



ROBERT ROITHMAYR
Formfinding &
Environmental Aspects

MEMBRANE MASTER

**Postgraduate Master's Program
Master of Engineering (M.Eng.)
4 Semester, Part-Time**

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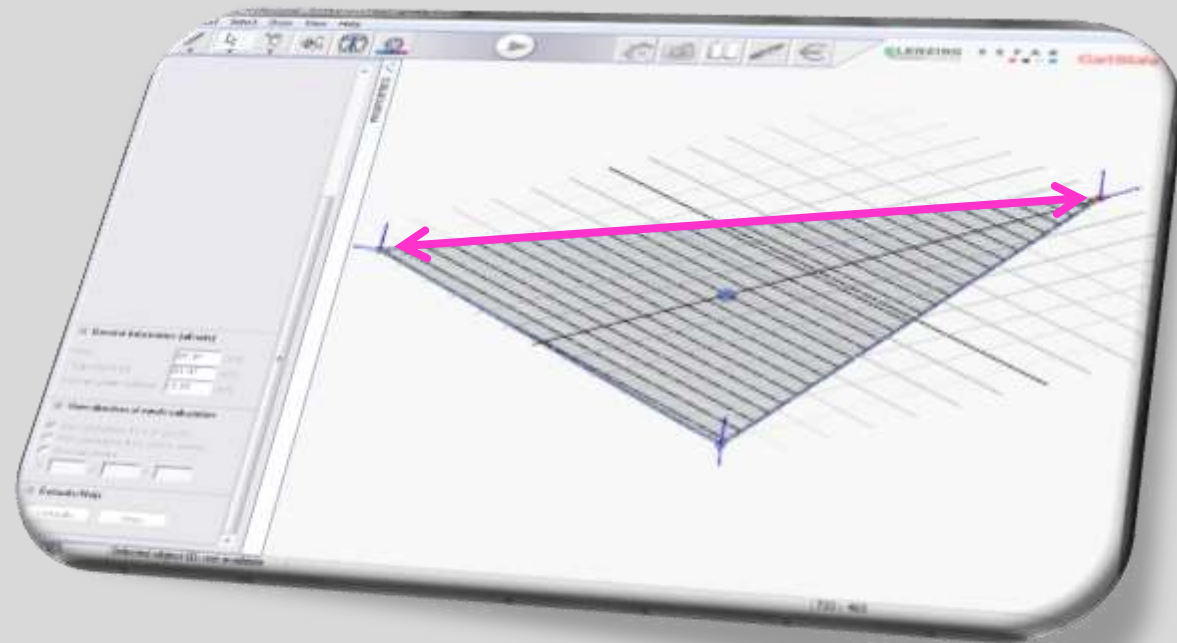
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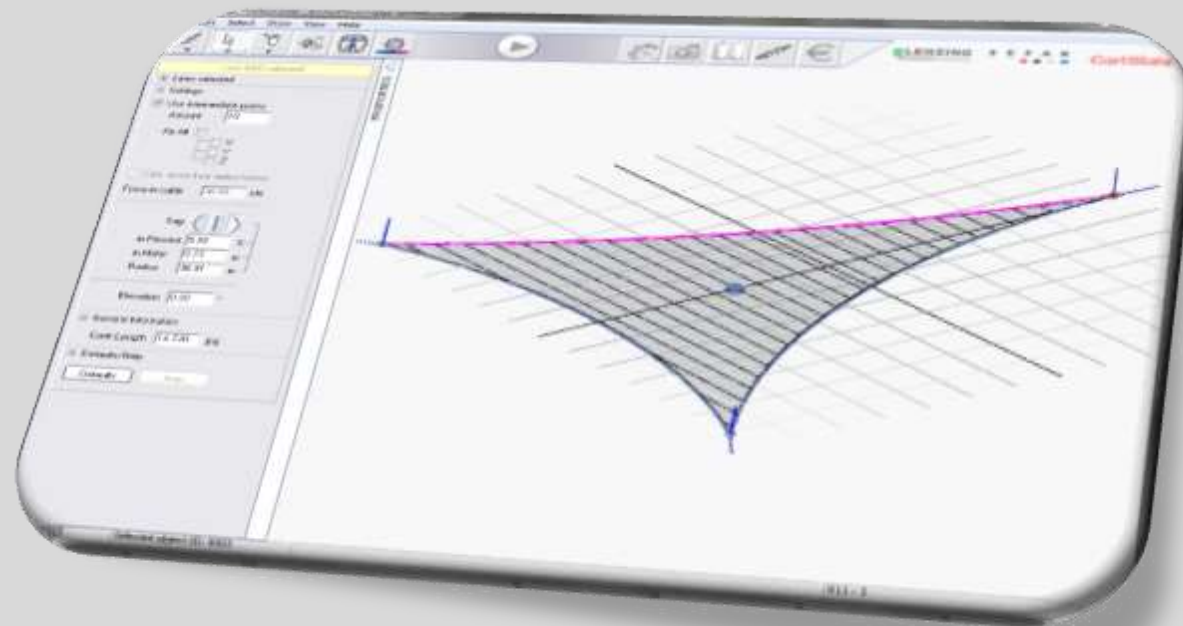


