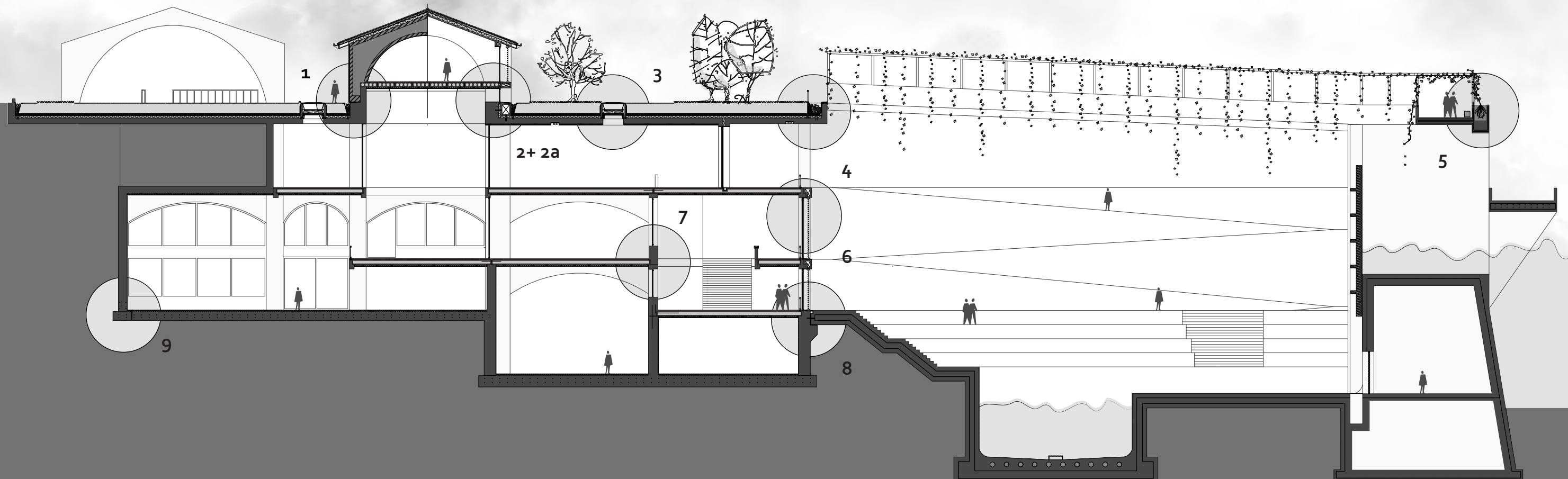


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P5 Presentation
Building Technology Booklet

Architecture and Public Building
Graduation studio: 'Re_Claiming Rome'
Tiberinus Brewery, Papal Arsenal, Rome



BREWERY SECTION scaled from 1:200

Assemblage of The Tiberinus Brewery

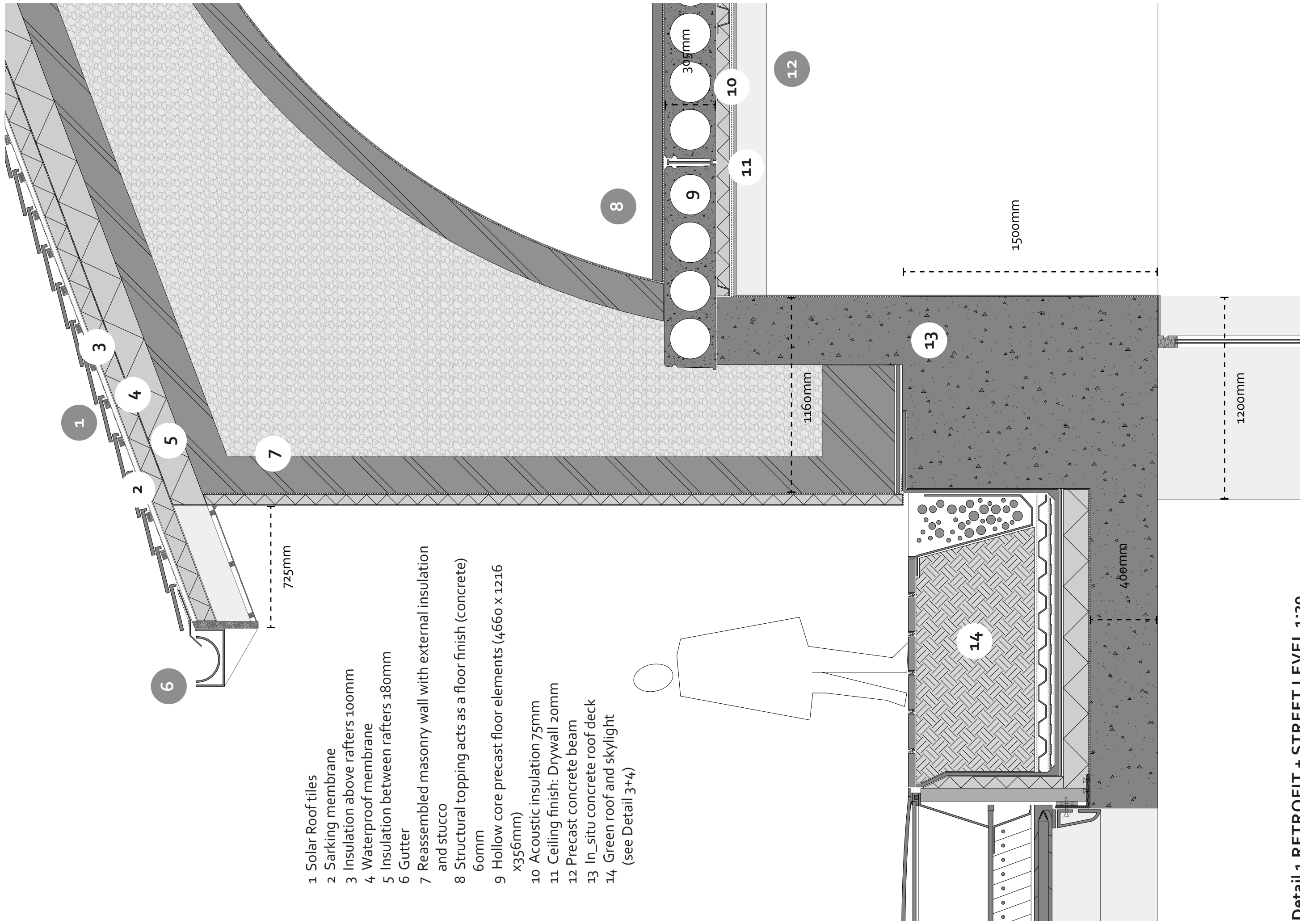
To accommodate the new program of the Tiberinus Brewery being recessed beneath the existing site of the former Papal Arsenal, and further that the site shall project into the Tiber, the choice of concrete as the construction material was considered most suitable. The violent force exerted by the river Tiber upon the embankments of the city, also the excessive water and moisture loads necessitate deep foundations (which are buried 21 meter under the street level for the building and almost 28 meters for the water basin), the perimeter walls will be composed of in_situ reinforced concrete. In order to reduce the volume of concrete used in construction the thickness of the foundations and perimeter walls will taper as they reach street level (at the lowest level up to 800mm in thickness, whereas by -1 level reduced to 500mm. See Detail 9 for foundation construction). The water basin and the dam structure construction is proposed to be 1000-1200mm in thickness to withstand the unpredictable forces of the river during the annual floods (see Detail 5).

