

BASSENGBAKKEN 2, 7042 TRONDHEIM, NORWAY

Reference Project completed July 2015

Mixed use building by Agraff Arkitektur AS with JST Arkitekter AS with

MAGNA.
GLASKERAMIK



Bassengbakken 2 represents a project based on multi-functionality and environment respect. The building represents a triangular plot, given though it combines offices, catering business and retailer, together with a residential area, all in one, set on a 5,800 m² surface. Additionally it stands as an infill building at the entrance to Lower Elvehavn. This is a dense use of the plot with high specification Class B thermally protected buildings.

Agraff AS and JSTArkitekter AS won the project in a design competition

in 2009. They implemented the arrangement of the plot, from initial sketch, to preliminary and detailed design, as well as they monitored the progress during the construction period. Construction starting date was July 2013, with completion in July 2015. The building includes a ground level, public, green and hard-landscaped amenity park above part of the car parking basement. This outdoor area is allowed for by the dense use of the rest of the site. Conserved historic buildings nearby, have set high standards for local architectural design and Trondheim

is well known for community that led architectural projects with ground breaking solutions and trials of circular and sustainable ideas. In this case, the designers focused on creating a building that gives suitable spacial qualities to the adjacent urban spaces. They provided a project with public place, which enriches the district and takes into account the protected spaces, leaving the building blend into a

whole area whilst also standing out as a strong object in its own right. The building has flexible technical engineering, efficient floor plans creating good rental incomes and is planned for energy class B in this very cold latitude. Its form fits a harsh environmental conditions, safeguards planning sightlines, retains cornice height, local proportions and orientation at street level.



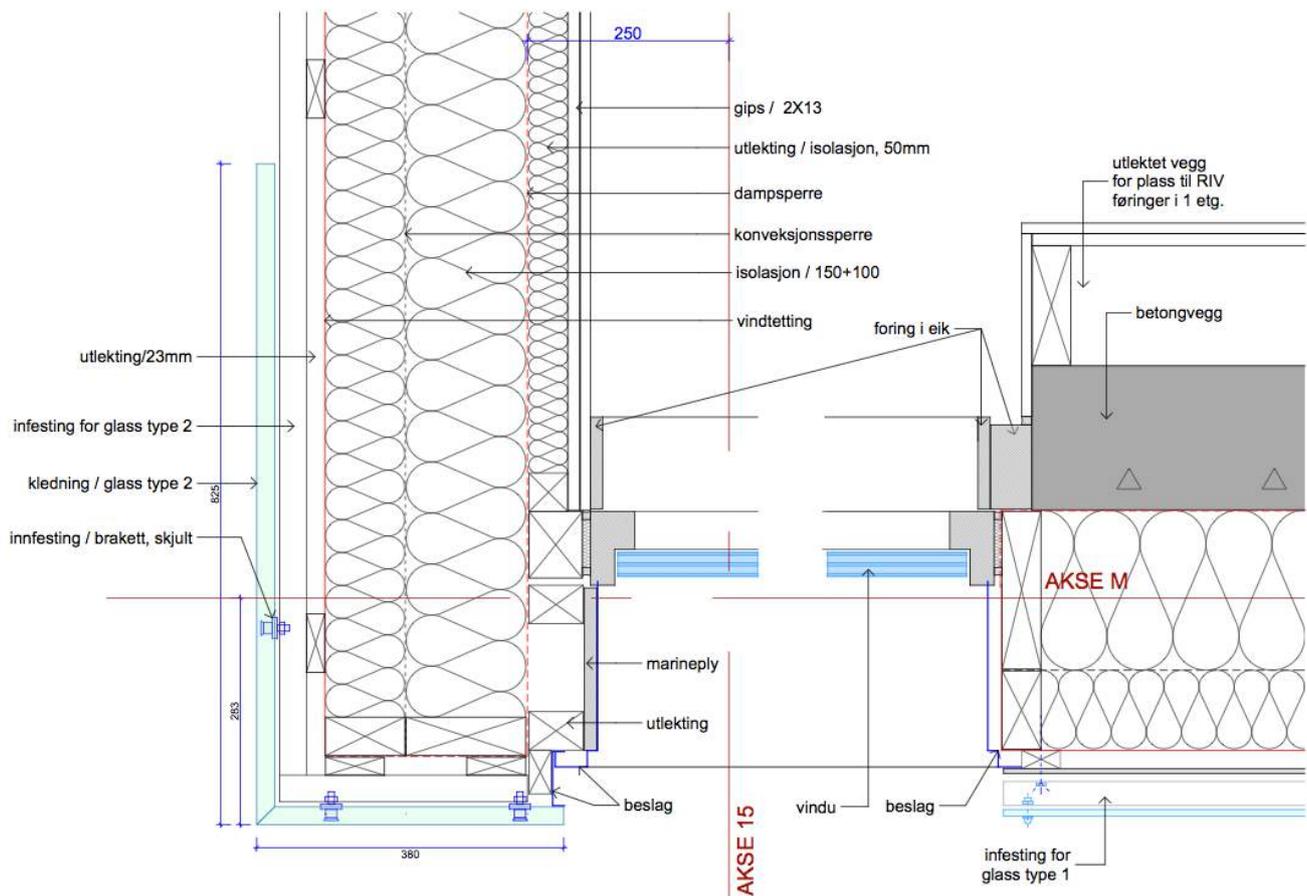
The building is clad with a range of systems from curtain walling to rainscreen, however the near 400M2 rainscreen areas are applied with Magna Glaskeramik in type Jade Patinated, thickness 21mm panels with 10mm open joints between panels and a Fischer ACT Aluminium rail under-construction method to hang the cladding back to the concrete structural frame.

