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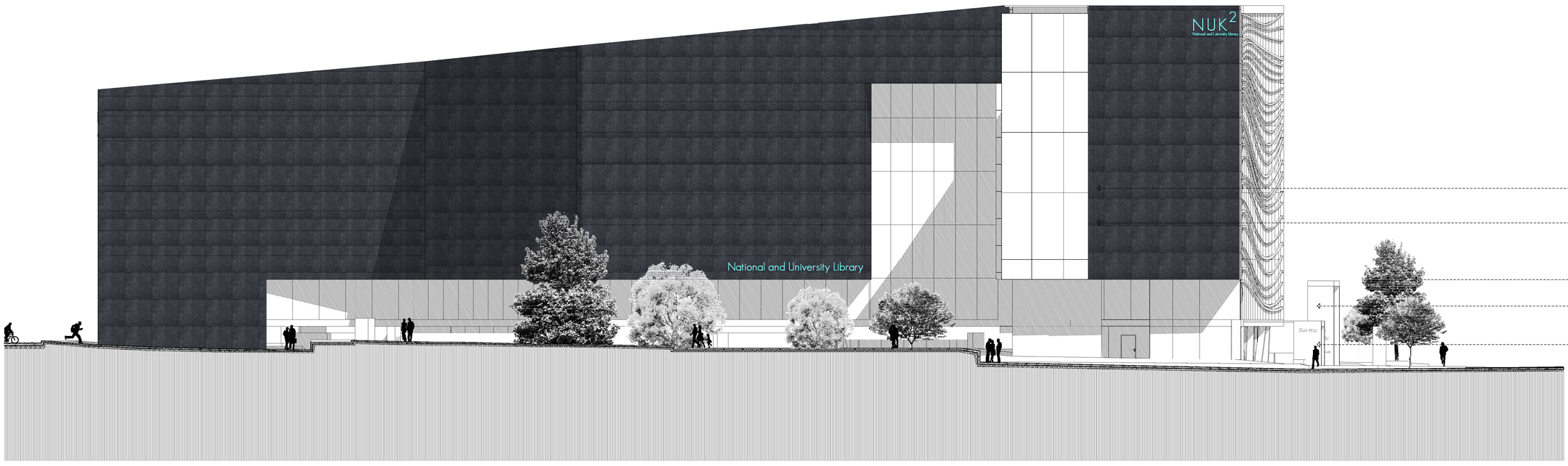
NUK2

National and University Library

L9



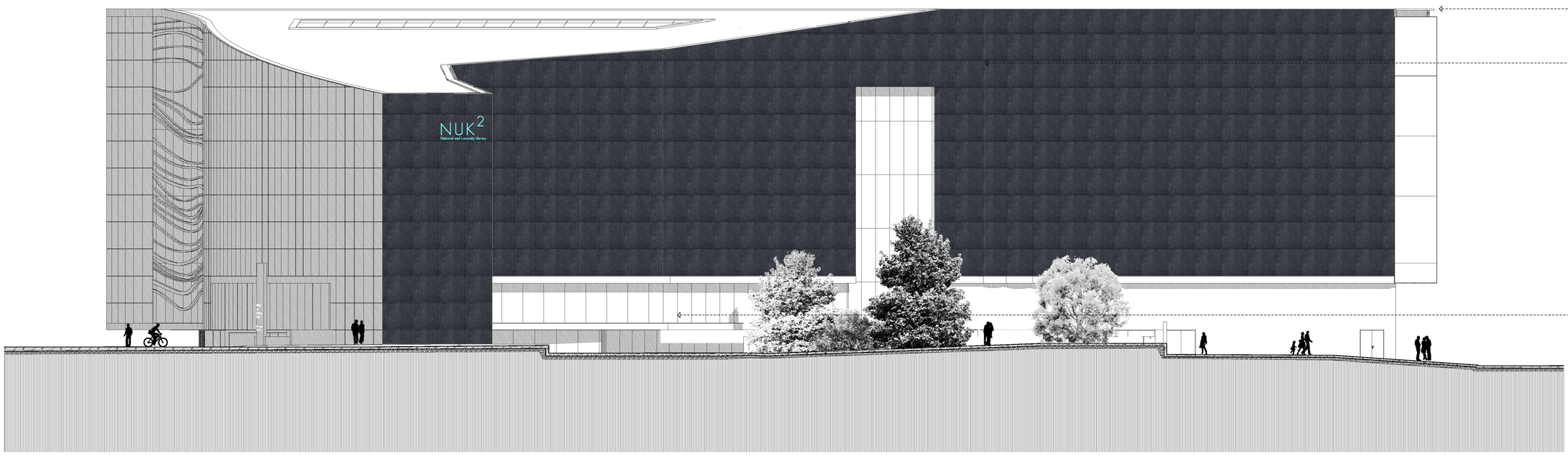
Colored glass surface

Material concept
We used such building materials that are valuable, high quality, and can help us to definite the house as an aesthetic building. At the same time, especially in the outer space in contact with materials, the building was an important aspect of playing a role in energy balance and proper maintenance. Trickle aspects that are functions of the area and possible post reborations with a high load can withstand.