For the roof construction precast concrete elements were considered, however due to the irregular cylindrical openings required to accommodate the skylights (see Detail 1 and 3) the precast elements were not viable. The roof is constructed out of in_situ concrete to a depth of 400mm in order not only to accommodate the skylights but also carry the loads of the intensive green roof composite (see Detail 4).

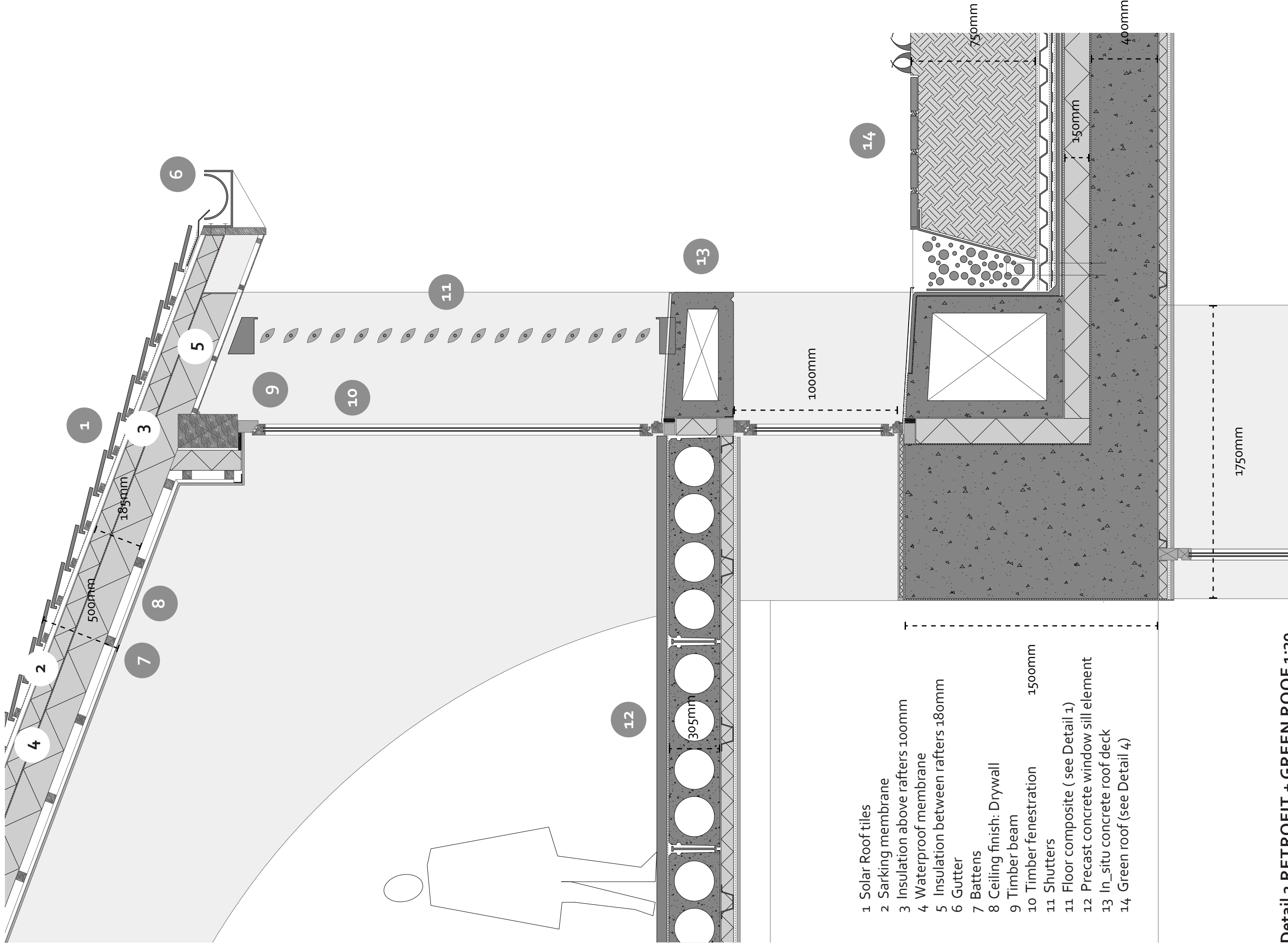
For the internal construction, precast concrete elements were chosen. Other materials, such as timber, were considered - timber was viable since the perimeter walls would seal the construction, steel as well as in_situ concrete. However, finally precast elements were chosen as they are quicker to assemble, cheaper, lighter (in comparison to in_situ concrete), safer and cleaner in construction. Furthermore, it is achievable to obtain precast concrete elements with a 'form liners' finish; these simulate an in_situ cast concrete finish, meaning the elements may be left exposed both on the exterior and the interior. Therefore the wall elements are exposed which meets the aesthetic intentions of the proposal.

