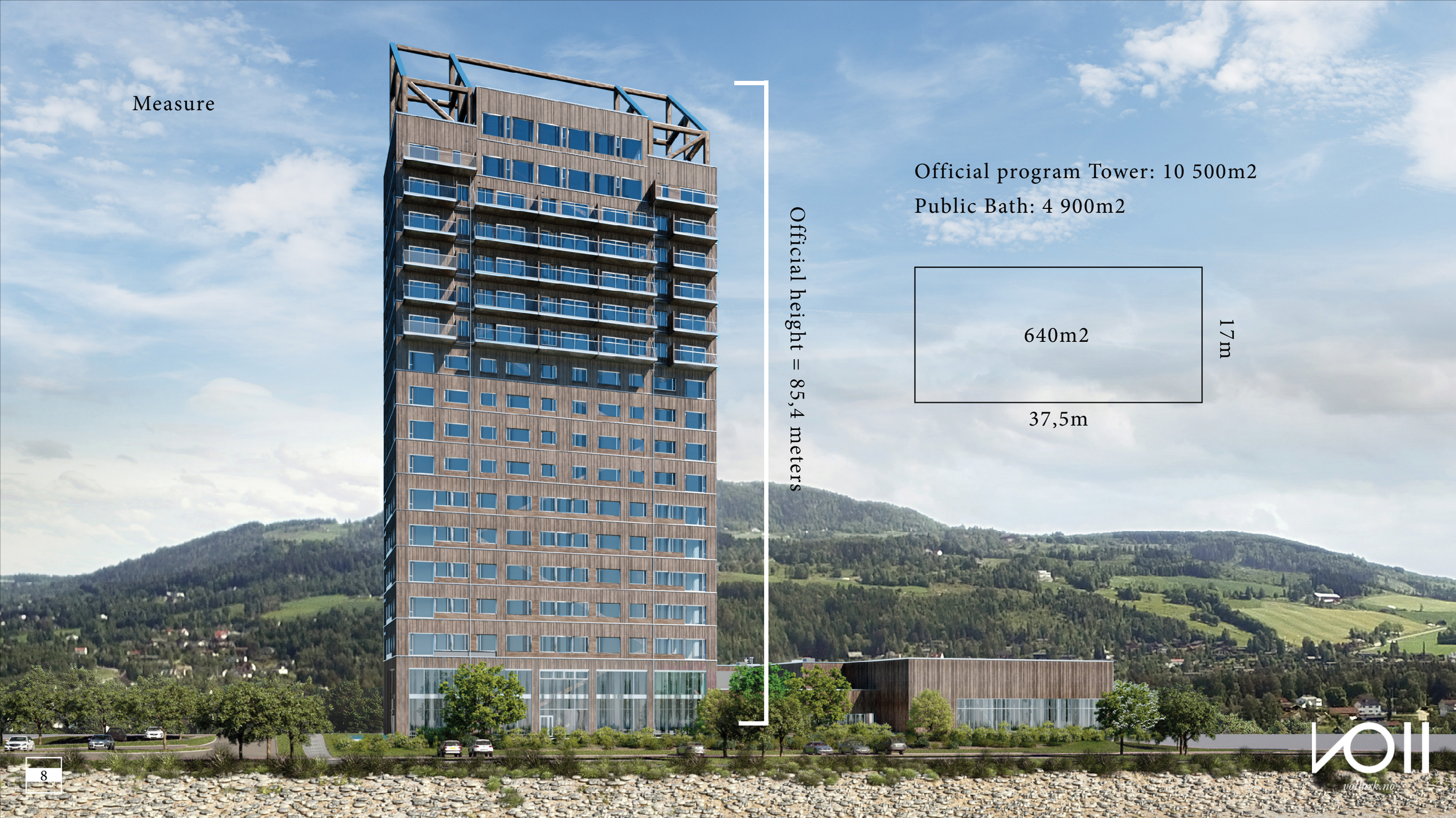
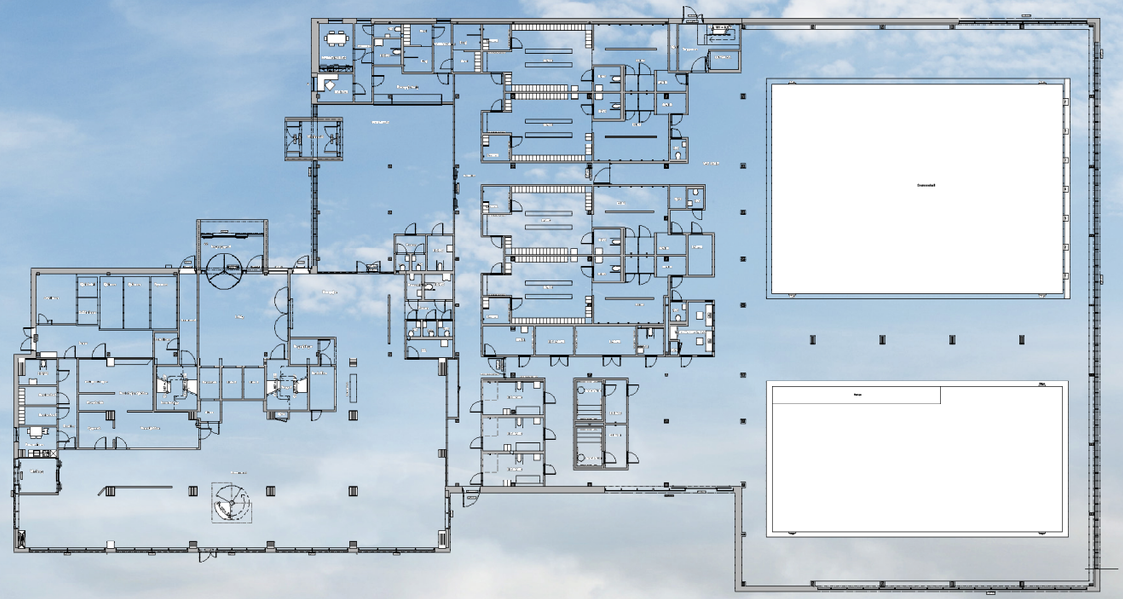
Foto: Erik Urke /teknisk ukeblad

