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it's all about innovation

CEMENTITIOUS HYBRID MATERIALS AND INTEGRATED TECHNOLOGY

Johannes Portielje Rauff Greisen, M. Arch, PhD
Consultant, Danish Technological Institute, Høje Tåstrup, 2630, Denmark

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Team

Dansk Autoværn A/S, Jens Tejsner, Head of quality assessment
Danish Road Directorate, Ulla Egebjerg Chief Architect.
Dupont Ligtstone, Christoffer Dupont CTO
Danish Technological Institute, Colleagues at the Concrete Center, especially Thomas Juul Andersen and Lars Nyholm Thrane.

HAARUP INDUSTRIAL MIXING FACILITY

Team

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FANUC INDUTRIAL ROBOT R2000iB-165f

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Field

- Architecture
- industrial robots
- concrete technology

digitalization, CAD CAM, mix design, information technology

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Architecture

Vitruv: Durability, Functionality and Beauty

Exner 1970's

Le Corbusiers 1960's

Perret 1950's

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Robot

Volume versus variation

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Concrete

The scope is… going beyond the boundaries of concrete as a composite material, to be more than the sum of its components.

Natural components

Artificial

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Concrete

The scope is… going beyond the boundaries of concrete as a composite material, to be more than the sum of its components.

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New value layers

Aesthetics, durability, adaptability and new functions.

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Materials and Methods

High Tech Concrete Lab

Experiments 2008-2014

- Embedded imaging
- Acoustic Crash Barrier
- Optic fibre concrete
- Attention creating scenic infrastructure

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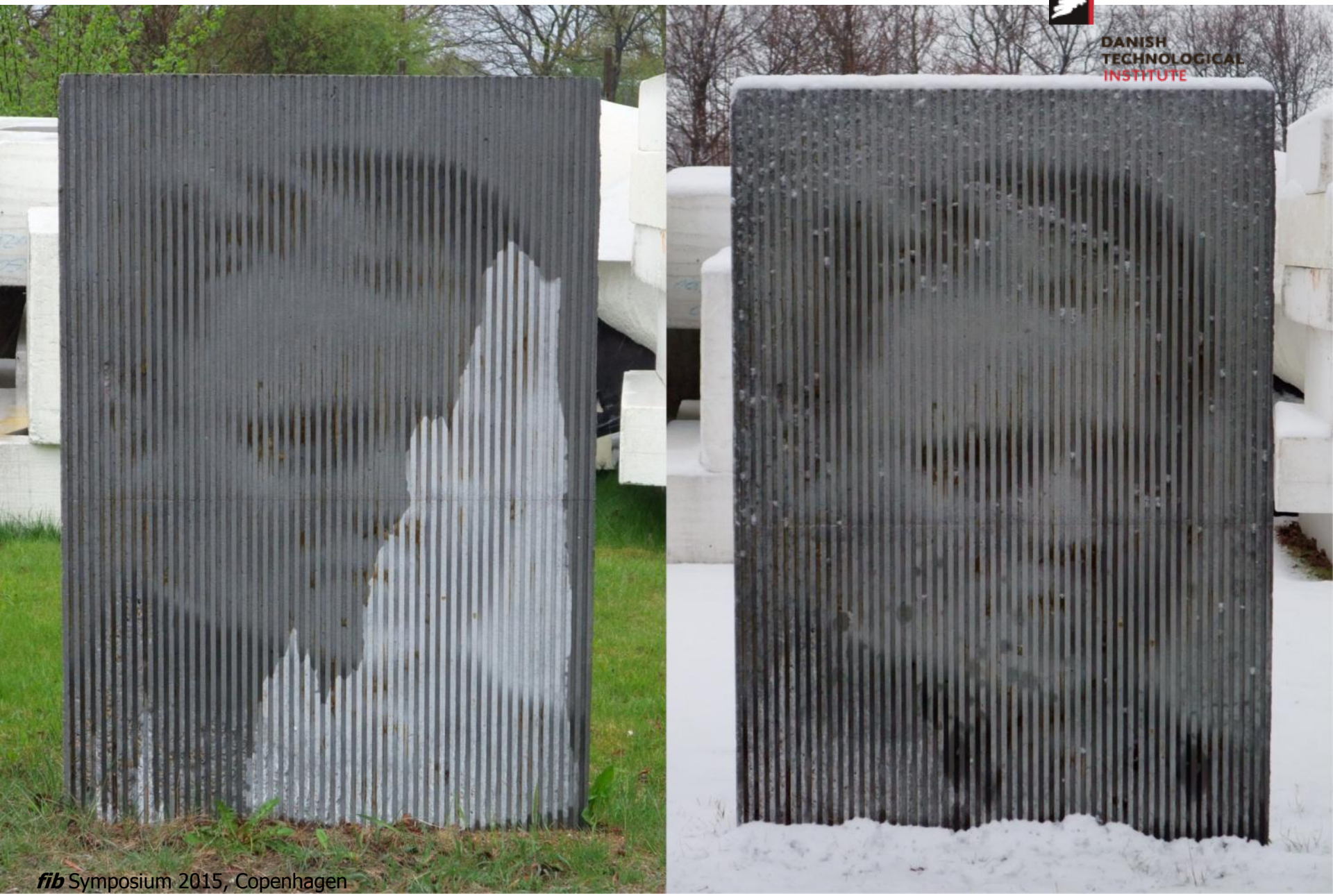
Embedded imaging



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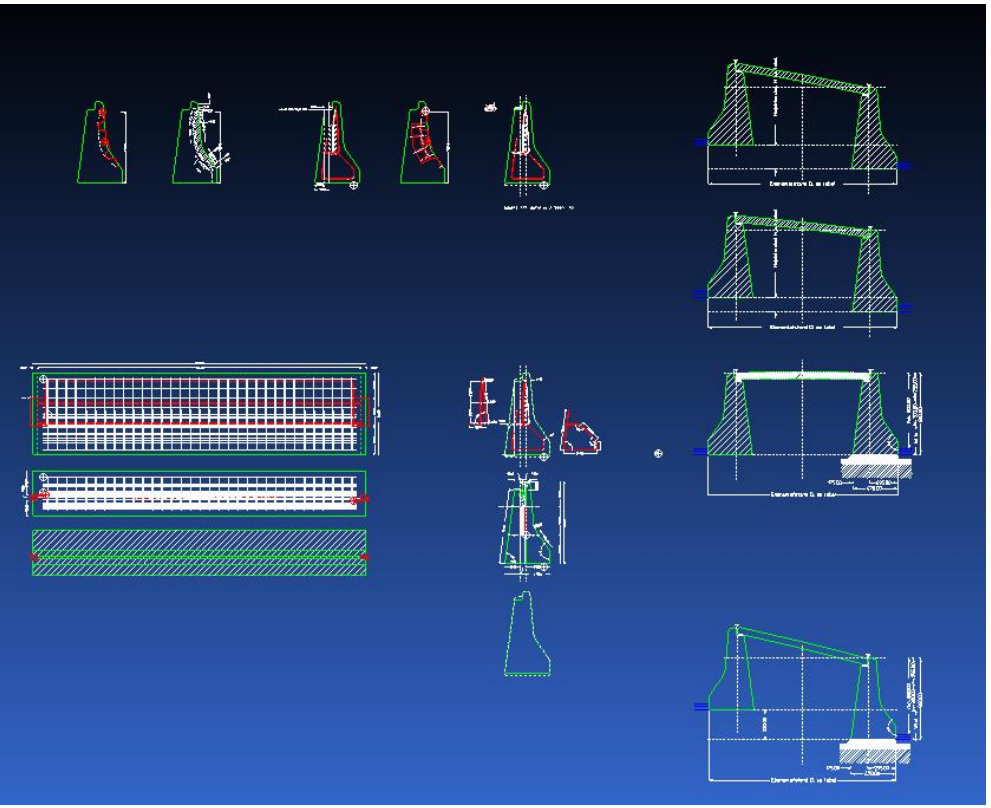
Acoustic Crash Barrier