FORMFINDING AS AN ENVIRONMENTAL ASPECT

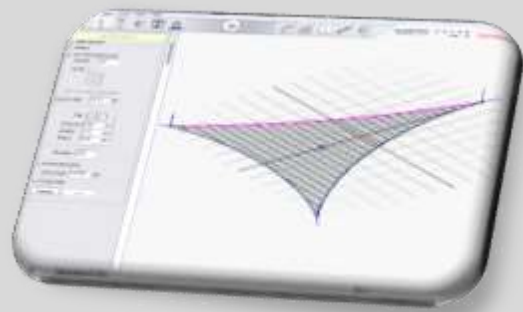
DESIGN -> EFFICIENCY



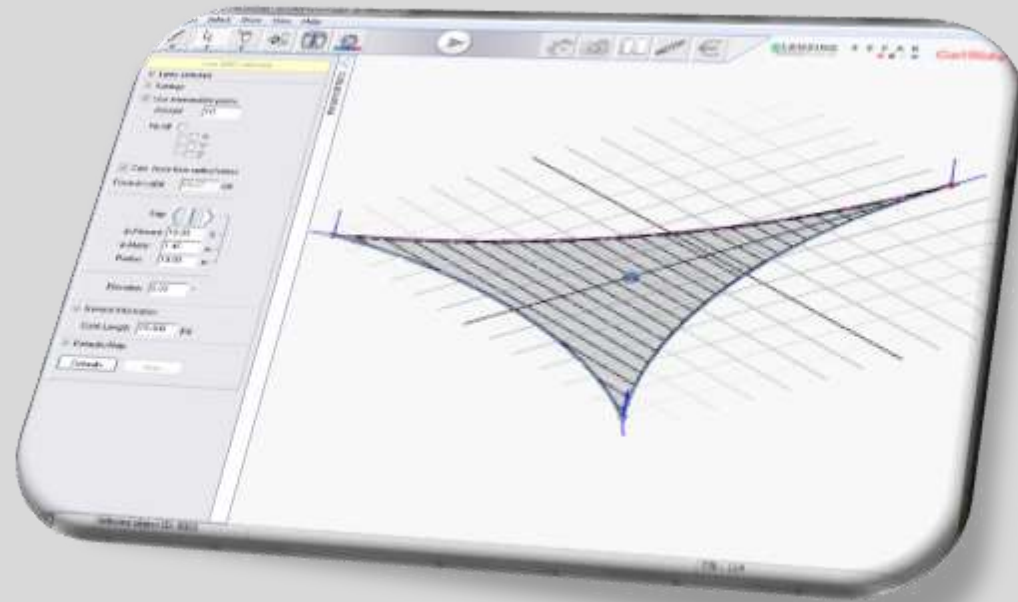
SAG: ZERO %
FORCE: INFINITE



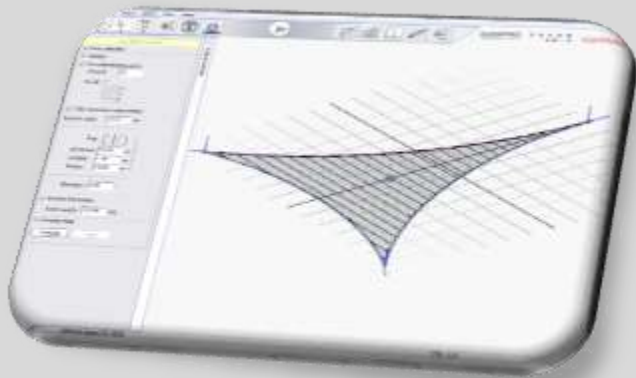
SAG: 5 %
FORCE: 36 KN



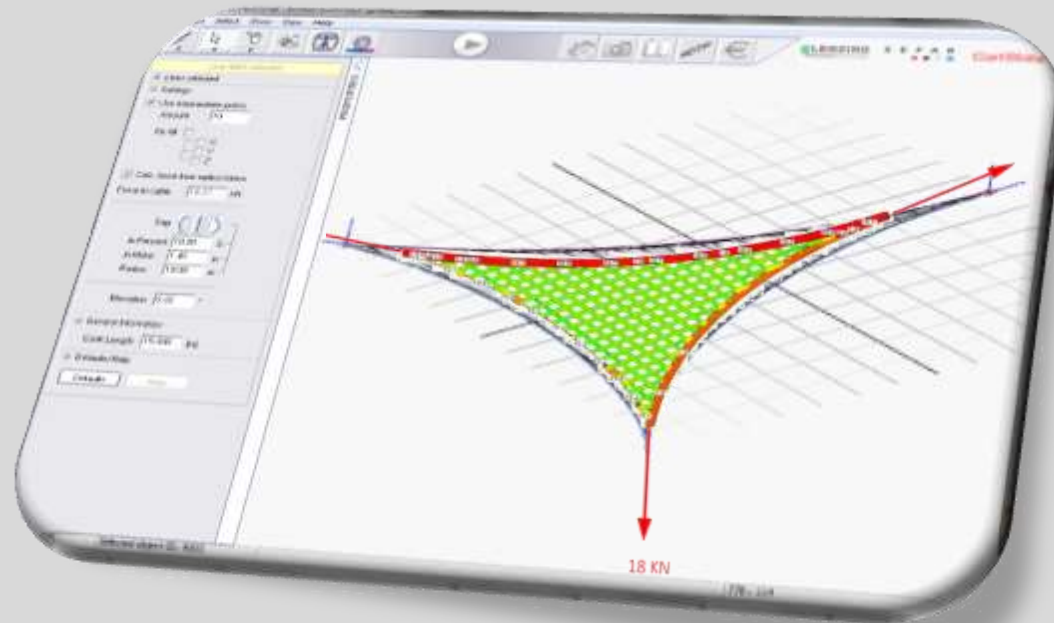
SAG: 5 %
FORCE: 36 KN



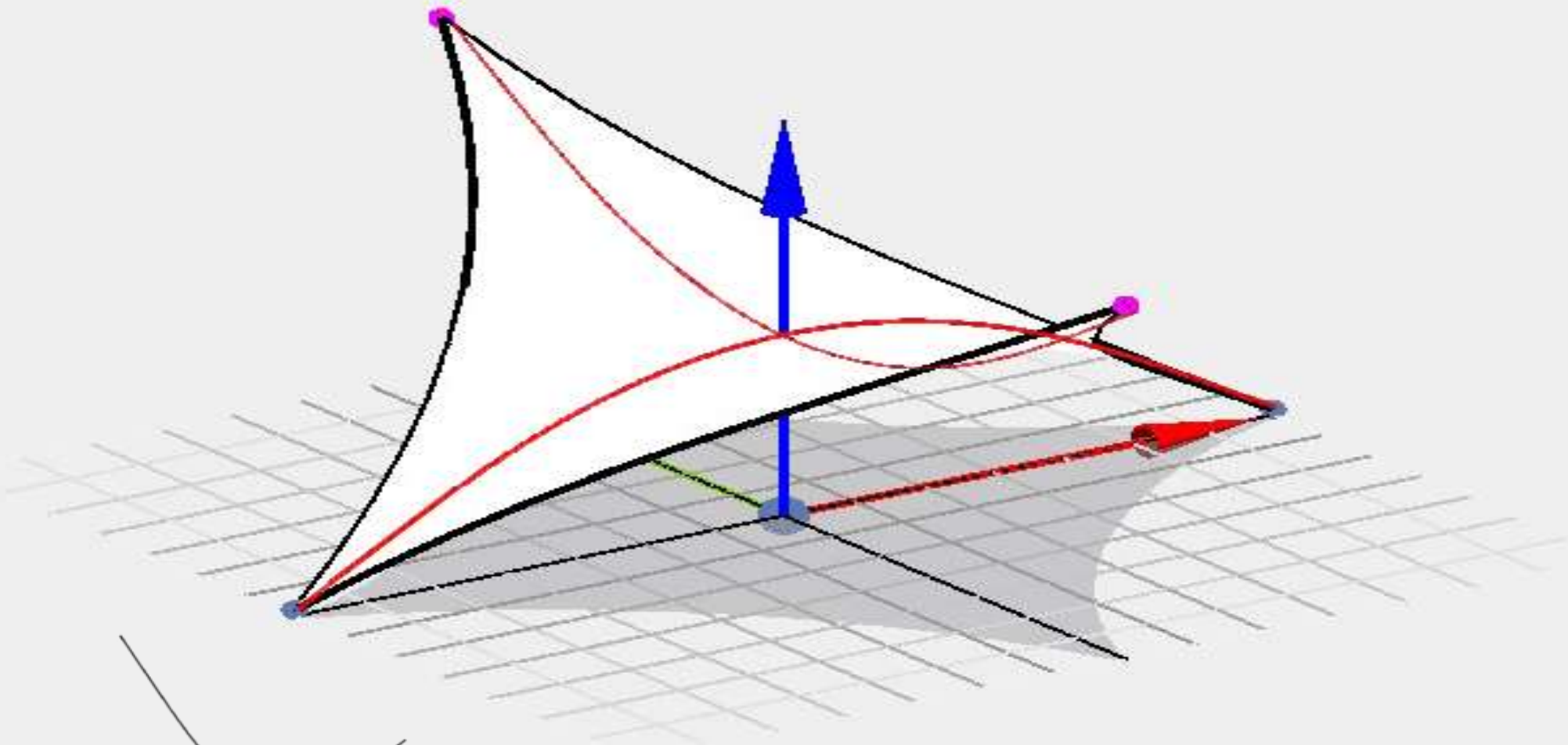
SAG: 10 %
FORCE: 18 KN



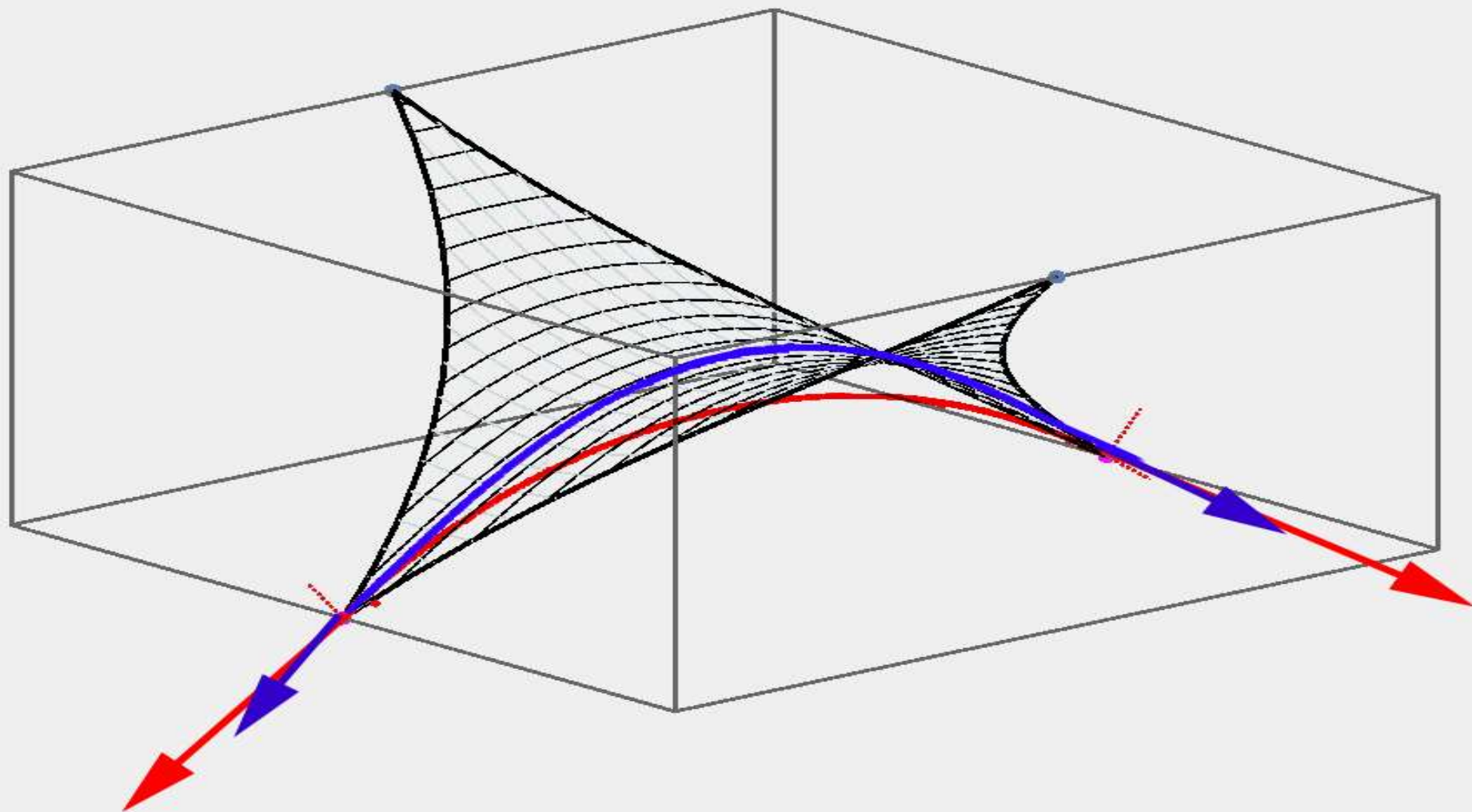
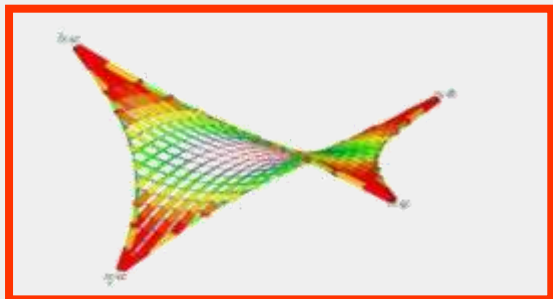
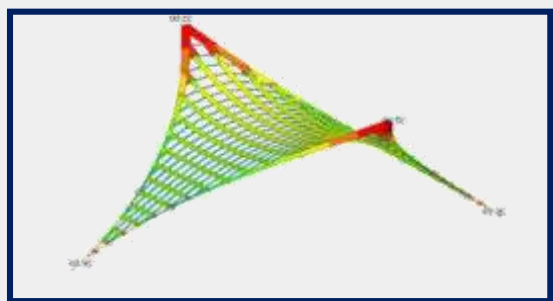
10 % SAG
FORCE: 18 KN



FLAT!

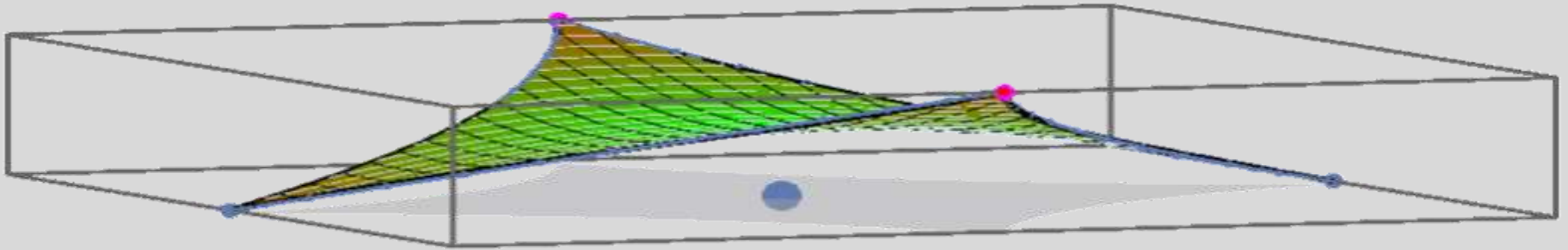


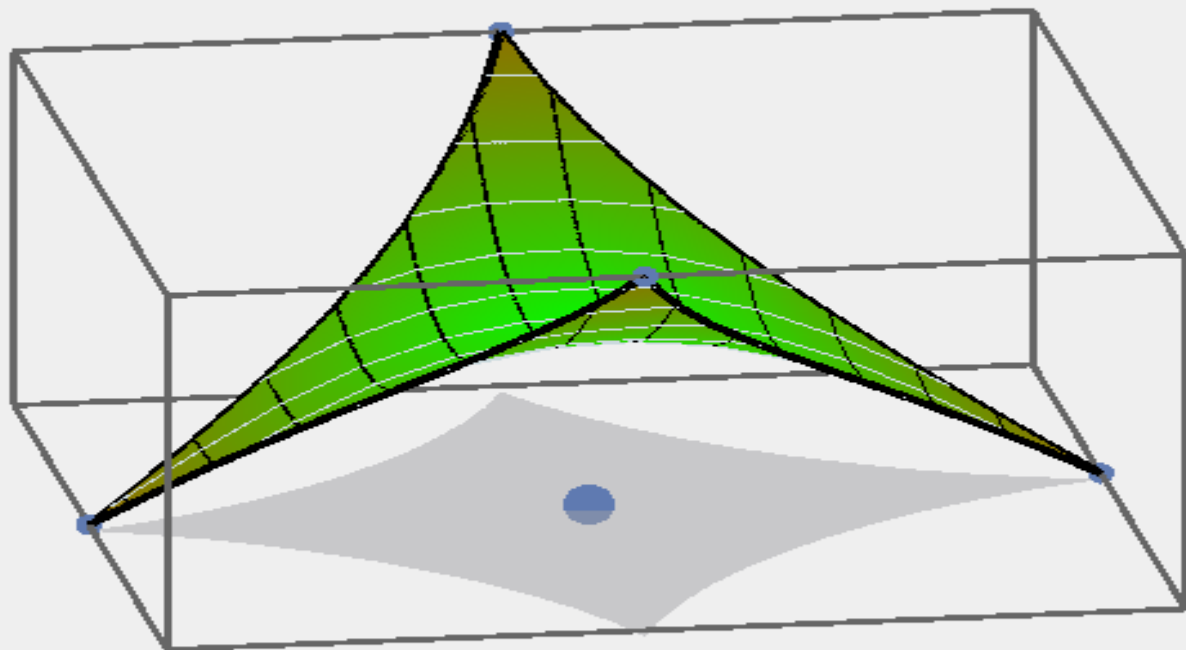
DOUBLE CURVATURE



WIND

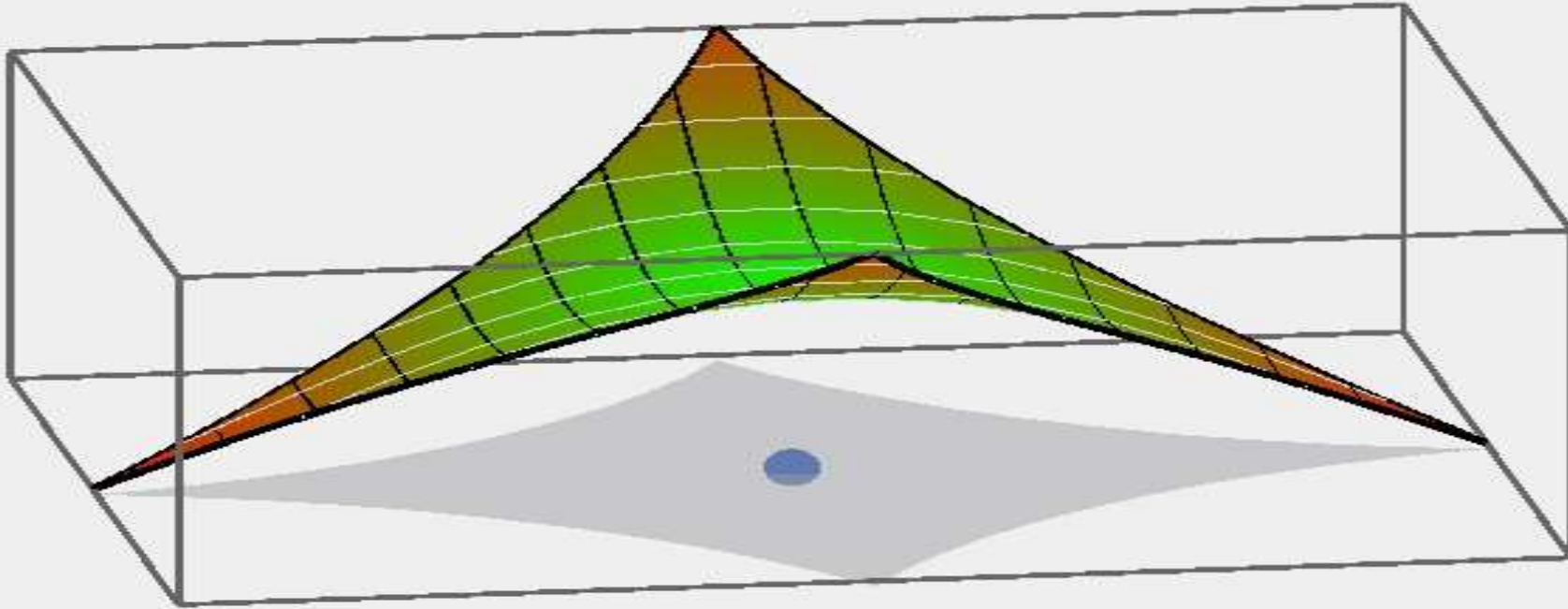
FORCE AND GEOMETRY





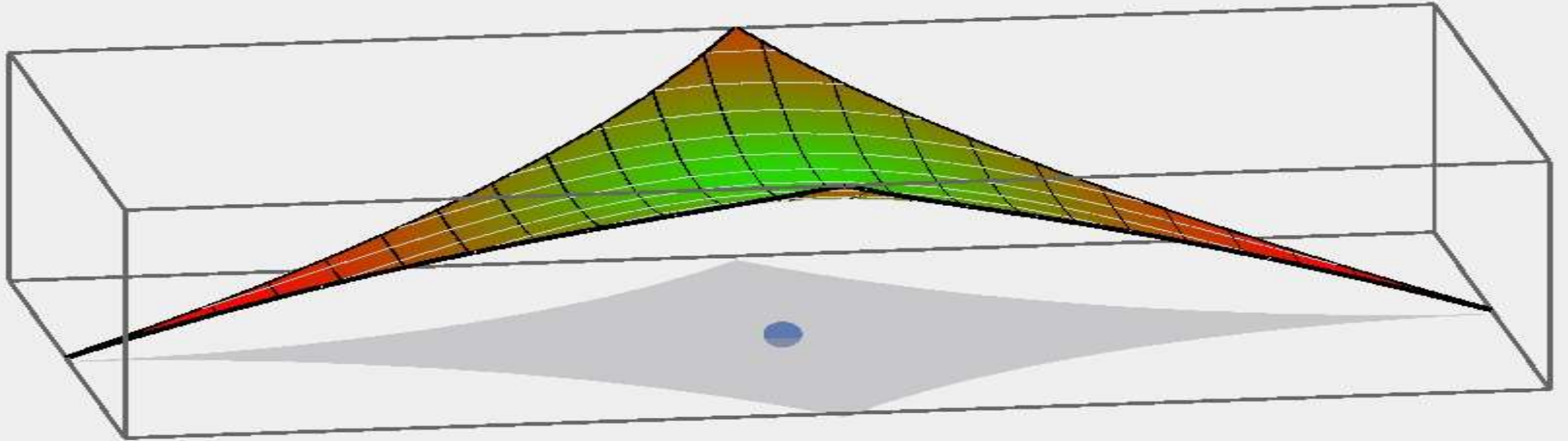
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PROPORTION