Measure


Official height = 85,4 meters
Official program Tower: 10 500m2
Public Bath: 4 900m2
640m2
17m
37,5m

Program





Public bath, 4 900m2

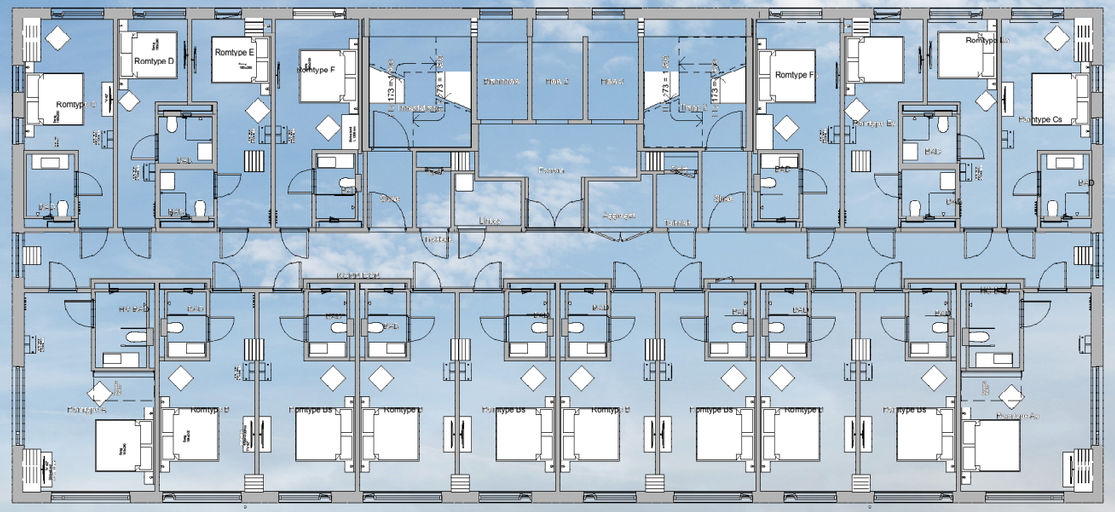


Lobby, reception & restaurant

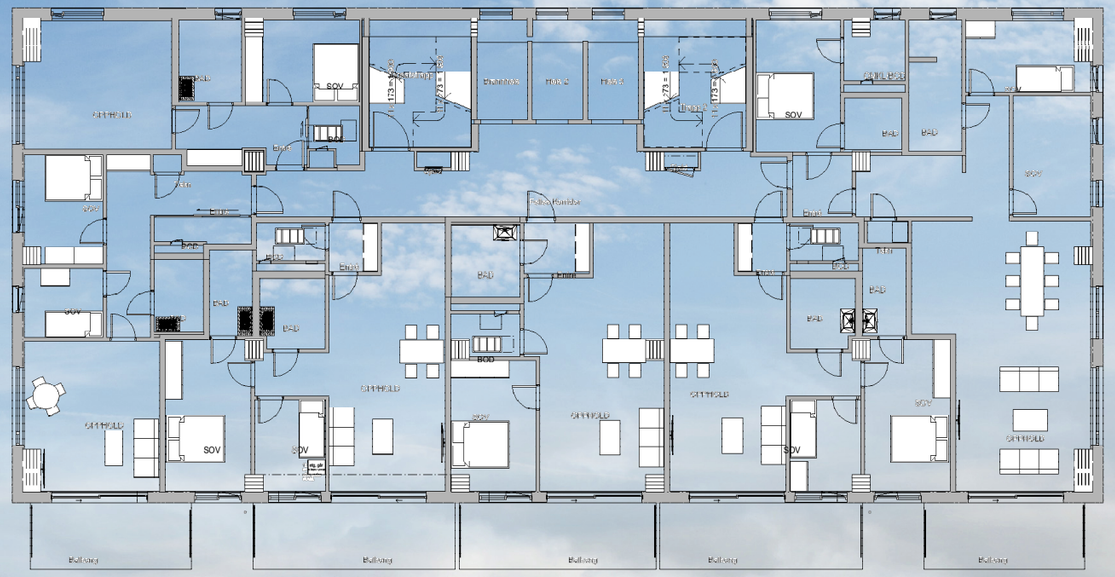