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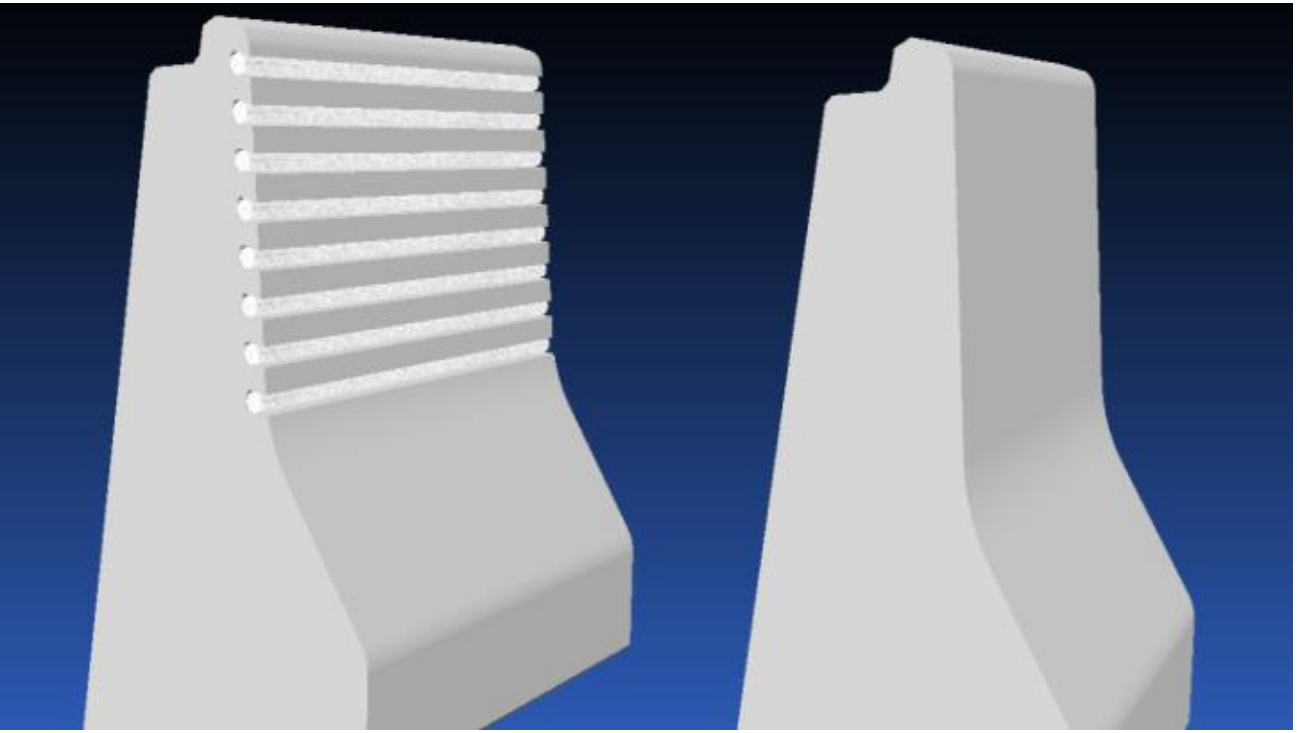
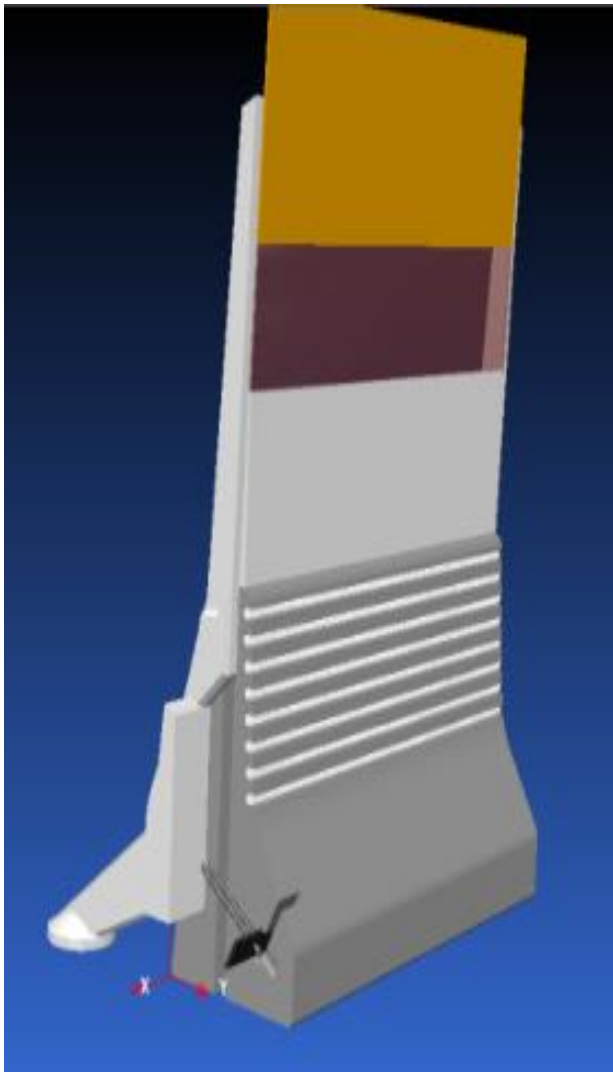
Noise absorbing area





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CAM fabrication of concrete formwork

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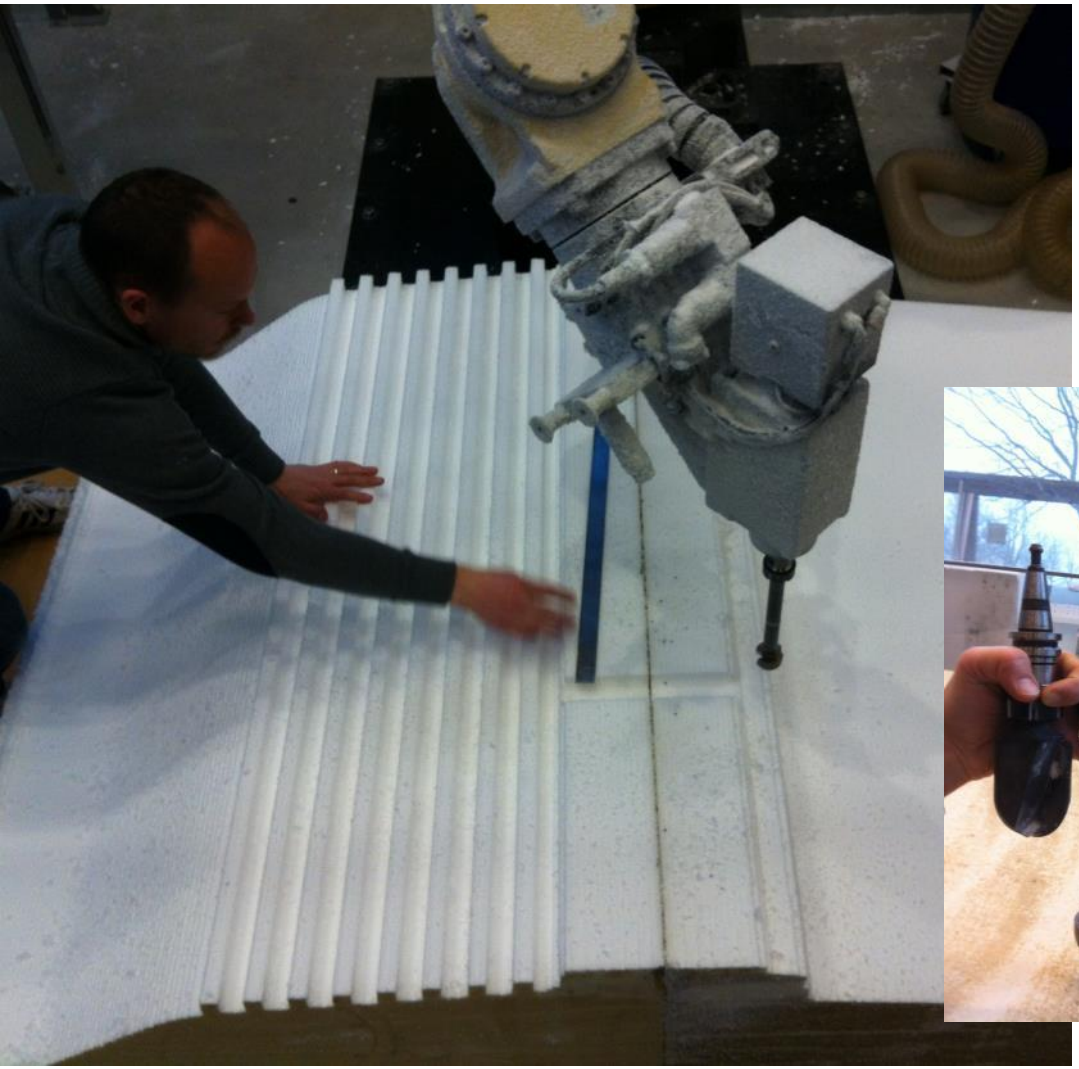

Digital tools and craftmansship

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Existing praxis and final prototype