1 : 2

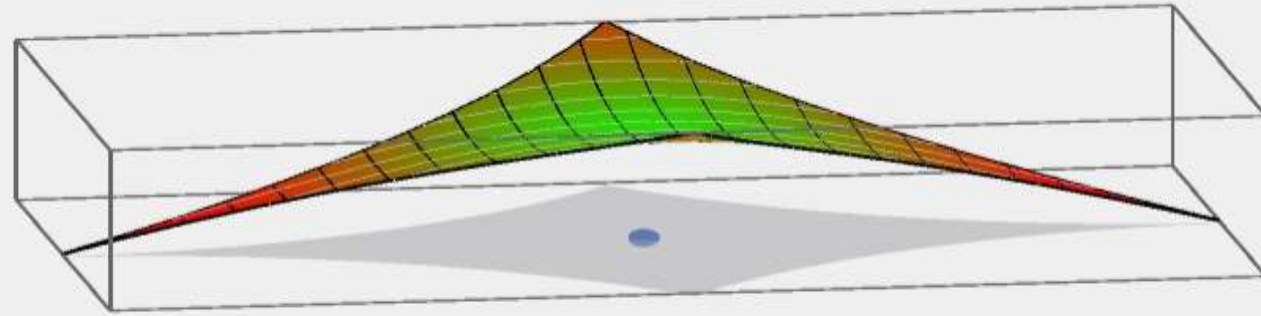
PROPORTION



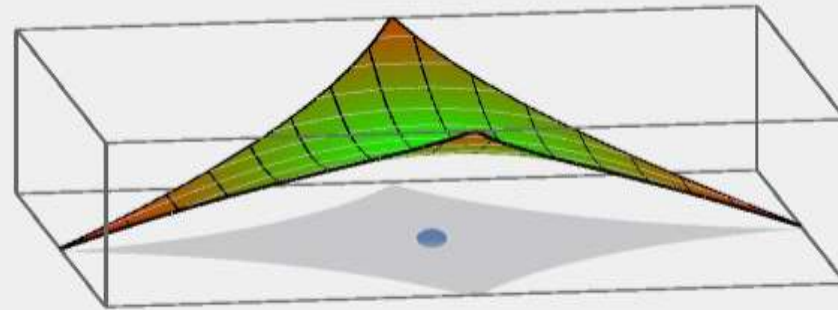
1 : 4

PROPORTION

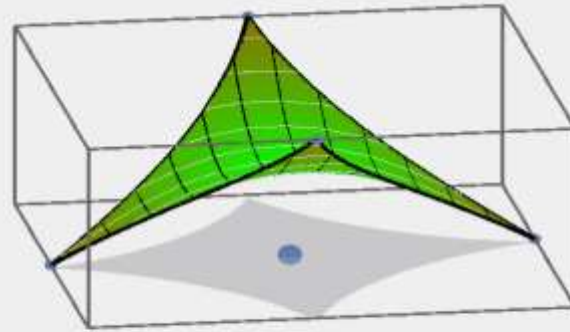
1 : 4



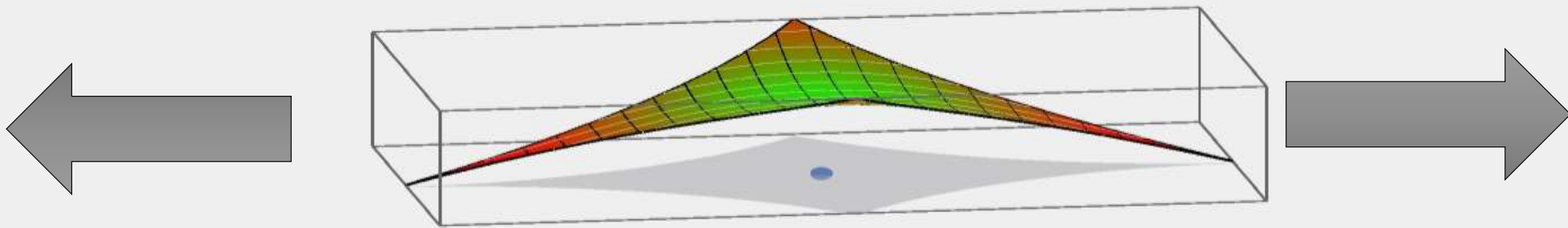
1 : 2



1 : 1



PROPORTION



1 : 4

> 1:4 change of "system"

Nature does not scale

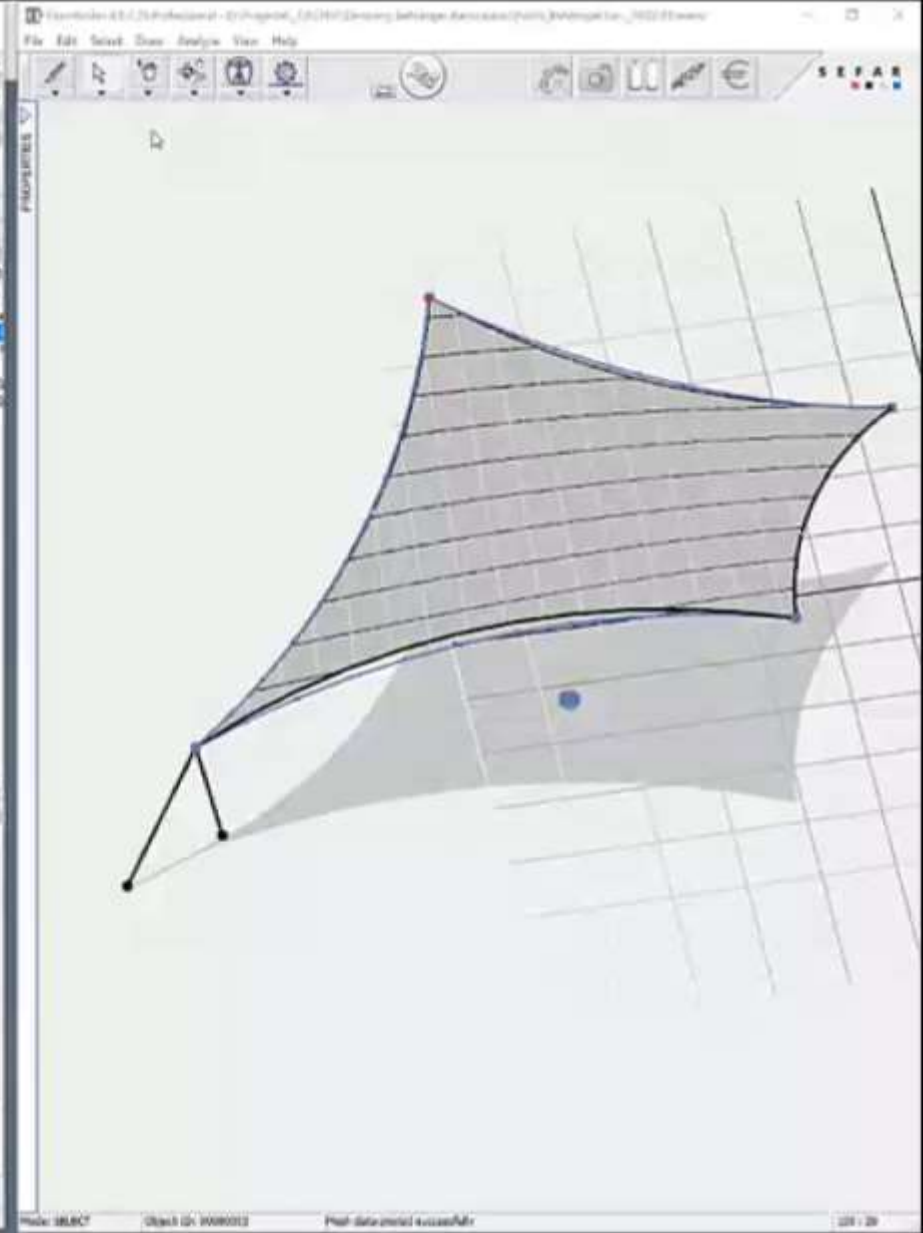
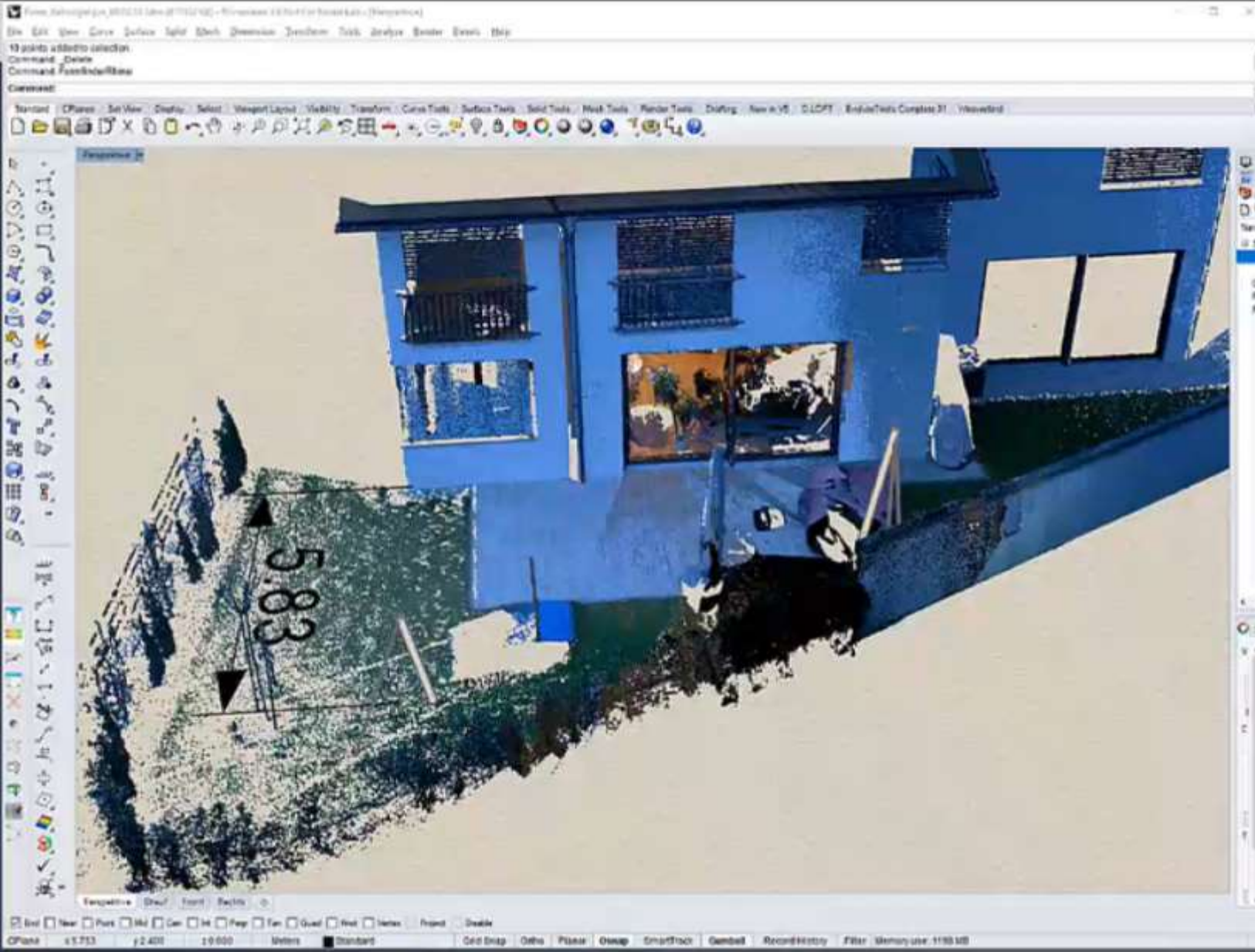
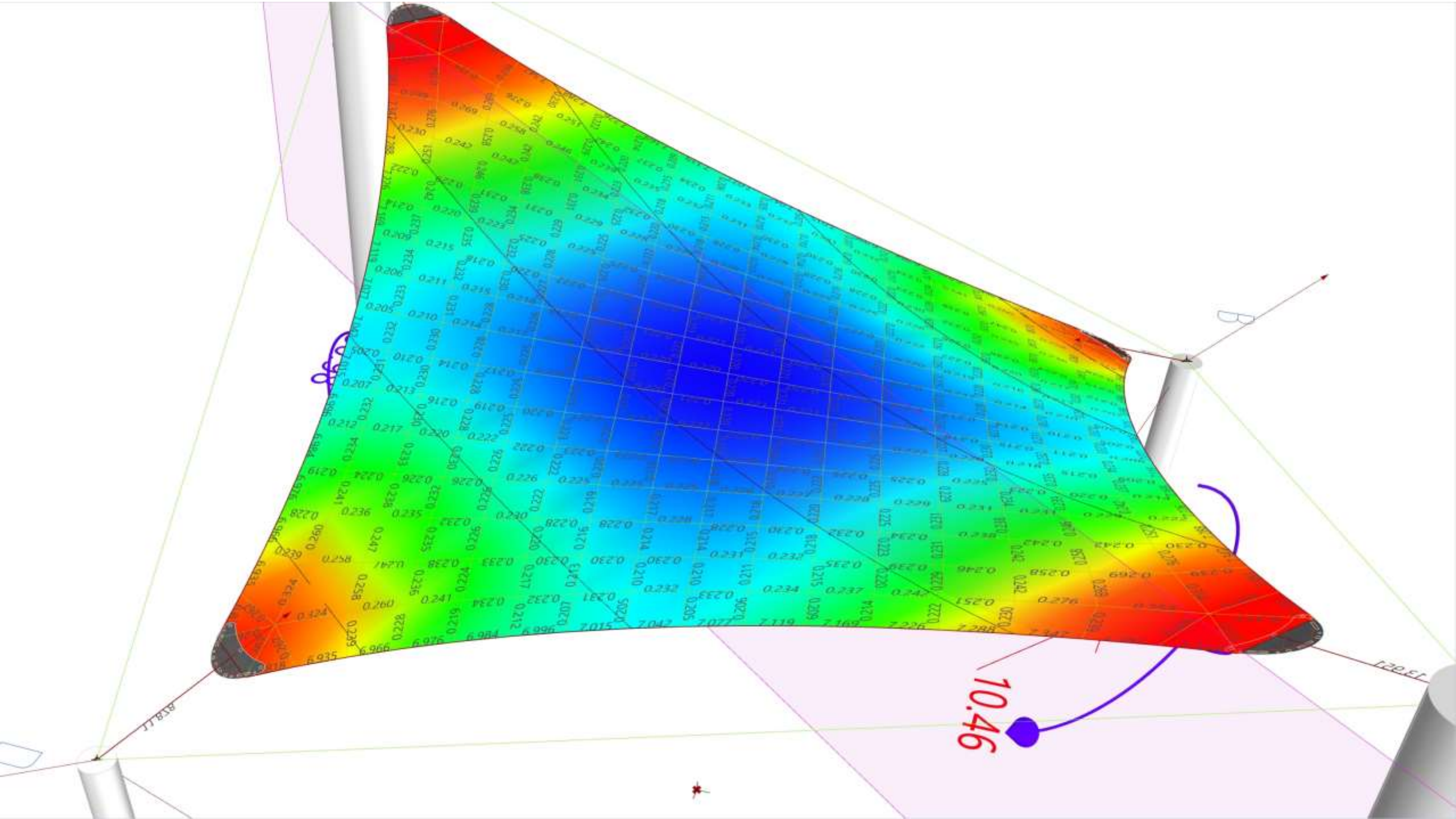