Meeting space


5 floors with office space

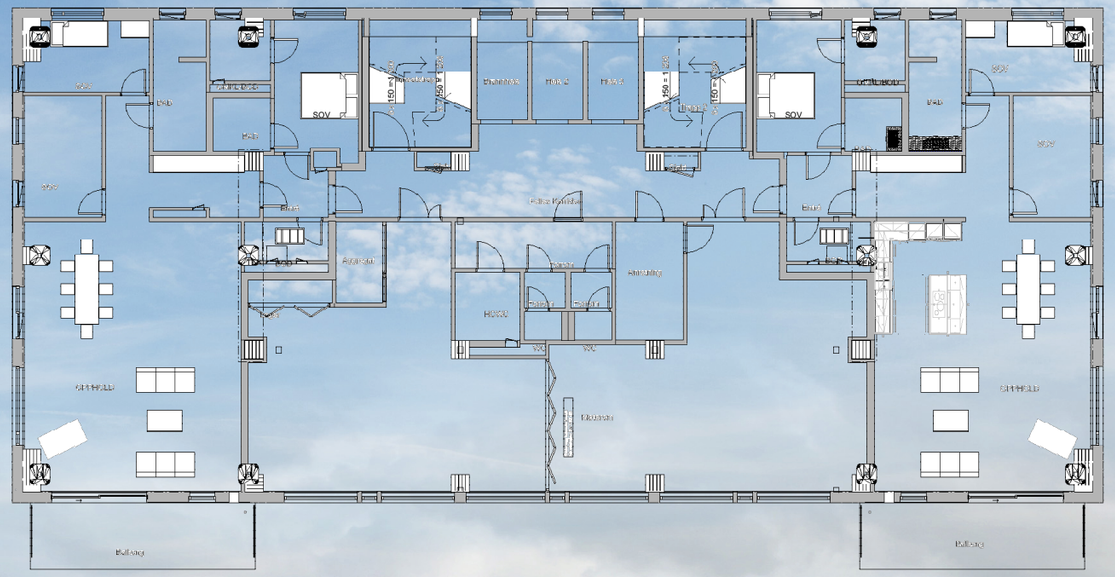
4 floors with hotel rooms



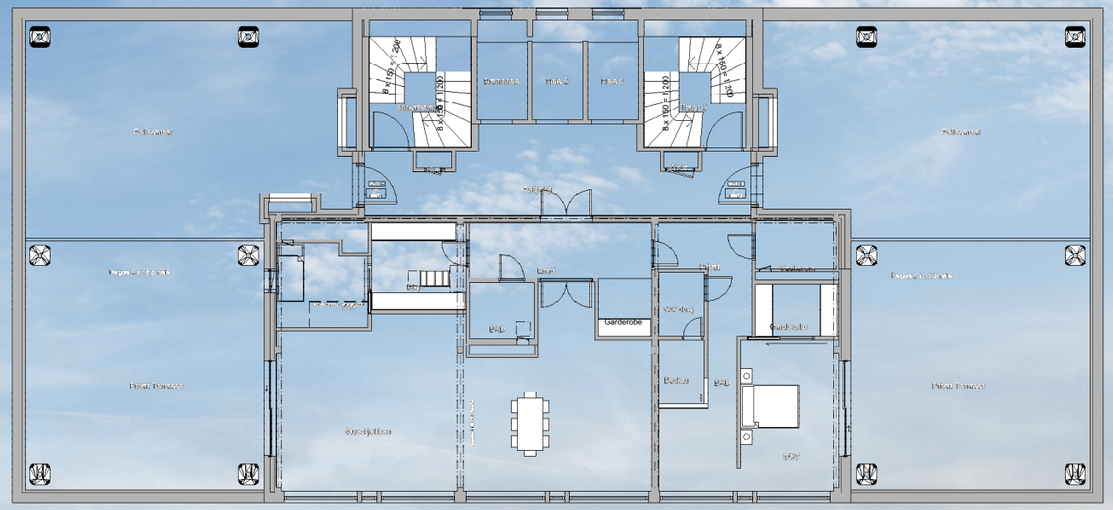
5 floors with apartments



Apartments and meetingspace



Apartment and roof terrace



Consept Art

Slanted roof

