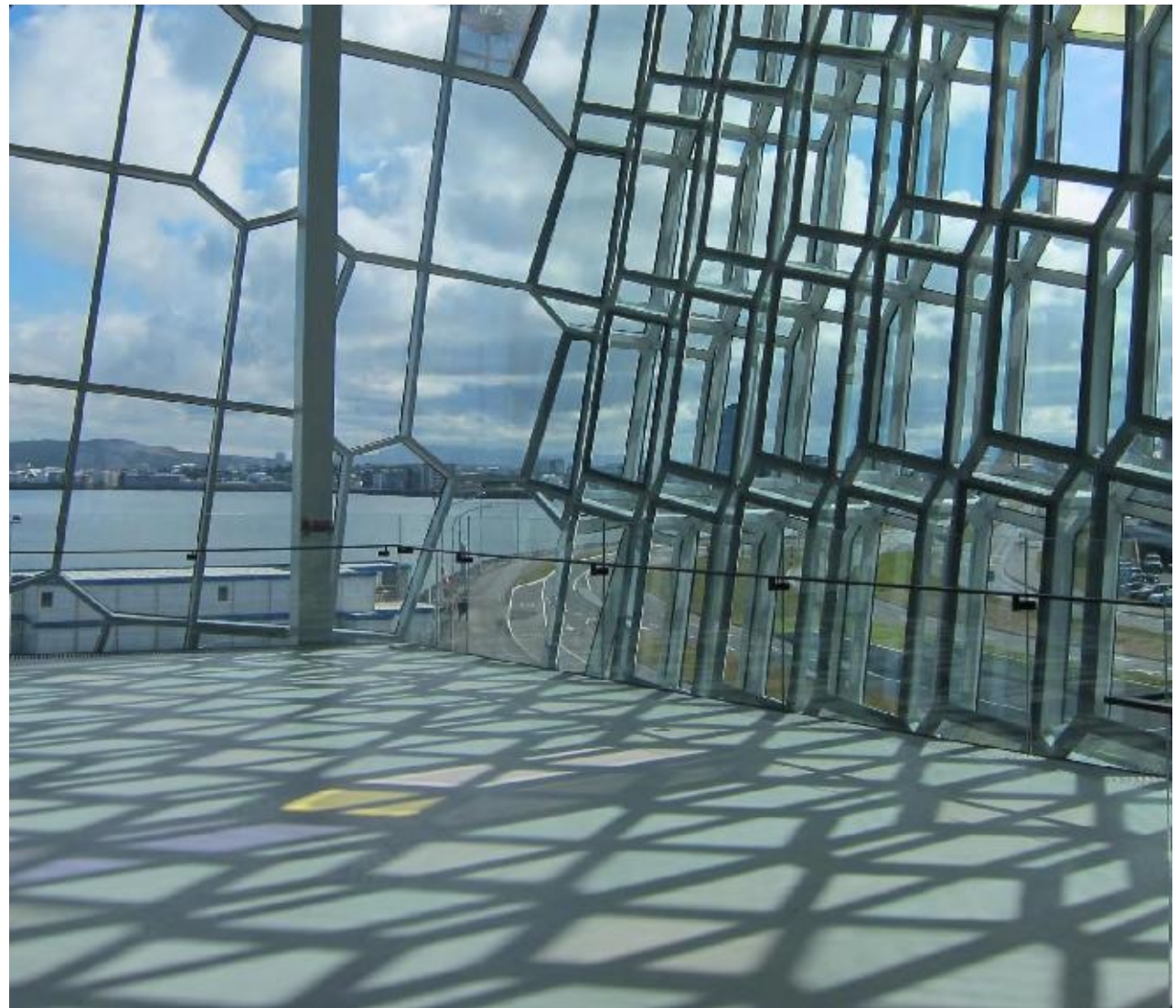


# HARPA - REYKJAVÍK

HANS EXNER  
CHEFRÅDGIVER  
RAMBØLL

DANSK STÅLDAG  
2011-11-24

RAMBØLL

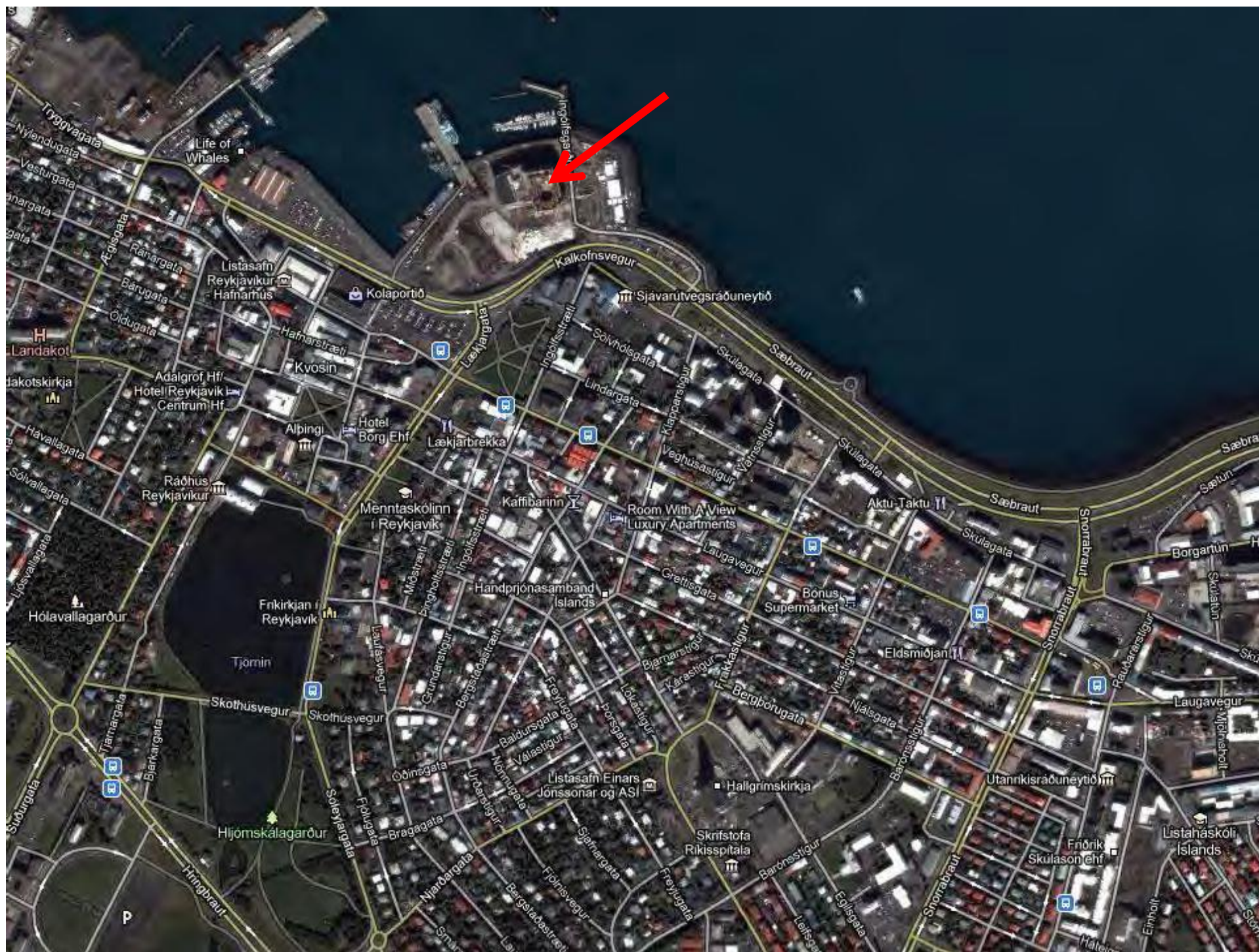


# HARPA. CONCERT AND CONFERENCE CENTRE REYKJAVIK ICELAND

- Builder:  
Reykjavik municipality and the Icelandic state
- Architect:  
Henning Larsen Architects
- Acoustics and Theatre Planning:  
Artec, New York
- Engineer:  
Ramboll
- Local consultants
- Designed and built: 2005 - 2011

