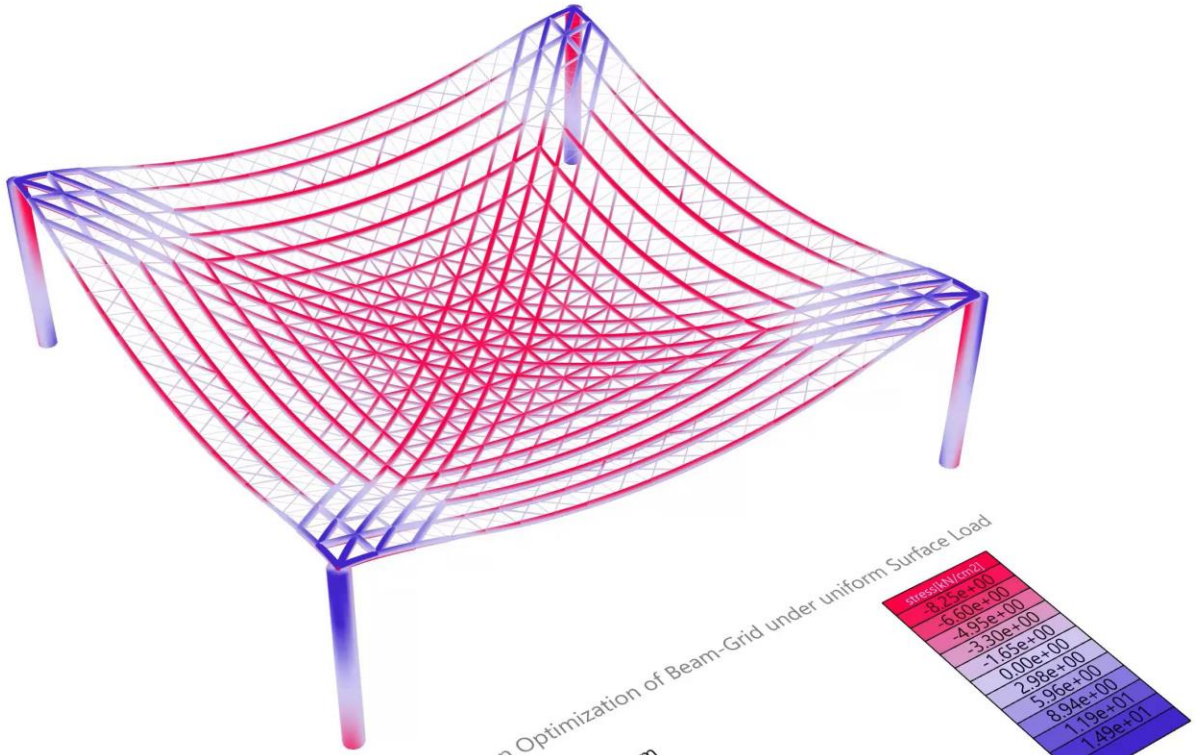
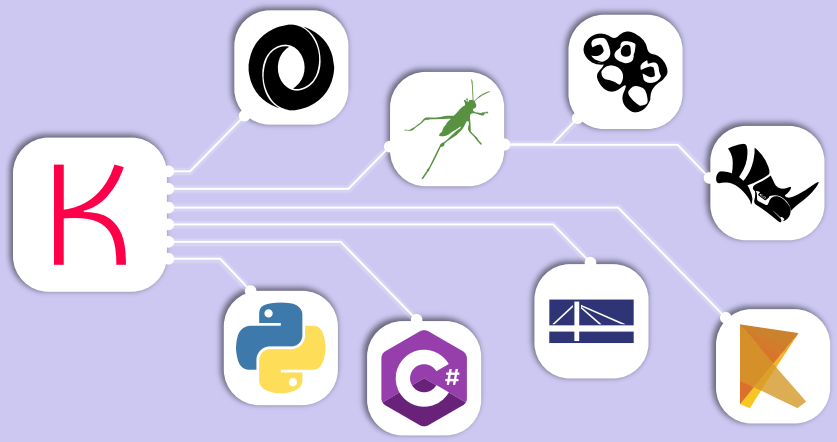
KARAMBA3D

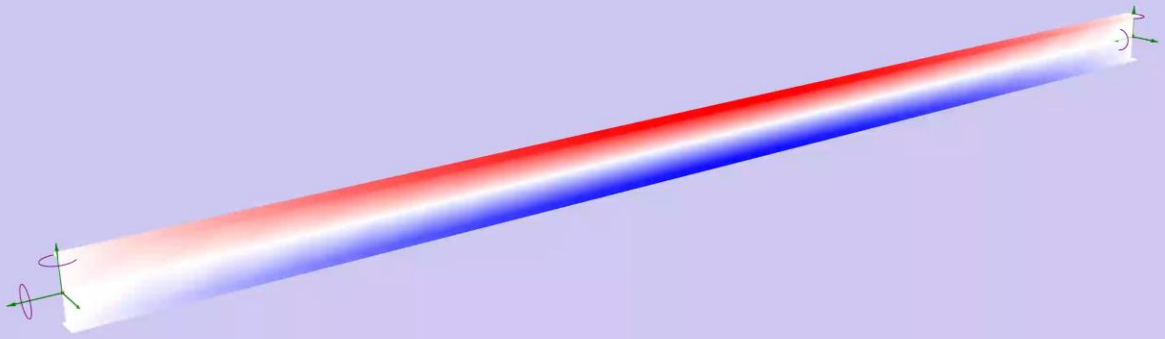


2025

Parametric Engineering

- Quick and accurate Finite Element Analysis (FEA)
- Parametric engineering
- Interactive Results
- Specially tailored for the early design phases