Transperent shell

Exoskeleton

Glass pavilion

Elevated






Stanted roof
Endoskeleton
Wood paneling
Window in front of elevators
Glass pavilion
Elevated
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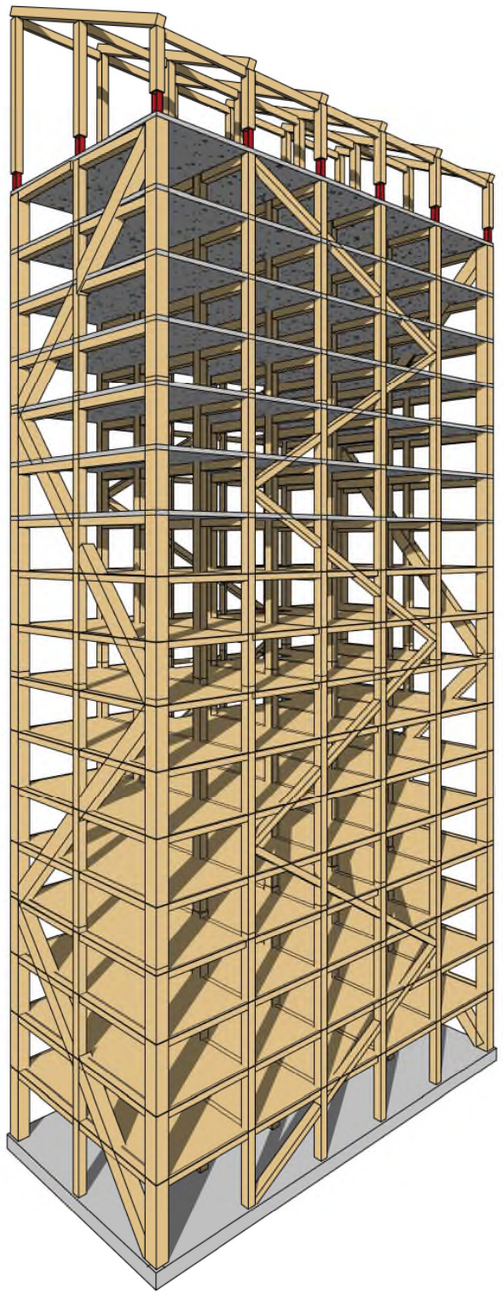
Consept Art