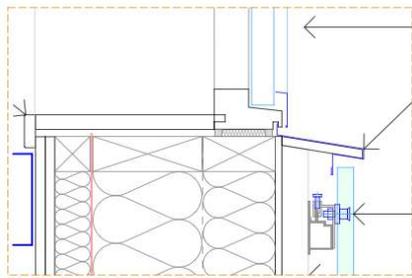


The material offers a new and sustainable circular economy ethic, whereby the entire contents are sourced and upcycled from trade waste glass and can be locally recycled by glass processors at the end of a long life. The material is heavily durable, offering true performance and tested certification as well as suited to both hot and cold climates, strong against vandalism, impervious to staining and almost self-cleaning in its finish.

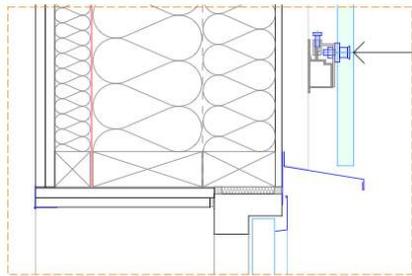
These design details show the arrangement of the Glaskeramik panels at openings and to the ground, the positioning of the anchors at 100mm from edges and even the potential to mitre bond the material at outside corners.

MAGNA Glaskeramik bases the production of this material on industrial glass waste, such as glass bottles or defective solar panels. This is then reprocessed in a controlled way without additions and the outcome reflects the input material. Green beer bottle source will produce a dark green and low iron glass from solar panels can provide a very white coloured Glaskeramik. A range of types and finishes can be studied on www.magna-glaskeramik.com