2012

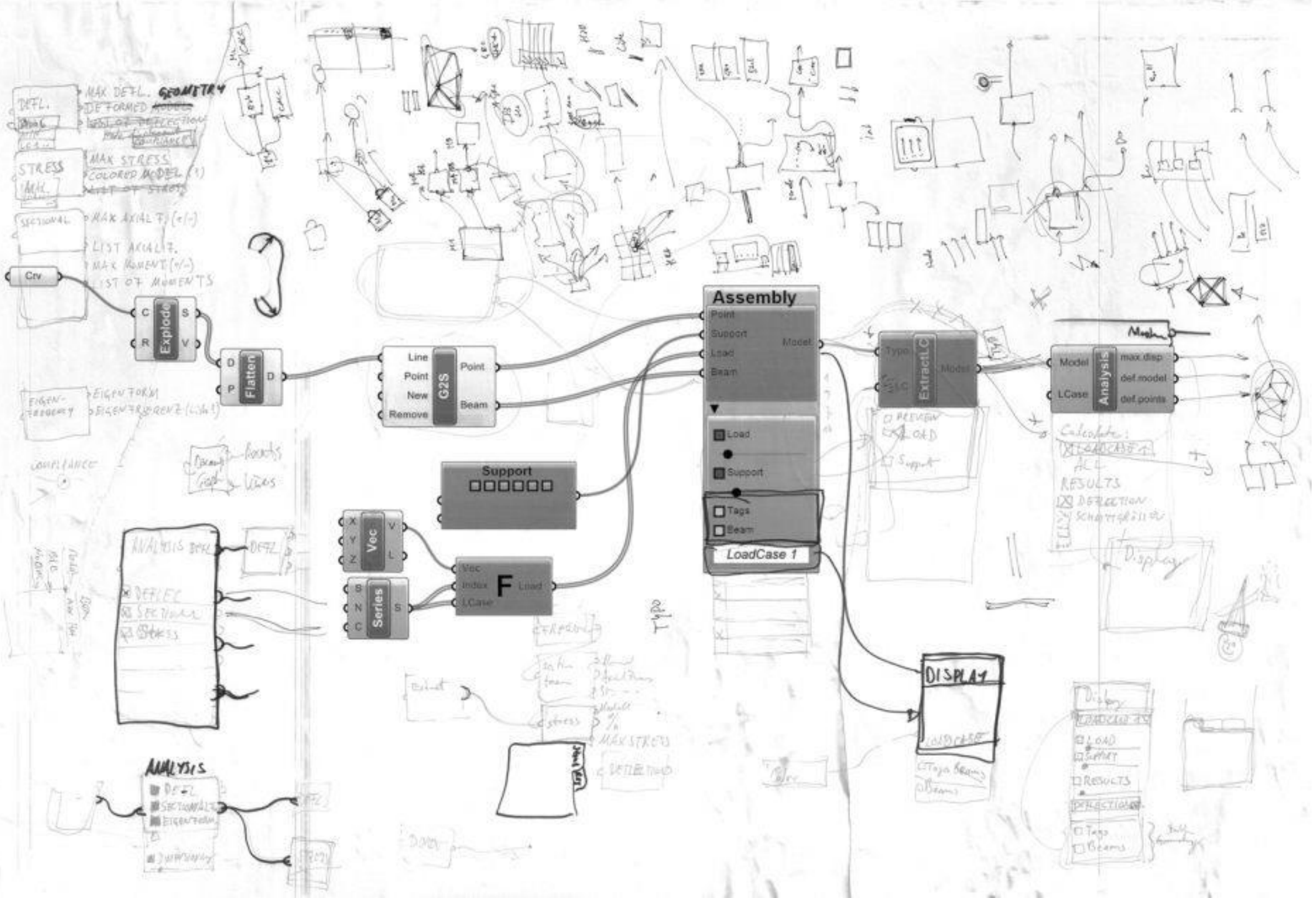
KARAMBA3D

BOLLINGER+GROHMANN

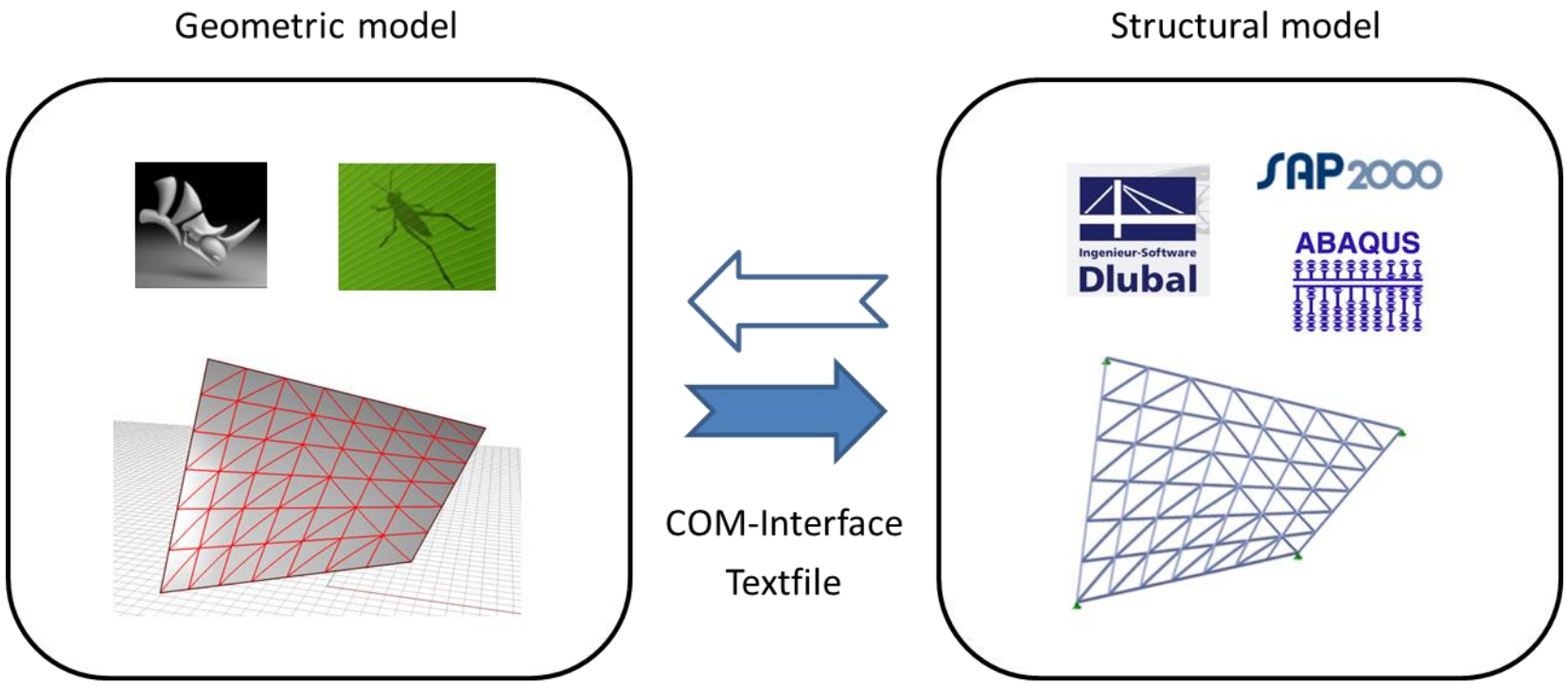
dı:'ʌngewʌndtə

Universität für angewandte Kunst Wien

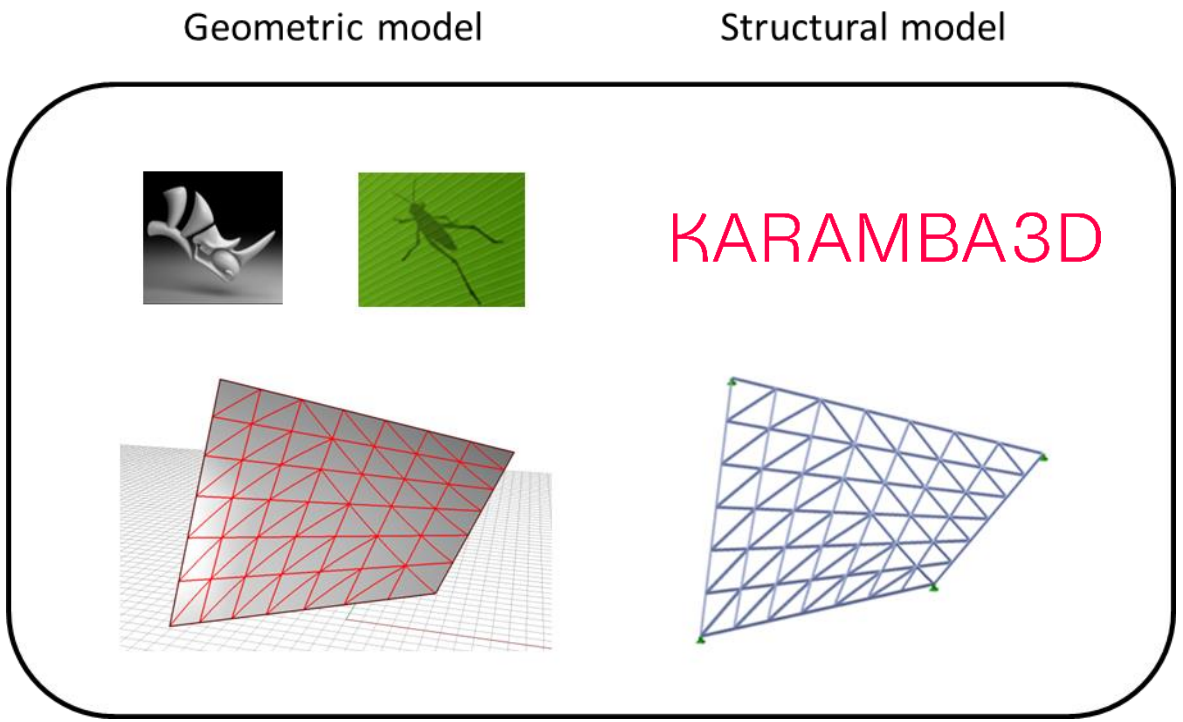
University of Applied Arts Vienna



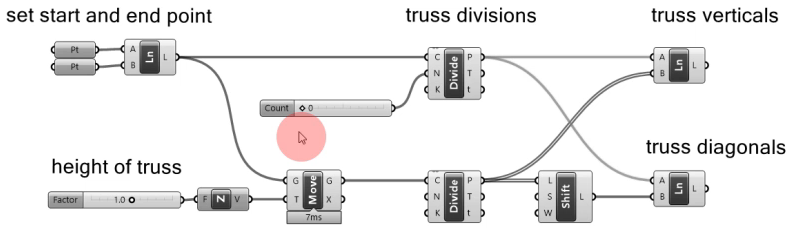
‚Bottelneck‘ Import & Export



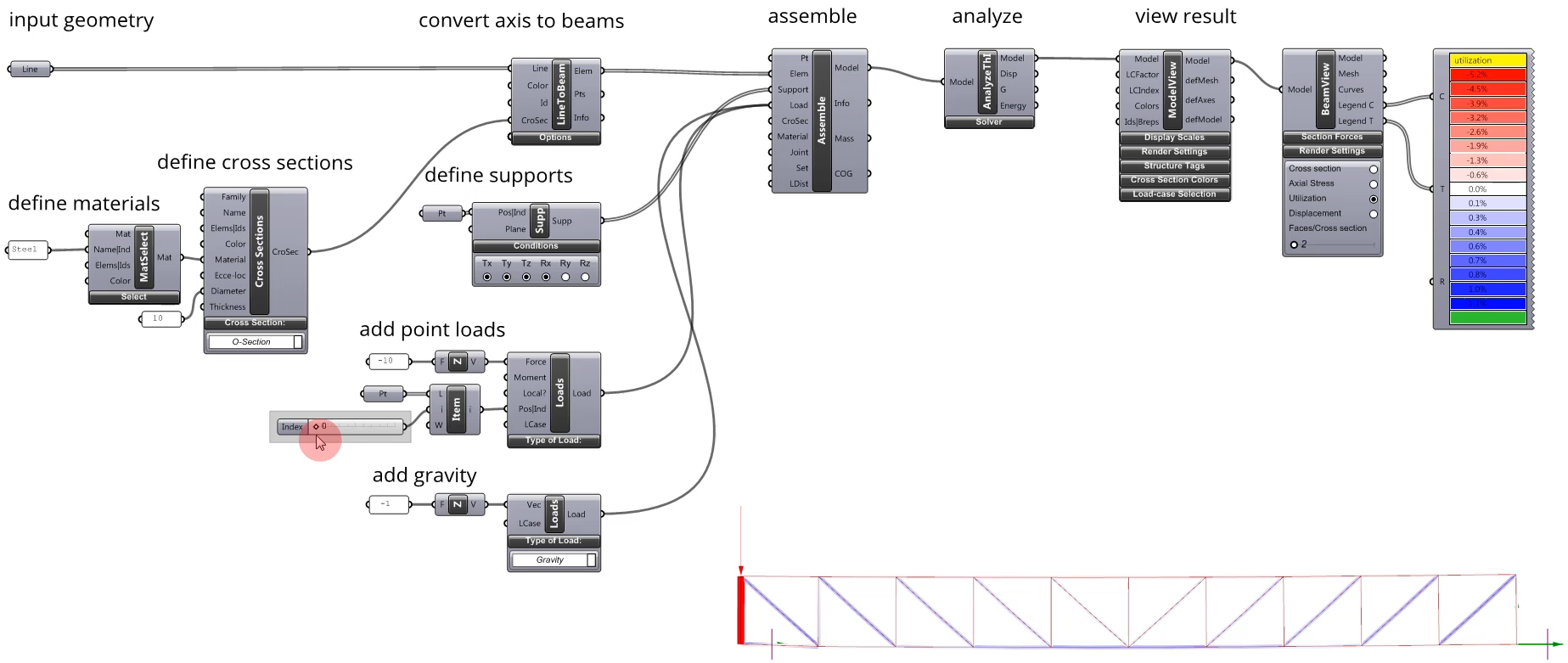
Integrated Workflow



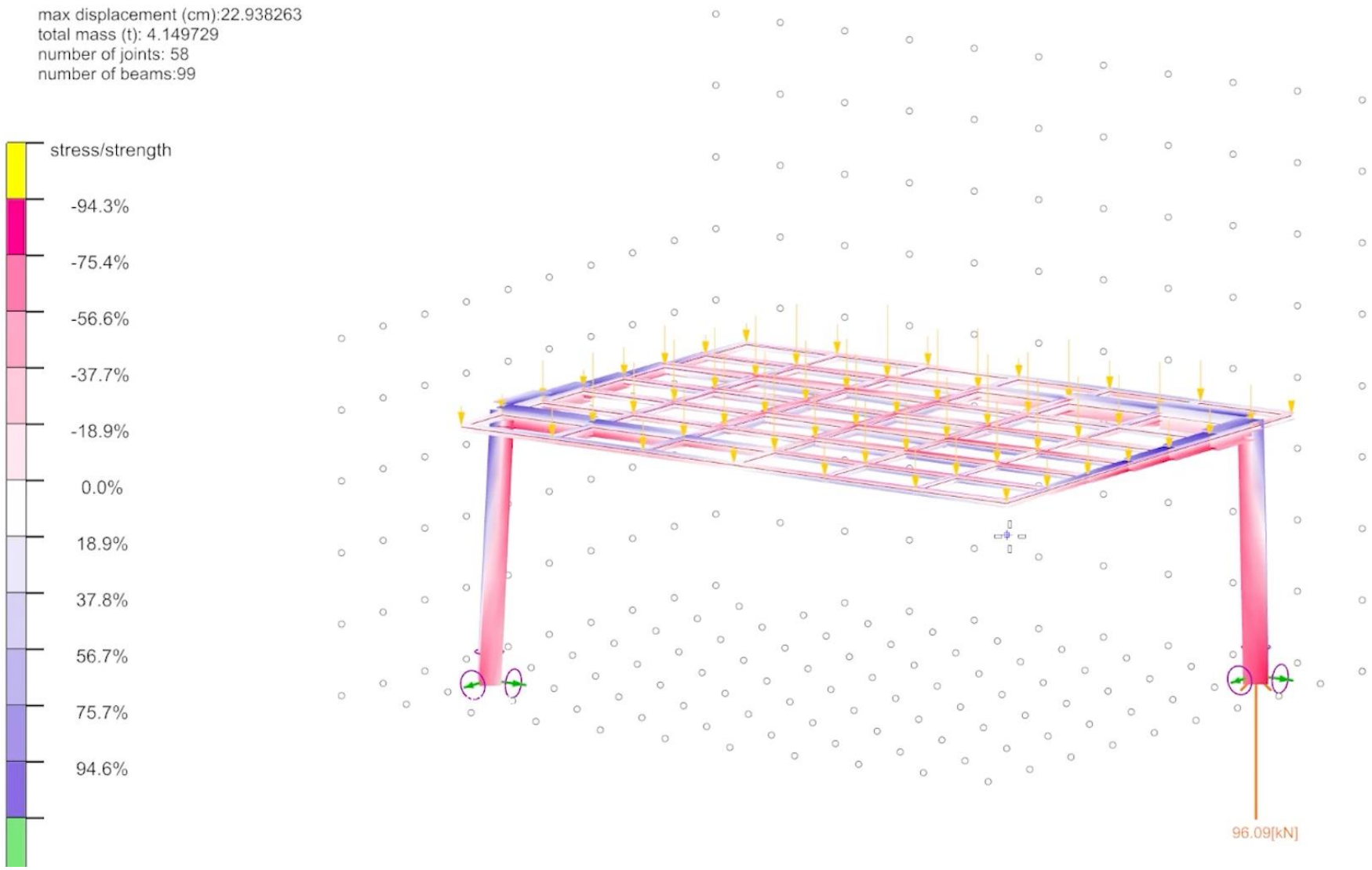
Parametric Geometry



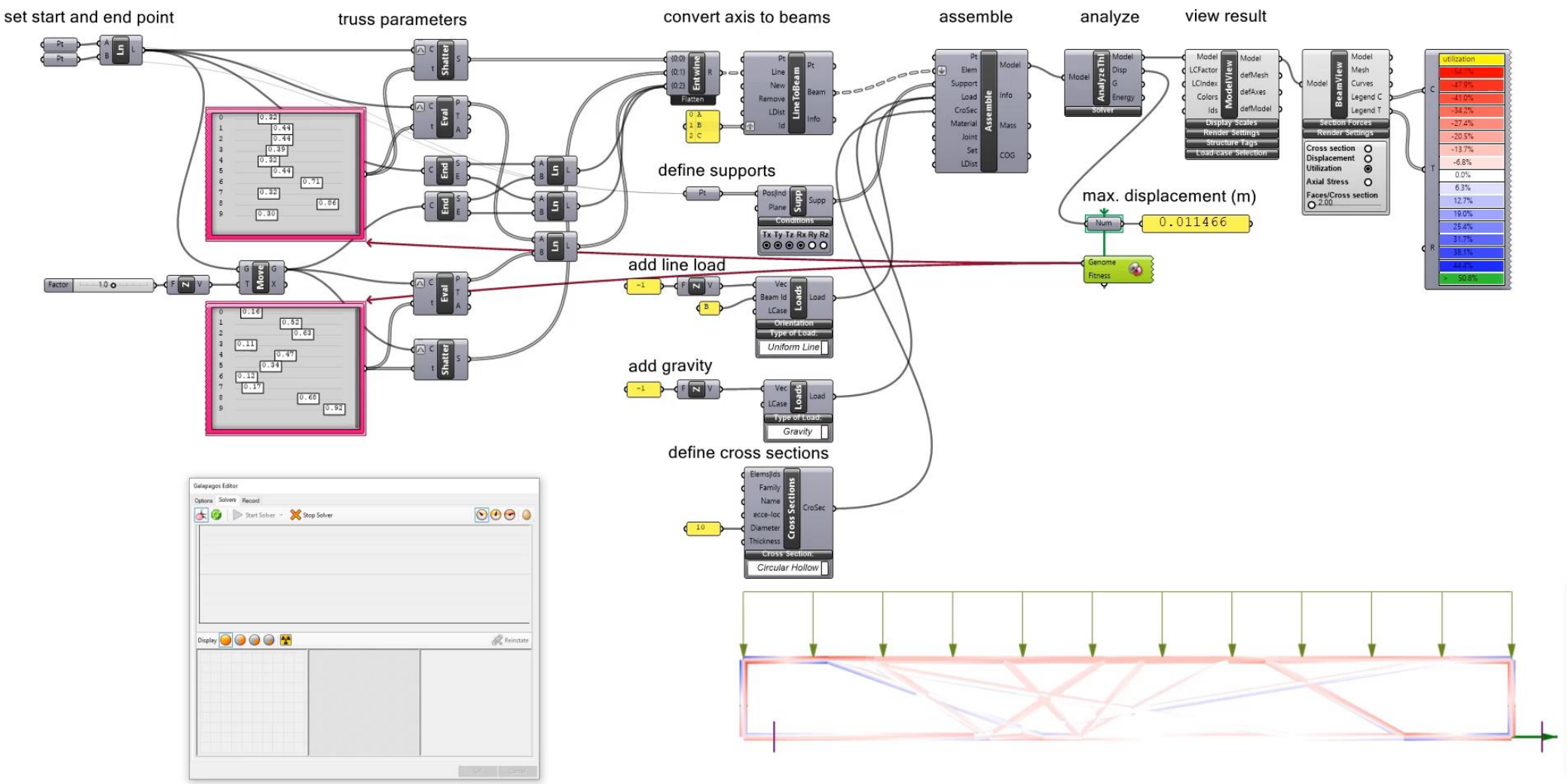