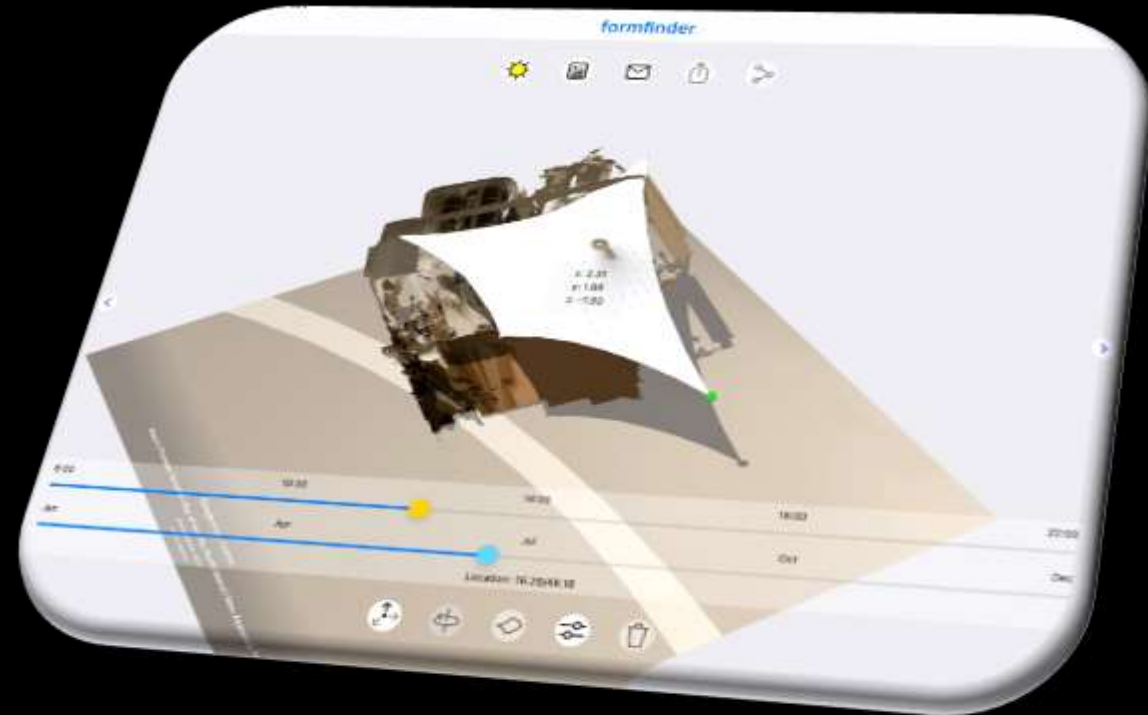
Image c) Johannes Fitz AERONAUTEC



10.46



SPACE Architecture
STRUCTURE Engineering
& ENVIRONMENTAL
ASPECT ENERGY
PRODUCTION



FORMFINDER CONNECT


Environment Project

Surrounding

Sun

Date	12/04/2023
Time	12:13 PM

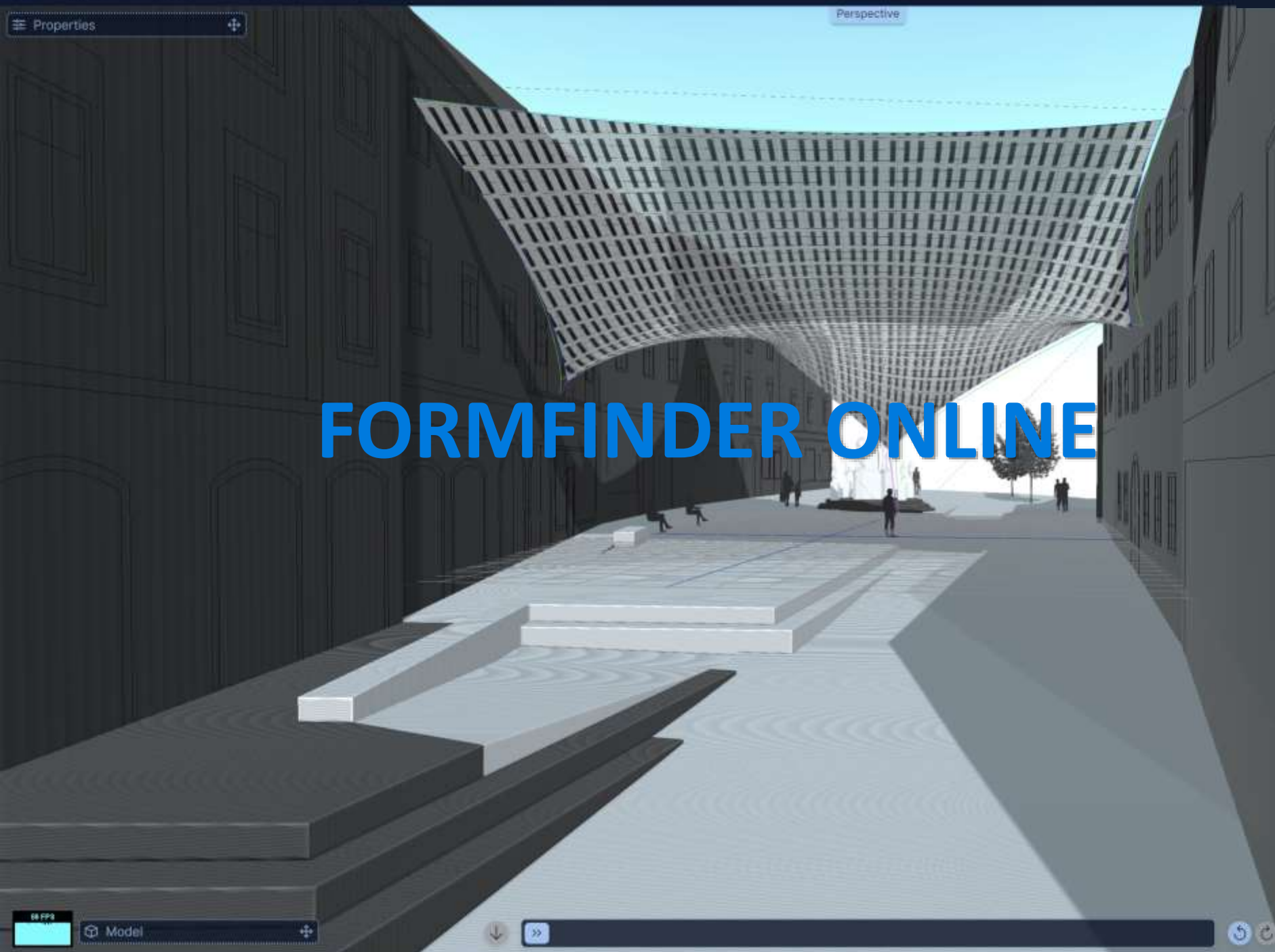
Location



Properties

Perspective

FORMFINDER ONLINE



Sun Simulation [ESC] [X]

TIME [▶] [↺] [↻]

16 hour 28 minute 0 second

DATE [↺] [↻]

04/28/2024 [📅]

LOCATION [↺] [↻]

Leaflet | DSM



Engineer



Björn Beckert
Dipl.-Ing.
(Msc)



Engineer



Bruce Danziger
SE



Architect



Beatriz Ferreyra
B. Arch.,
M.Eng.



Entrepreneur

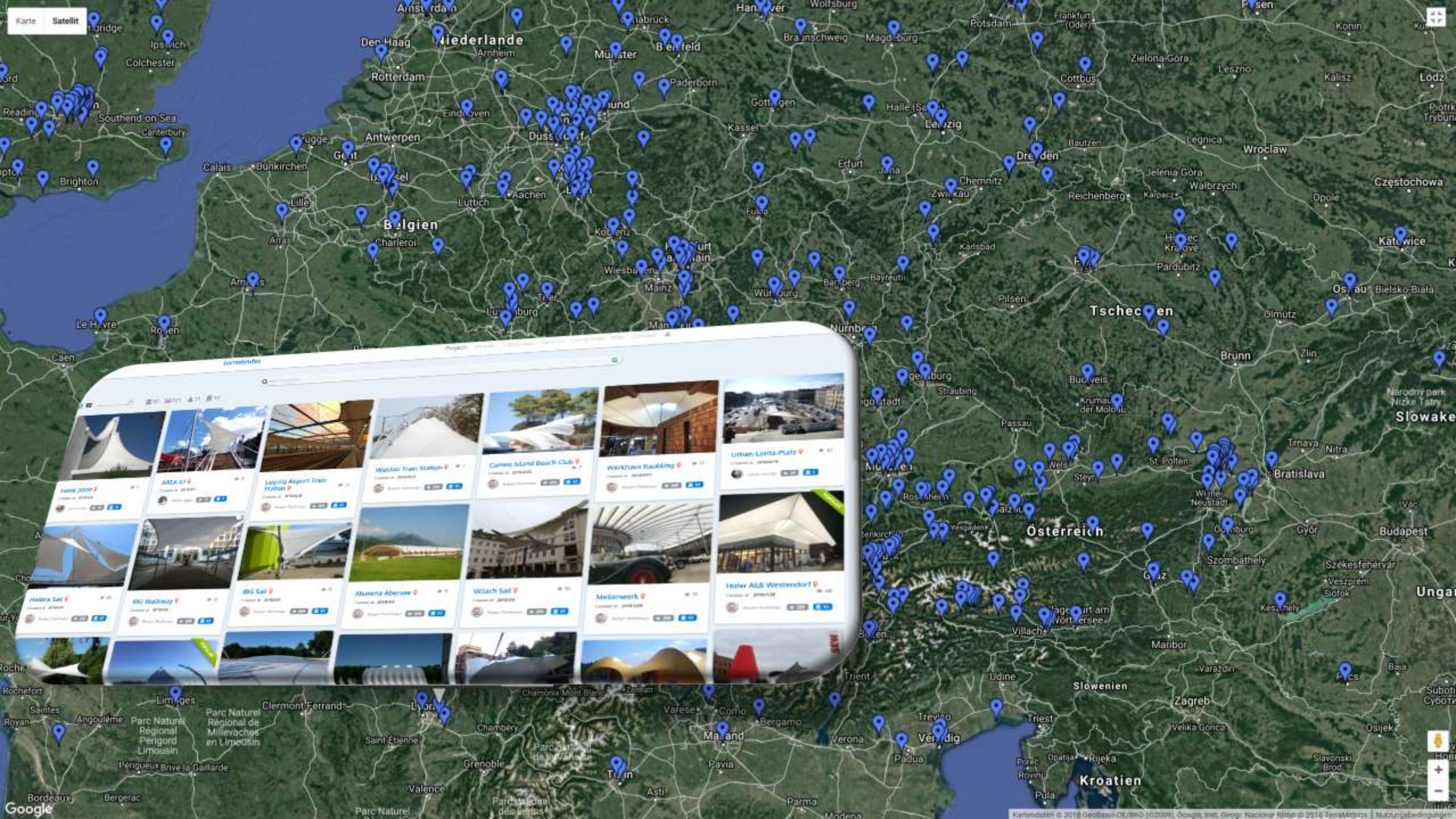


Robert Roithmayr
Arch. Eng.
PhD

ENVIRONMENTAL ASPECTS



more to come soon!