The floors construction are comprised of precast hollow core elements concealed with structural topping of 60mm thickness and with a polished finish for the exposed surface. This surface will remain uncovered throughout most of the interior of the structure, however excluding the Reverse Osmosis chamber and the Brewhouse where ceramic tiles are proposed to be used for the floor finish in order to prevent issues with the moisture, sanitation etc.. For the ceiling a layer of acoustic insulation and drywall finish is proposed in order to suppress unwanted indirect sound waves such as reflections that cause echoes, and resonances that cause reverberation (see Detail 6 , 7 and Axonometric).

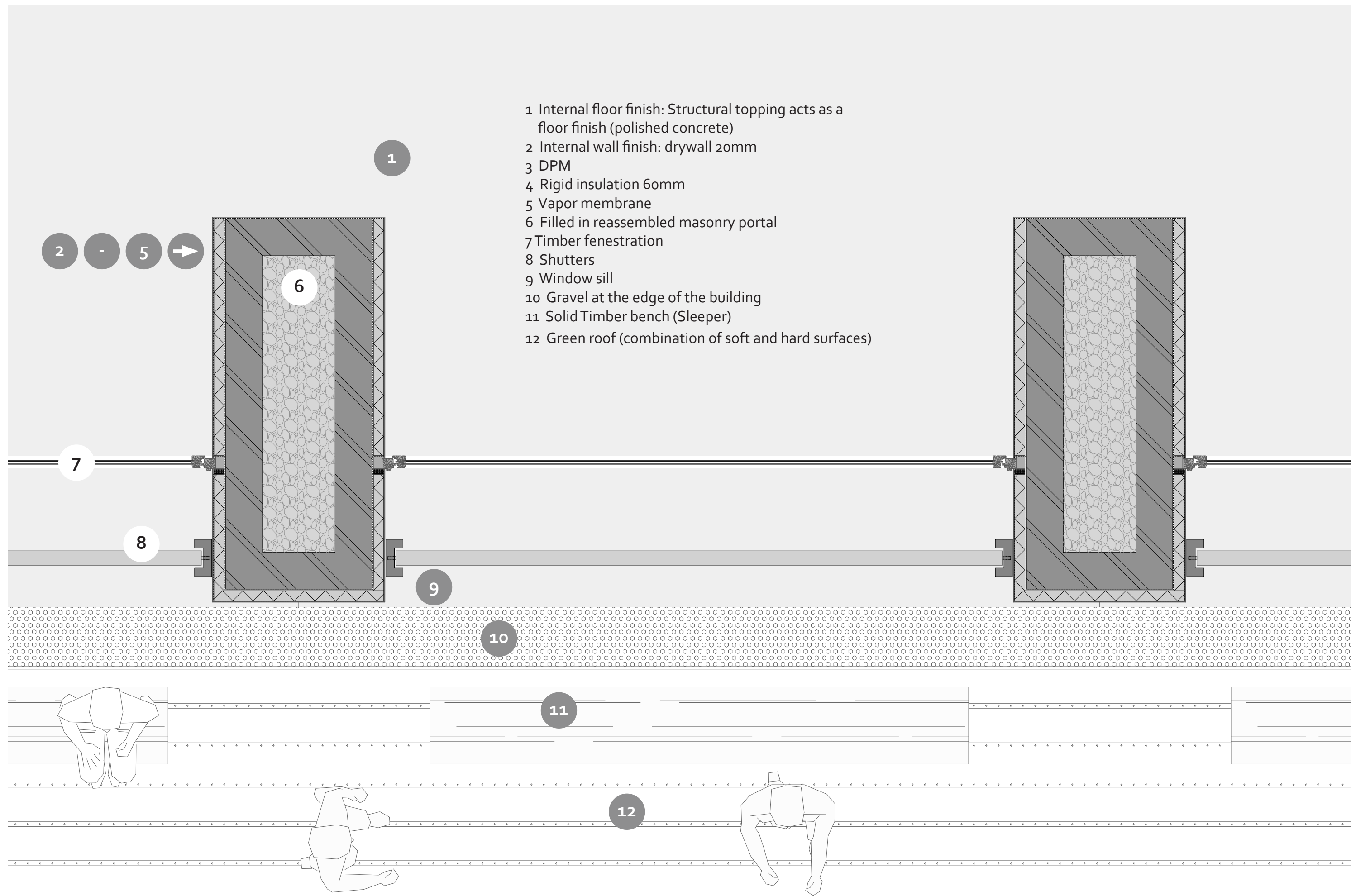
Finally, as the new program is proposed to be beneath the existing site with the former Arsenal maintained, the story below would be constructed with the help of temporary scaffolding - the edifice of the arsenal would be temporarily 'suspended' above, whilst the new foundations are placed underneath (not shown in details). The remaining two buildings would be demolished and later reconstructed in place once the rest of the construction is completed. This reconstruction stage was necessary as excavation approximately 22 metres deep would be required for the laying of the foundation of the new program. Additionally, reconstruction was the most viable solution in order to maintain the inherent aesthetics of the existing site, which is an intention of the proposal.