Parametric Structure



Interactive Results



Optimized Structure



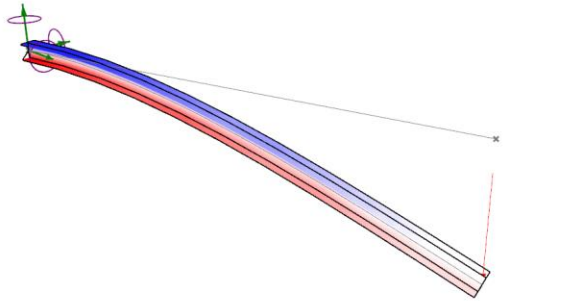
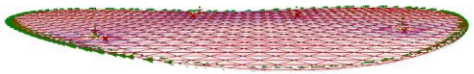
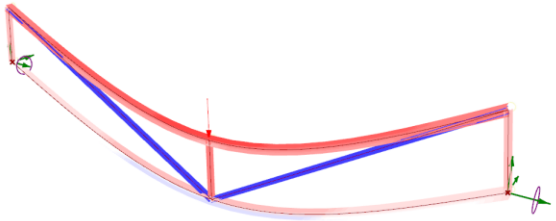
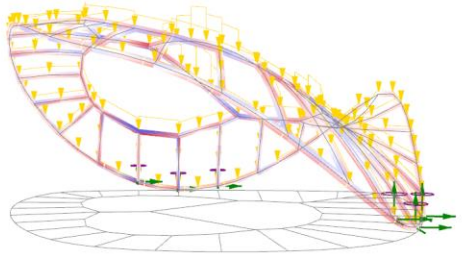
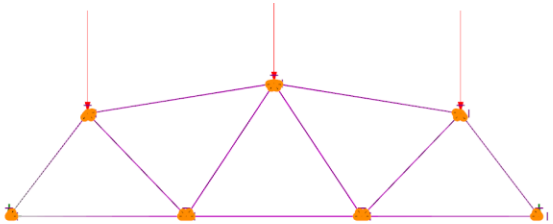
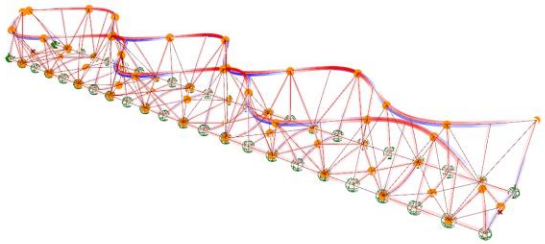
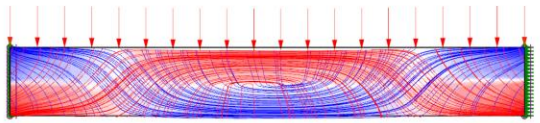
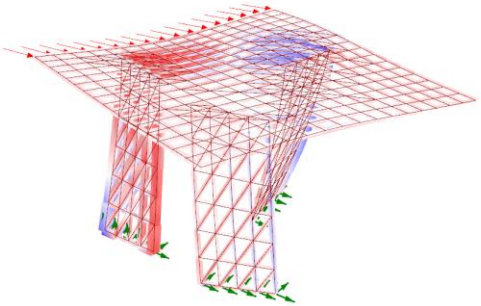
Functionality

Analysis

- Analysis THI | THII
- Nonlinear
- Buckling Modes
- Eigen Modes | Natural Vibrations