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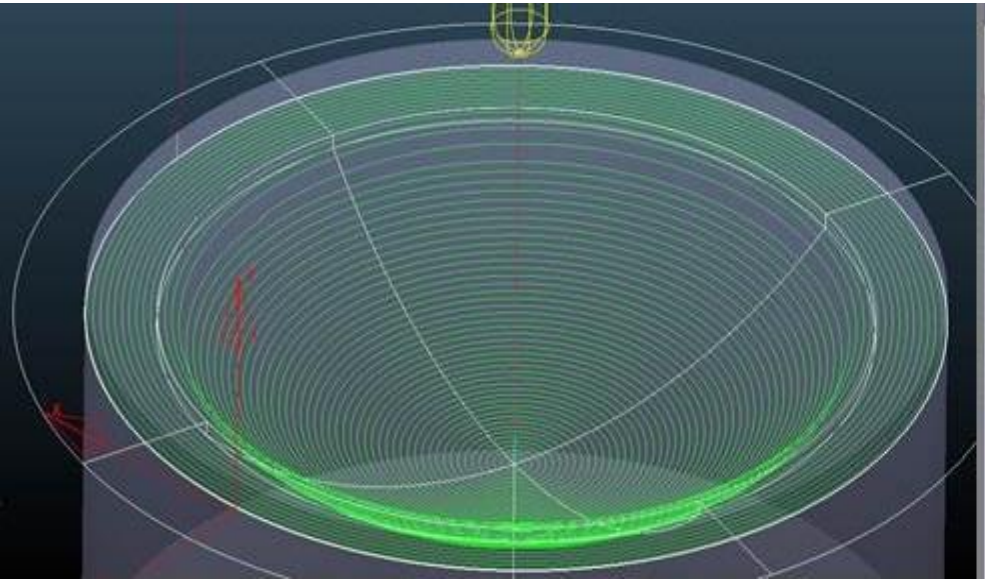
Optic fibre concrete



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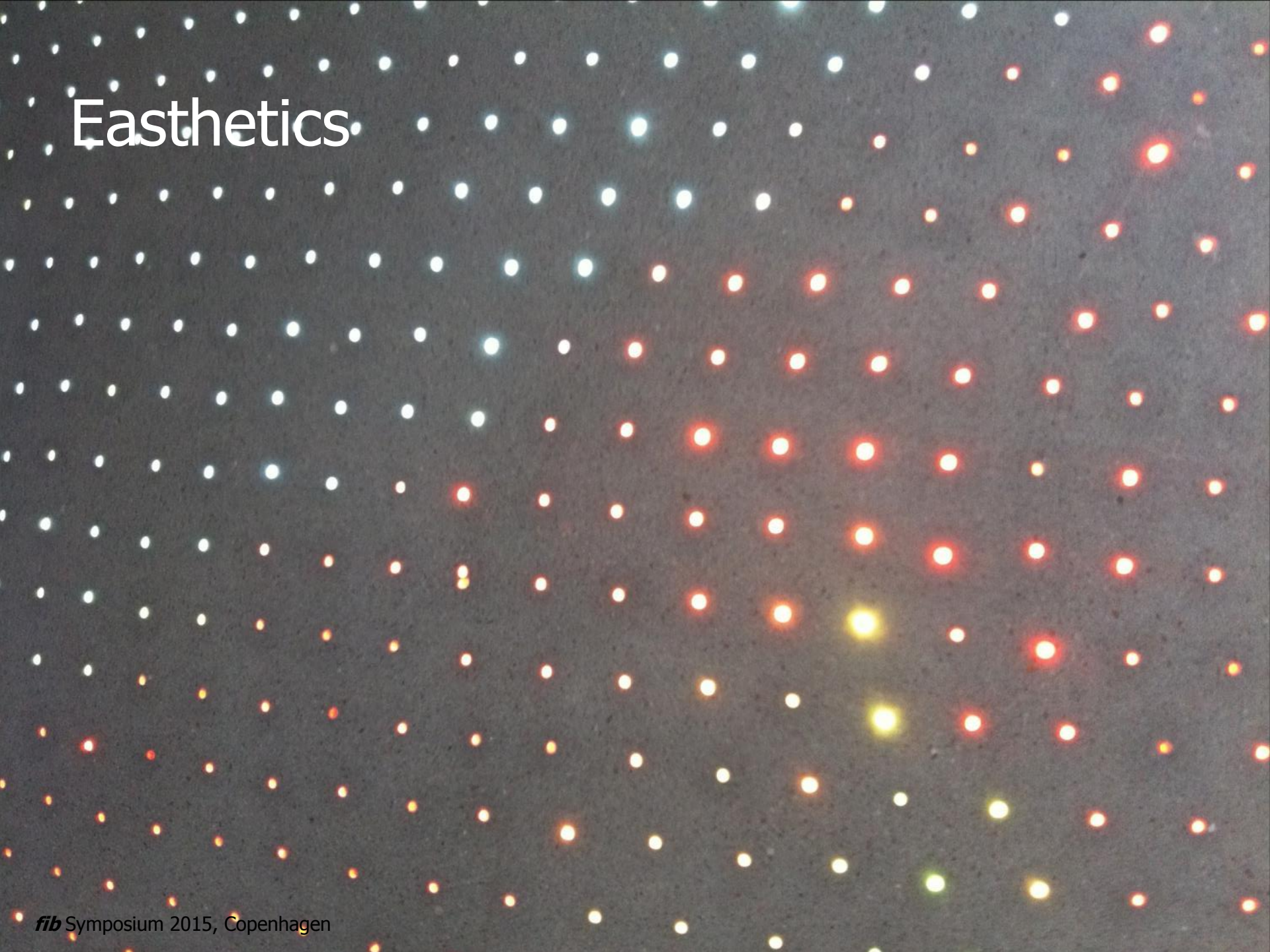
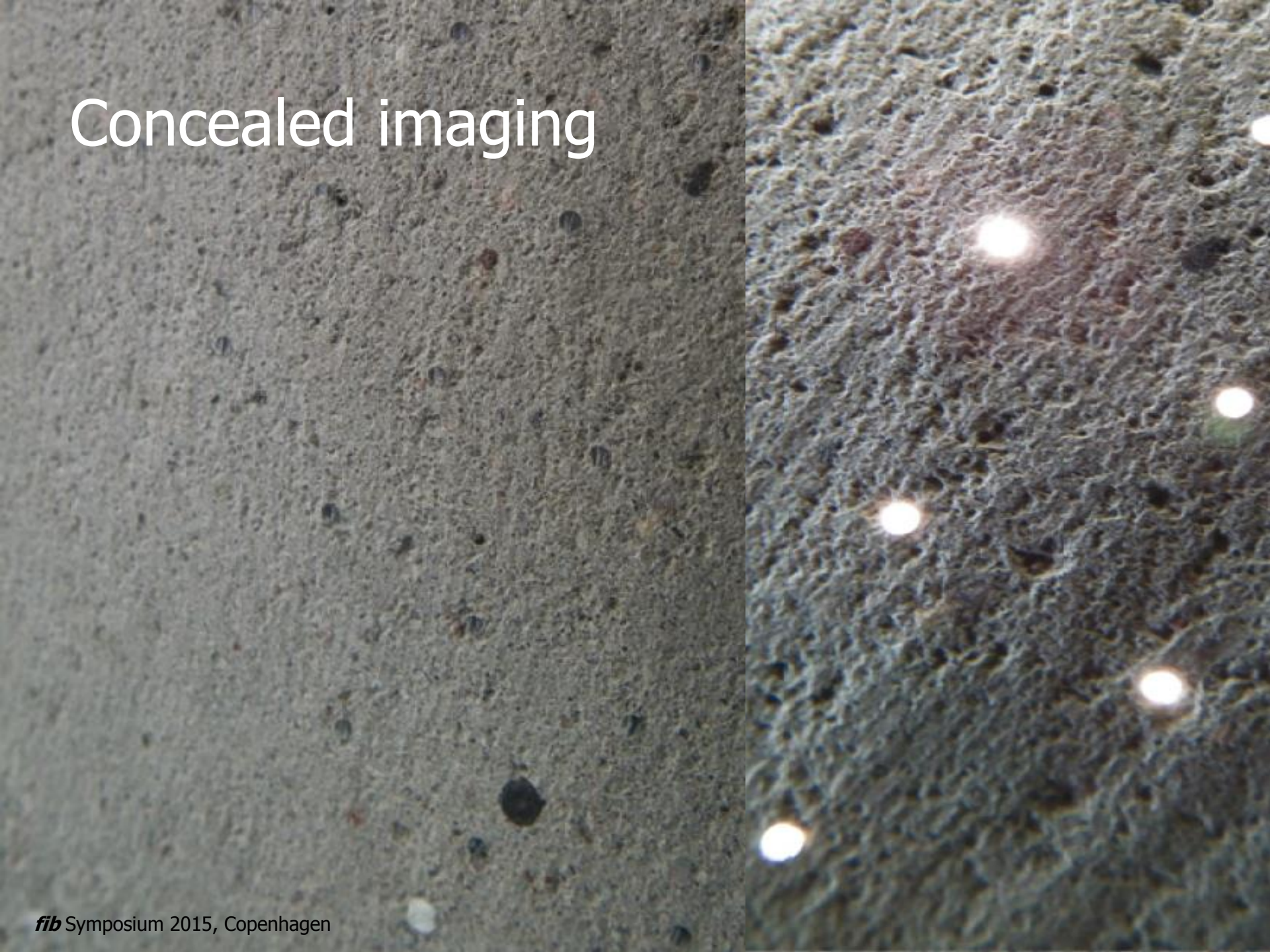
Optic fibre concrete