VOLL arkitekter

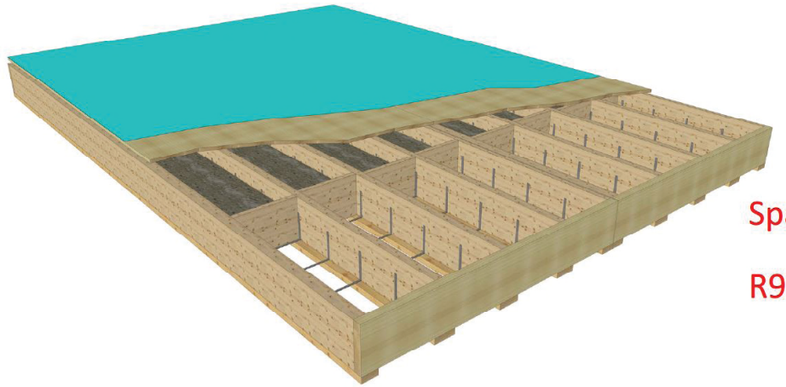






Construction





Spanwidth: 7,5 m

R90 fire resistance

Figurer:Moelven

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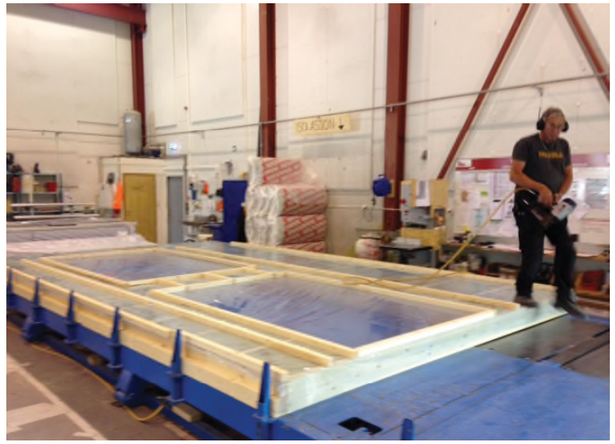



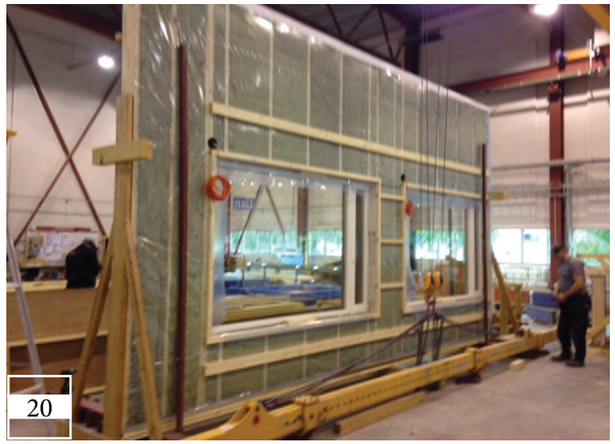





Prefabricated wall elements

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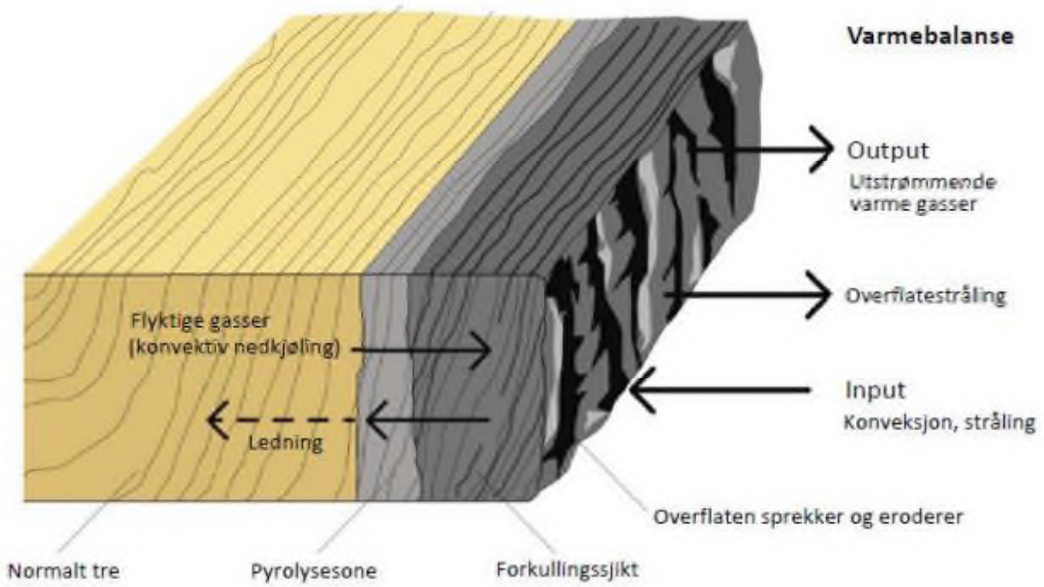

Figur 2: Forkulling av treverk (illustrasjon: Limtreboka).