Karte Satellit

Niederlande

Belgien

Tschechien

Österreich

Slowenien

Kroatien

 Lahn 2000 Lahn 2000 Lahn 2000	 ARL 47 ARL 47 ARL 47	 Laguna Airport Train Station Laguna Airport Train Station Laguna Airport Train Station	 Waltau Train Station Waltau Train Station Waltau Train Station	 Carnegie Island Beach Club Carnegie Island Beach Club Carnegie Island Beach Club	 Werkhaus Raubling Werkhaus Raubling Werkhaus Raubling	 Urban-Lörrich-Platz Urban-Lörrich-Platz Urban-Lörrich-Platz
 Haidka Süd Haidka Süd Haidka Süd	 IBC Walkway IBC Walkway IBC Walkway	 IBC Call IBC Call IBC Call	 Alumens Abernethy Alumens Abernethy Alumens Abernethy	 Villach Süd Villach Süd Villach Süd	 Medienwerk Medienwerk Medienwerk	 Haller Albi Westendpark Haller Albi Westendpark Haller Albi Westendpark
 [Title obscured]	 [Title obscured]	 [Title obscured]	 [Title obscured]	 [Title obscured]	 [Title obscured]	 [Title obscured]

10 /Solutions/Arena

PV Membrane with Mega Efficiency in usage to create huge benefit, <https://membrane.online/project/900>

7 Versions

Search



ID: 22

Design Three v3.0.0

including the PV-FACADE side elements for winter electr.

Sat Dec 09 2023

ID: 34

Design Seven Shine Bright v3.0.4

PV for more colour reflection bright yellow to gold base

Sat Dec 09 2023

ID: 33

Design Six Full PV v3.0.3

Full PV Membrane full area

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ID: 30

Design Five Weather Data v3.0.2

PV on facade

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ID: 23

Design Four Horizontal v3.0.1

Facade on the side

Sat Dec 09 2023

ID: 18

Design Two Vertical darker v2.1.0

updated Membrane shape

Sat Dec 09 2023

ID: 17

Design One PV Vertical light v2.0.0

Start shape

Sat Dec 09 2023

1 Workspaces

Search



3D COLLABORATIVE WORKSPACES

COLLABORATIVE WORKSPACE MOST POWERFUL ENVIRONMENTAL ASPECT



SEARCHING FOR CLARITY

GOAL

Why are we doing this?

STRATEGY

What do we want to do?

ACTION

How are we going to do this?

CENTRAL QUESTION
WE WANT TO: ACHIEVE & AVOID



STRATEGYFINDER

GOAL

Why are we doing this?

STRATEGY

What do we want to do?

ACTION

How are we going to do this?



STRATEGYFINDER COLLABORATIVE WORKSPACE

STRATEGYFINDER MAP

GOAL

What would be the results and consequences if we did that?

What are the goals of individuals? What don't we want to achieve?

Coordinated goals that we all support

STRATEGY

How would we approach this? What does it take to do that?

Action options

Action plan

ACTION

How

Why

Laddering down

Laddering up

STRATEGYFINDER MAP

GOAL

What would be the overall goal, the vision?



Possible mission



Coordinated mission

STRATEGY

What would be the results and consequences if we did that?



What are the goals of individuals? What don't we want to achieve?



Coordinated goals that we all support

What do we want to do? What strategies do we want to pursue?



Possible strategies



Strategies

How would we approach this? What does it take to do that?



Action options



Action plan

ACTION

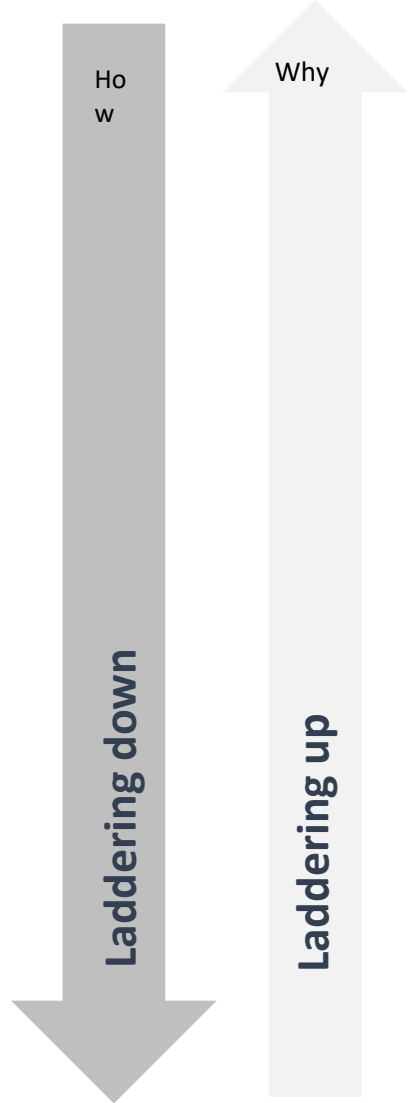
Our assumptions about the relevant environments/topic areas

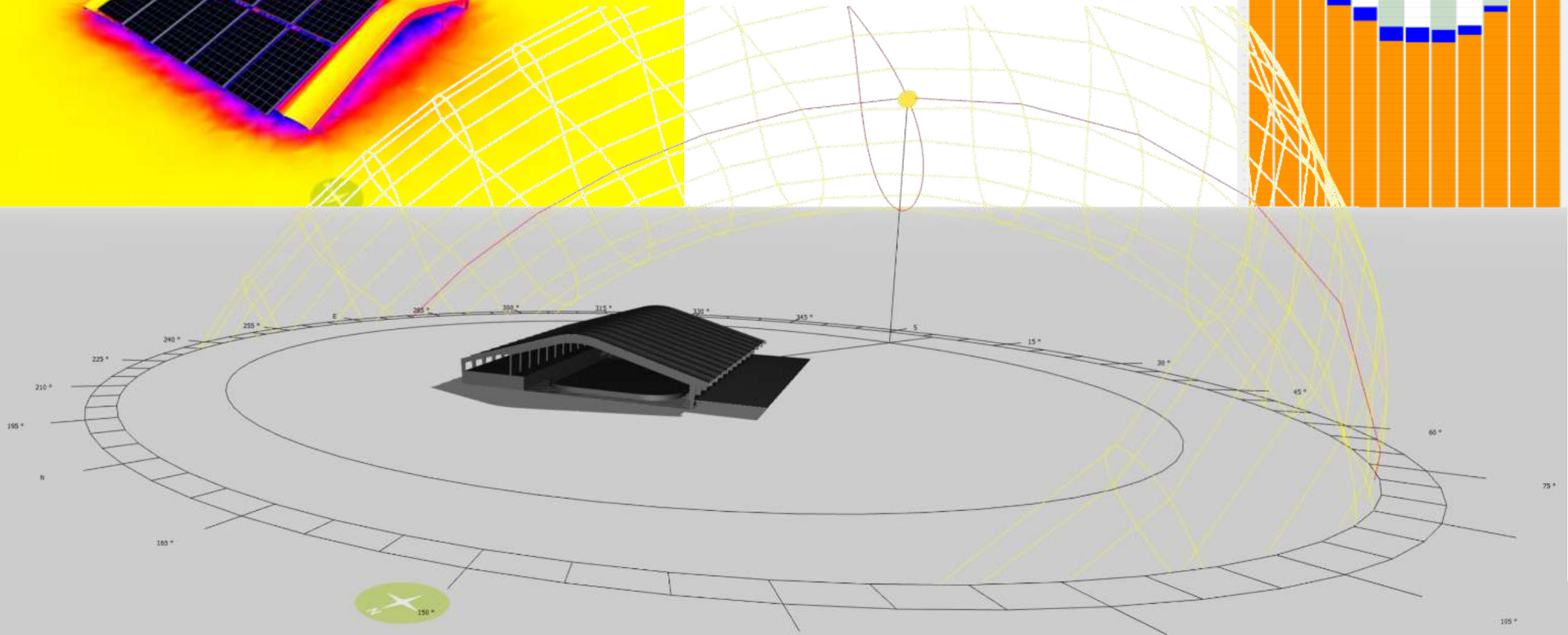
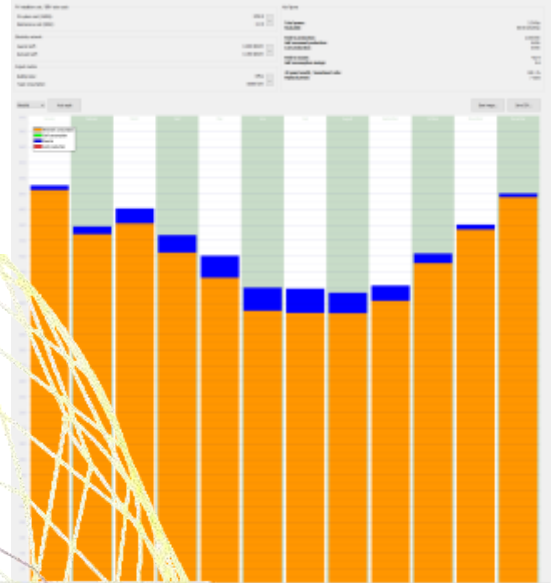
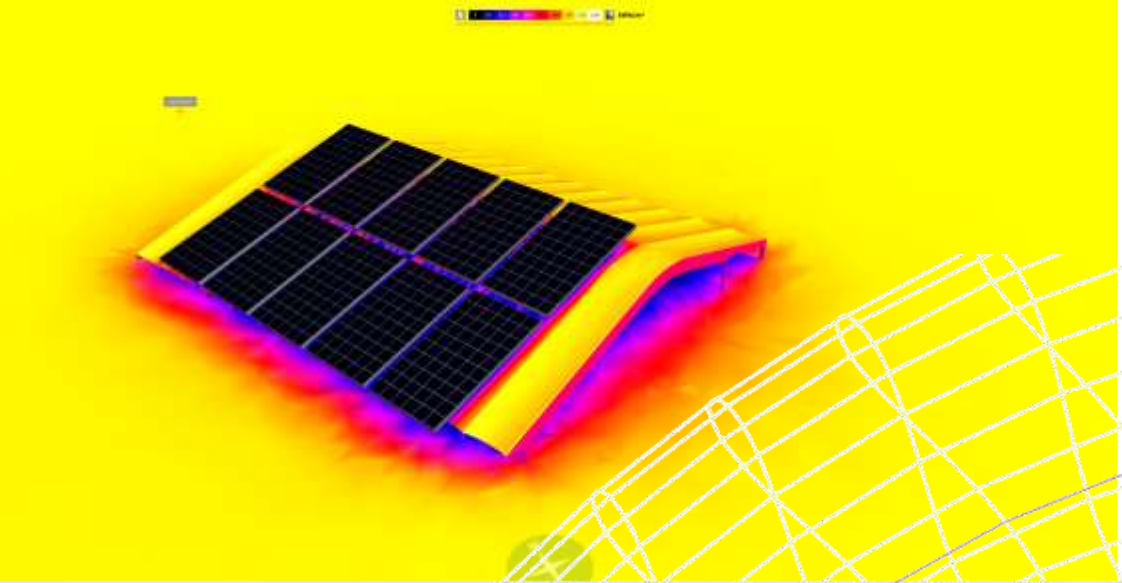