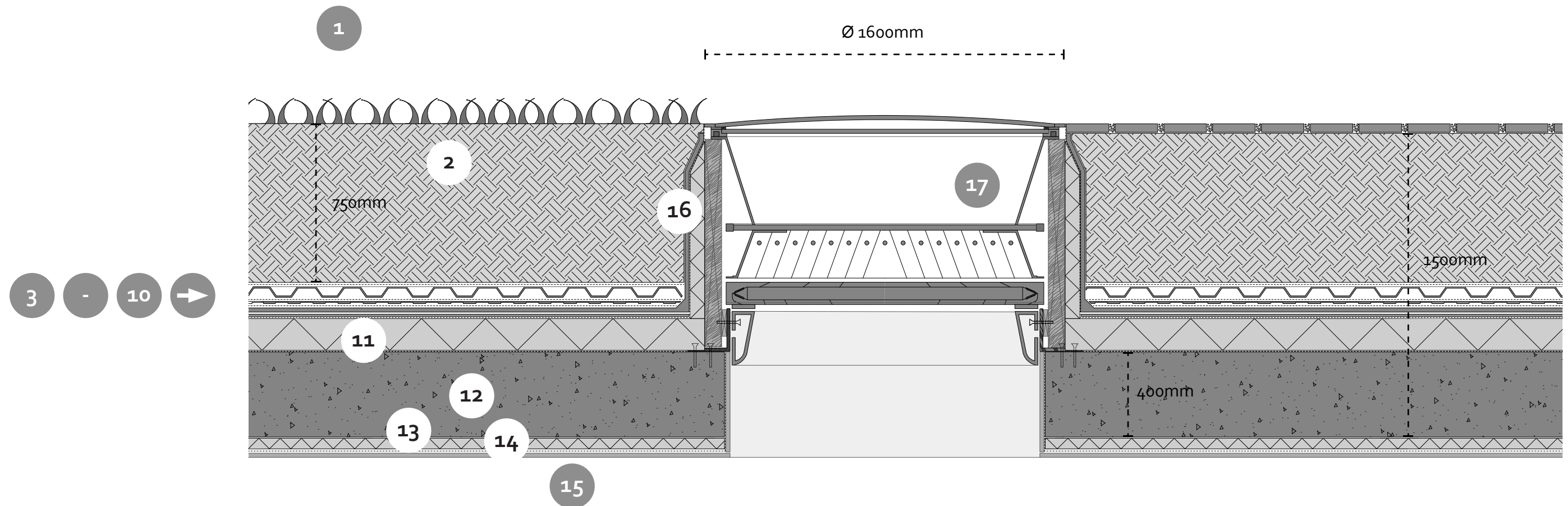
Detail 1 RETROFIT + STREET LEVEL 1:20



Detail 2 RETROFIT + GREEN ROOF 1:20

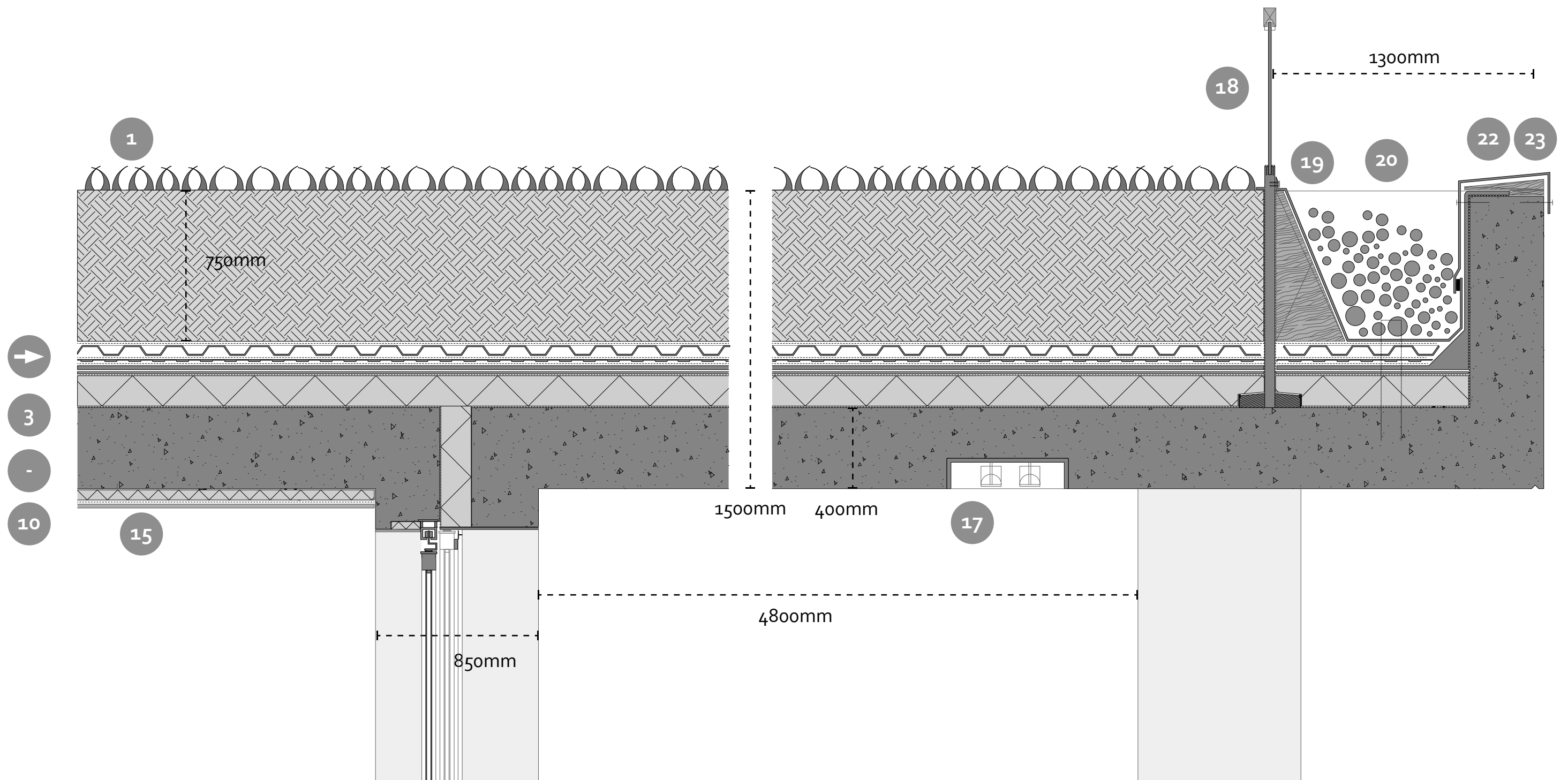


Detail 2a horizontal RETROFIT + GREEN ROOF 1:20



- 1 Vegetation
- 2 Growth medium 750mm
- 3 Filter fabric
- 4 Reservoir layer
- 5 Moisture retaining layer
- 6 Aeration layer
- 7 Drainage layer
- 8 Mastic Asphalt 20mm
- 9 Separation layer
- 10 Waterproof membrane
- 11 Thermal insulation 150mm
- 12 In_situ concrete roof deck 400mm
- 13 Acoustic Insulation 75mm
- 14 Dpm
- 15 Ceiling finish: Drywall
- 16 Skylight support structure (timber product)