Integration

Easthetics



Concealed imaging

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Reference

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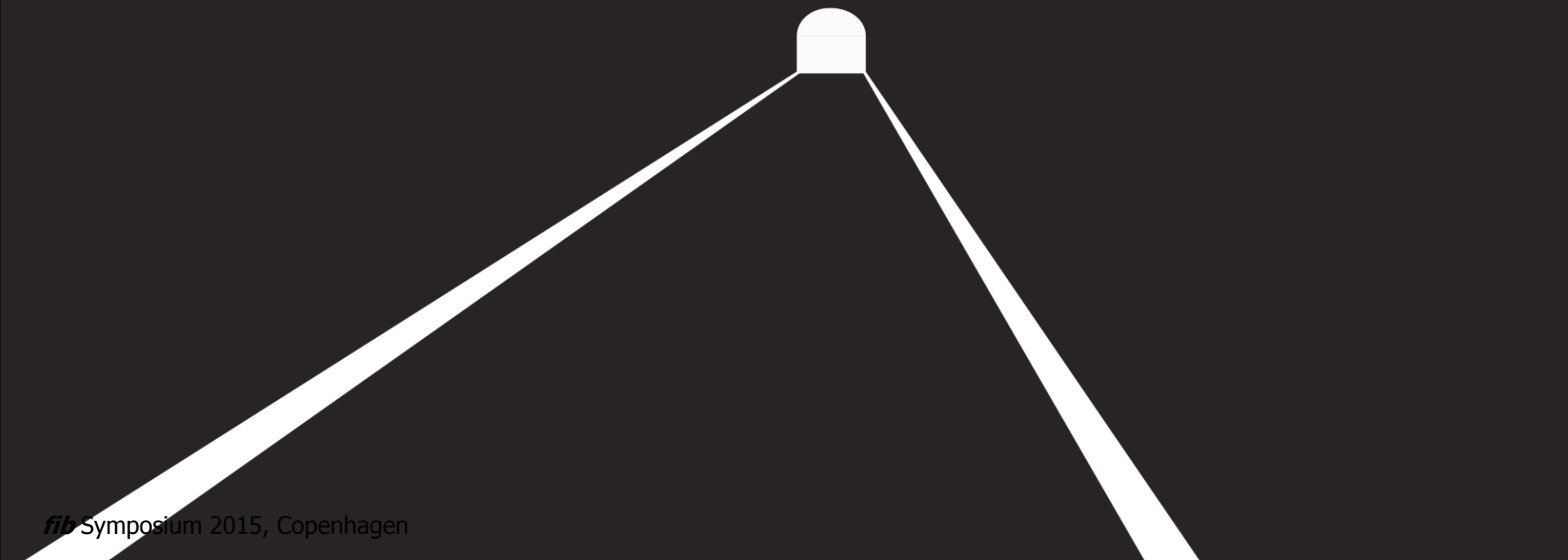
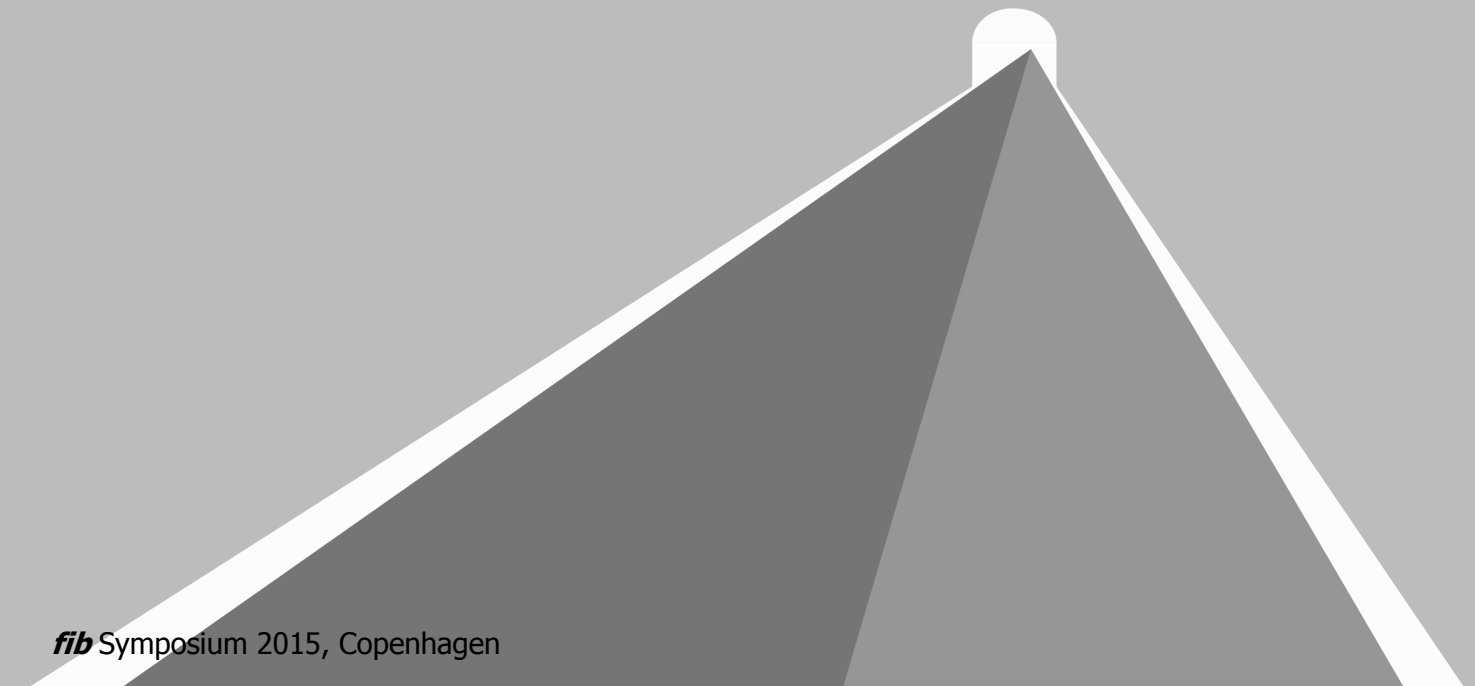
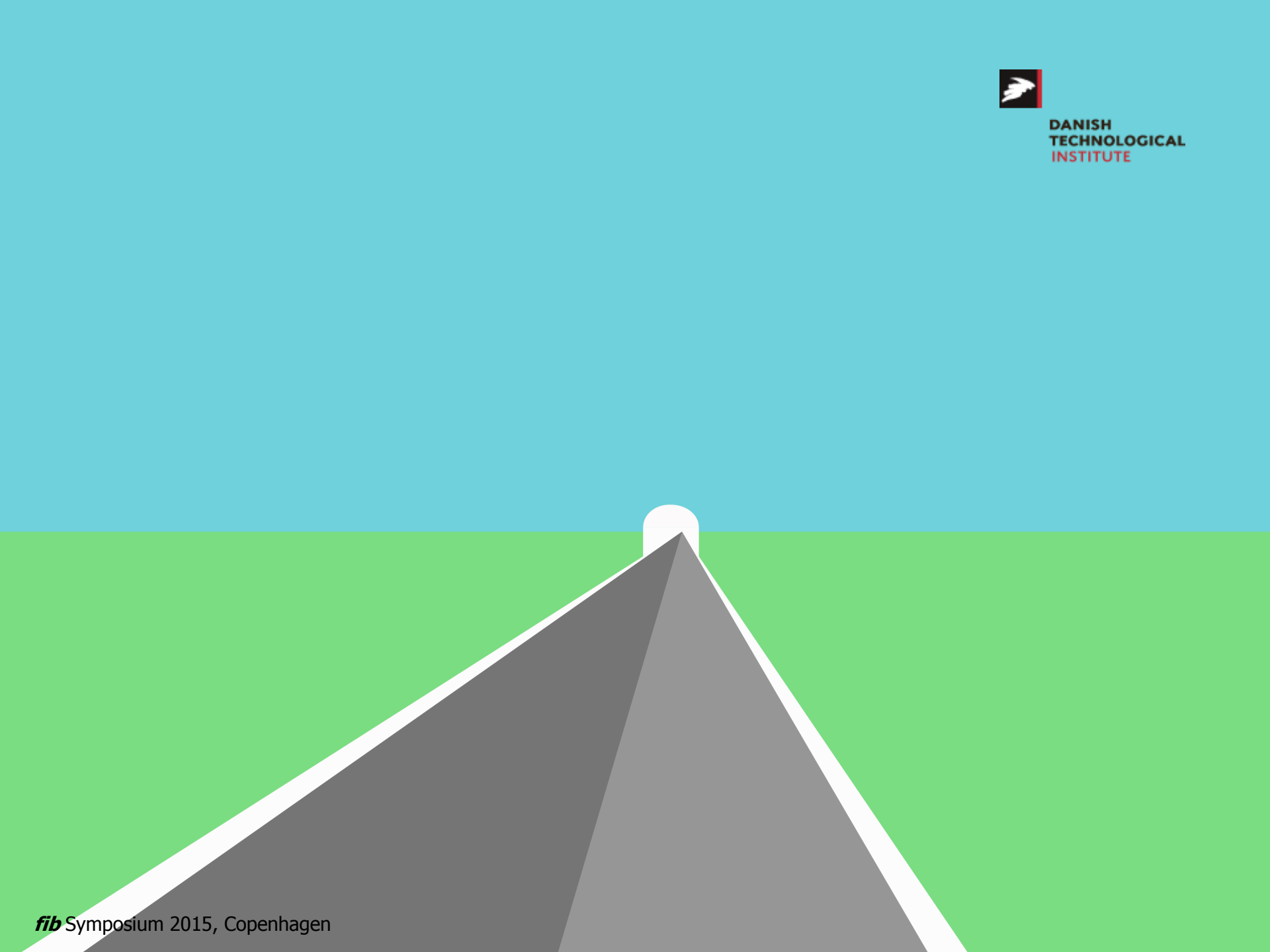
Attention creating scenic infrastructure