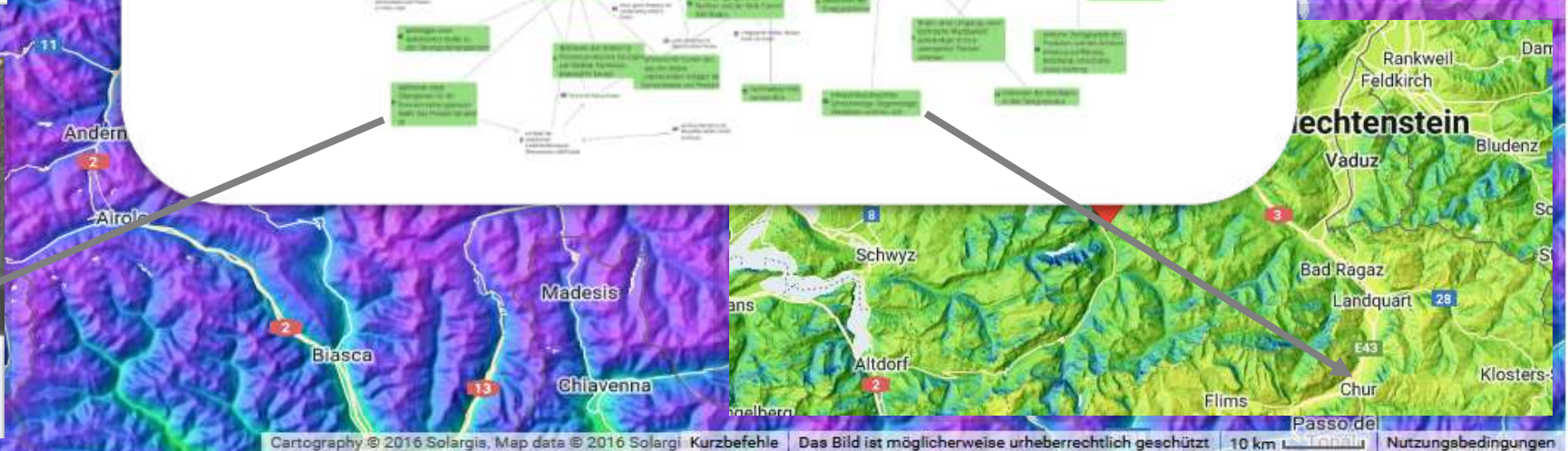
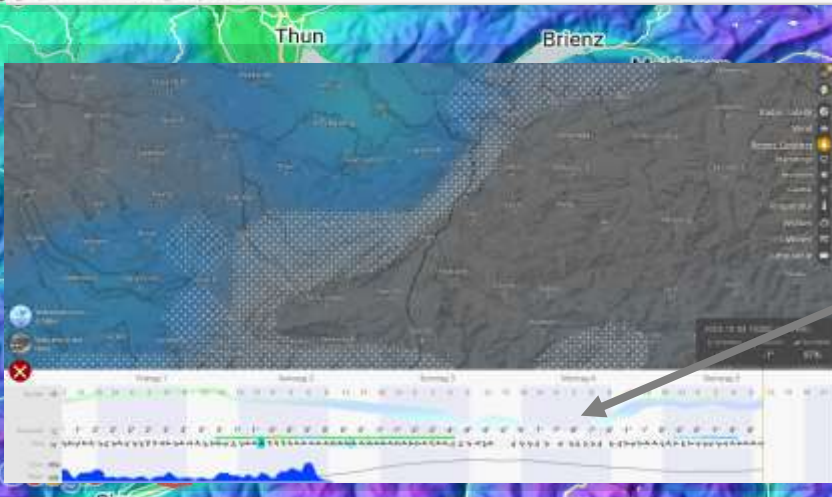
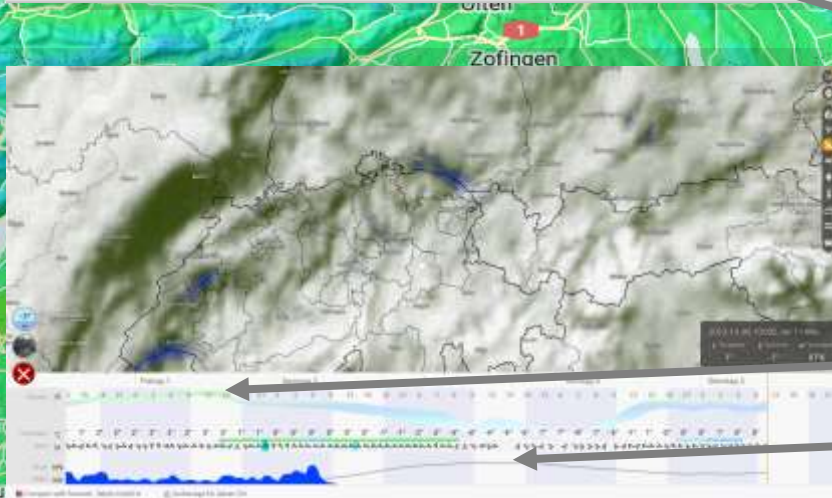
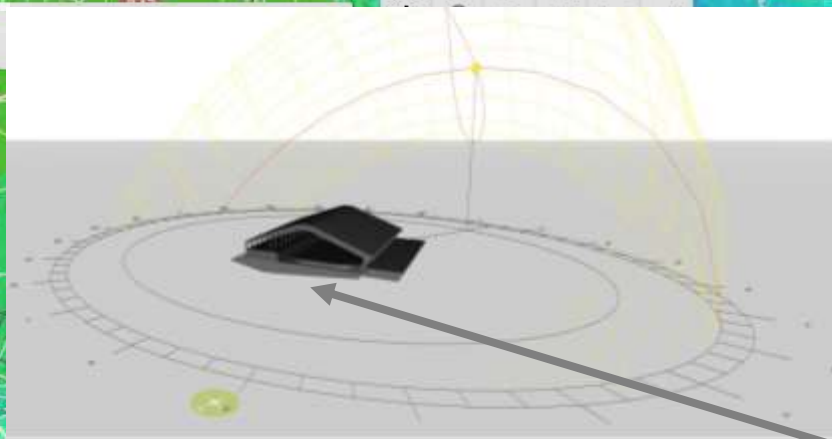
Assumptions from your own perspective



Data-based or research-backed assumptions





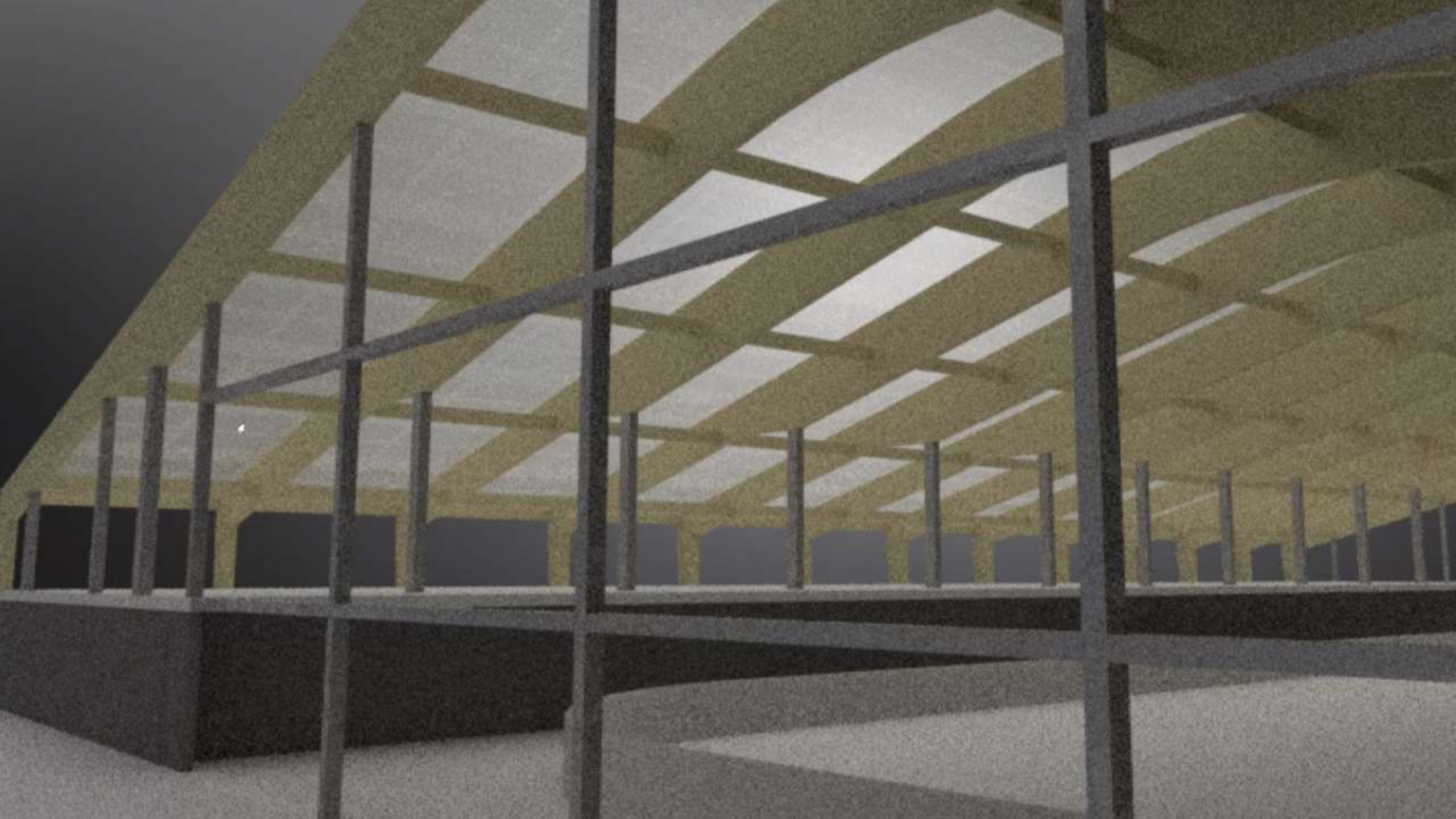


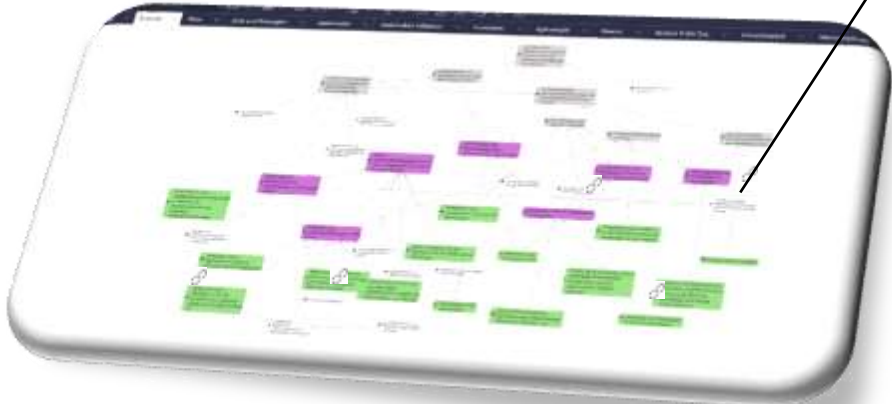
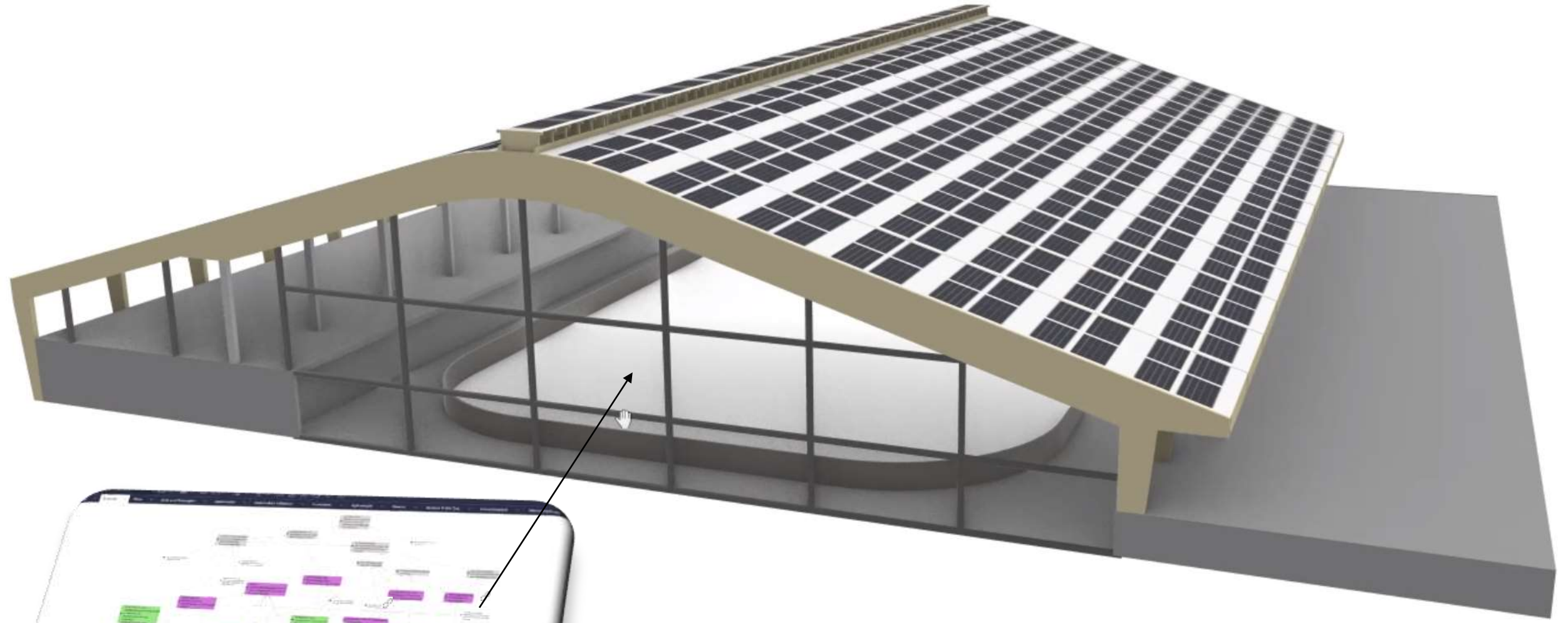
Winter electricity promotion
"Solar installations on roofs in the Central Plateau produce 75 % of electricity in the summer half-year and only 25 % in the critical winter half-year".