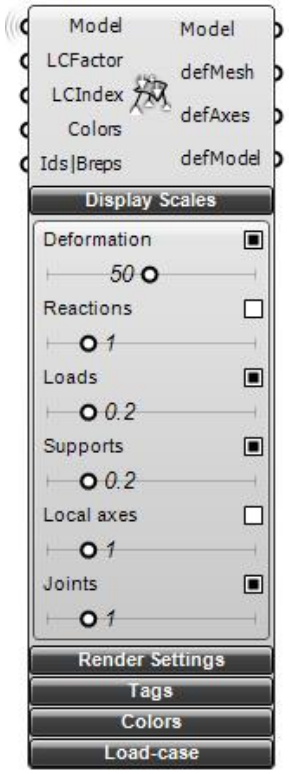
Formfinding & Optimization

- Large Deformations
- BESO for Beams & Shells
- Optimize Cross-Sections
- Optimize Reinforcement
- Tension / Compression Eliminator

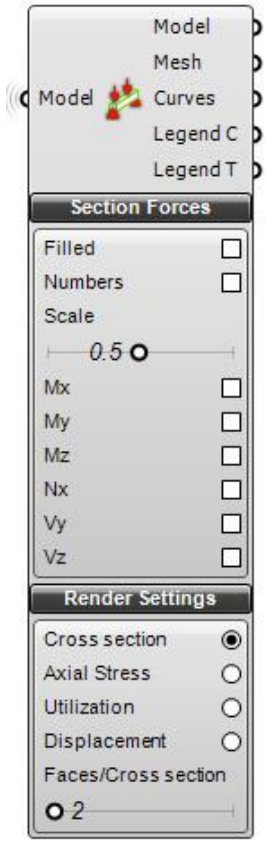









Graphic Display of Results

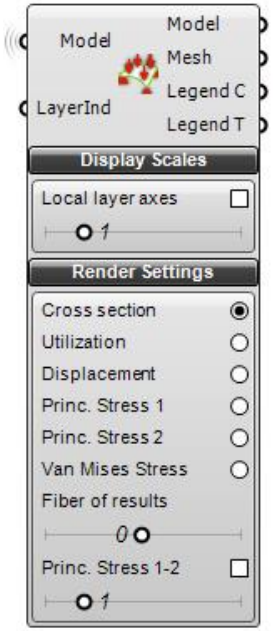
Model View

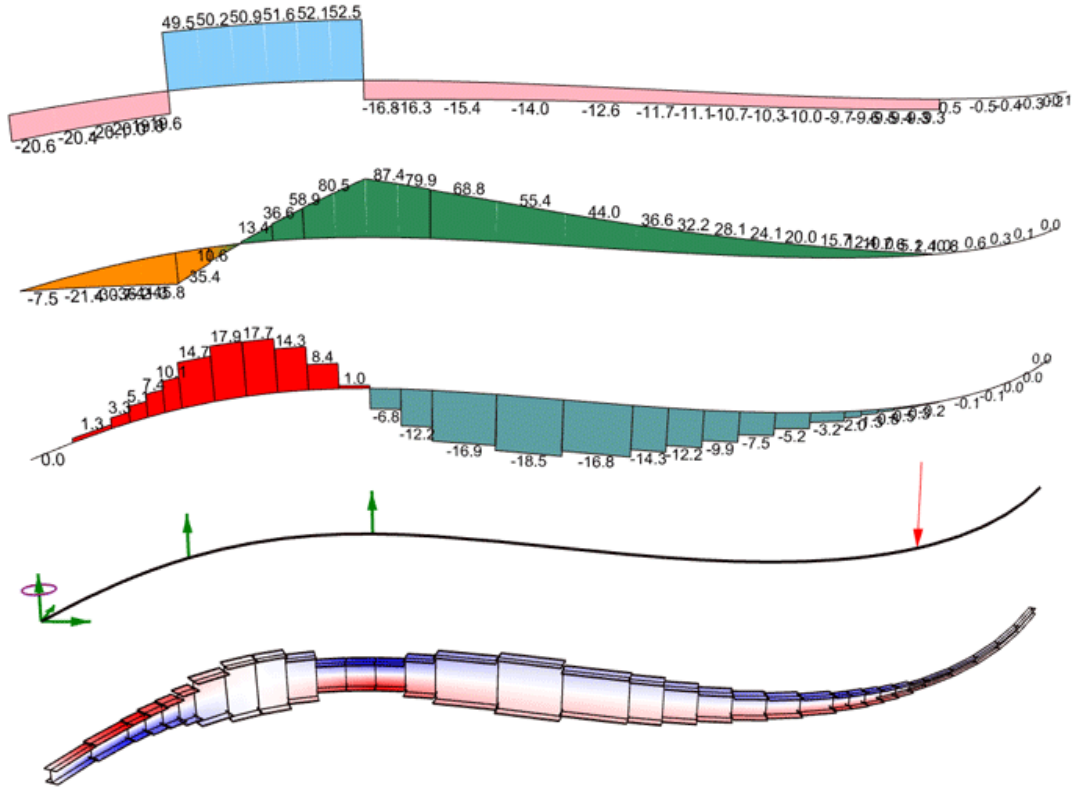


Beam View



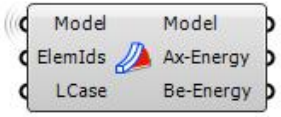
Shell View





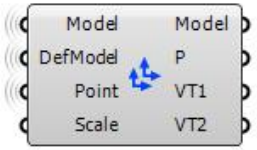
Numeric Output of Results

Deformation-Energy

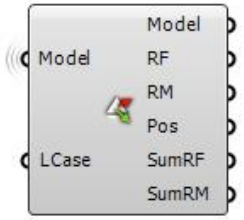


Nodal Displacements

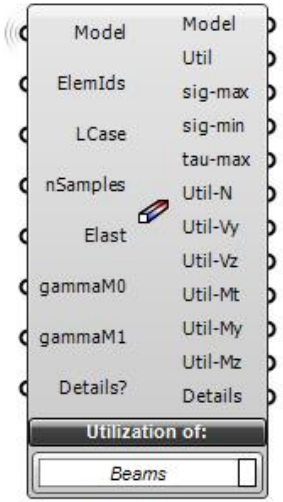
Principal Strains Approximation



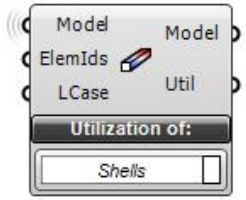
Reaction Forces



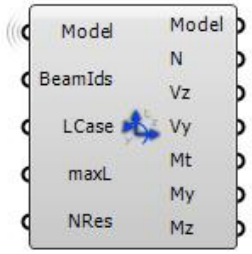
Utilization (Beams)



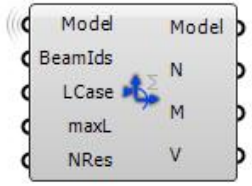
Utilization (Shells)