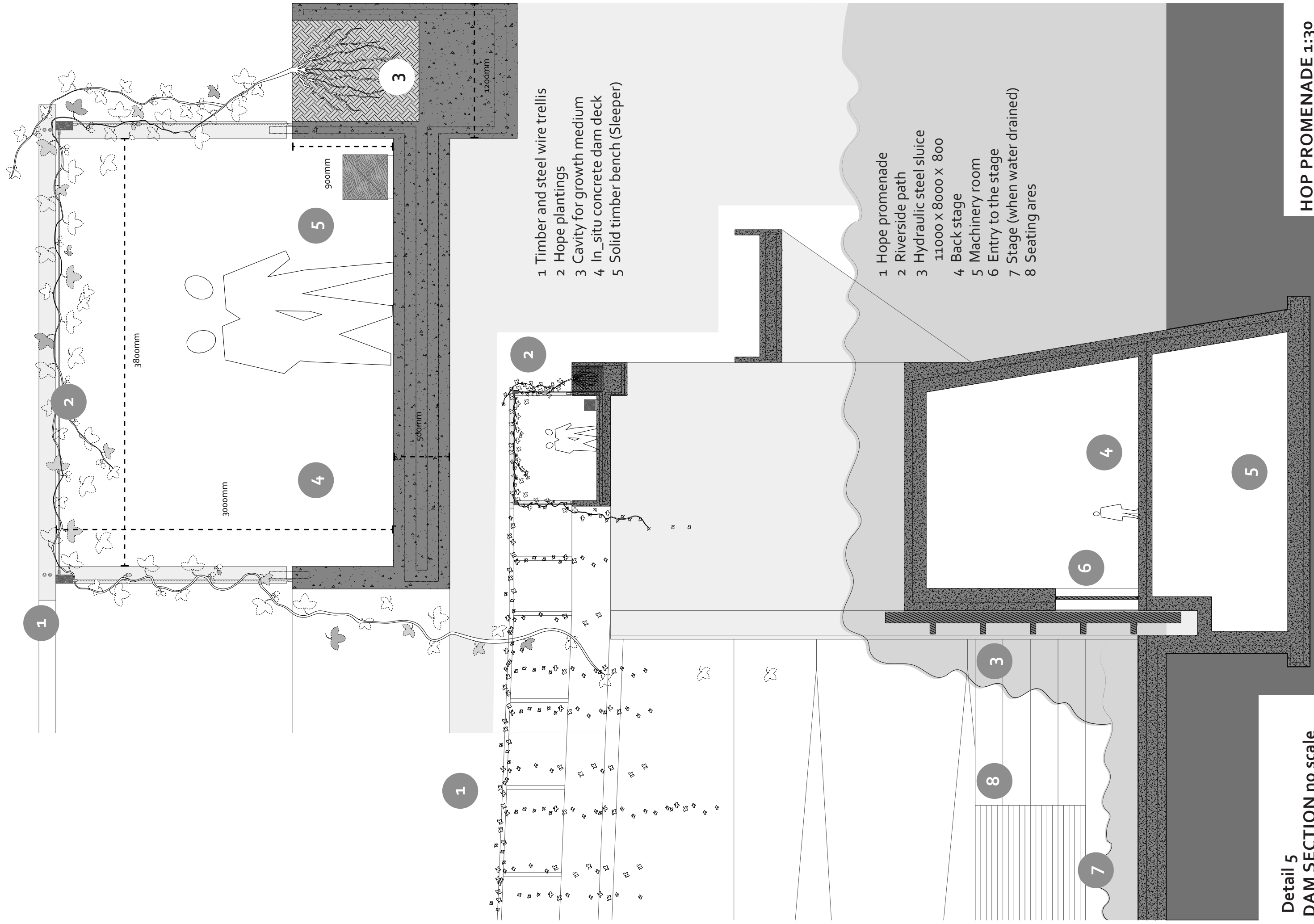
- 17 Skylight Ø 1600mm:
 - a. Glass
 - b. Sunblind
 - c. Beaming
 - d. LED lighting
 - e. geomembrane, light scattering