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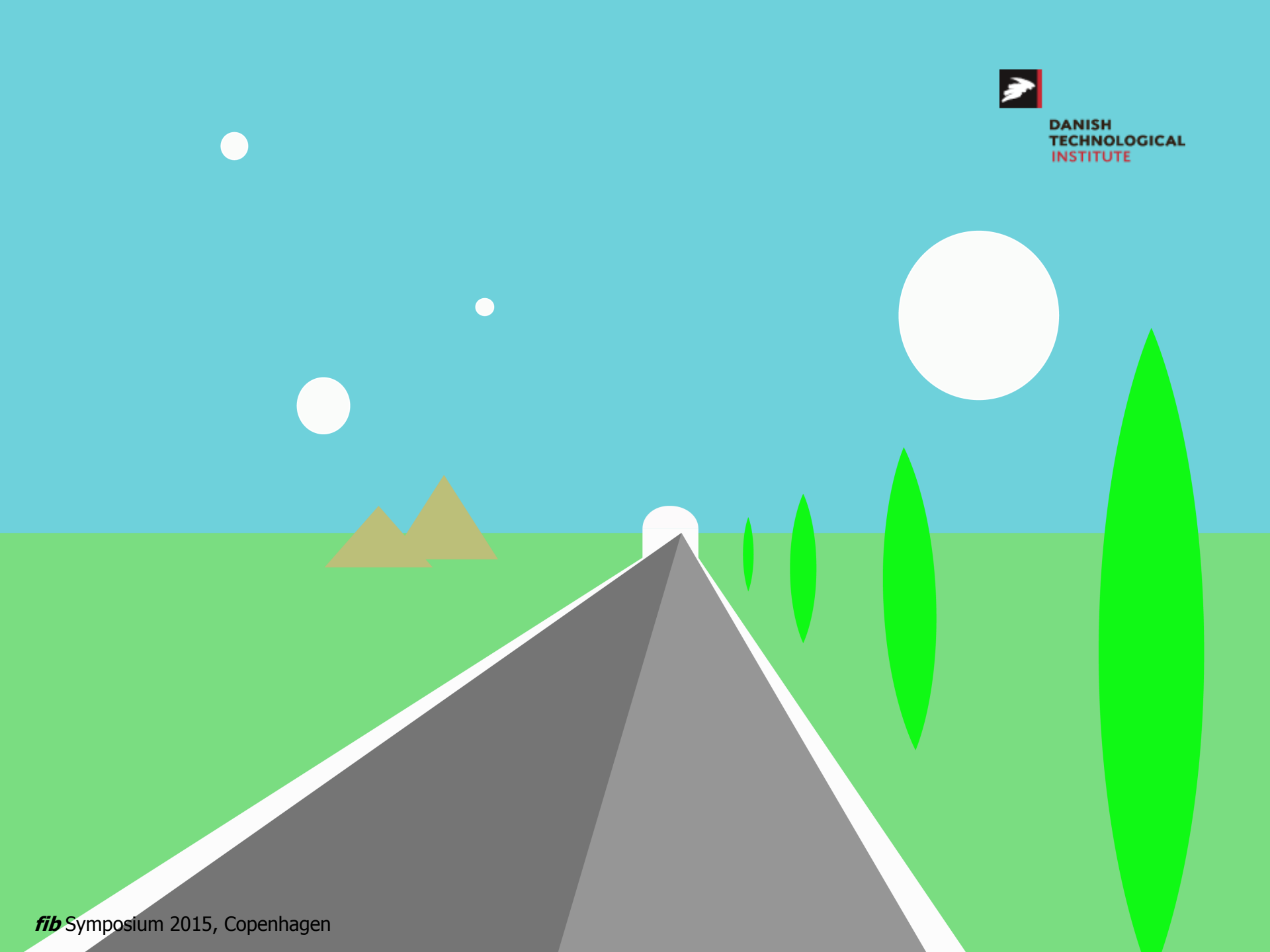
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Road space

- Movement
- 'Sence of Space'
- Sight
- Hearing

Anshui, China, 2008

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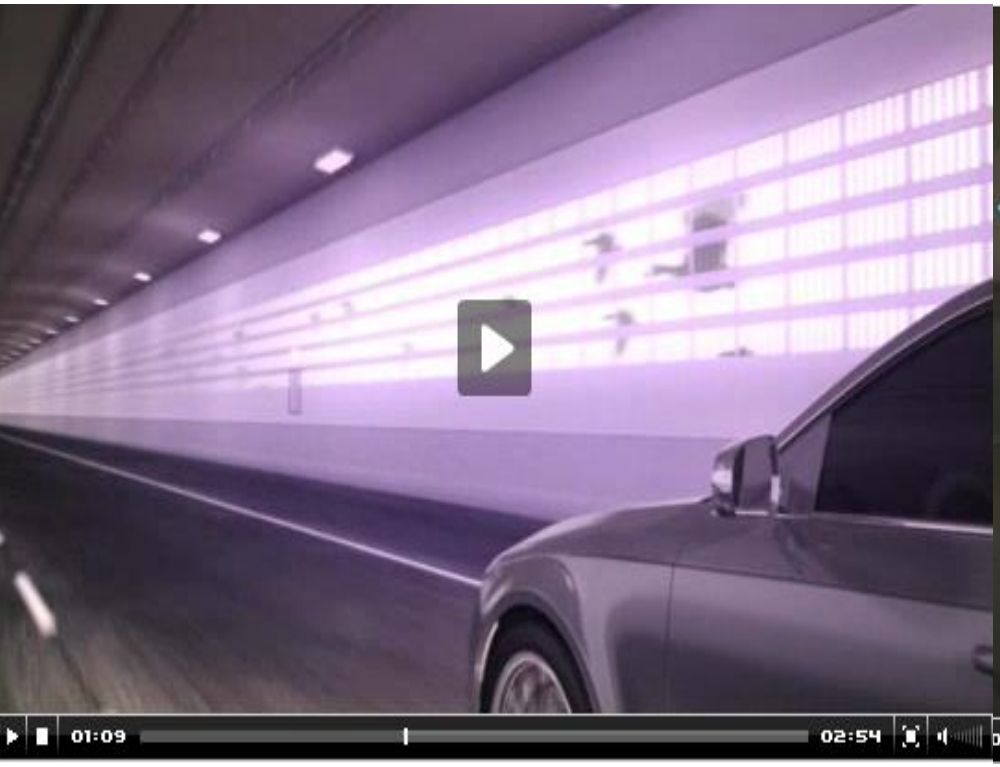
Road space