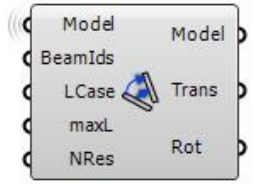
Beam Forces



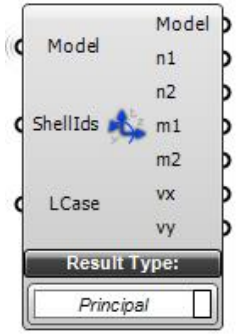
Beam Resultant Displacements



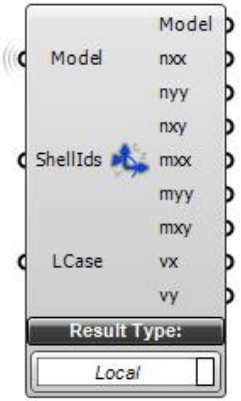
Beam Displacements



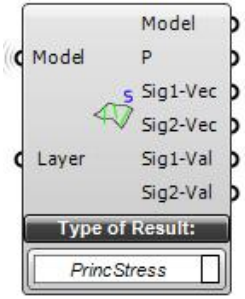
Shell Forces



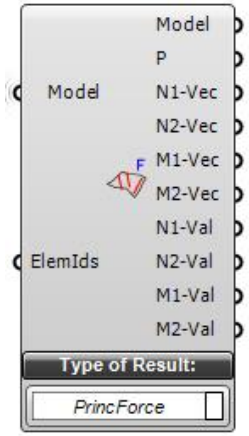
Shell Forces



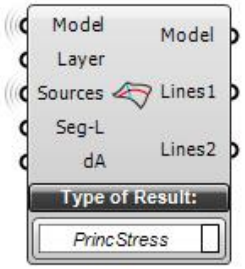
Shell Principal Stress Vectors



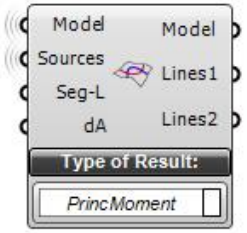
Shell Principal Force Vectors



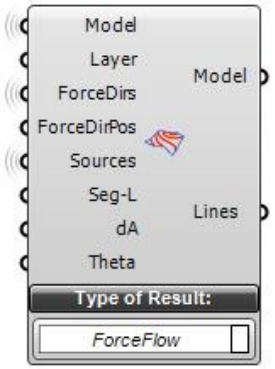
Shell Principal Stress Lines



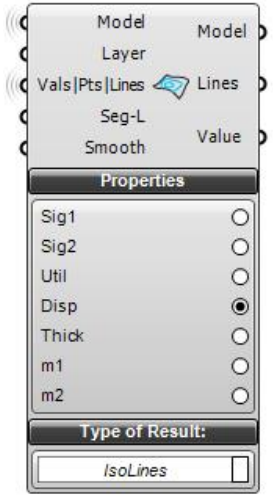
Shell Principal Moment Lines



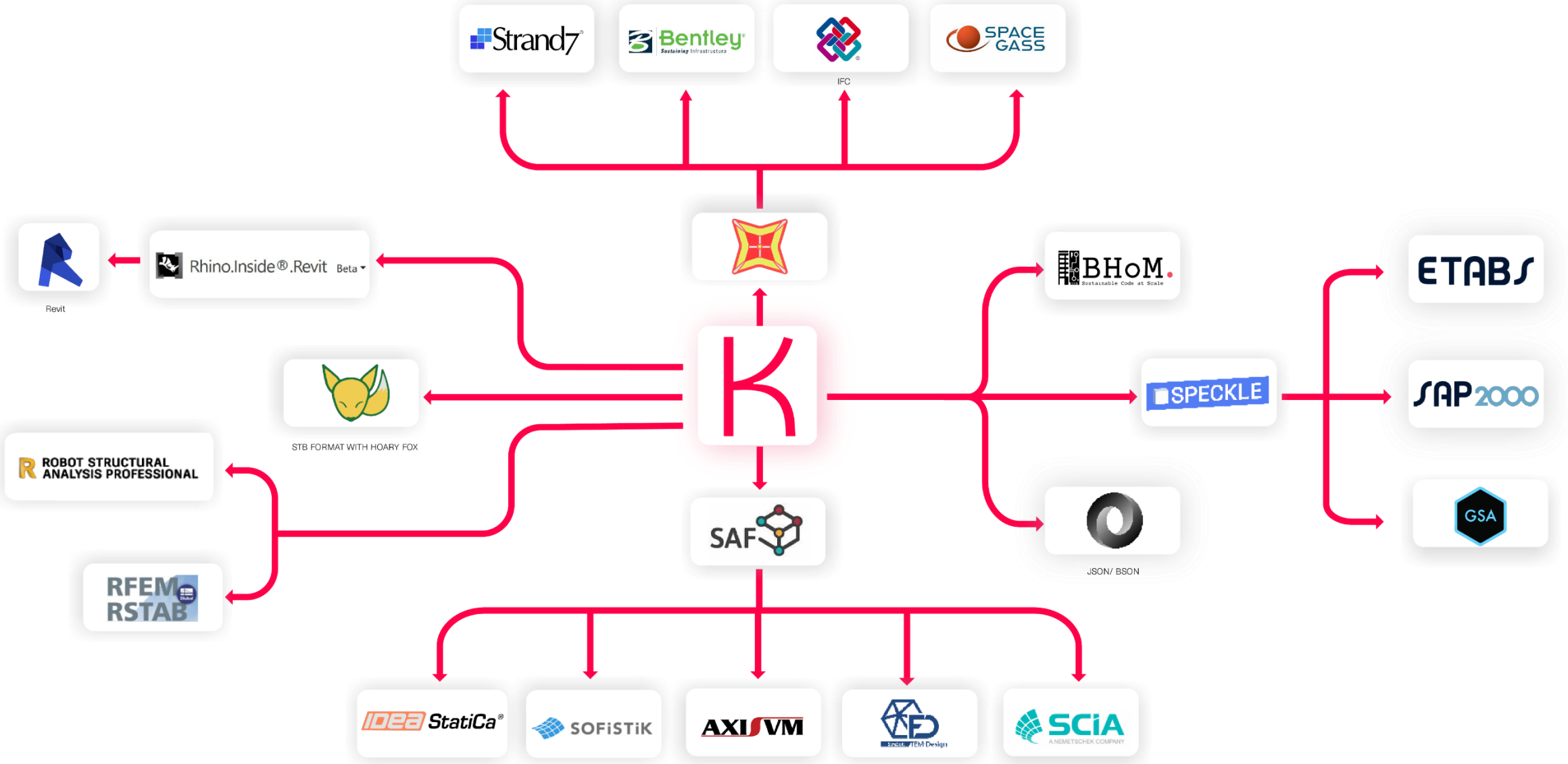
Shell Force Flow Lines



Shell Iso Lines

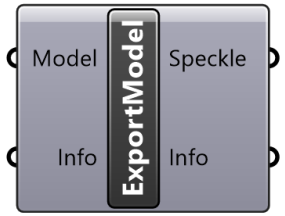