The advantages of lime wood in fire are that the fire development is slow and predictable, the smoke evolution is moderate, and the material retains carrying capacity and stability longer than many other materials when subjected to fire.

Fire

1) Glue constructions: The glue constructions have such solid dimensions that they retain the carrying capacity through a complete fire. The glue constructions are positioned so that they do not interfere with each other in a fire.

2) Sprinkler: A state-of-the-art sprinkler system covers the building. It differs from a traditional sprinkler system because it is dimensioned to deliver larger amounts of water, it has an independent additional water source, and a greater degree of monitoring.

3) Fire service facilitation: A separate control room with graphical overview that allows fast and efficient firefighting. The fire alarm has a direct transfer to the fire service and the water supply to the fire service has doubled.

4) Fire Strips: The weakest point in a wood construction by fire is the steel used in the actual focal point of the construction. The glue structure therefore has fire strips to protect the steel plates and the dyes in the hubs and joints. The fire strips consist of a fabric that expands 20 times at 150 degrees Celsius. The strips protect the steel against temperature rise, close openings and prevent fire scattering.

5) Fire cells: Each floor, apartment and each hotel room is designed as a separate fire cell that will limit the spread of fire.

6) Protection against fire diffraction in facade: Exterior wall The elements are inserted with a fire retardant material and the cavity in the façade is broken on each floor. Furthermore all insulation is incombustible and ventilation of the façade is separate for each floor and the top of each window has an intumescent strip which closes the ventilation gap in case of fire.

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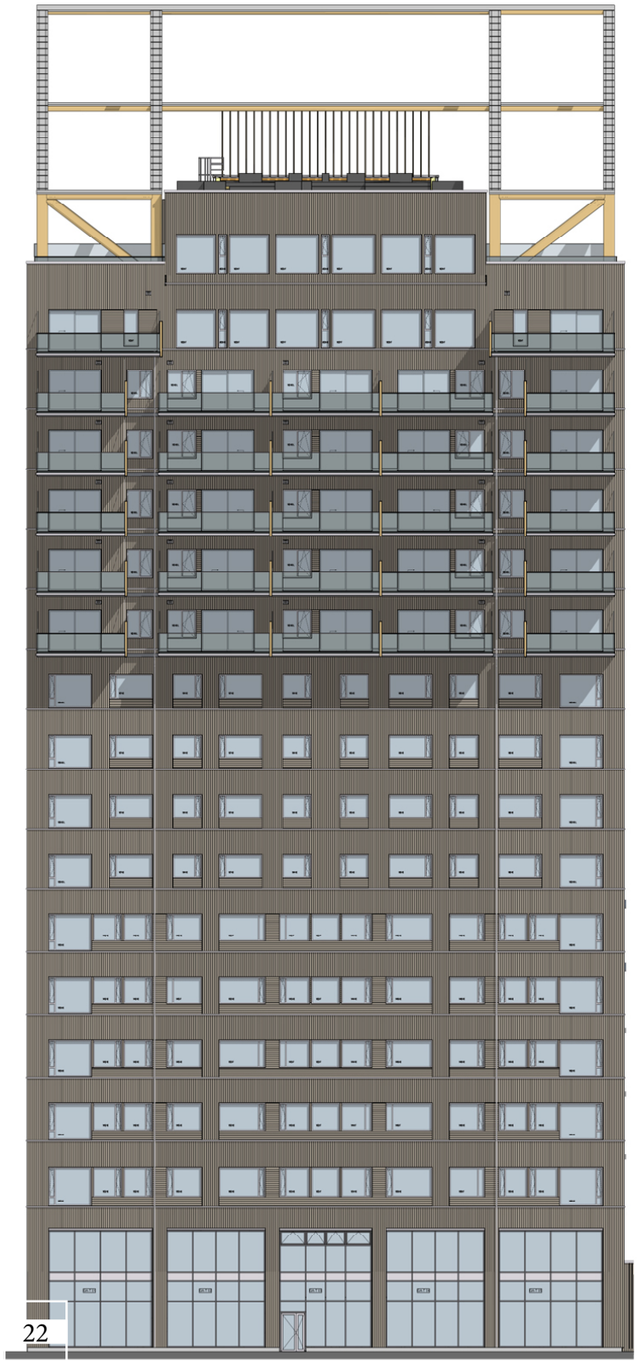