- Movement
- 'Sence of Space'
- Sight
- Hearing



Dynamic imaging concept

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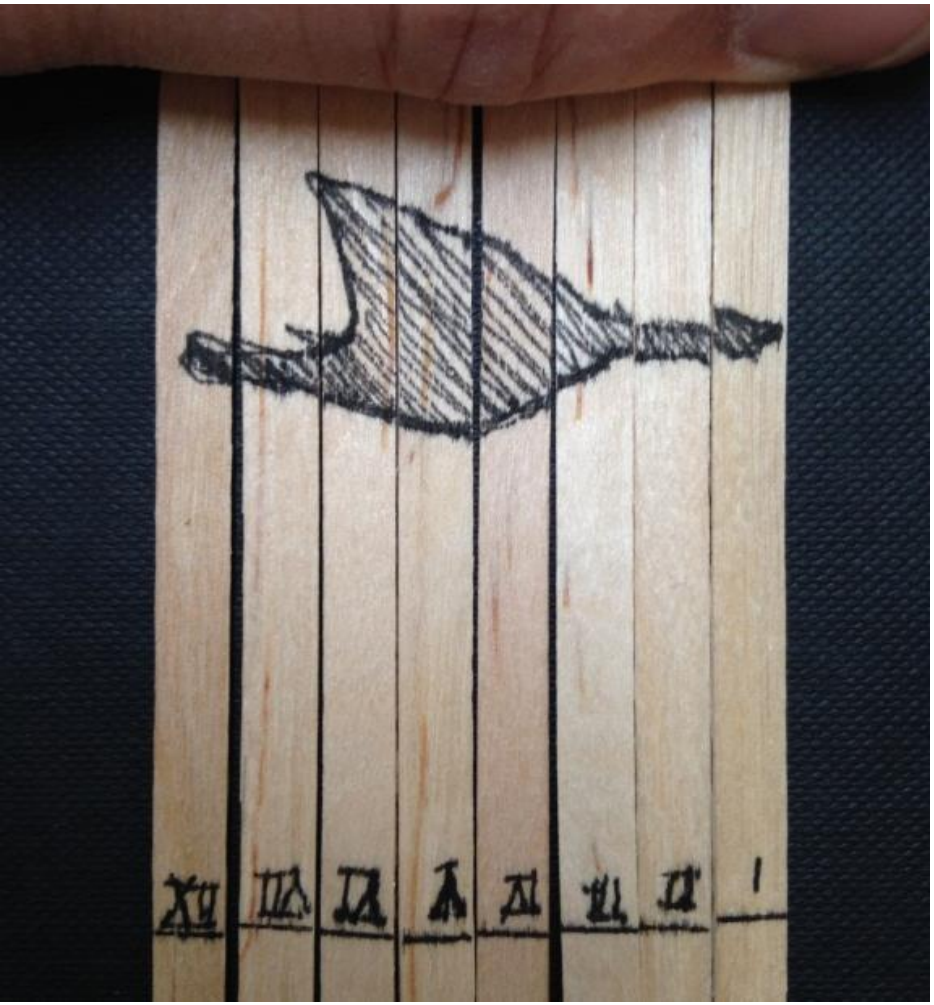

Dynamic imaging concept

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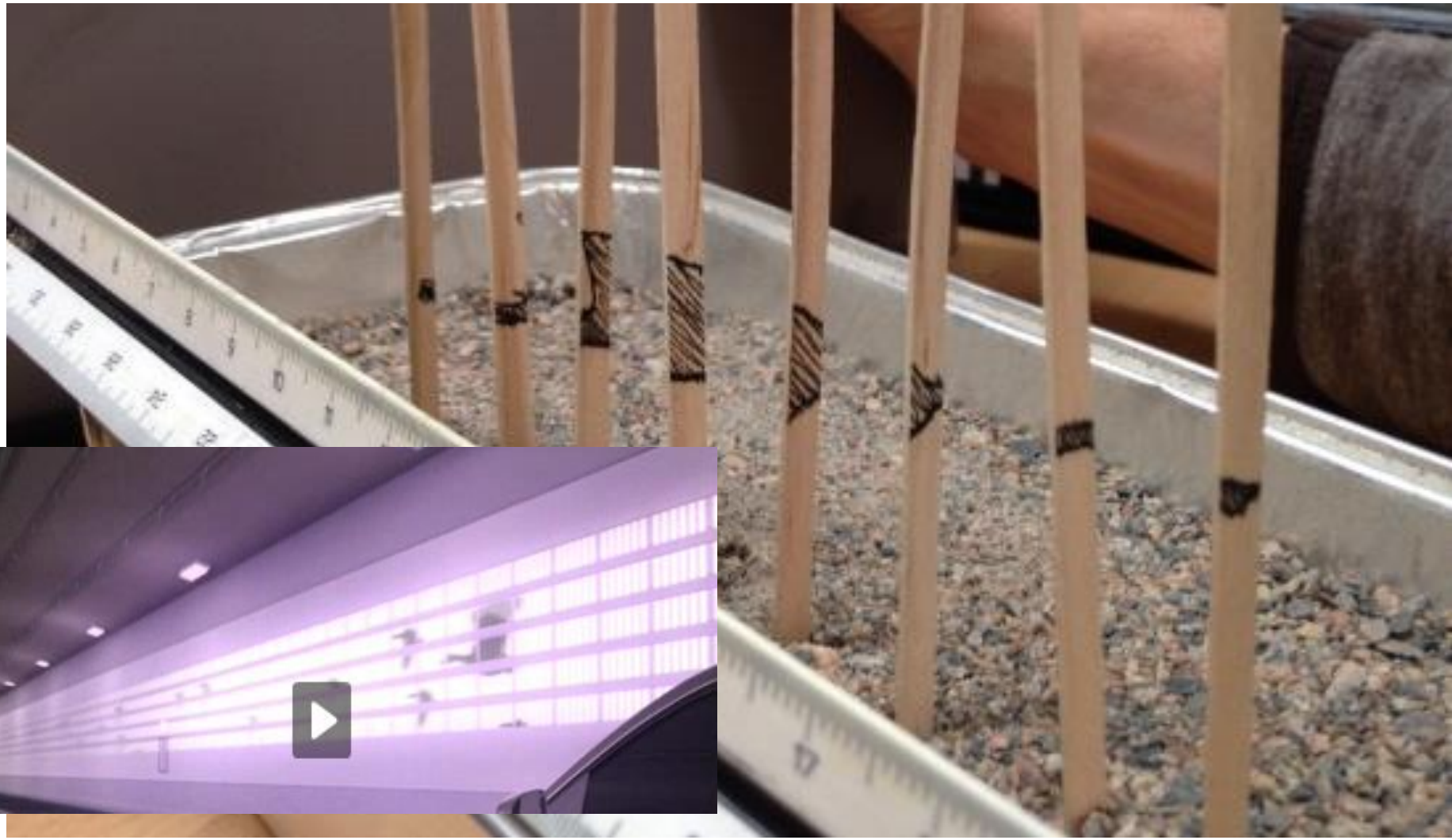
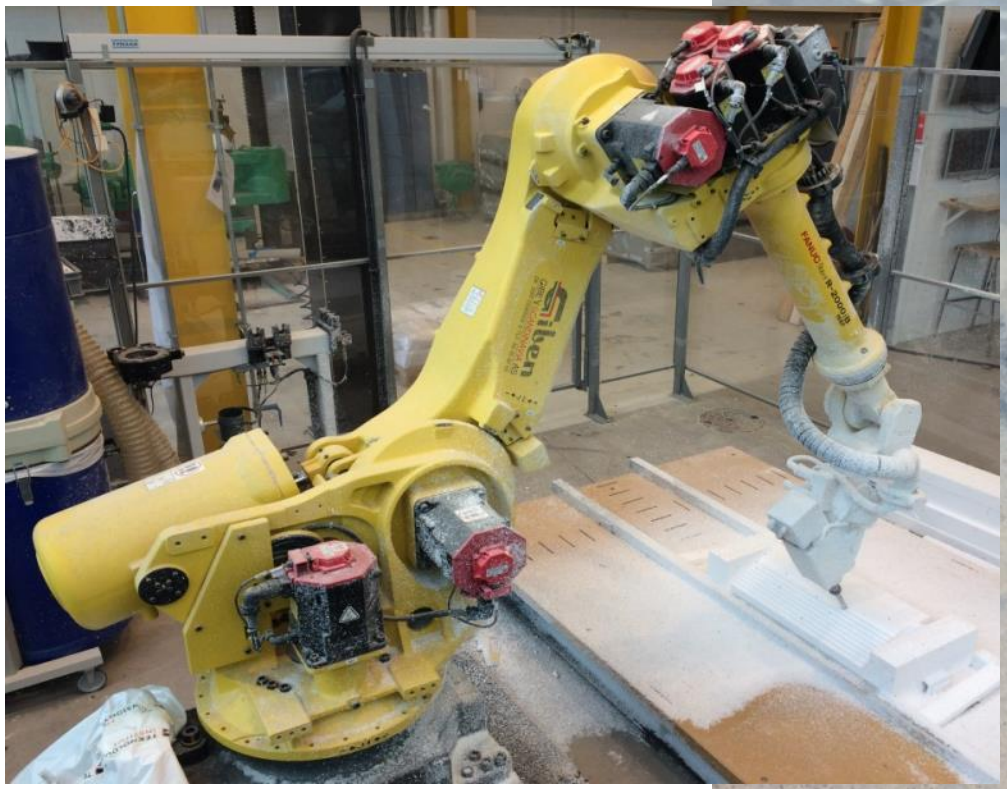