**RAMBOLL**





INAUGURATION AUGUST 2011

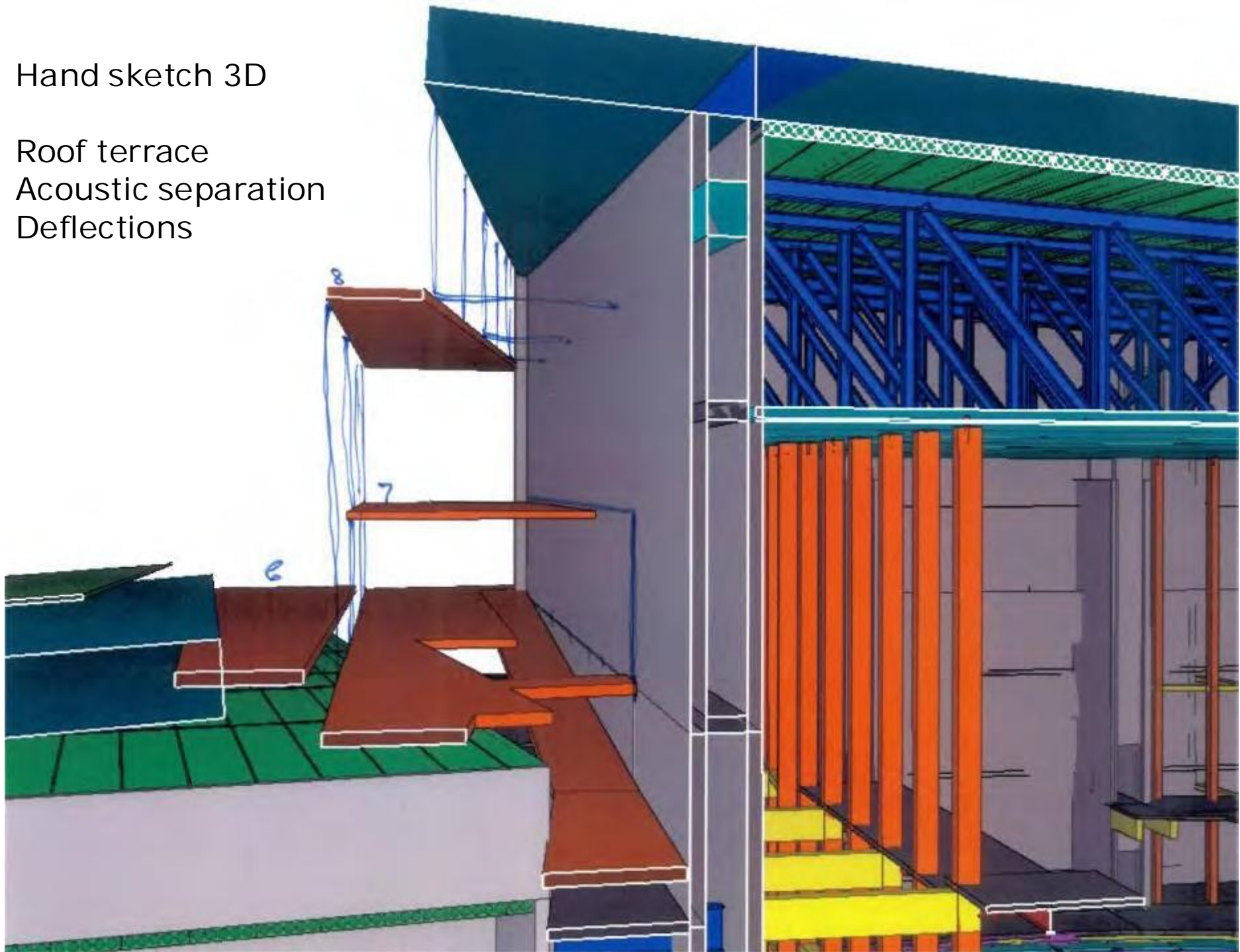


Hand sketch 3D

Roof terrace

Acoustic separation

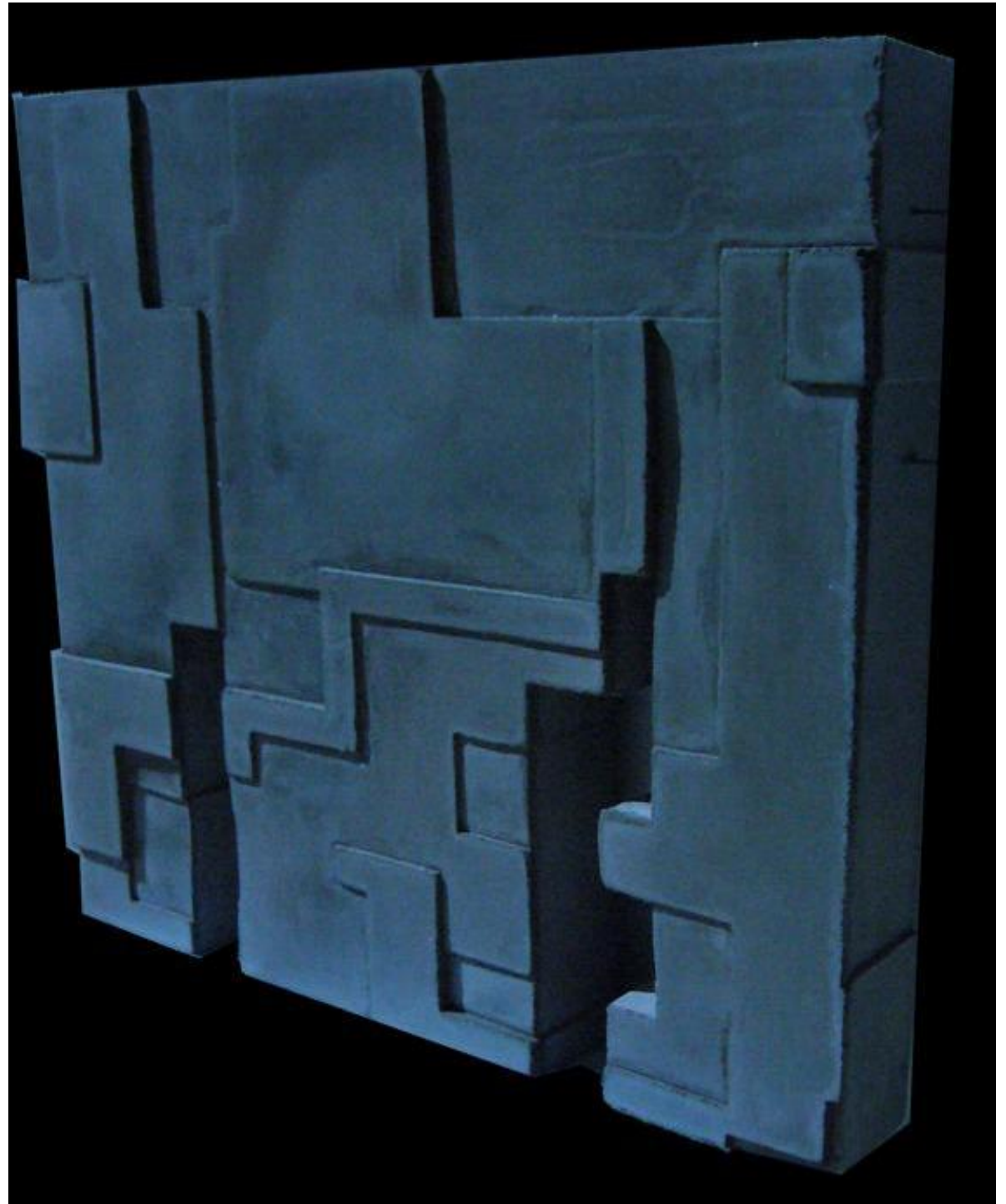
Deflections

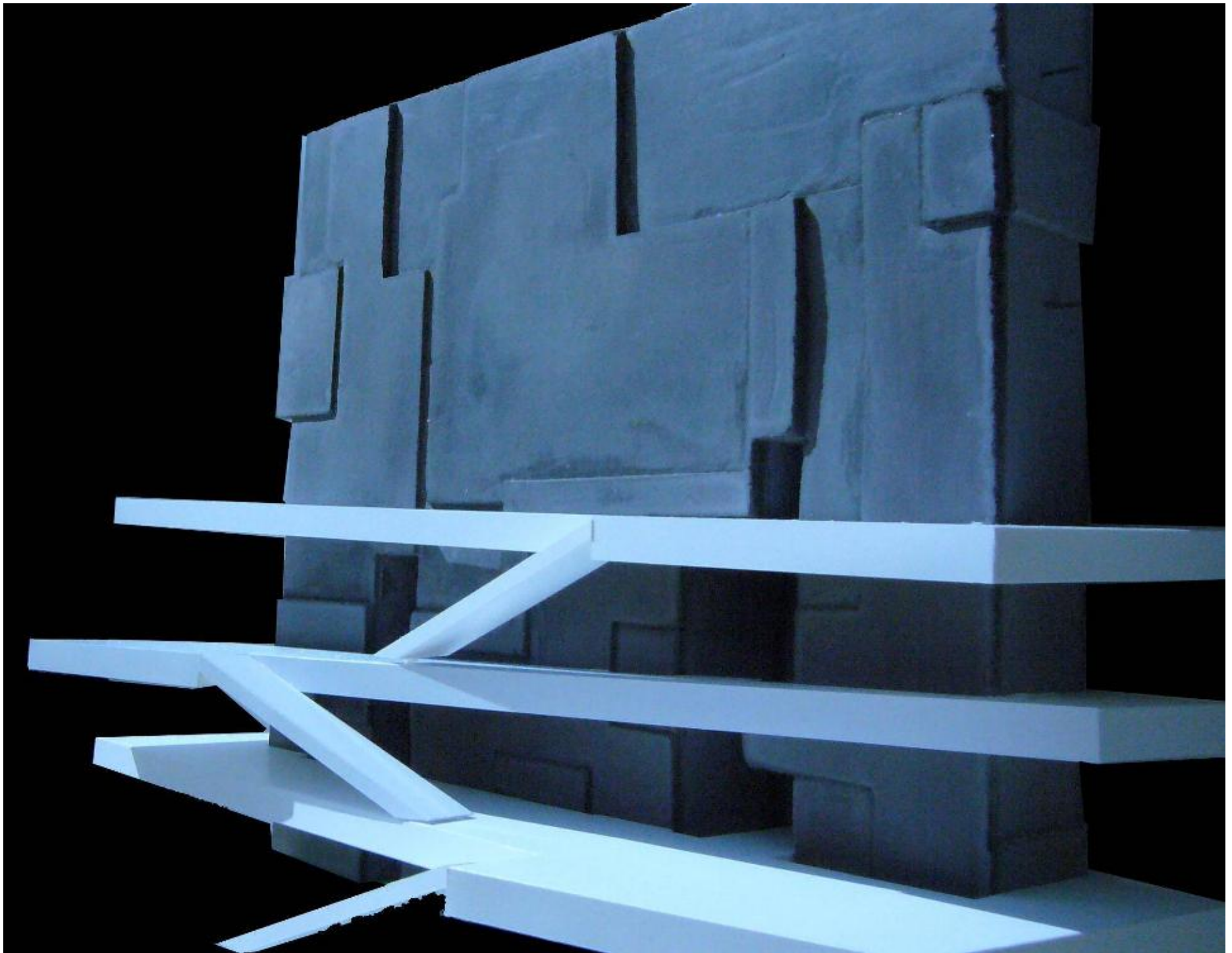