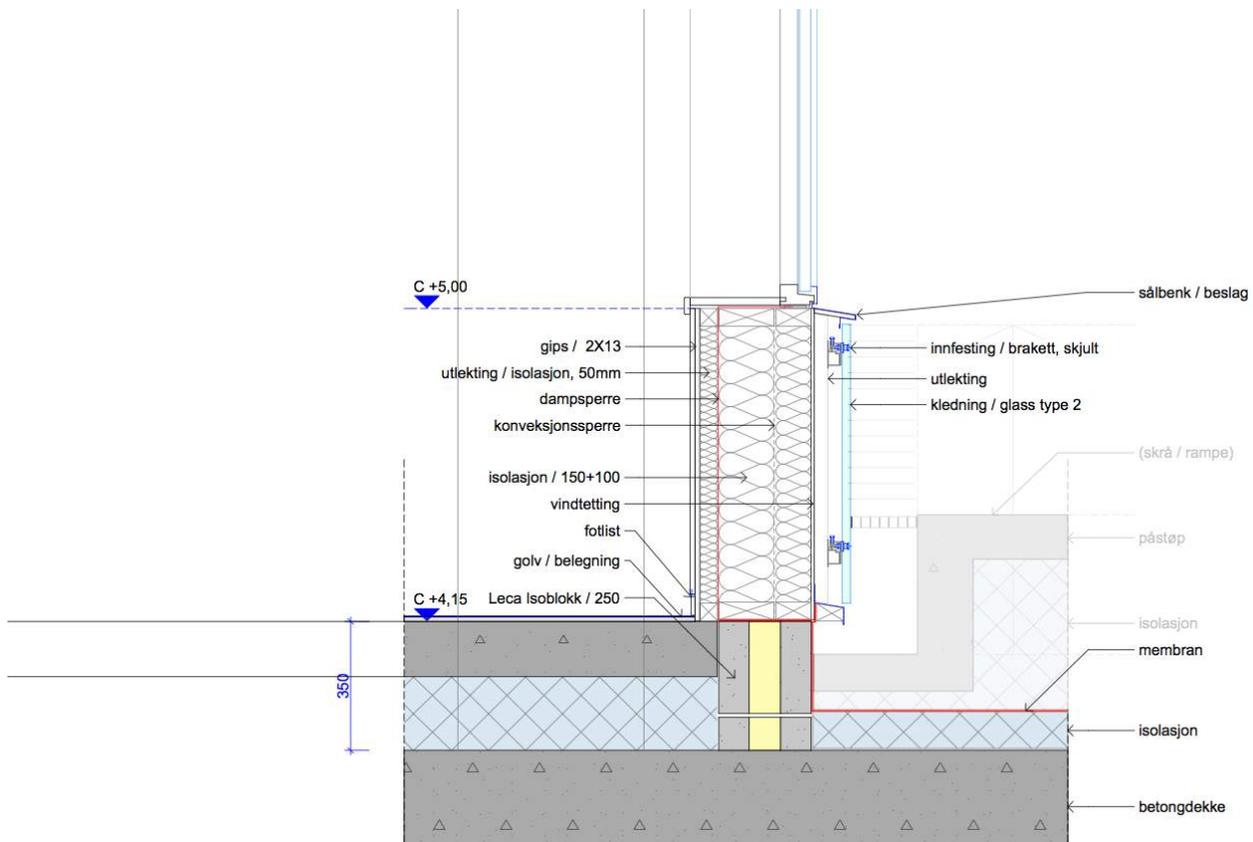
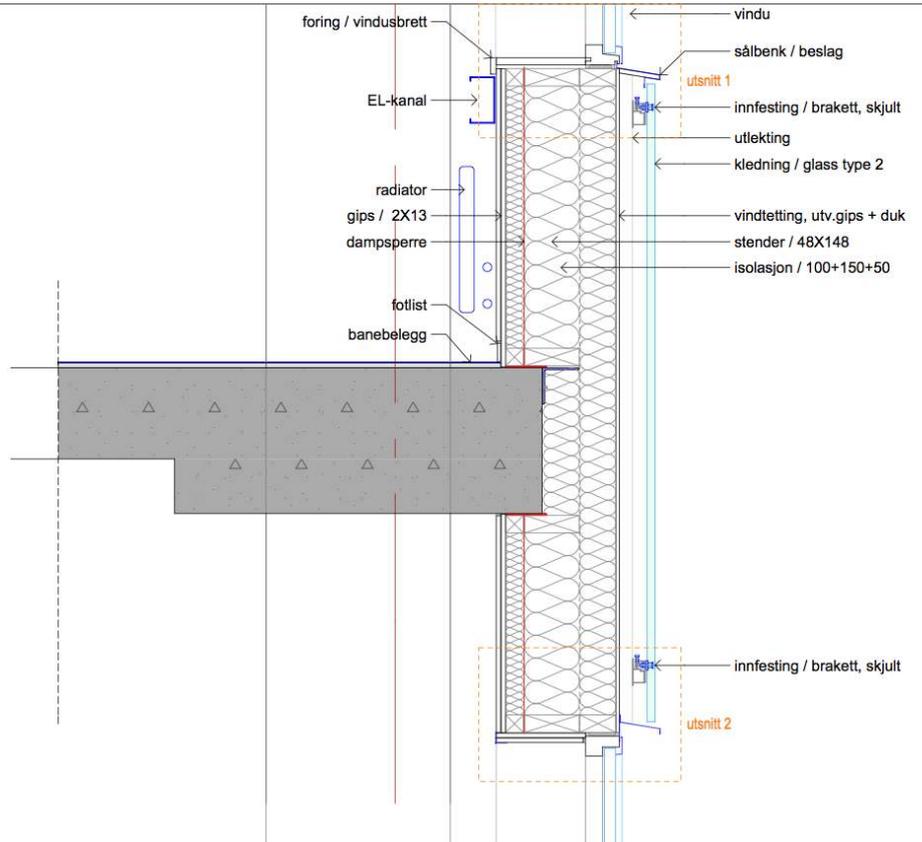