Afforestation

Gate motif - showing the one-time street canopy in front of the entrance

Bus-stop



Using the maximum 25.60m high regulation

Shade structures were designed in front of the large transparent surface on south facade that is partially filtered sunlight while ensuring the efficient operation of the photovoltaic glazing surfaces - onyxsolarsystem - access to sufficient sunlight in order to help the building for the operation of power/energy generation

Window rows in order to increase the number of natural lighting

Structural solutions

The load bearing structure of the building is made of cast-in-place reinforced concrete, which consists of RC columns, RC walls and RC slabs. The concrete structure needs to be erected simultaneously with the shear walls in the façade and the staircases. The typical span between columns is 14.5 m. Economic and green technology should be used to form the spacious interior (e.g. lightweight or prestressed RC slab solutions). The columns are positioned co-axial in each level to transfer the vertical loads to the supports effectively. Deep footing (piles) should be used in order to protect the ruins. Building parts with different loading and movement should have dilatation. Whether this is necessary or not, future vibration analyses and bracing system behaviors will tell.

Stiffness of the building is provided by full-height staircase-, elevator- and other RC walls and complementing BRB braces. The building floor plan is not optimal in terms of earthquake resistance. To counter this, the staircases in the building wings and the mass centre, plus BRB braces can provide sufficient torsional stiffness.

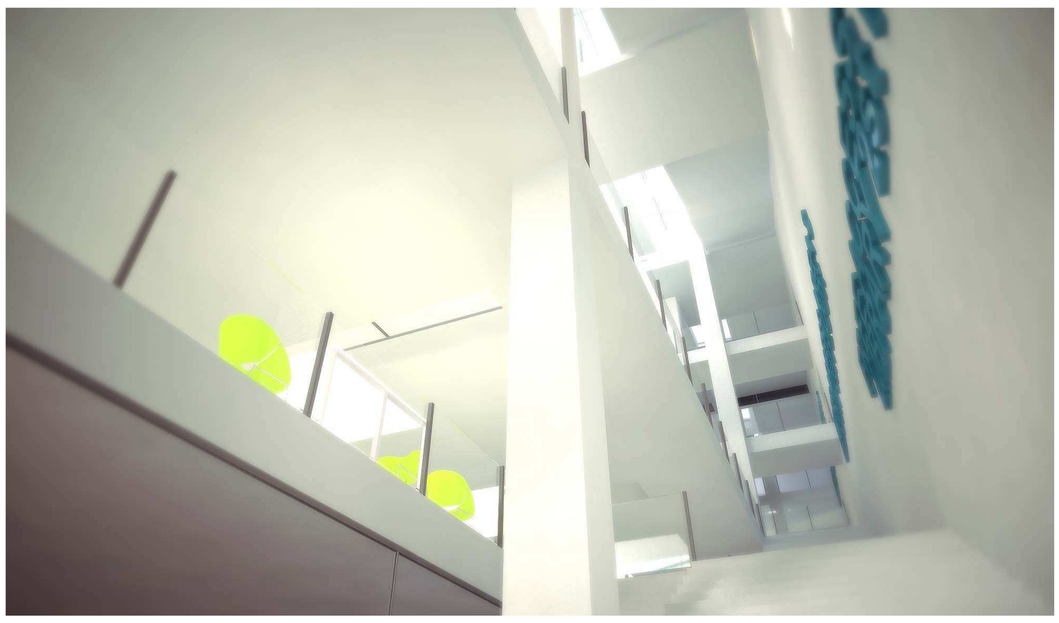
The load bearing structure should be designed according to the loads and requirements specified by the EUROCODE. Dead loads consist of structure self-weight, and order of layers. Soil supporting structures receive dwelling earth pressure loads. Function determines the applied live load. Recommended values: reading rooms: 3.0 kN/m2, conference rooms 4.0 kN/m2, storage rooms 7.5 kN/m2.
Meteorological loads should be applied using the Slovenian national annex of the EUROCODES. Ljubljana is an area of high seismicity; earthquake analysis is of great importance. The pile caps should be connected by ground-beams. The ductile designation of the superstructure (i.e. using BRB elements) allows decrease in the earthquake loads.

About MEP solutions

After works with movement of huge soil masses the archeological excavation site provides optimal condtions to utilize the geothermal energy. The necessary huge surface piping has to be placed at the horizontal plane under the building.