# WALL AS A ROCK

RAMBOLL

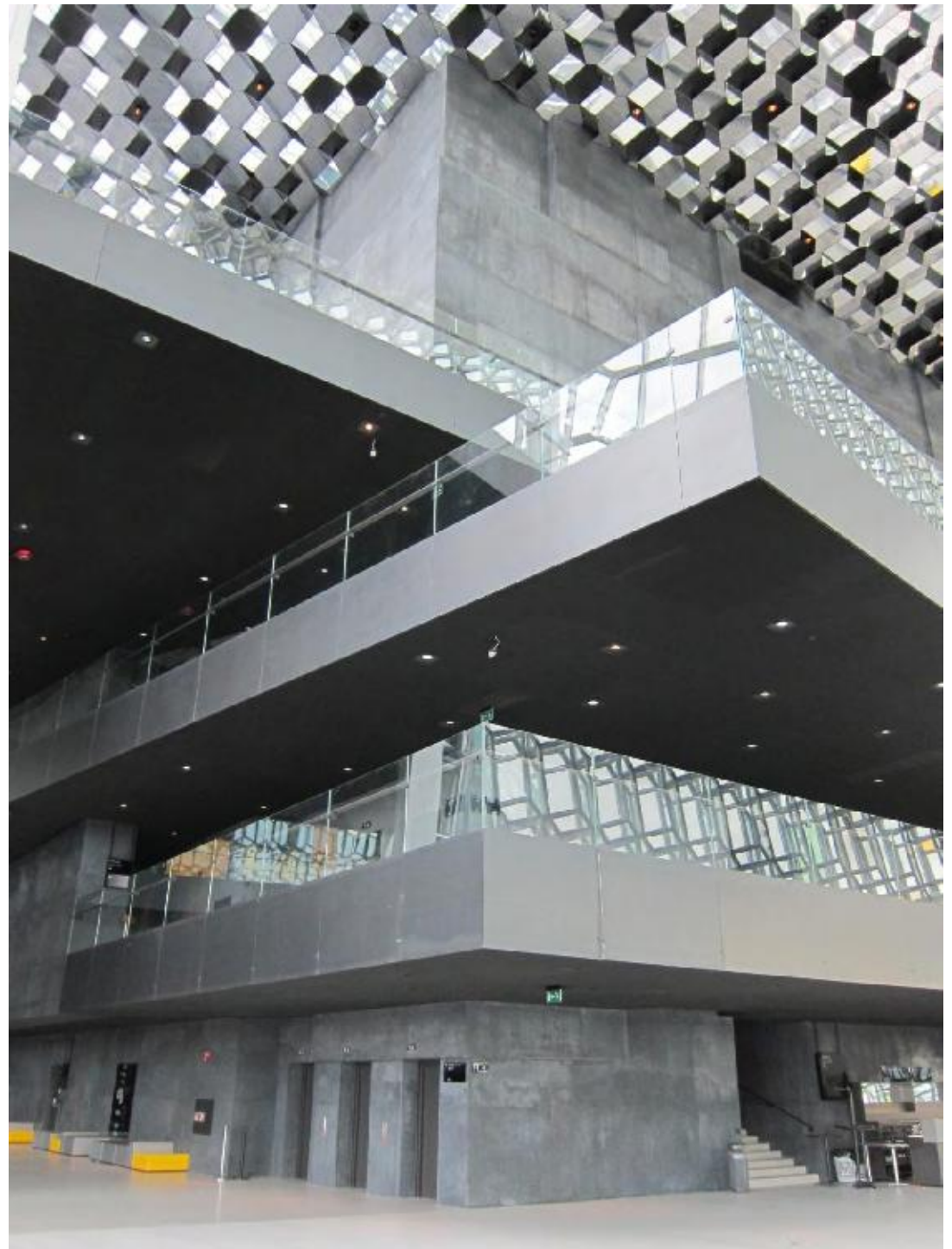






# LOBBY BALCONIES 8 M CANTILEVER

RAMBOLL



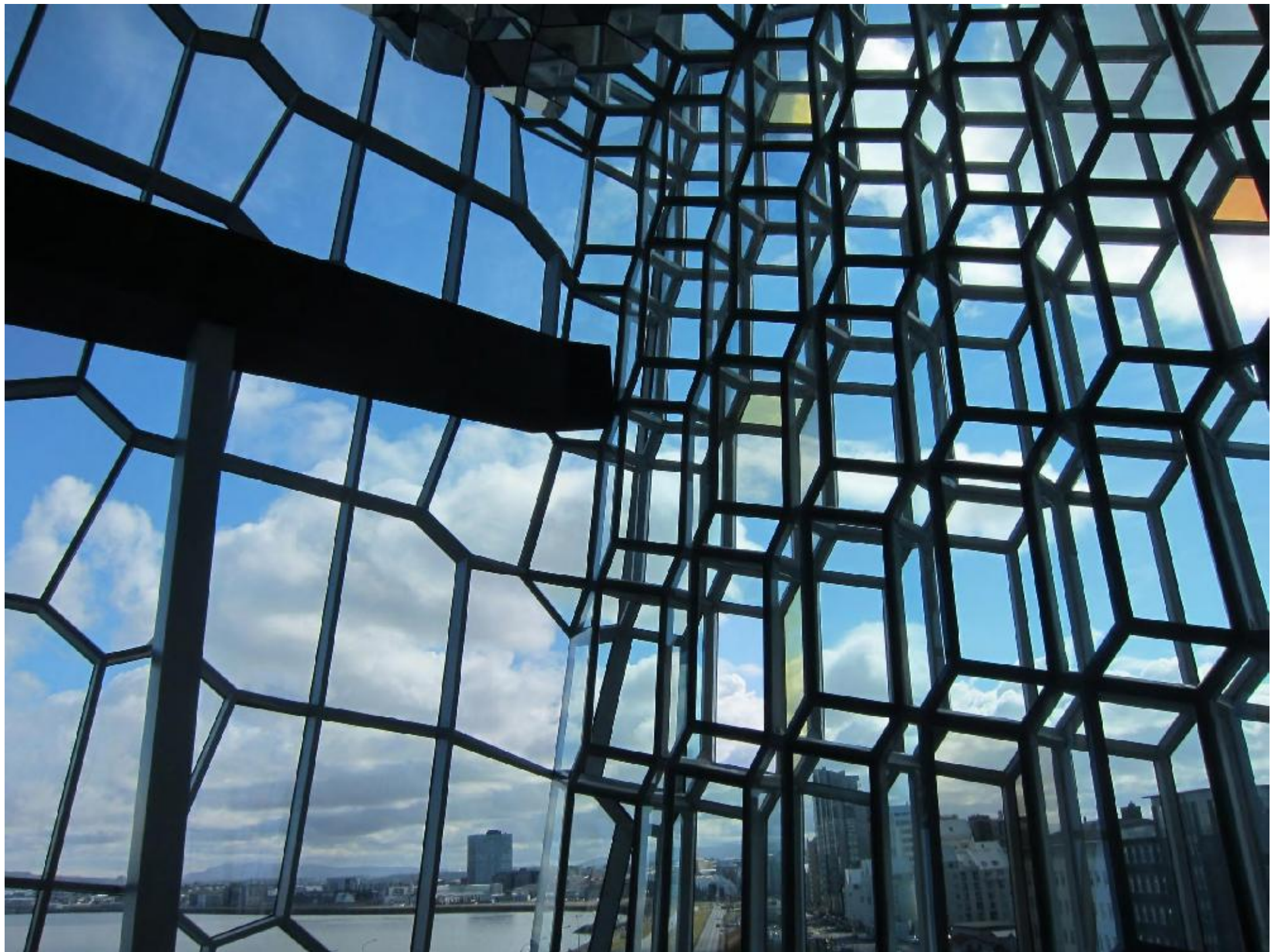




LIGHT  
SHADOWS  
REFLECTIONS  