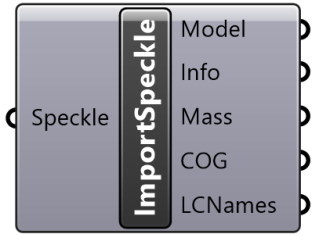
Integration into Software Ecosystems

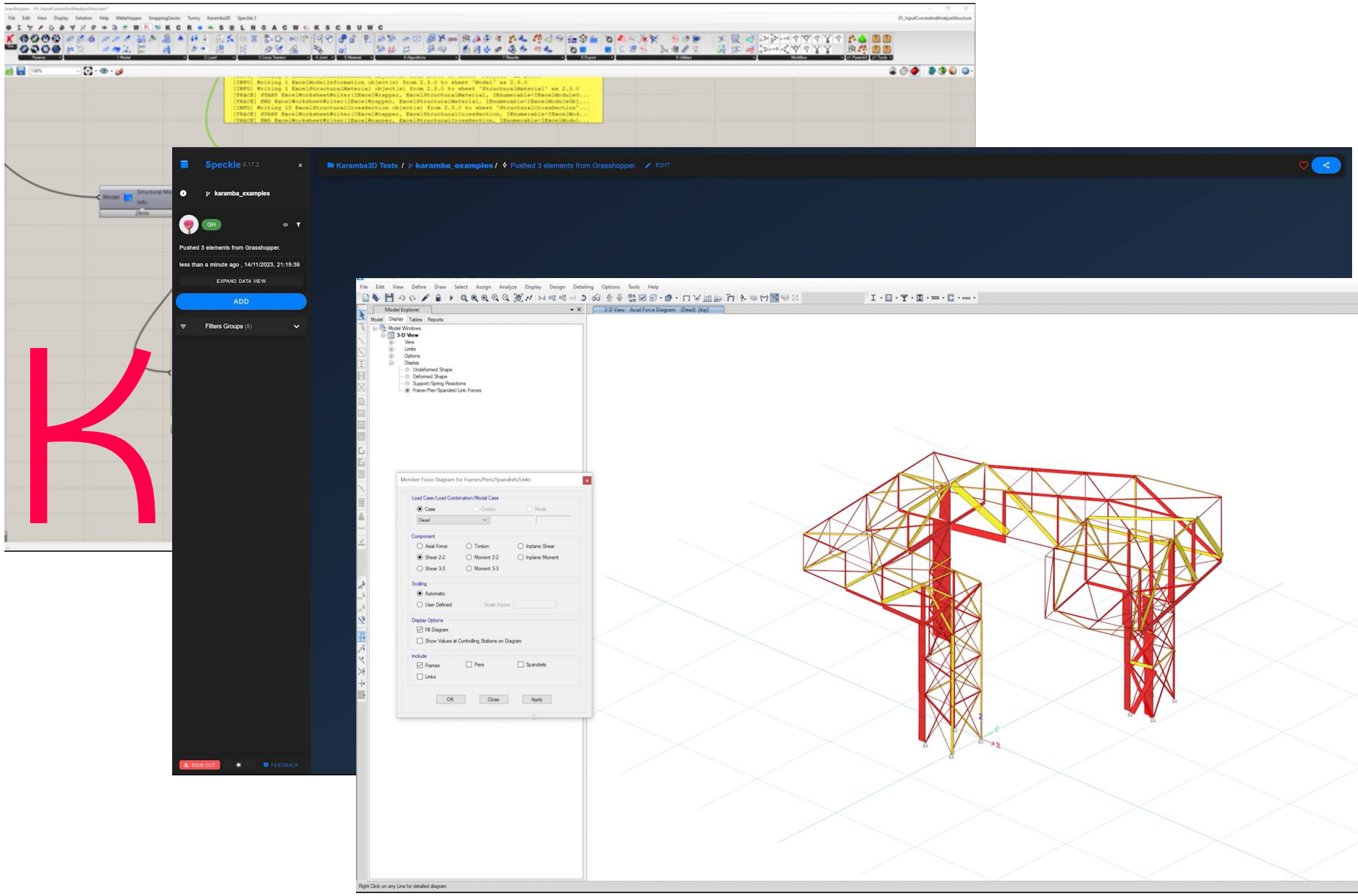


Speckle Structural Model Exporter & Importer

Speckle

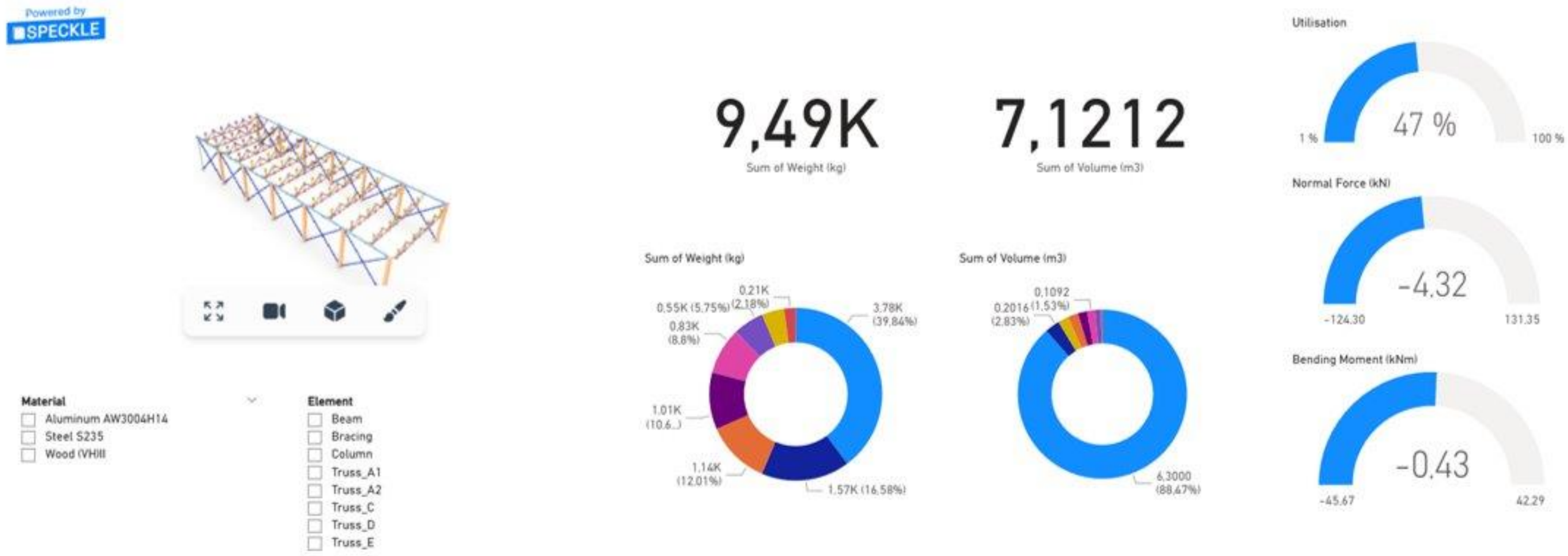




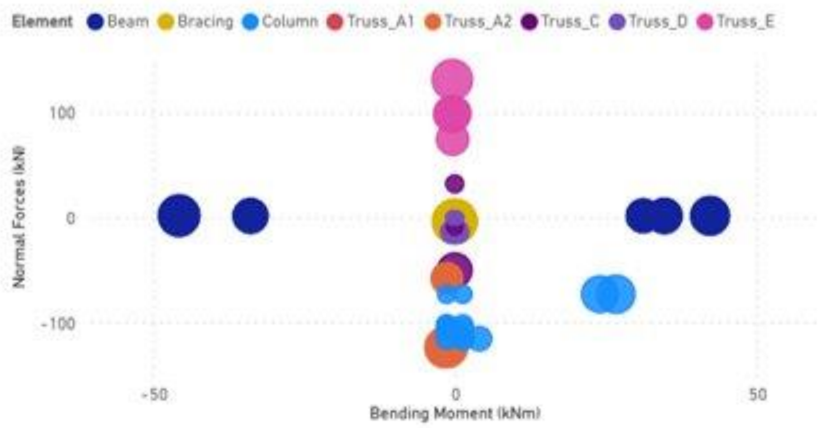


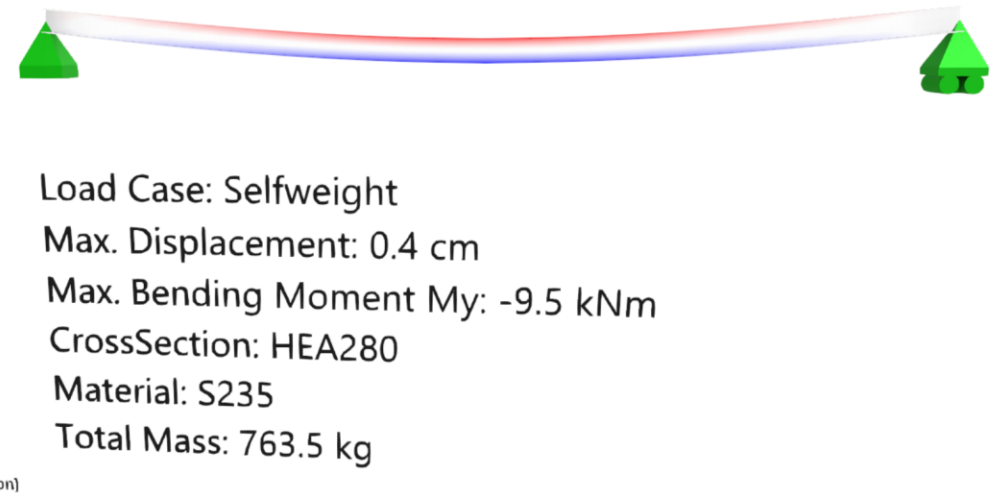
Power Bi

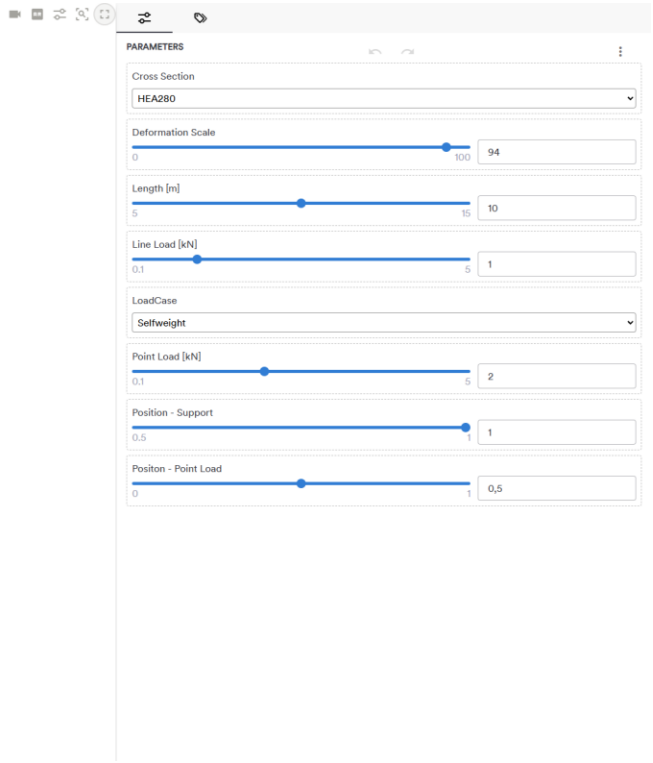
Power BI Speckle



Element	Material	Cross Section	Bending Moment (kNm)	Normal Forces (kN)	Utilisation	Volume (m3)	Weight (kg)
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	82 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	83 %	0,0016	12,95
Truss_A2	Steel S235	IPE120	-1,54	-124,30	83 %	0,0016	12,95
Truss_A1	Steel S235	IPE120	-1,54	-124,04	82 %	0,0016	12,95