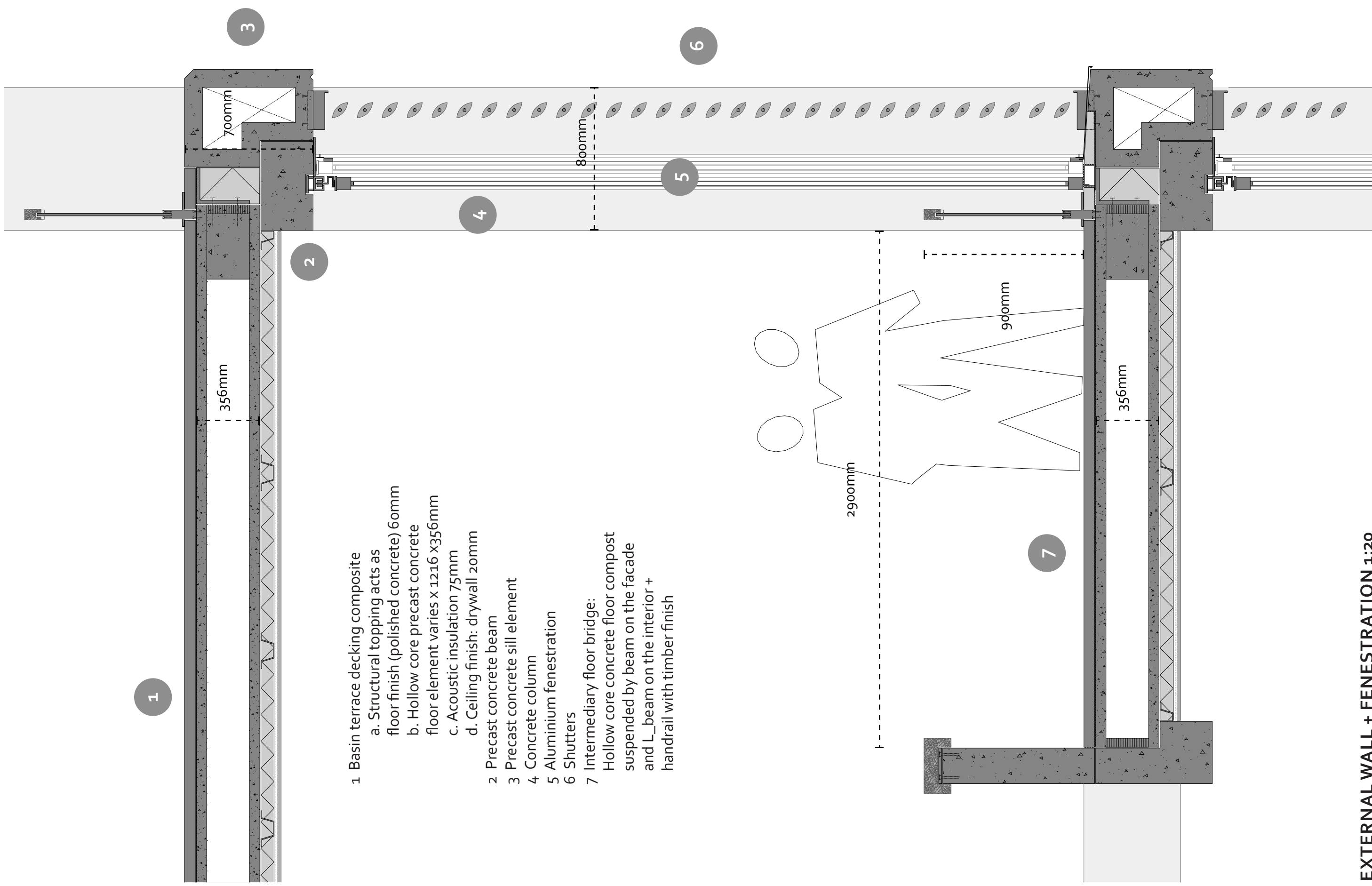


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- 2 Growth medium 750mm
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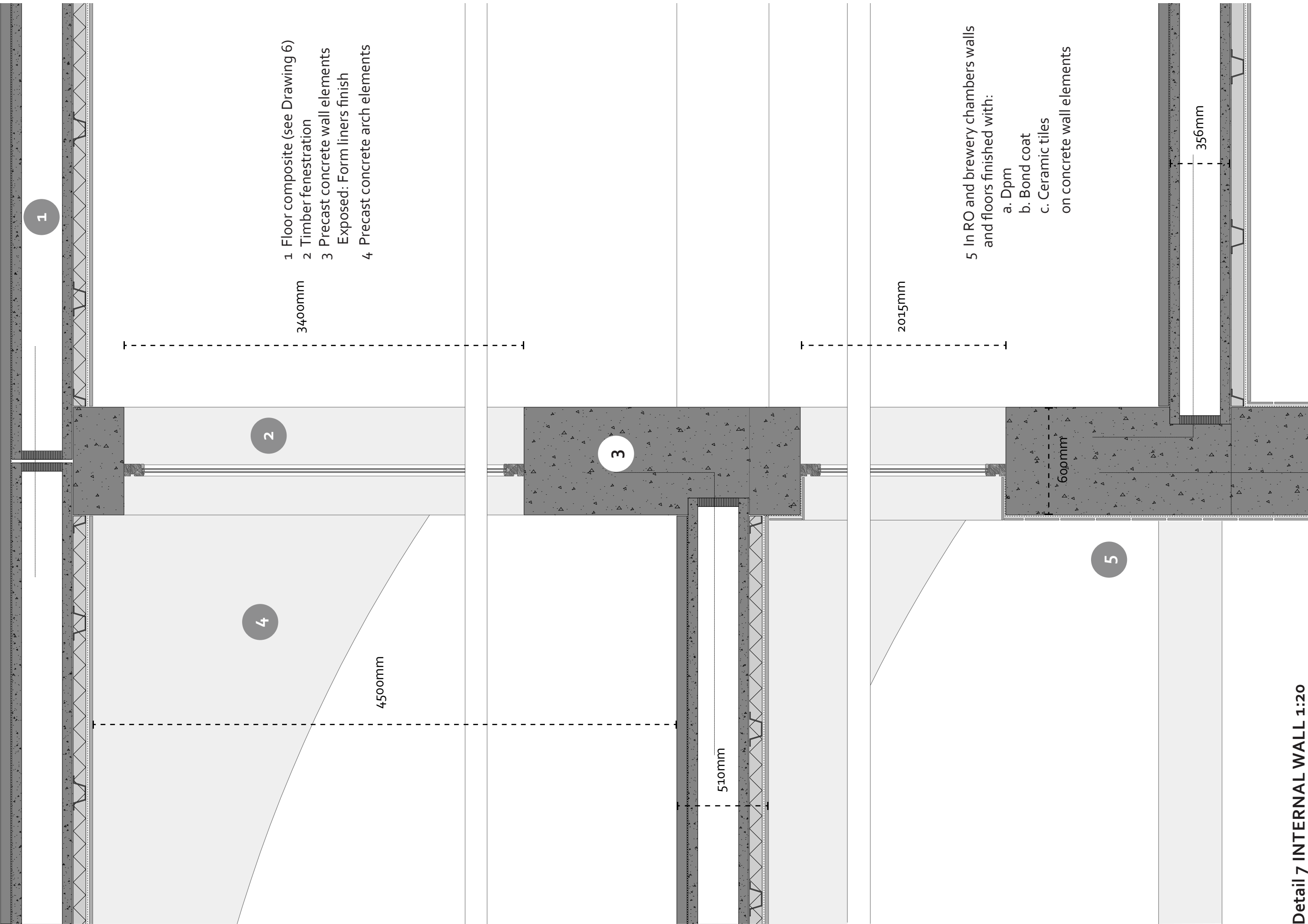
- 13 Acoustic Insulation 75mm
- 14 Dpm
- 15 Ceiling finish: Drywall
- 16 Aluminium fenestration
- 17 Light fixings
- 18 Handrail
- 19 Timber blocking
- 20 Gravel
- 21 Drainage
- 22 Timber blocking
- 23 Steel flashing