COLOURS  
PATTERNS

RAMBOLL





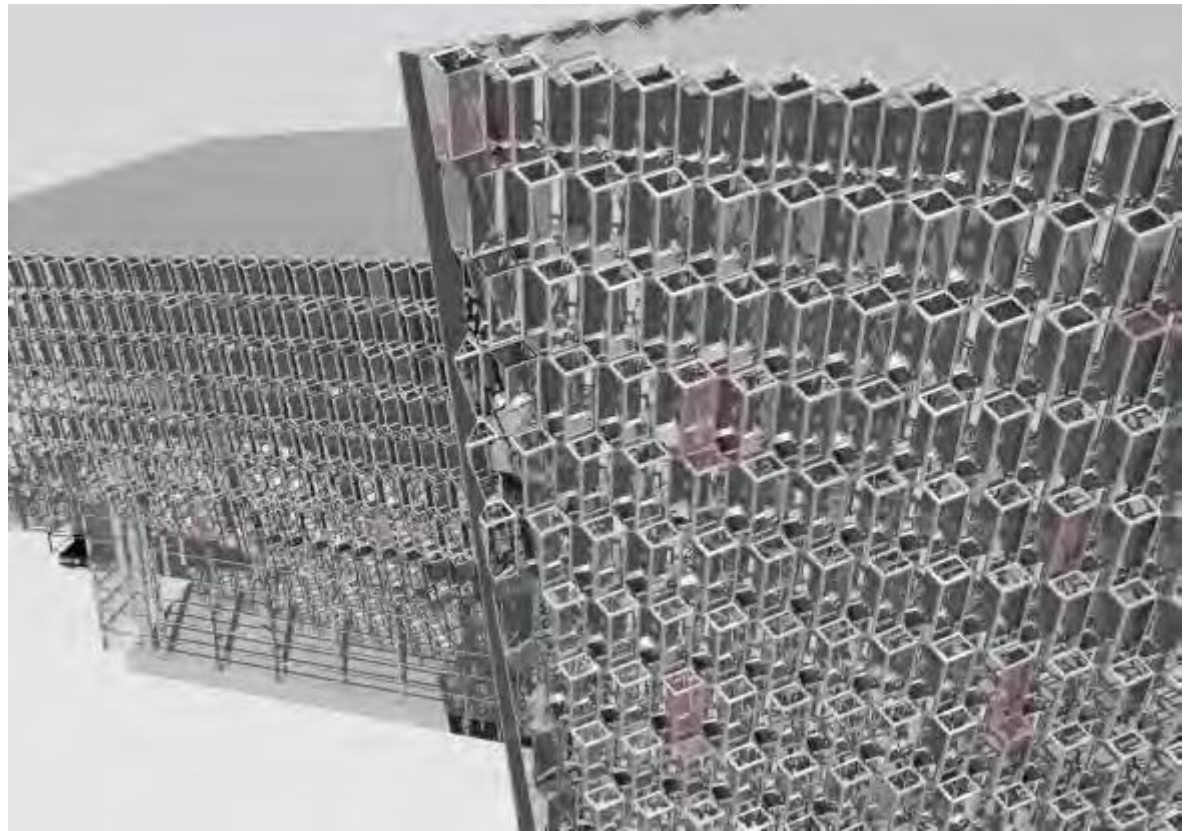


# OLAFUR ELIASSON FACADE

- Inspiration. Artistic princip
- Technical needs
- The design process
- Structural action
- Assemblage