NZZ 10.08.2023 5:30 Christoph Eisenring

<https://www.nzz.ch/meinung/auf-dem-dach-eine-solaranlage-die-kopfloese-foerderung-von-sonnenstrom-muss-aufhoeren-id.1750748>

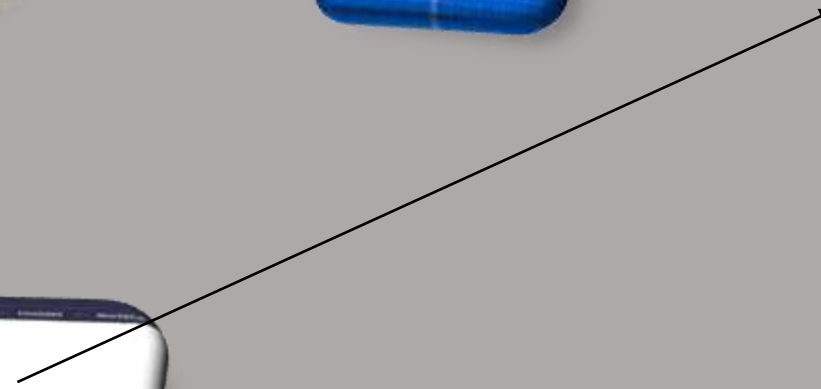
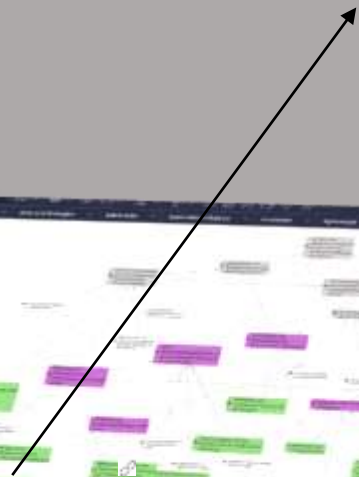
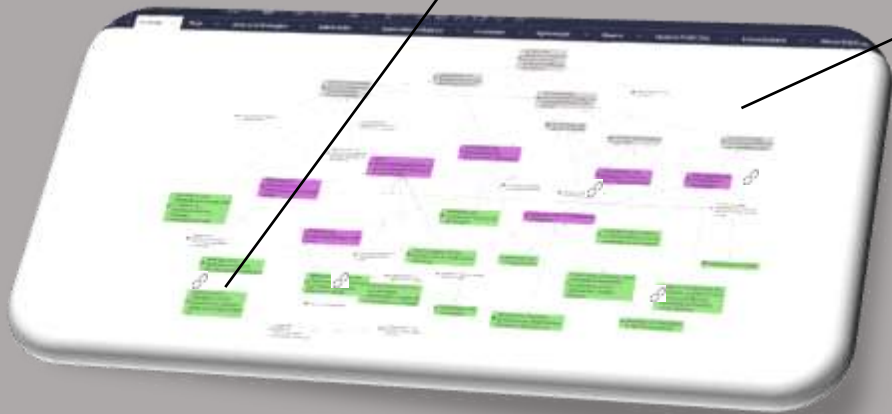