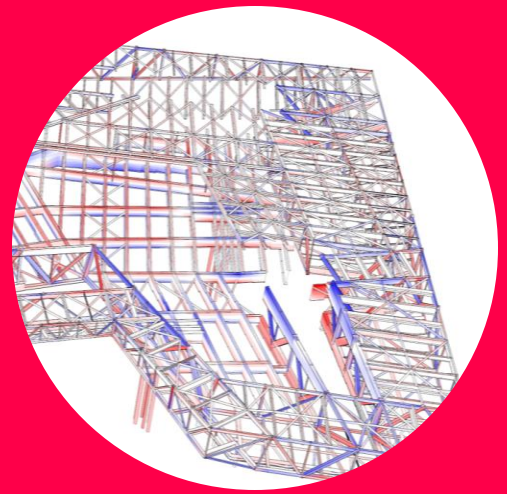


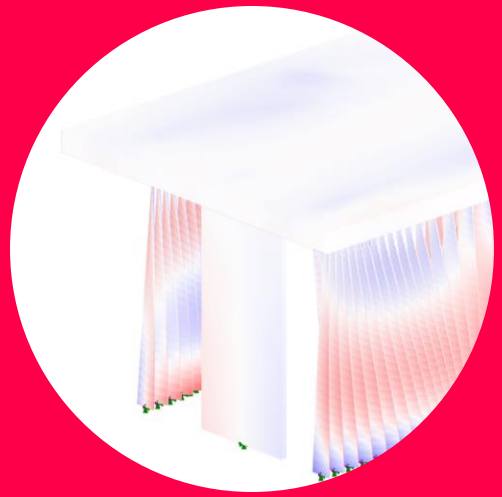


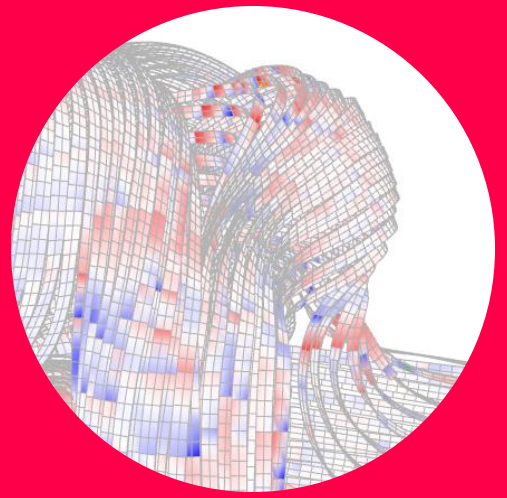


https://www.shapediver.com/app/users/karamba3d

CASE STUDIES







Expo Cultural Park Greenhouse Garden

ARCHITECTURE

Delugan Meissl Associated Architects

ENGINEERING

Bollinger+Grohmann

LOCATION

Shanghai, China

STATUS

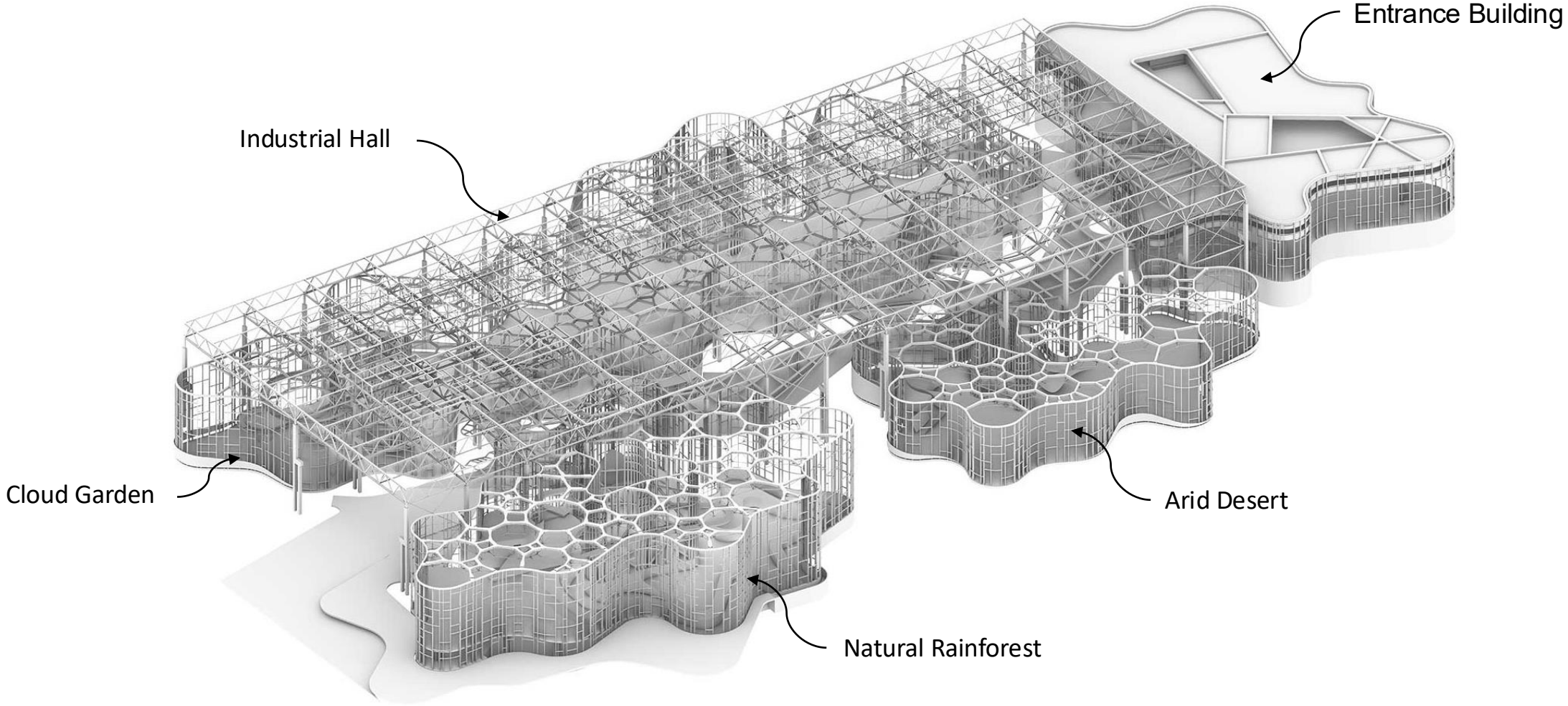
Completed

2024

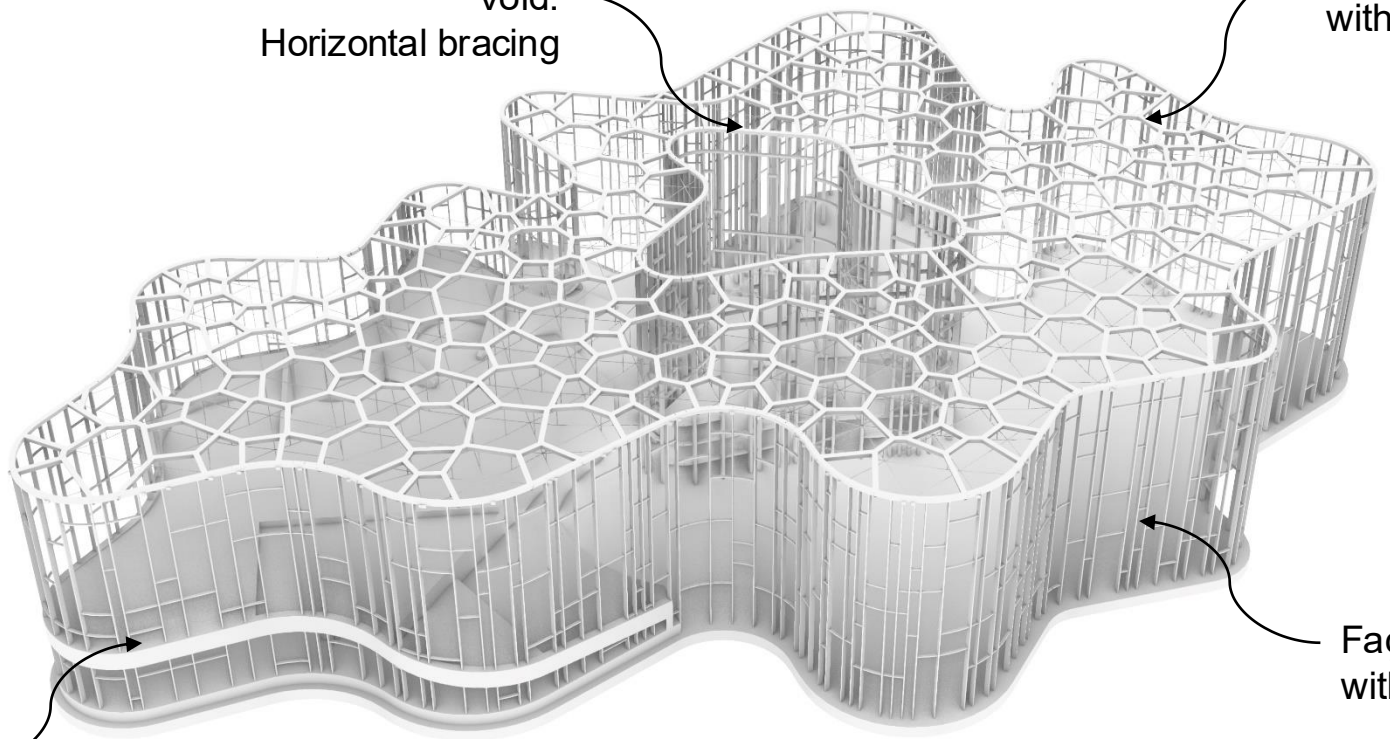
© CreatAR

© Bollinger+Grohmann

Global Structural Overview



Natural Rainforest – Structural System



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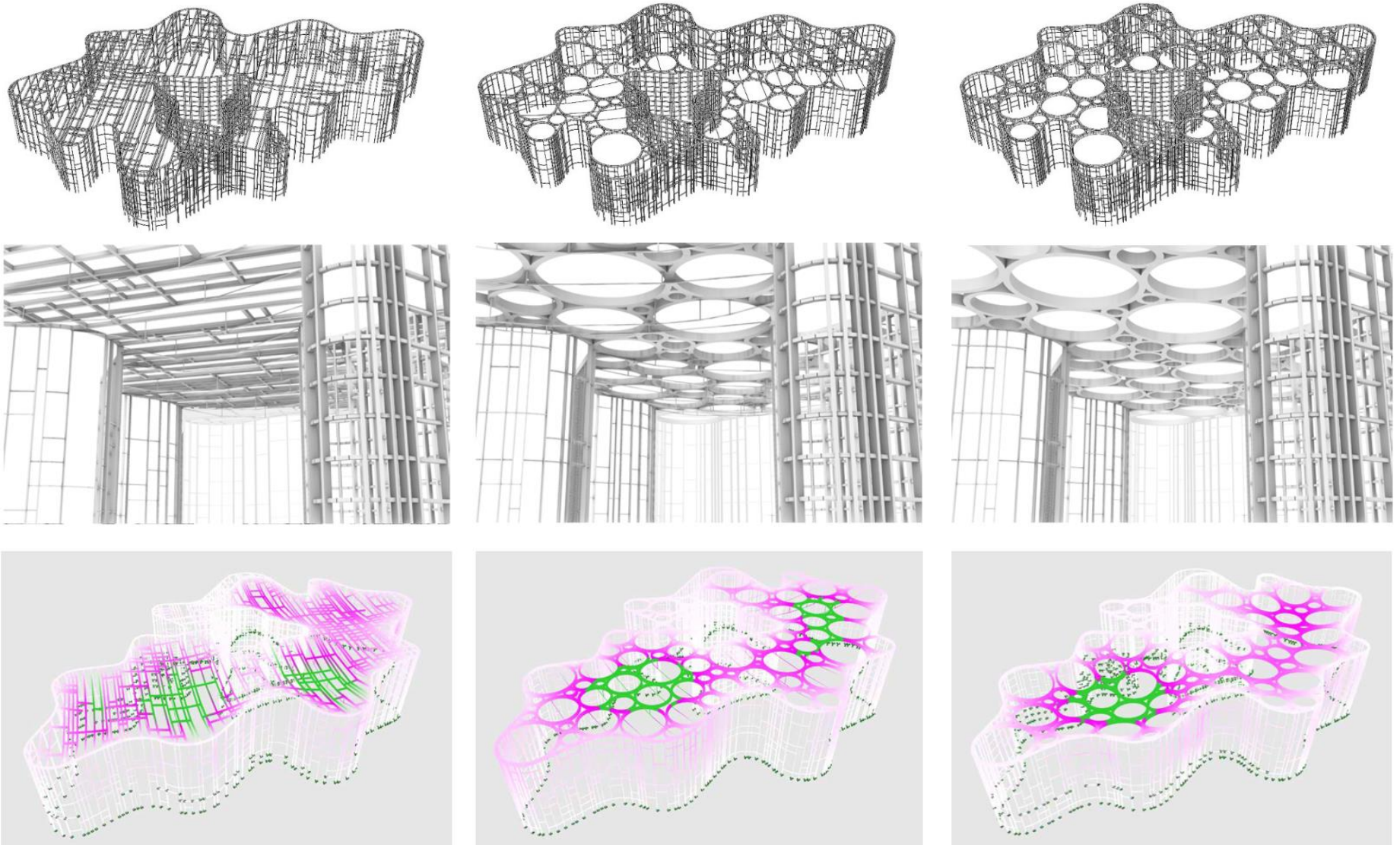
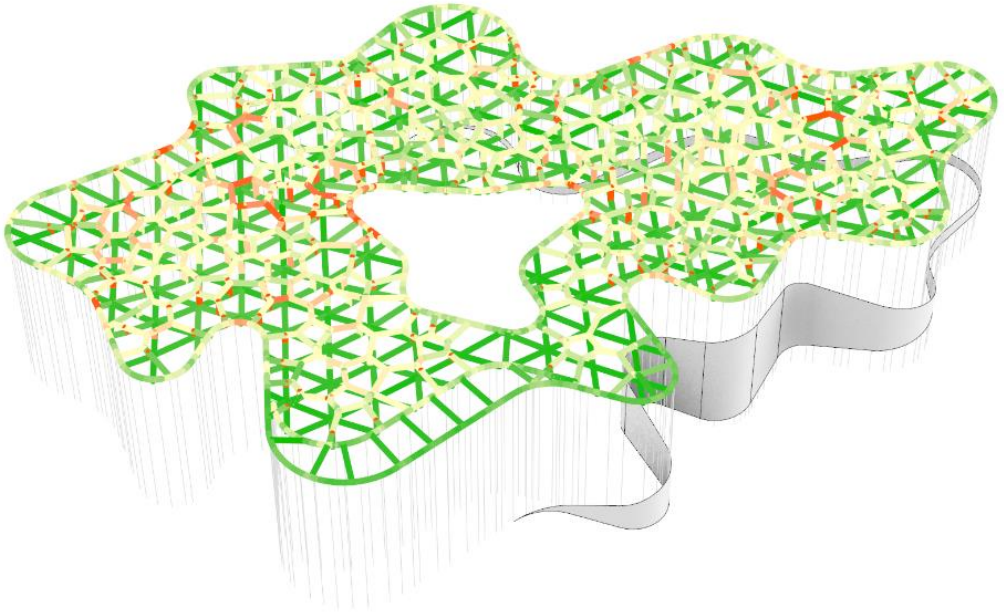
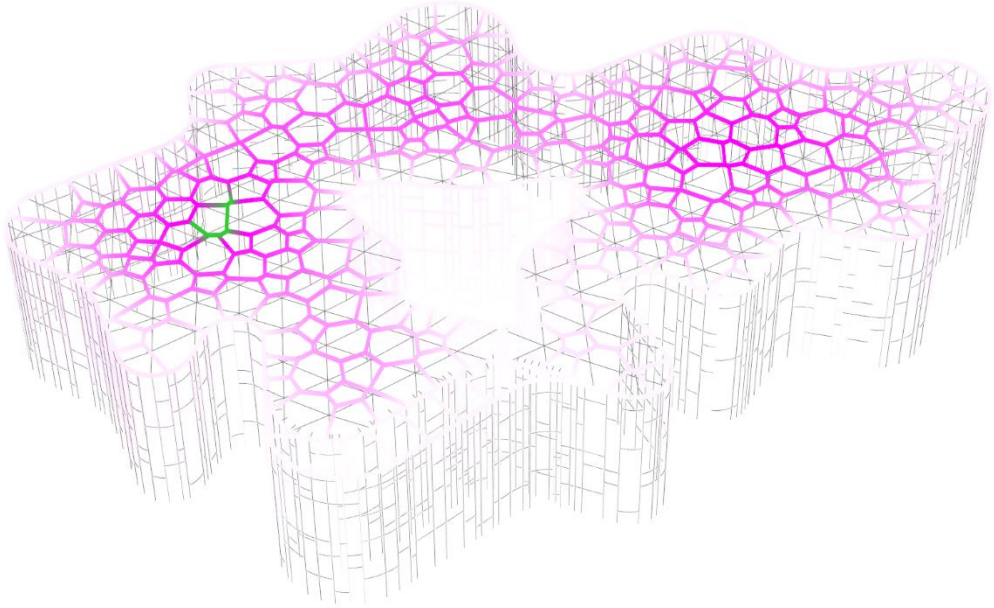
Designer Exploration