Tools



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Form

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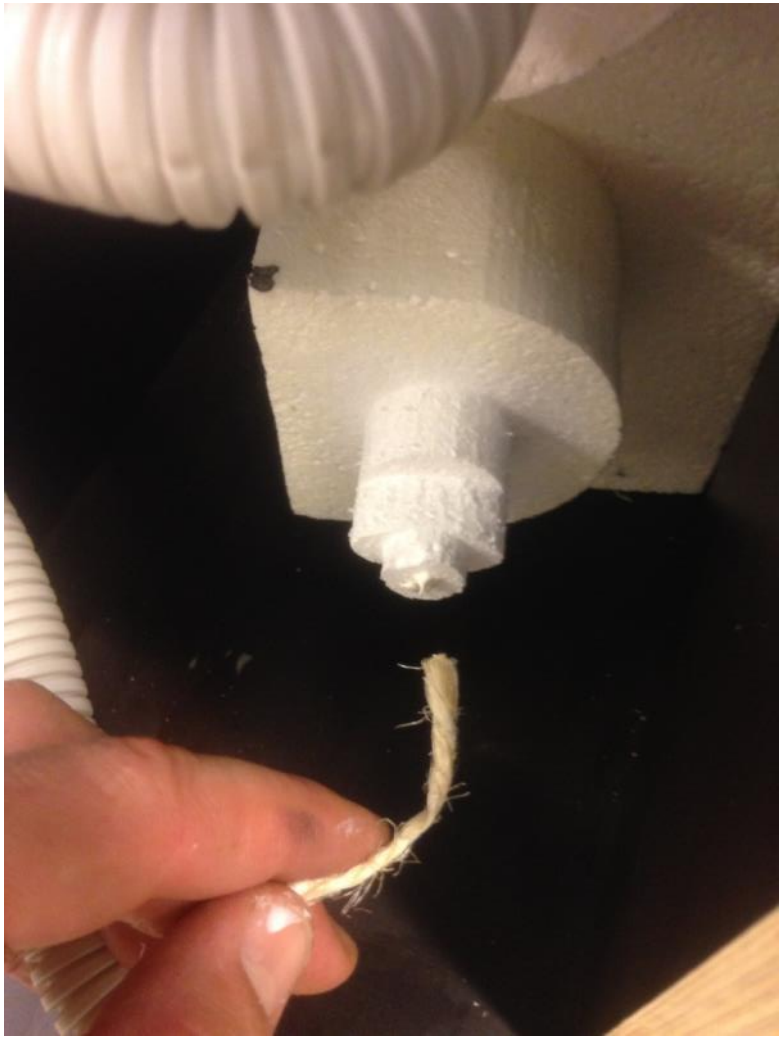
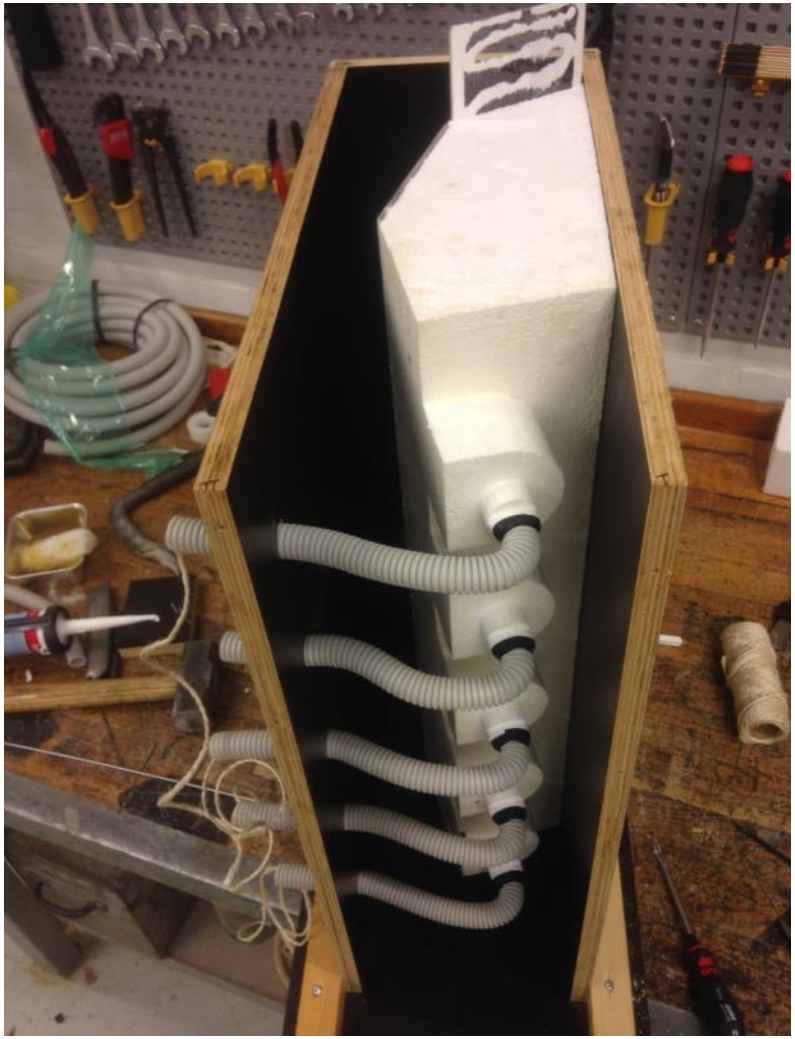