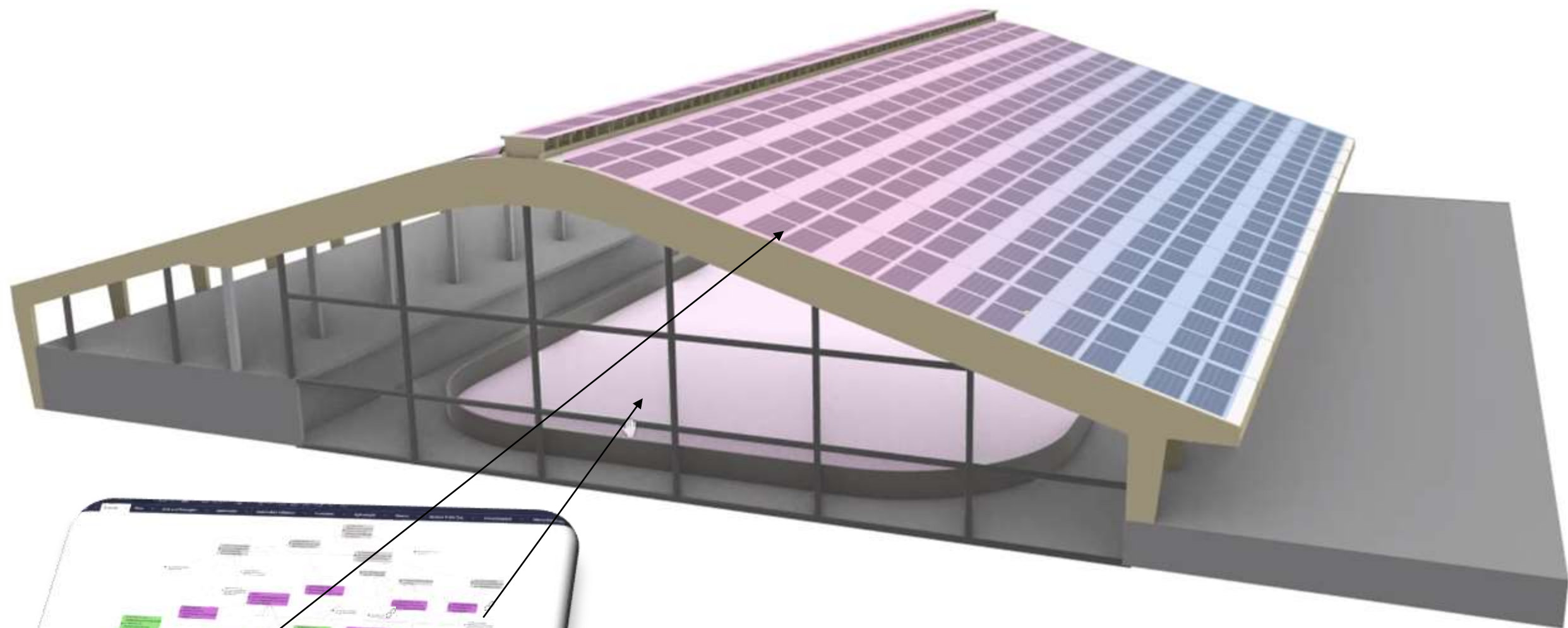


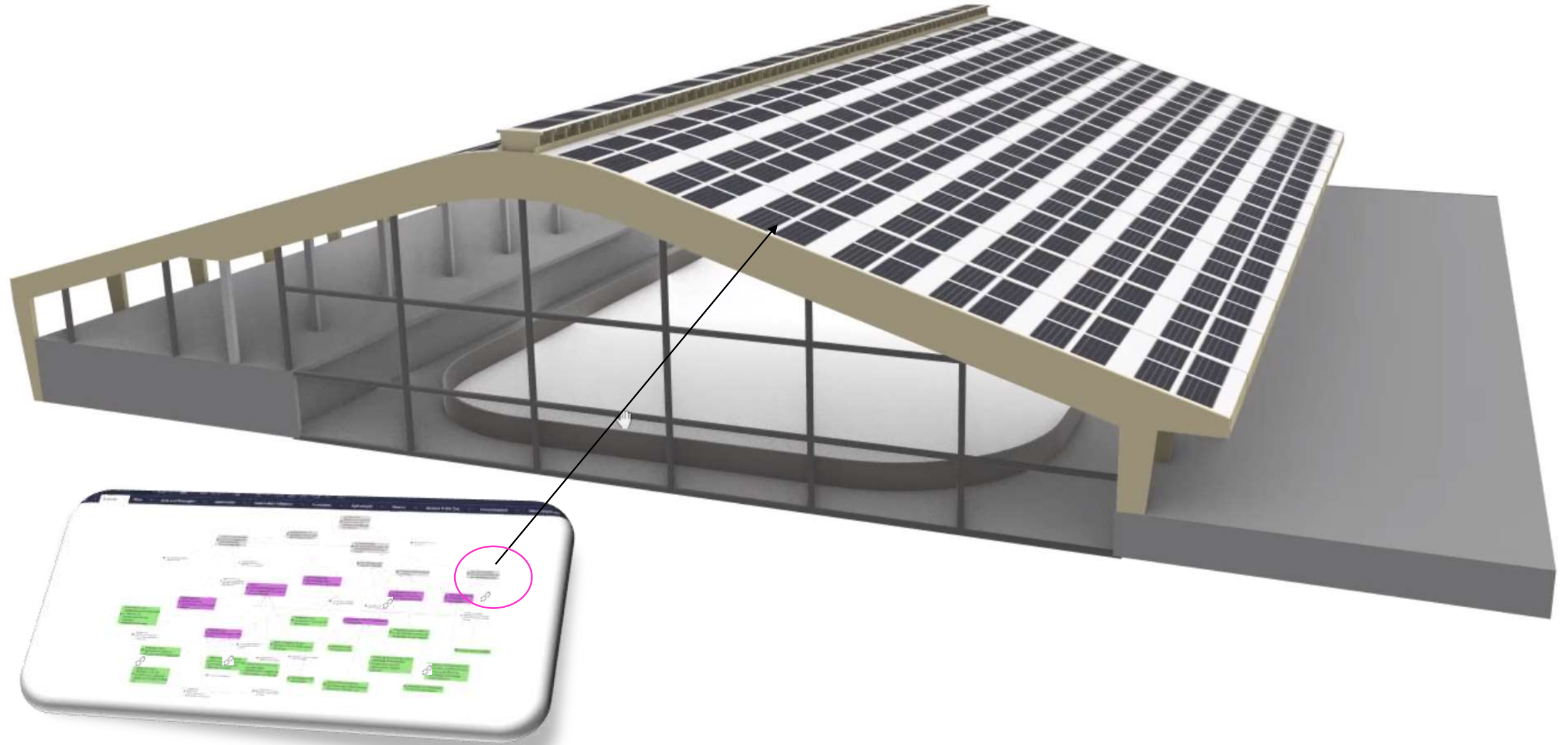


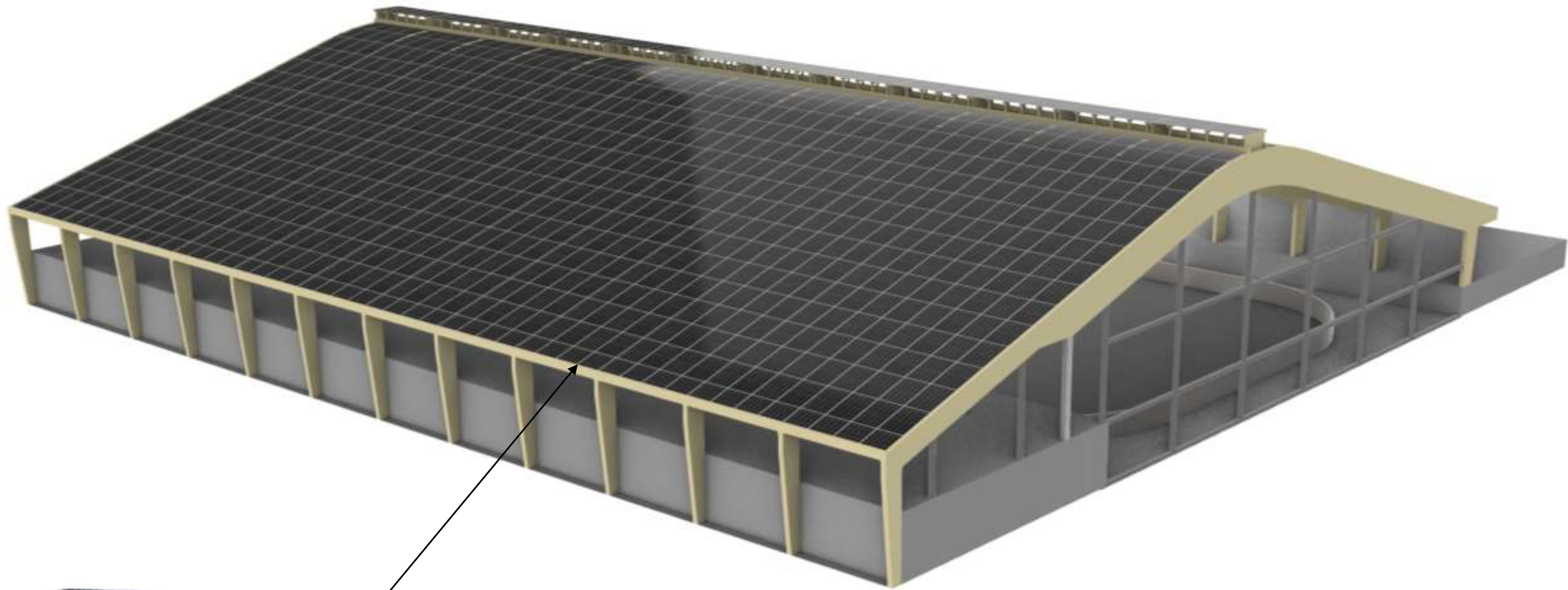


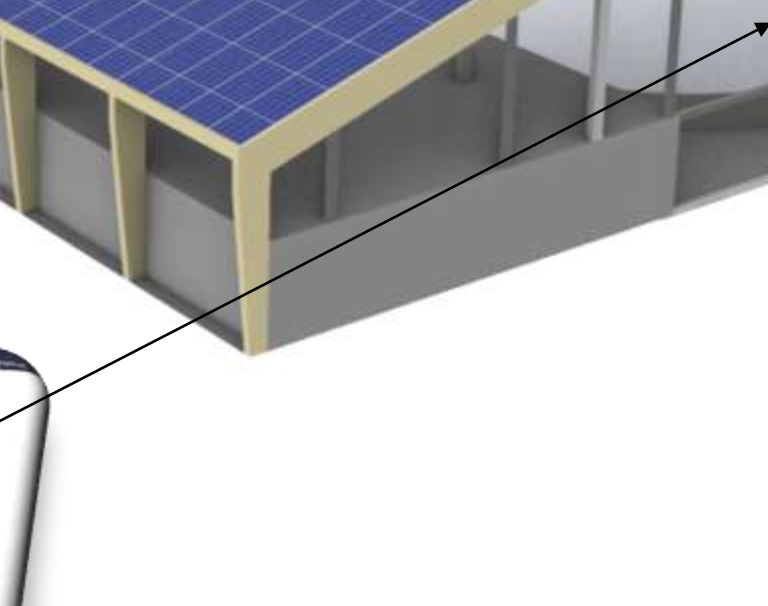
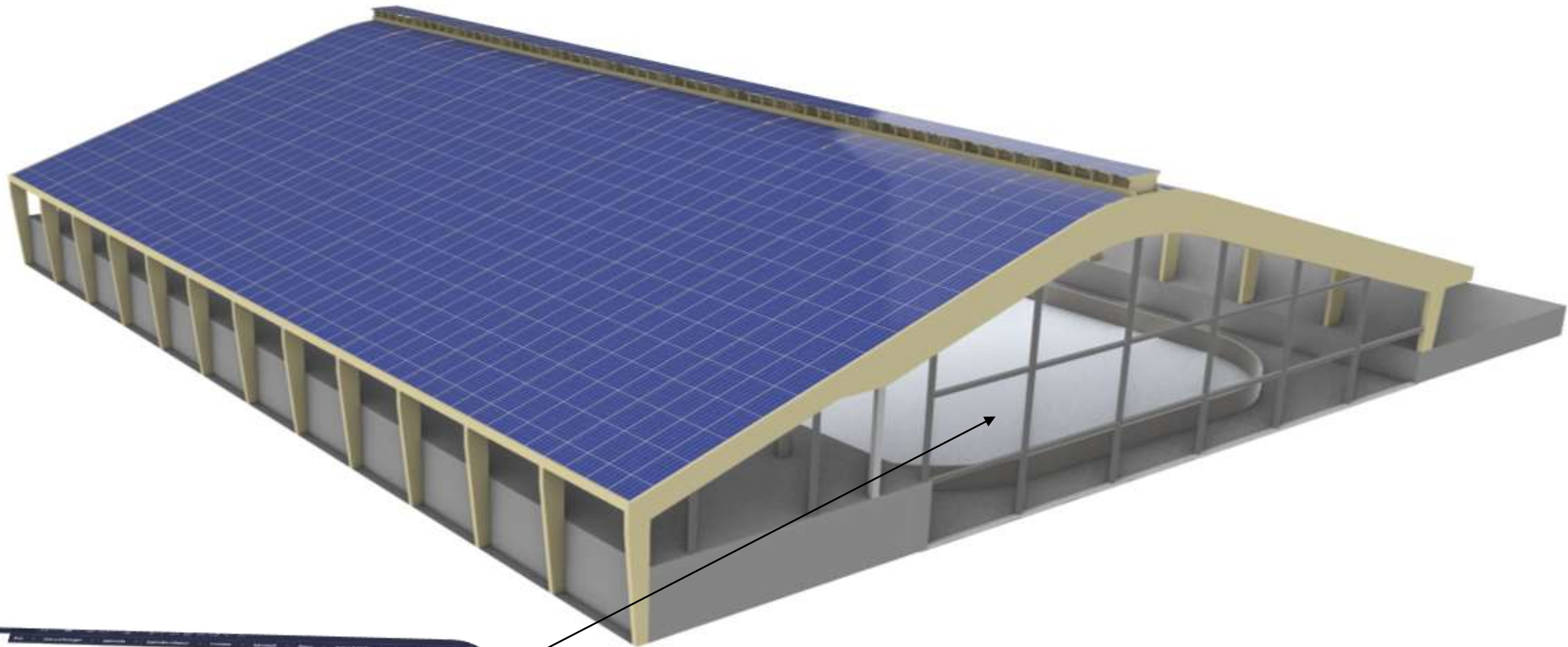
COLOUR

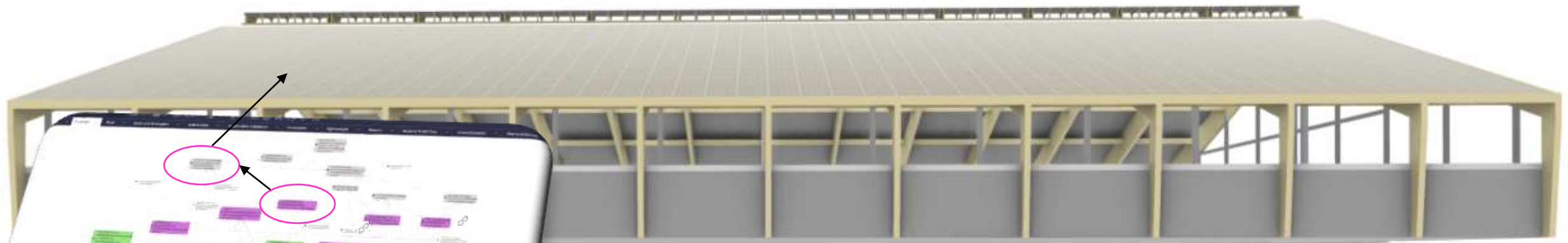
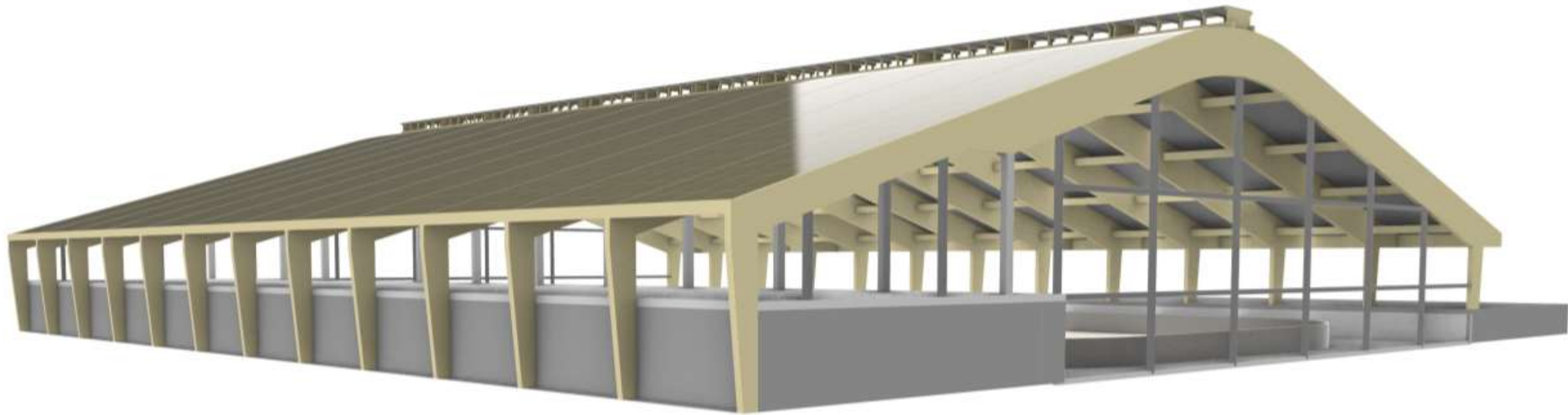


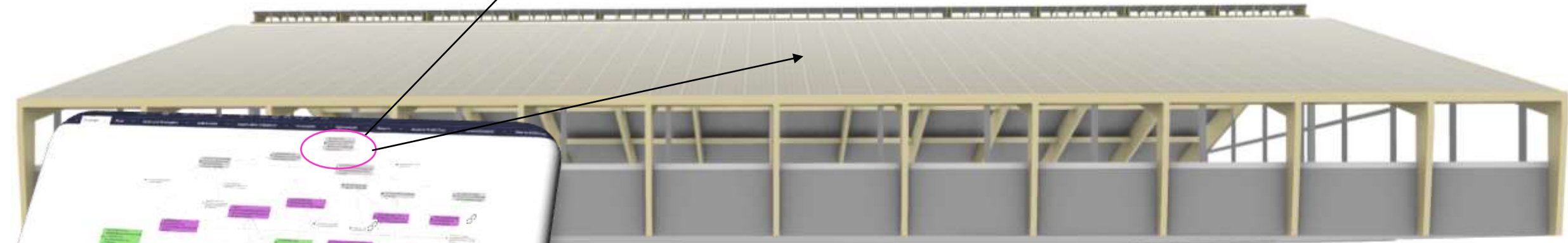
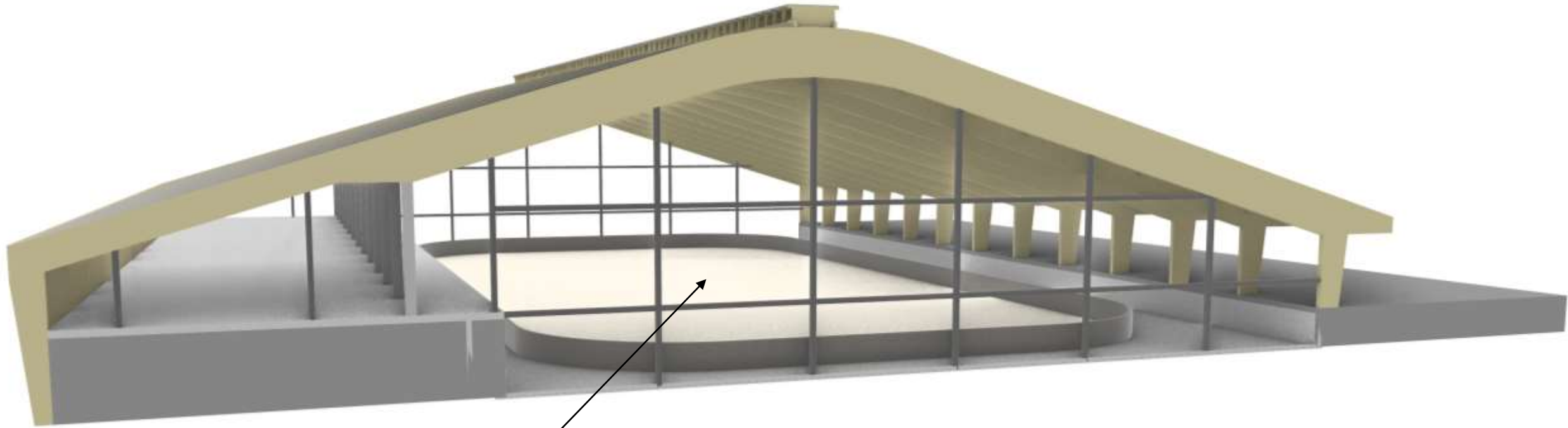












STRATEGYFINDER

GOAL

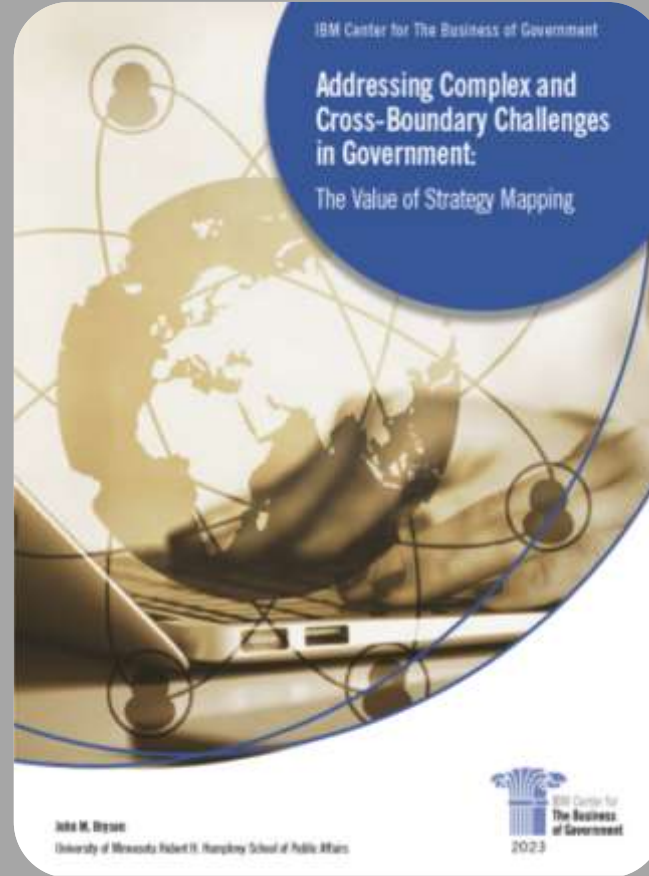
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ACTION

How are we going to do this?



COLLABORATIVE
WORKSPACE

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