Final Design

-Horizontal division for each floor

-Strict window distribution

-Open roof structure

-Tower firmly rest on the ground

-Windows in front of elevator shaft

-Shape of building kept during the desing process

Optimalized for building and budget

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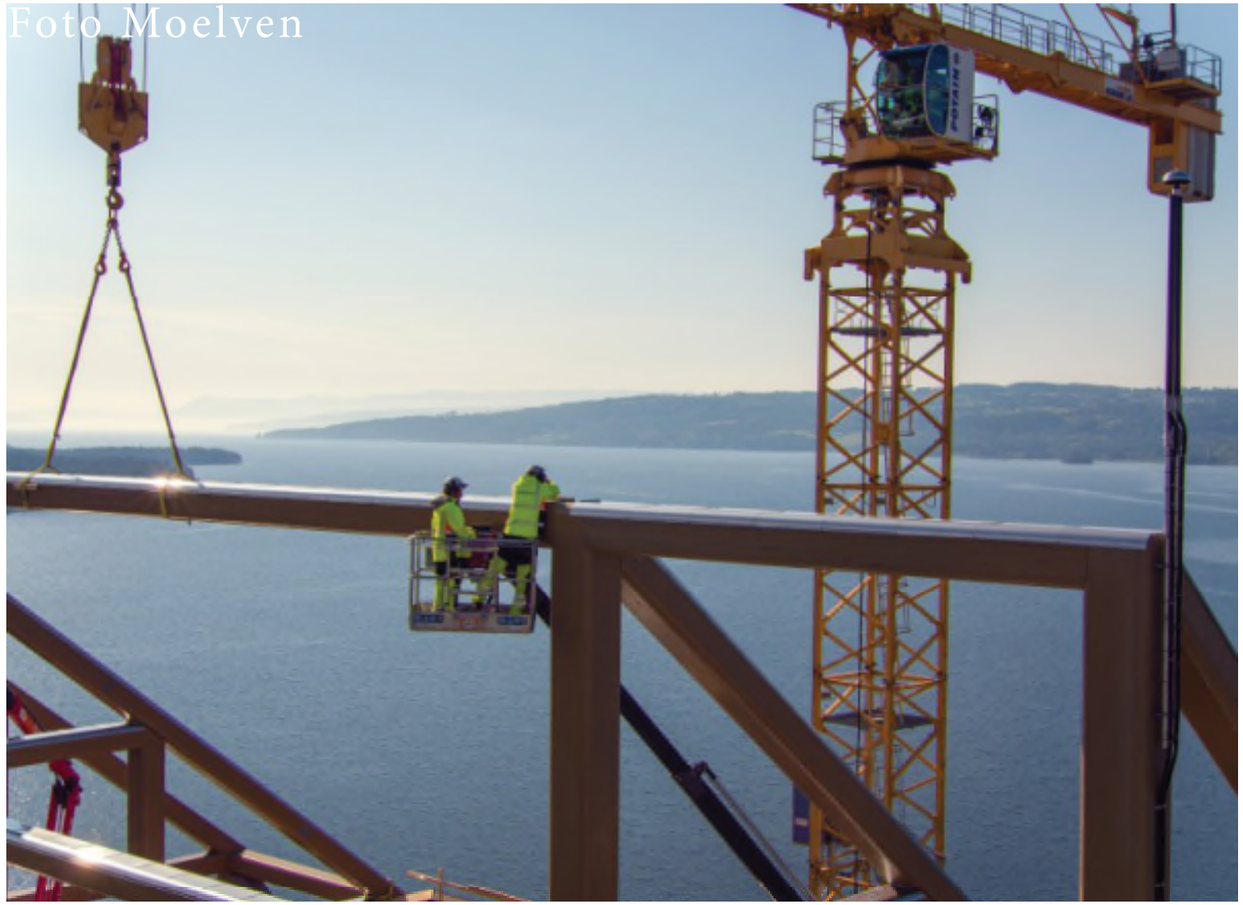

Foto Moelven



Foto Øystein Elgsaas



Foto Øystein Elgsaas

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“We all have an overall responsibility in choosing environmentally friendly solution whenever possible”

Mjøstårnet will opens its doors in March 2019.