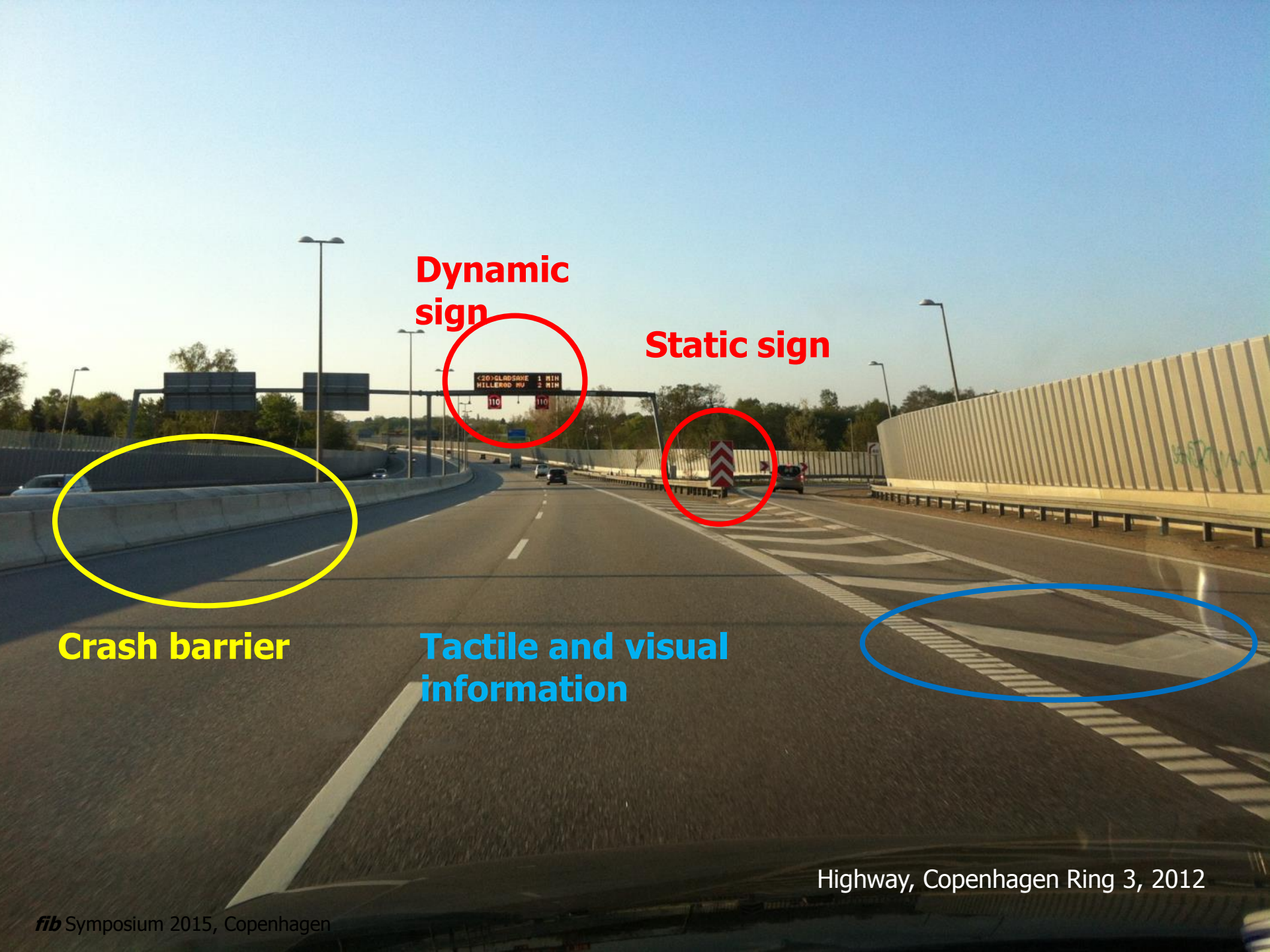
Prototype

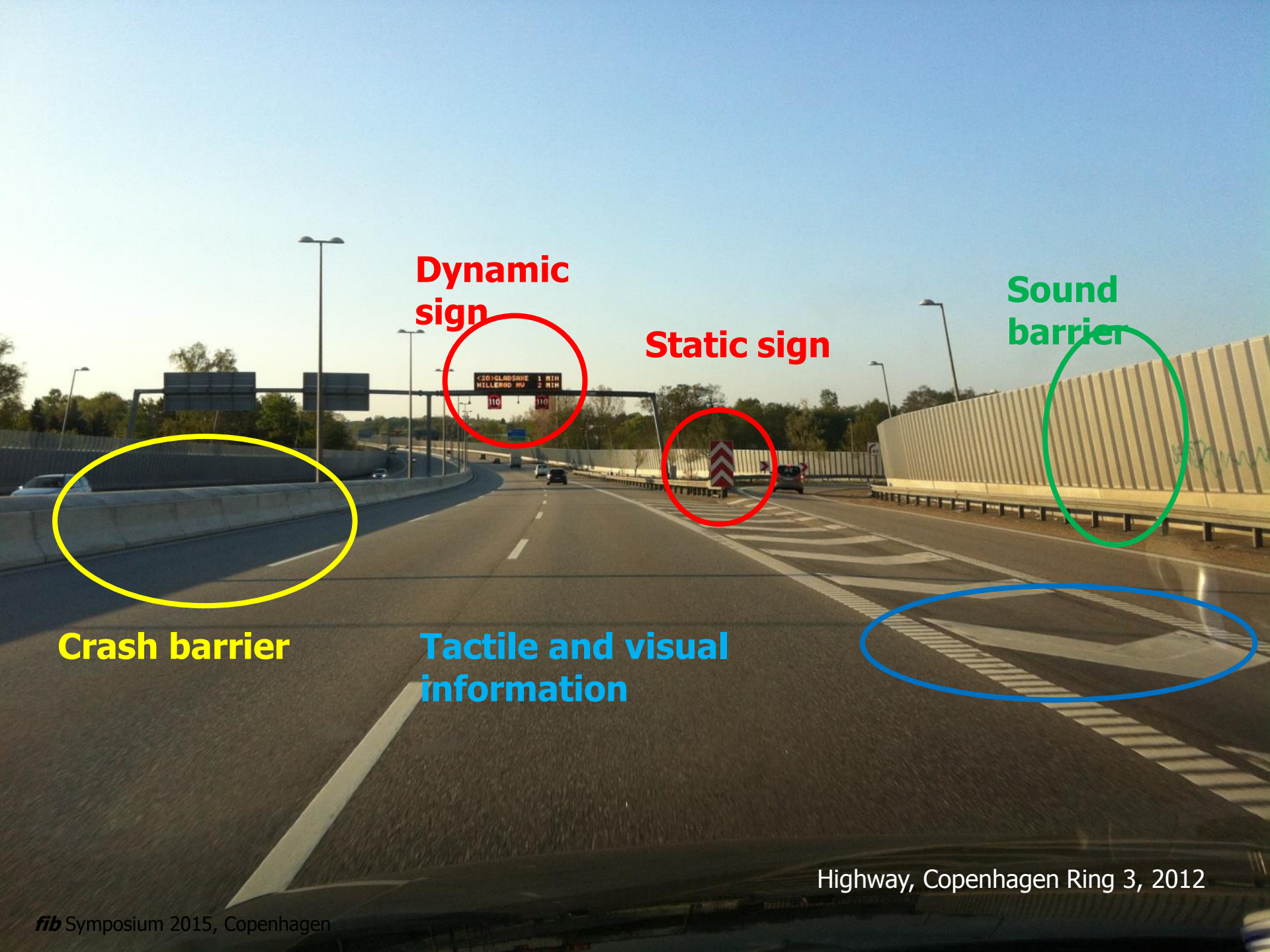
Relevance?

Highway, Copenhagen Ring 3, 2012

Highway, Copenhagen Ring 3, 2012

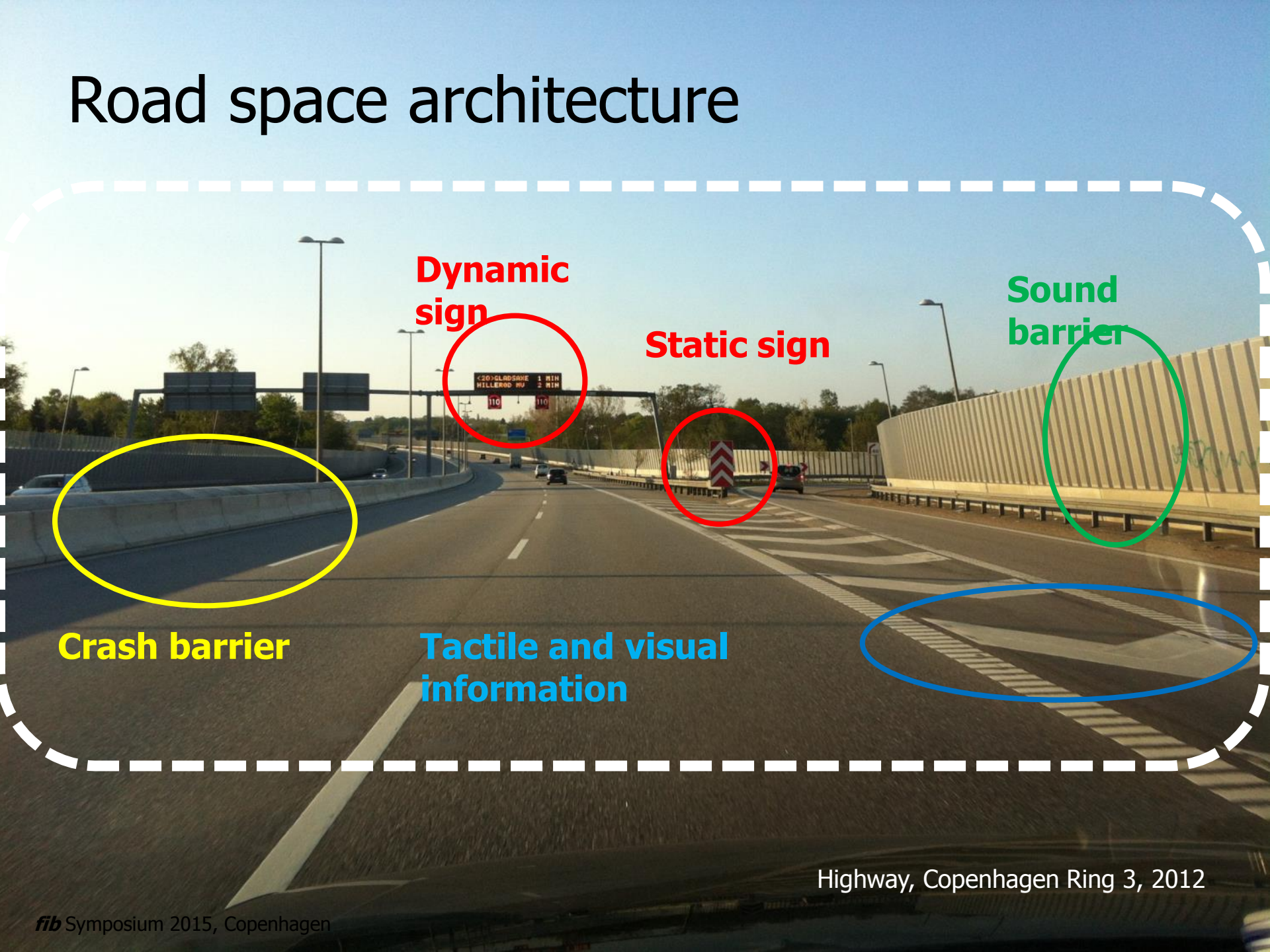
Highway, Copenhagen Ring 3, 2012


Dynamic sign
Static sign
Crash barrier
Tactile and visual information
Highway, Copenhagen Ring 3, 2012



Highway, Copenhagen Ring 3, 2012

Road space architecture



Highway, Copenhagen Ring 3, 2012

Visualisualization based on Great Belt Link

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Conclusion

…new materials and fabrication techniques are available today to

- utilize concretes free form potential and
- exploit concretes ability to envelope tomorrows information technology

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Conclusion

…these must be developed and applied with care regarding following parametres

- Robustness
- Cost – efficiency
- Long term aesthetic value

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THANK YOU

jrg@dti.dk
+45 72202271

Johannes Portielje Rauff Greisen, M. Arch, PhD
Consultant, Danish Technological Institute, Høje Tåstrup, 2630, Denmark