Detail 4 GREEN ROOF EDGE 1:20

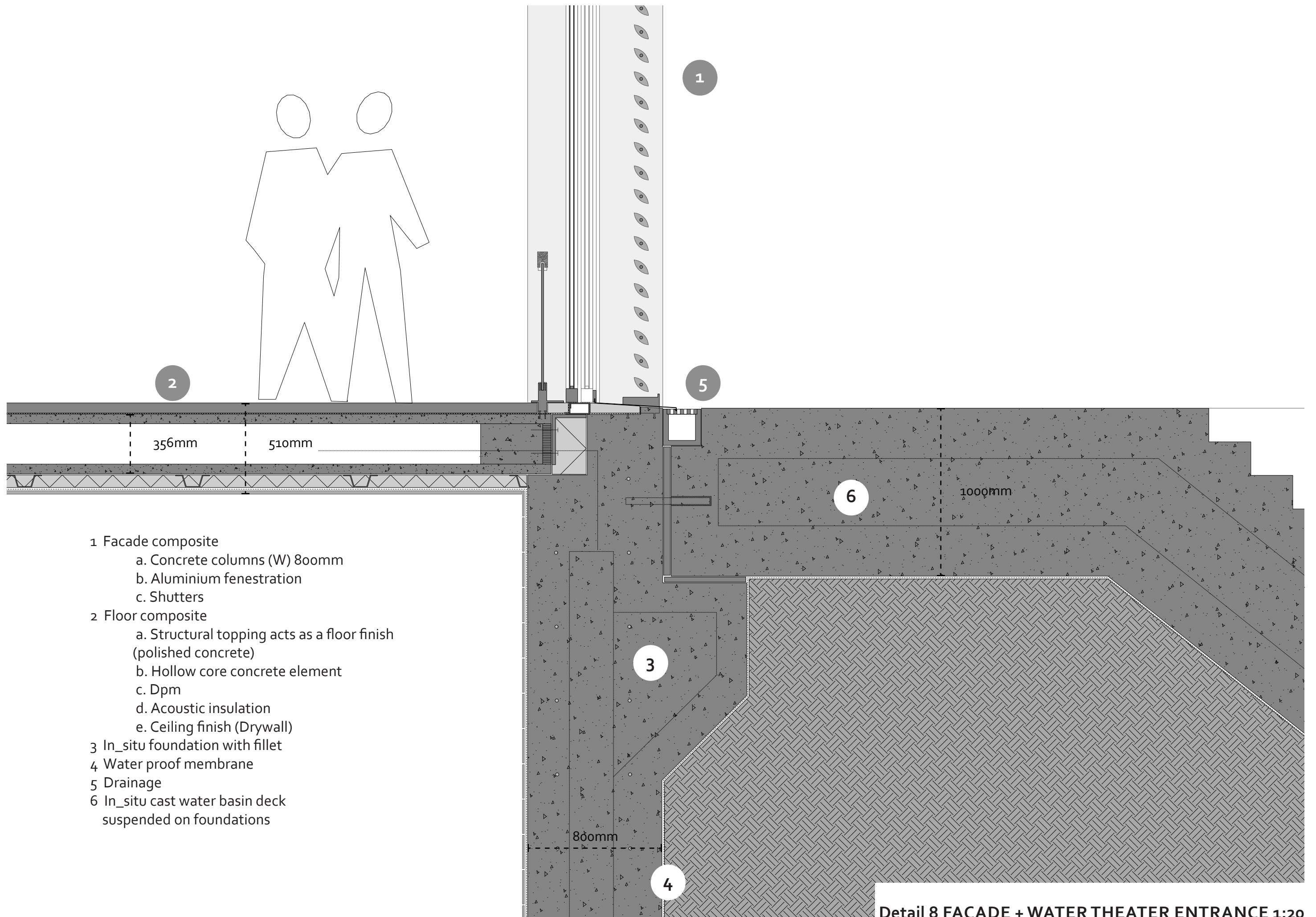




Detail 6 EXTERNAL WALL + FENESTRATION 1:20

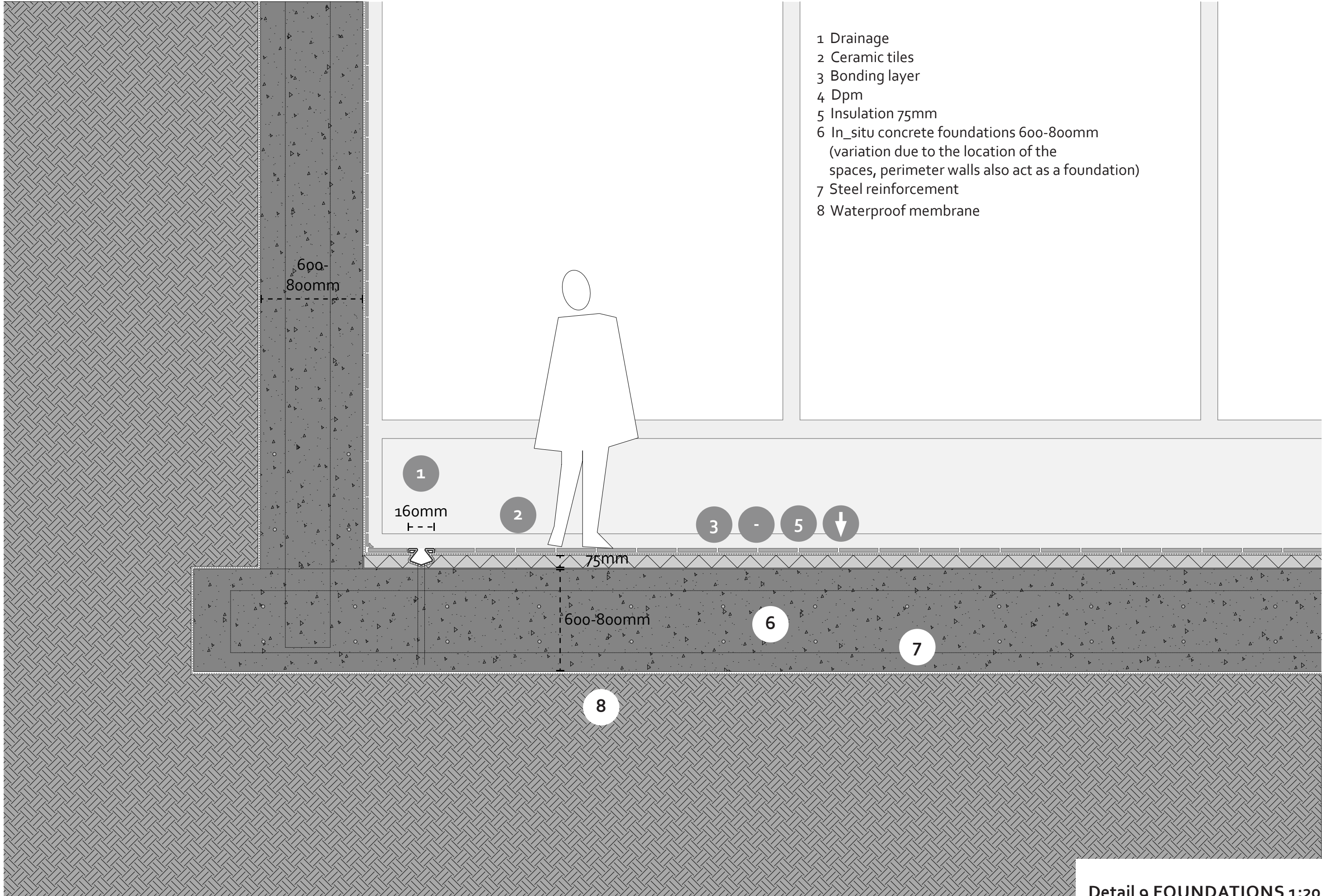


Detail 7 INTERNAL WALL 1:20

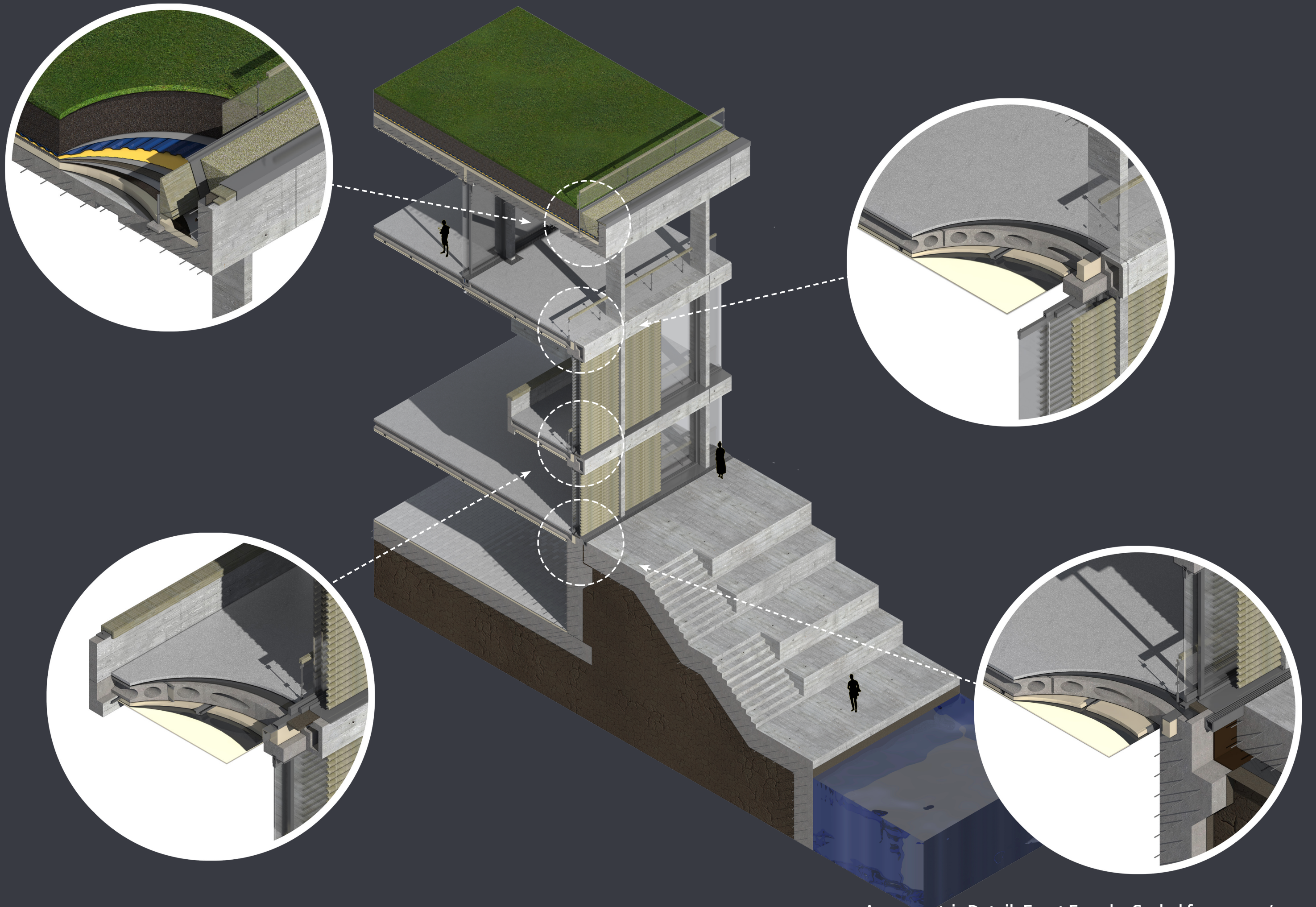


Detail 8 FACADE + WATER THEATER ENTRANCE 1:20

- 1 Drainage
- 2 Ceramic tiles
- 3 Bonding layer
- 4 Dpm
- 5 Insulation 75mm
- 6 In_situ concrete foundations 600-800mm
(variation due to the location of the spaces, perimeter walls also act as a foundation)
- 7 Steel reinforcement
- 8 Waterproof membrane



Detail 9 FOUNDATIONS 1:20



Axonometric Detail: Front Facade; Scaled from 1:125/1:20