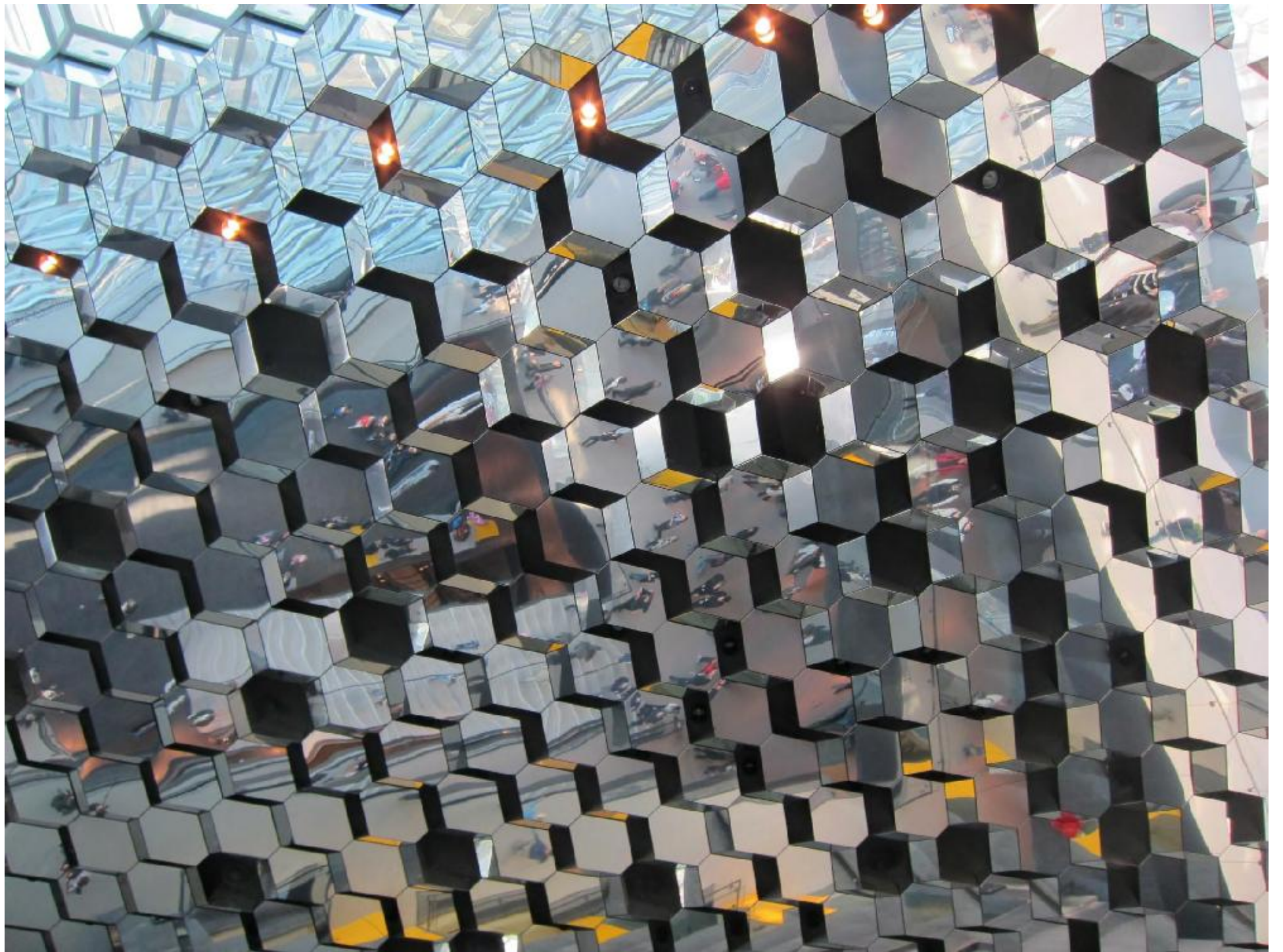
RAMBØLL



2011-11-24

# COLUMN BASALT — QUASI-BRICKS





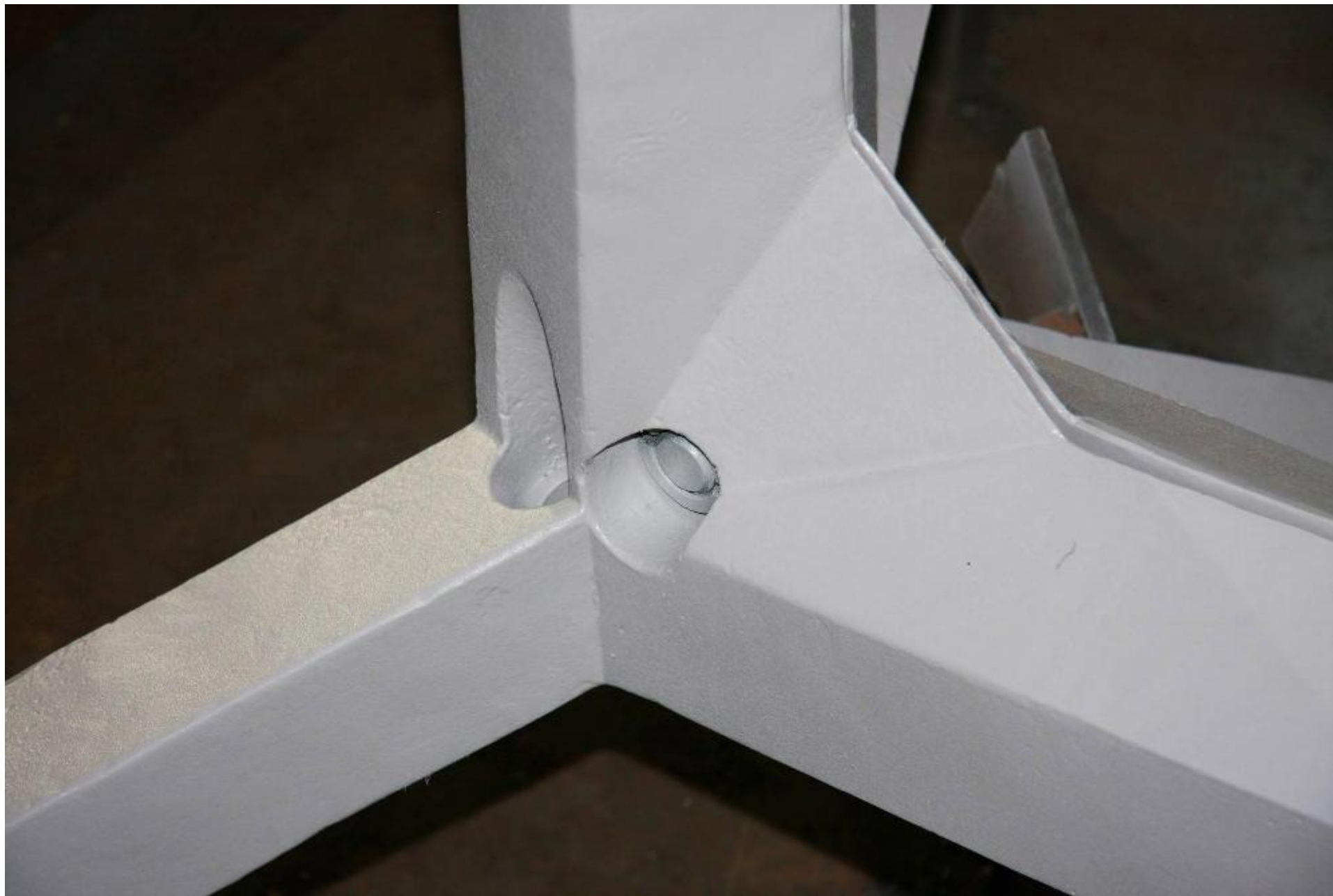
# OLAFUR ELIASSON FACADE

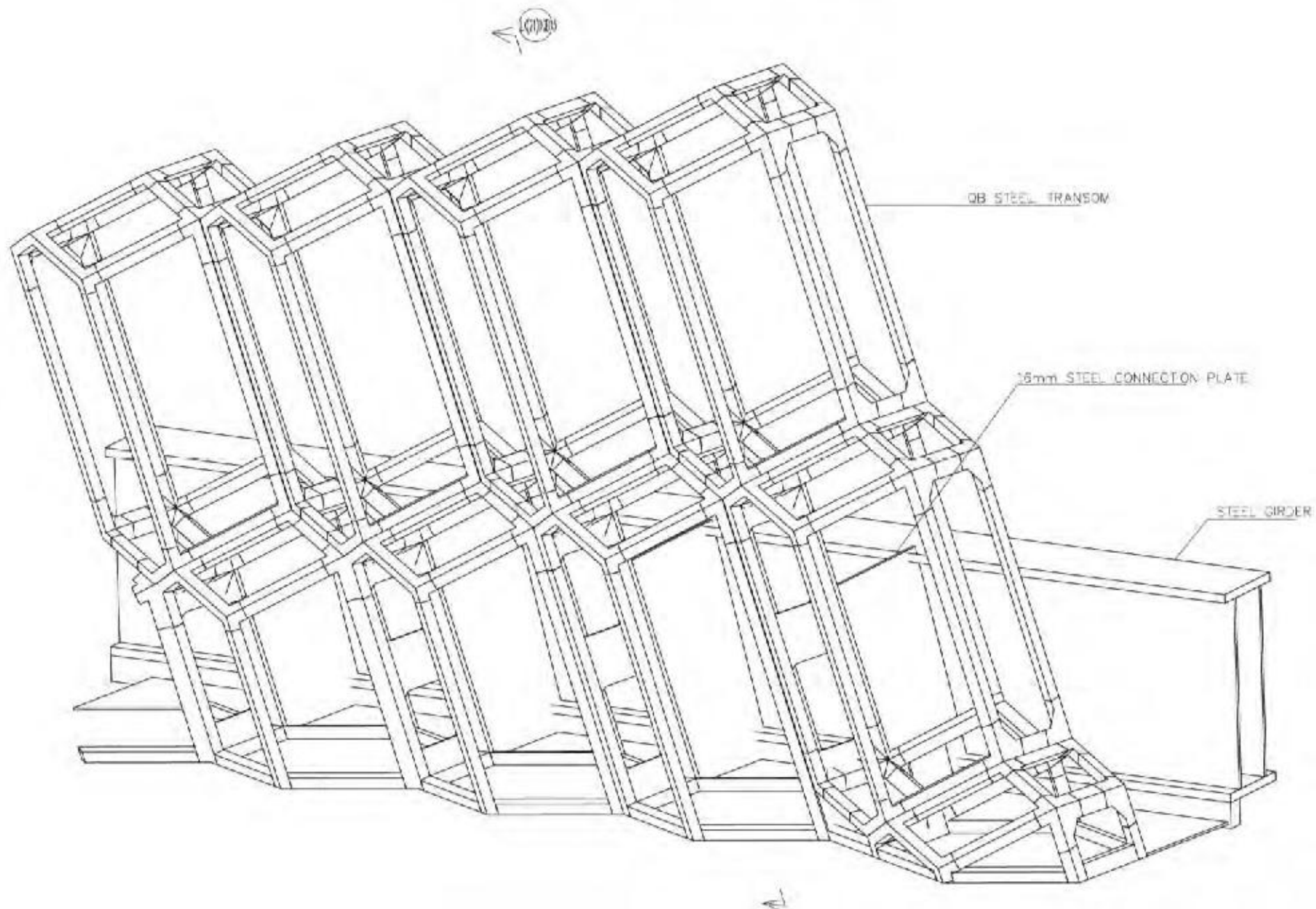
- Geometry of dodekahedron og icosahedron
- Height 2 meter – width 1,3 meter
- Can be assembled massively in 3 directions
- Slender steel frame
- Sides covered with glass
- Assembled brick-by-brick