The white, visually homogeneous library spaces cannot be disturbed by the mechanical systems thus they must be hidden. They can be piped together with the light system in service spaces which provides air conditioning (both dehumidification and cooling) for the entire building.

The entrance of the mechanical engineering facility is hidden, so that it doesn't need camuflage with doors in line with the wall. According to

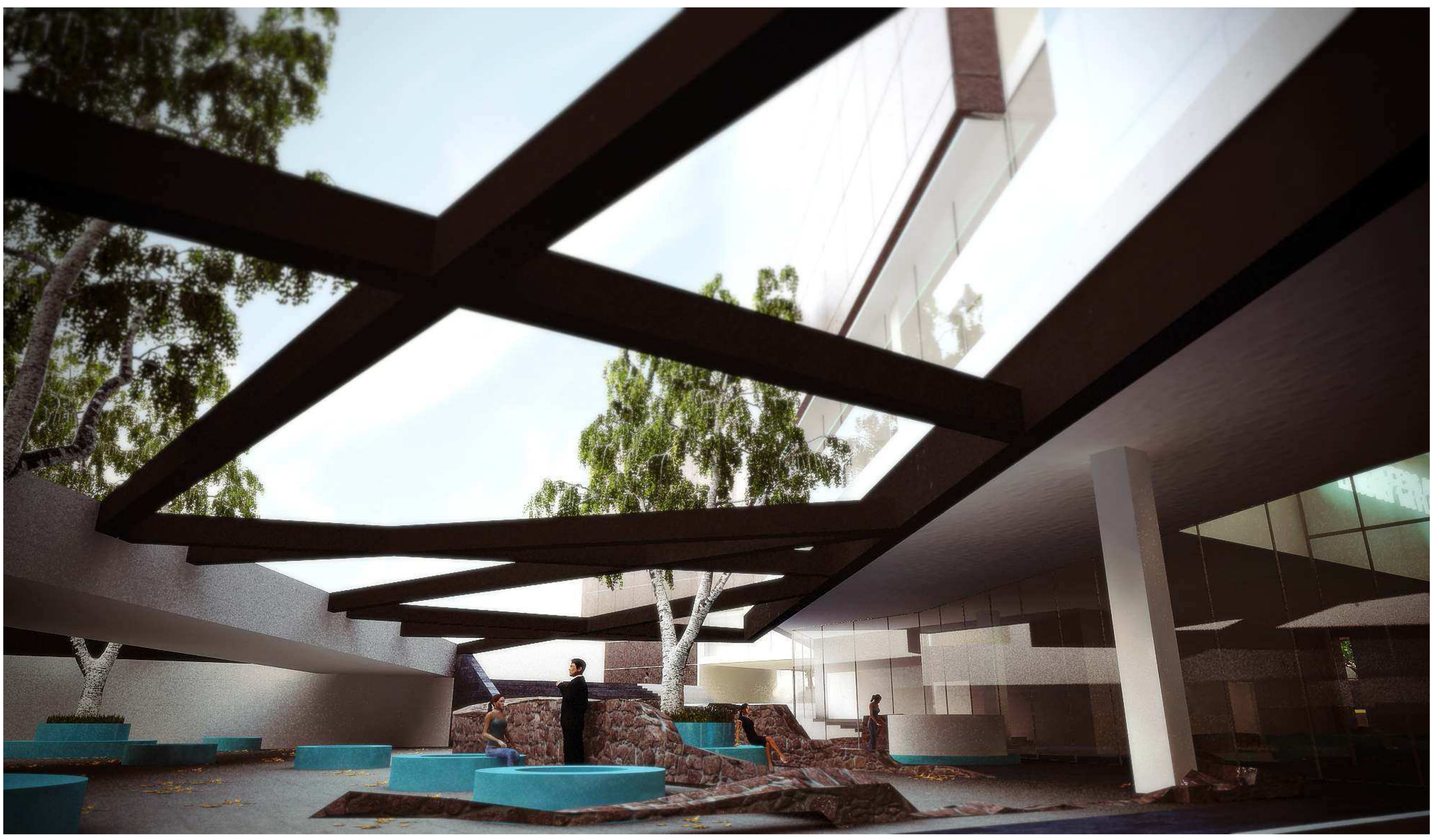


N

5 m

SOUTH FACADE
SCALE **1:200**

EAST FACADE
SCALE **1:200**



WALLS
- LOAD-BEARING STRUCTURE
- DRYWALL SYSTEM
- SOUNDPROOF DRYWALL SYSTEM

SURFACES
- EXISTING ROMAN RUINS
- RECONSTRUCTED ROMAN PAVEMENT
- GRAVEL LAYER
- TRANSPARENT SURFACES
- WATER SURFACE
- GRID STRUCTURE
- LAWN
- GROUND
- GRAPHICS ON THE FLOOR
- DOORS/WINDOWS
- OBJECTS