utsnitt 1, 1:5



utsnitt 2, 1:5



The material Glaskeramik stands for innovation and as an ecologically-friendly material. It has absolutely no additives (such as a resin bond which many companies resort to to reduce the issue of tension) and is categorized as crystallized glass cermaic in its nature and character. The technology allows the growth of these strong crystals and deals with the air bubbles captured by the sintering process, whilst also removing the tension in the sheet formation. This means that the true advantage over cast glass types is that the material slabs (with a current maximum extension of 2700x1200mm, but shortly of 3400x1400mm) can be premade and stocked in quantity affording a swift processing for projects. The material thus covers the glass, cast glass and the natural stone market but offers

light translucency and randomised interior details. The patinated, natural surface offers an unusual textural and aesthetic effect in the changing light and weather conditions, which make it stand out amongst the usual façade solutions. Magna Glaskeramik is pioneering the circular economy in its promotion of 100% recycled and 100% recyclable façade material, which is being taken up by global accreditation and test data. Lately is becoming more usually specified as rainscreen, but even it is even used in laminated curtain wall façade applications whilst generally regularly specified in interior applications from light walls, interior surfaces, flooring slabs and reception desks and kitchen splashbacks through to works of art, water fountains and shower screen.



The material is made in Germany to a high quality and standard and with a wealth of leading glass consultancy and technical advice in order to create a stable outcome. If you would like to know more about this exciting new material or require technical advice, please do not hesitate contacting us. Additionally, please find attached some technical details regarding Glaskeramik. EPD and ETA certification are both expected before end this year.

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Written and documented by Andrew Savile Architect October 2016

Technical documentation

Description	Value	Norm
Dimensions Dimensional tolerances	3500 x 1500 mm patinated 3400 x 1450 mm polished probable dimensions from 12/16 on length and width +/- 1 mm	
Thickness Thickness tolerances	15-30 mm, >21 mm special production patinated +/- 1,25 mm polished +/- 1,10 mm	
Density	ca. 2,48 g/cm ³	DIN EN ISO 10545-3
Weight per m² with 21 mm thickness	ca. 50,4 kg	
Bending strength 5% fractile Jade Bending strgth. 5% f. Polar White	patinated 22 N/mm ² patinated 20 N/mm ²	EAD 13-33-0030-06.01 EAD 13-33-0030-06.01
Load-Bearing-Capacities	ca. 3,44 kN	EAD 13-33-0030-06.01
E-Modul	ca. 30 kN/mm ²	EAD 13-33-0030-06.01
Hardness according to Mohs	6 patinated 4 polished	DIN EN 15771 DIN EN 15771
Heat expansion 20-100°C	7,22 x 10 ⁻⁶ x K ⁻¹	DIN EN 103
Heat conductivity at 64°C	1,04 W/mK	
Specific heat capacity Cp	0,7 J/gK	
Water absorption	ca. 0,07 Ma,- %	DIN EN ISO 10545-3
Frost resistance	no trials with visible defects	DIN EN ISO 10545-12
Stain resistance	5 (stain can be removed with hot water)	DIN EN ISO 10545-14
Chemical resistance	A, GA	DIN EN ISO 10545-13
Fire class	A1	EN 13501-1
Surface wear	Class II, 300 revolutions	DIN EN 154
Slip resistance	R9 patinated	DIN 51130