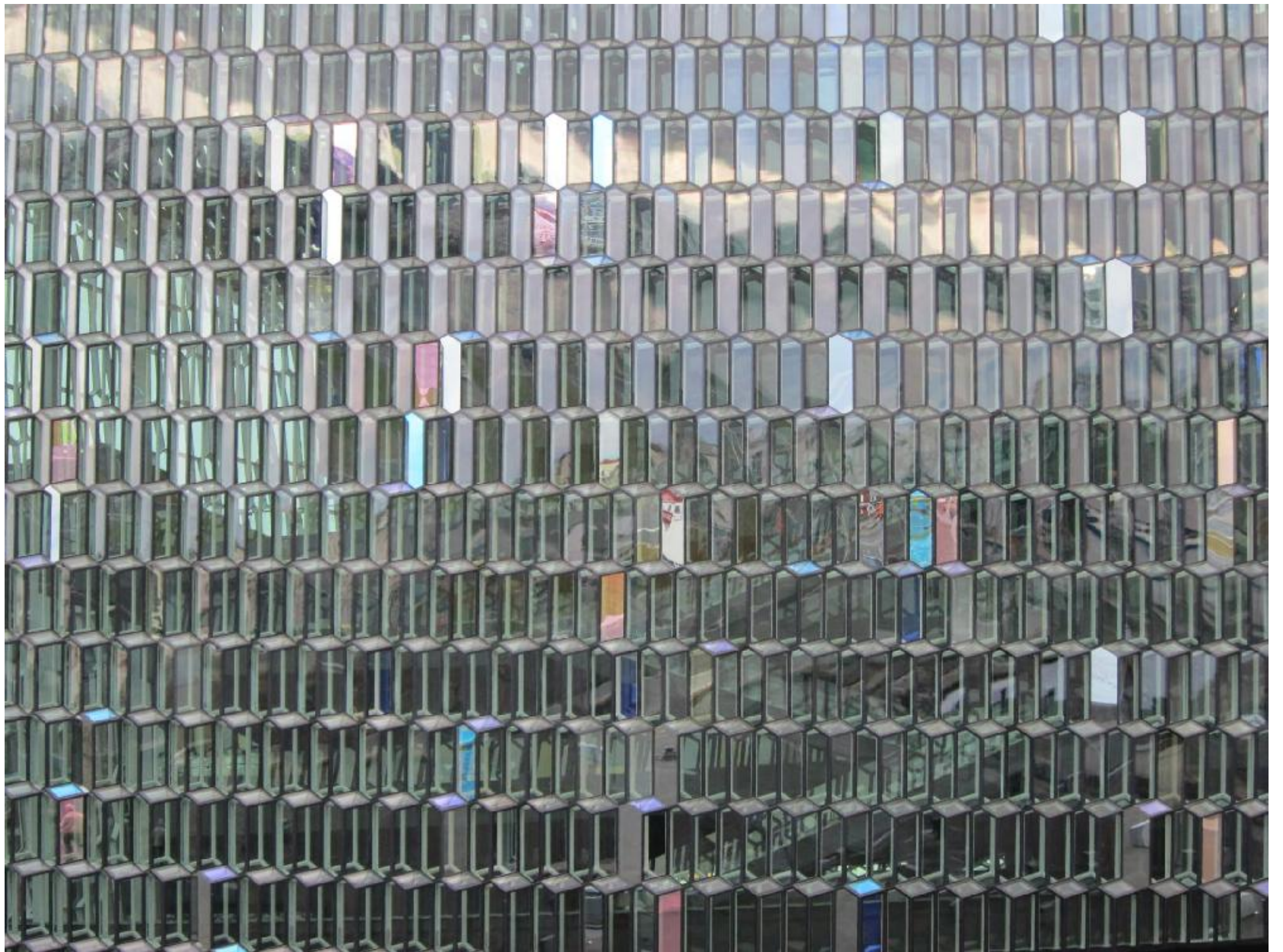
RAMBOLL





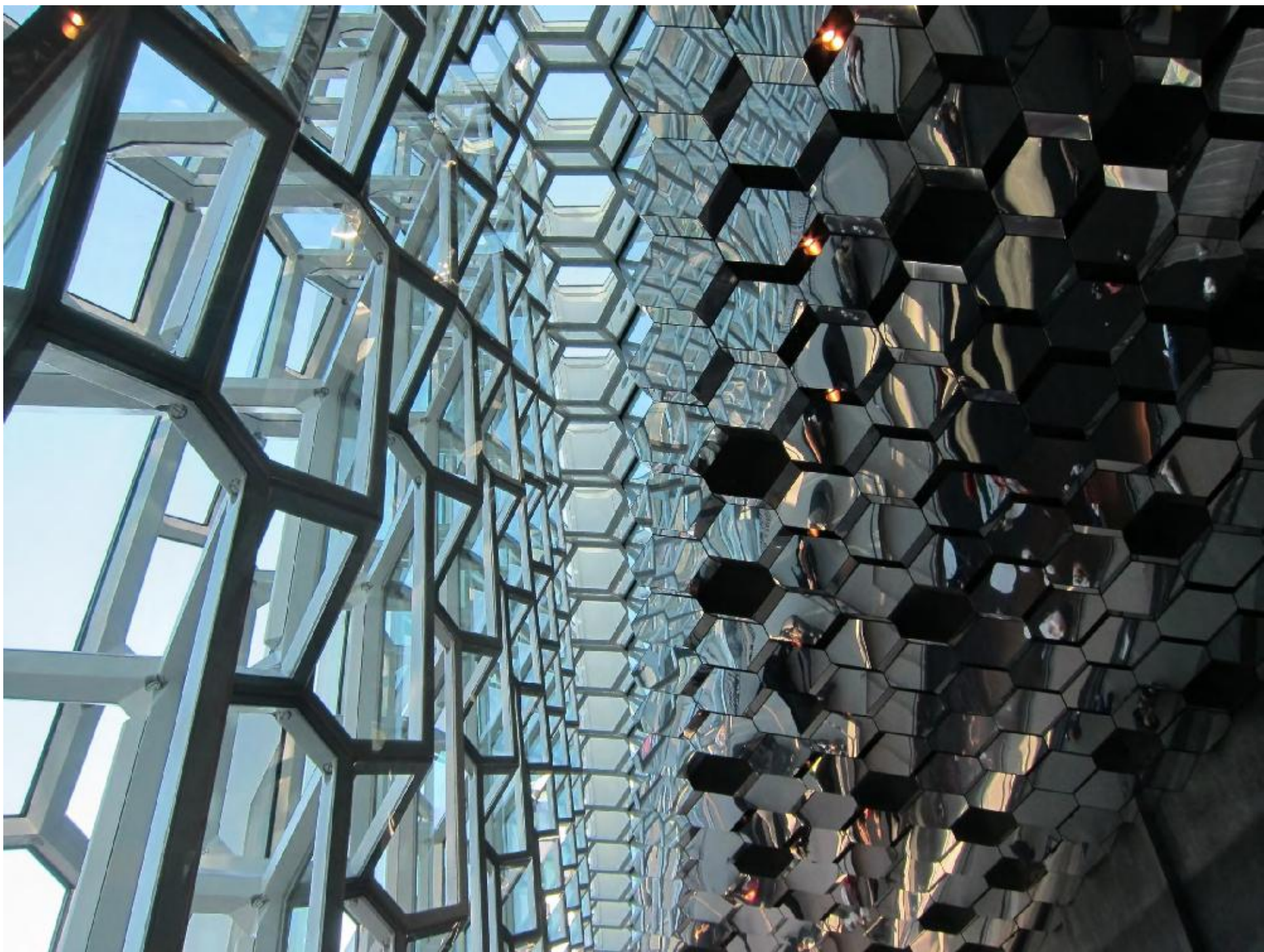


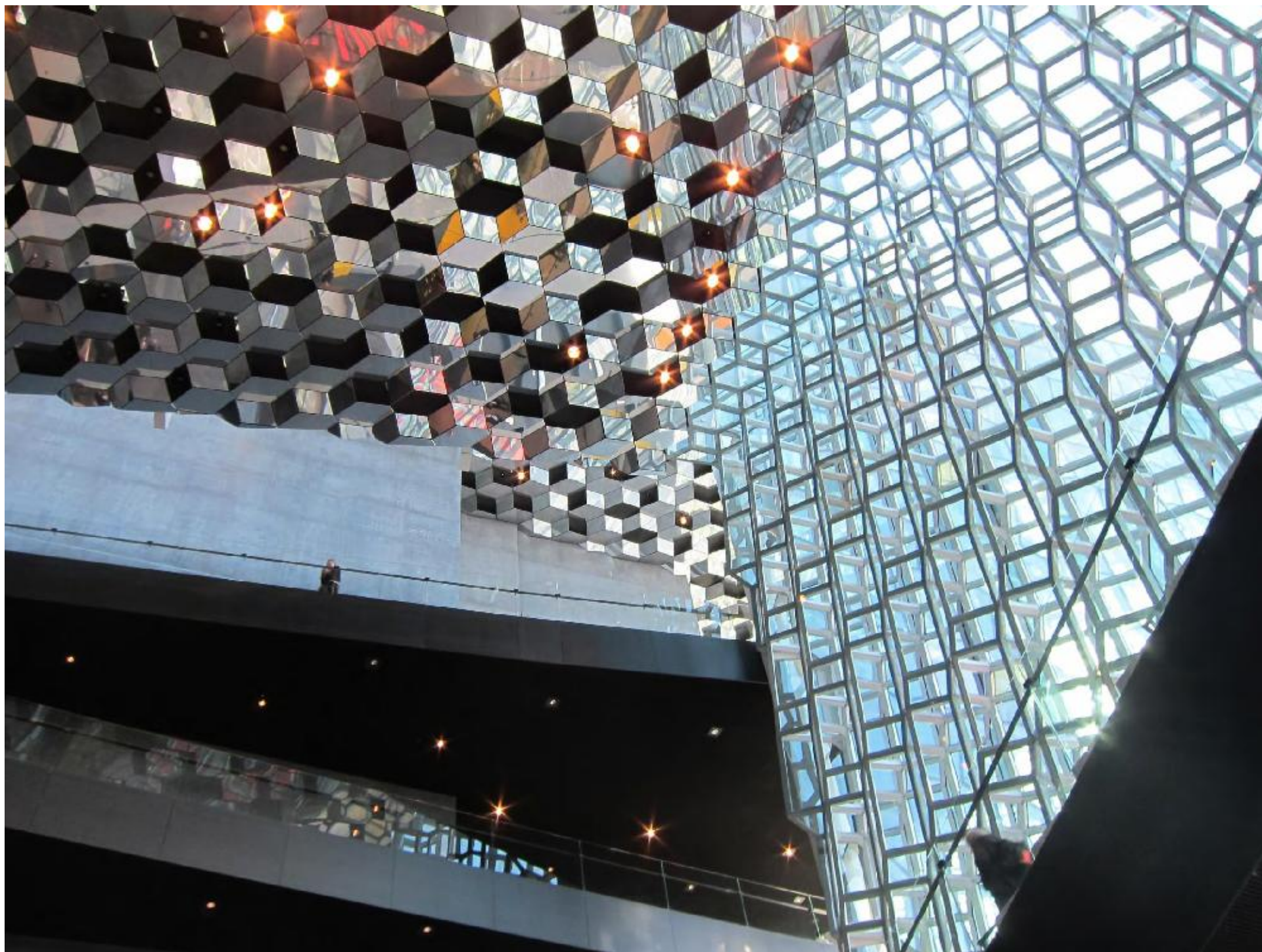












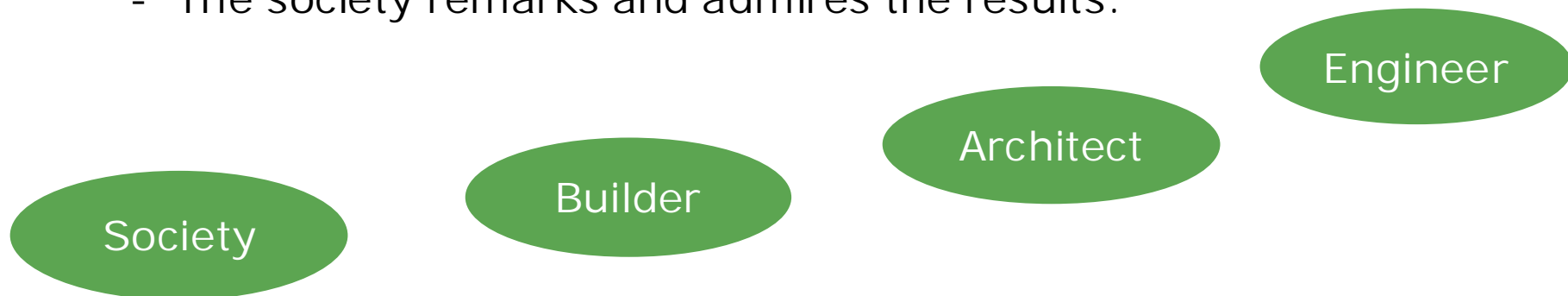
# ABOUT PRESTIGIOUS BUILDINGS



# INTEGRETED BUILDING DESIGN

## HOW DOES SUCH A PRESTIGIOUS BUILDING DEVELOP?

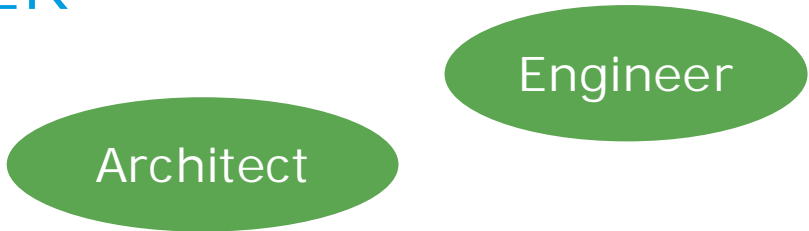
- The engineer can construct the building.
- The architect gets the ideas of the shape.  
Architect and engineer play ping pong together.
- The builder likes the ideas and “buys “ them.
- The society remarks and admires the results.



- The society is characterized by image and branding (fashion and advertising)
- The builder wants something remarkable
- The architect strives attractions for his clients – and own ambition
- The engineer is needed for the realisation – in cooperation.

# COOPERATION ARCHITECT AND ENGINEER

- Art                                      Science
- Architect                              Engineer
- Role or organisation      Role or organisation
- Human being                      Human being
- Traditional roles:  
The architect has all the ideas. The engineer reduces the ideas.
- An inspiring 2-way cooperation can give even better results.  
Assertivity is needed, not aggressive or suppressing behavior.  
Time and willingness are necessary resources.
- A language of communication is needed.  
3D modelling facilitates evaluation and explanation.  
Complex geometry gets more reachable.  
Structures benefit from 3D, more than ventilation do.



## SOME LIKE IT HOT. NOBODY'S PERFECT.

- Every part is human, i. e. of different opinion and imperfect, not perfectly wise or talented, and not omnipotent.
- We must discuss and may criticize to improve.

Society

Builder

Architect

Engineer

- But we have to accept the imperfect results.  
It's the real world.

**RAMBOLL**



Thank you