Roof Structure

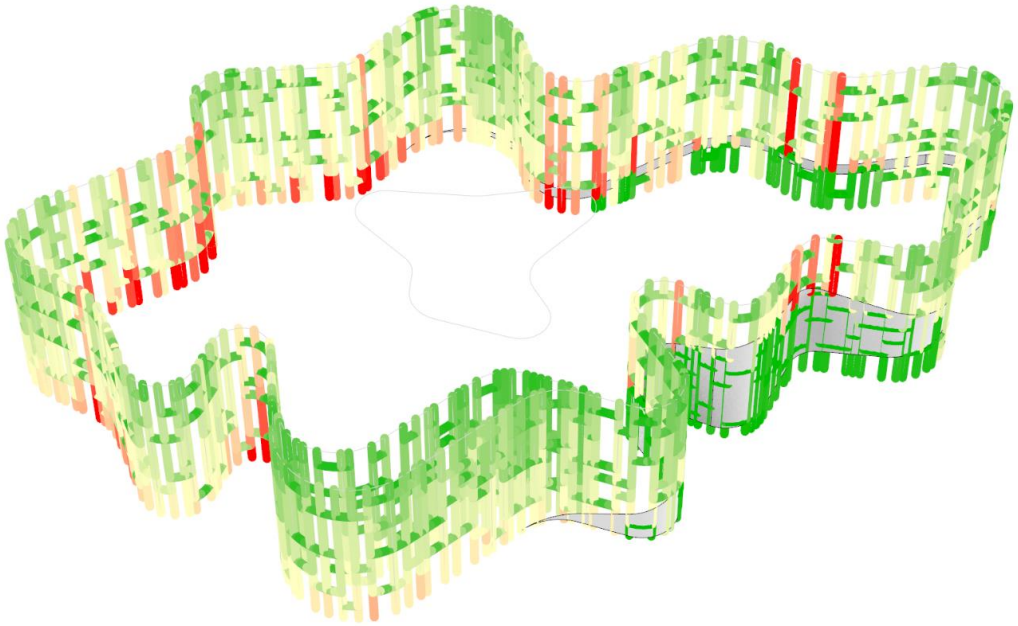


Utilisation of the Roof Members

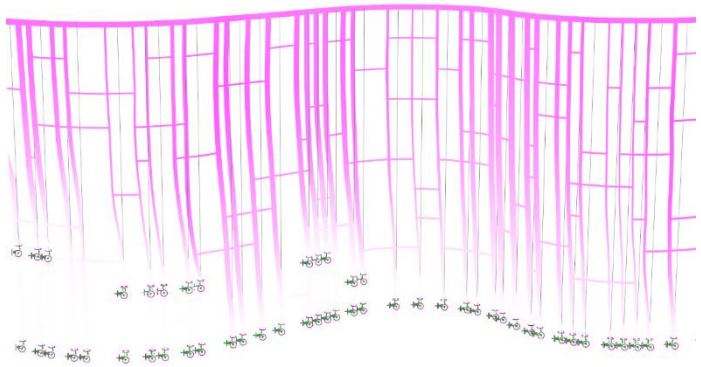


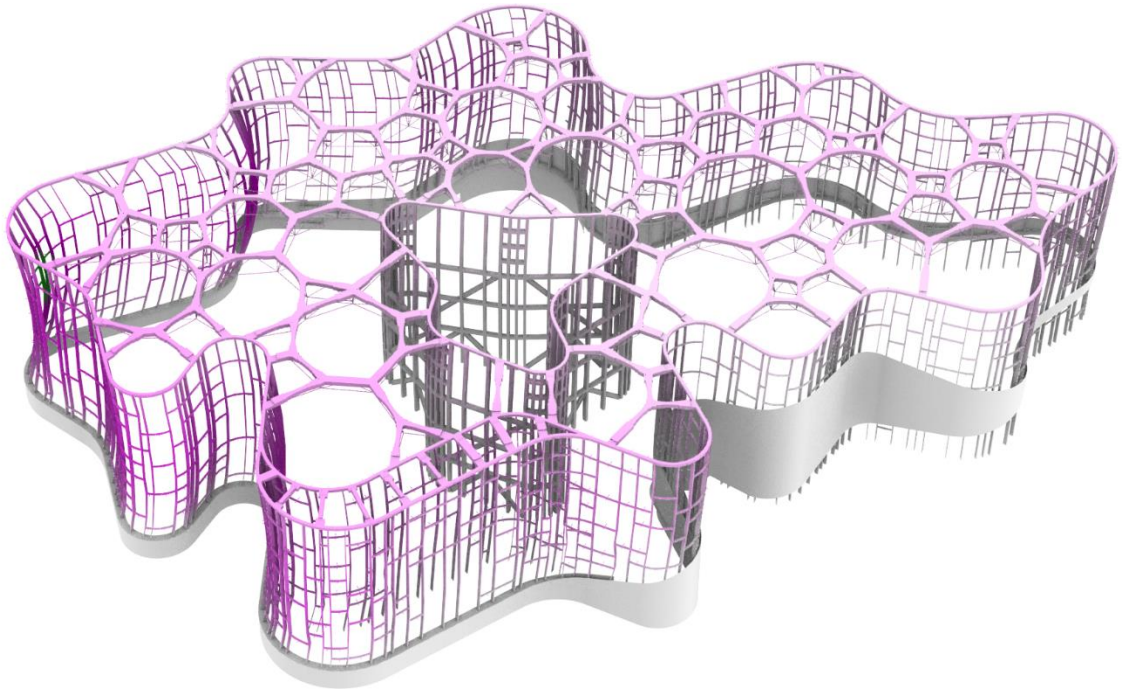
Displacement of the Roof under Gravity

Facade



Utilisation of the Facade Columns





Buckling Analysis of the Columns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Twist Pavilion

ARCHITECTURE

Institute of Architecture & Media
Technical University Graz

ENGINEERING

Bollinger+Grohmann

LOCATION

Murau. Austria

STATUS

Completed
2021

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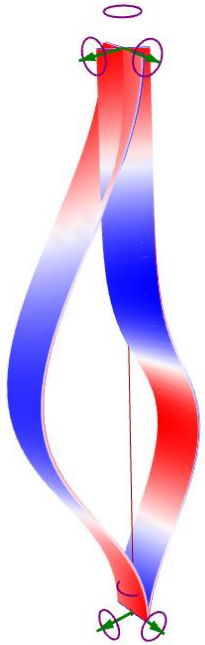

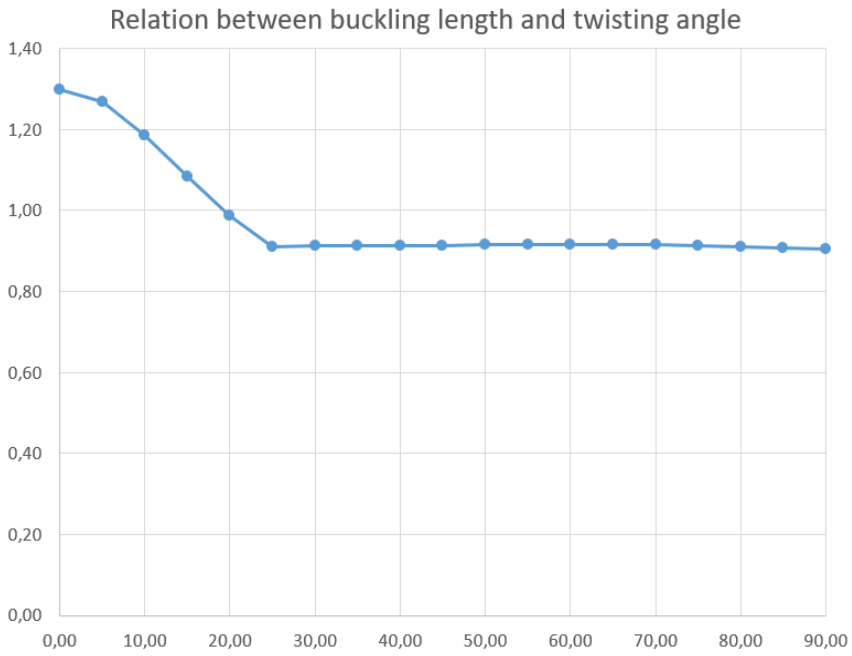

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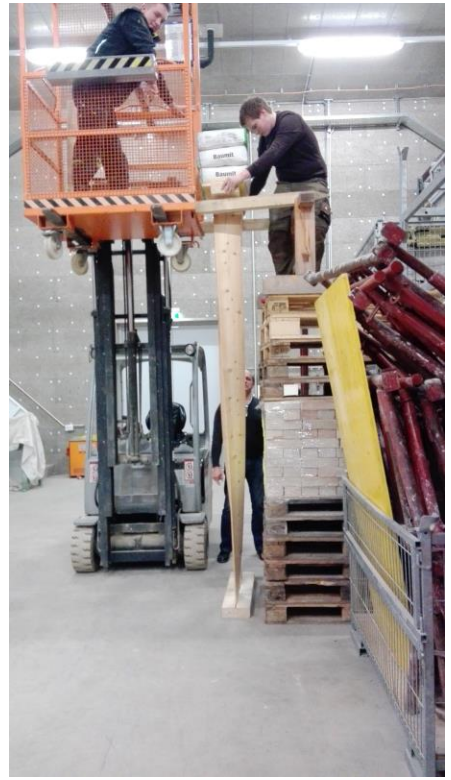

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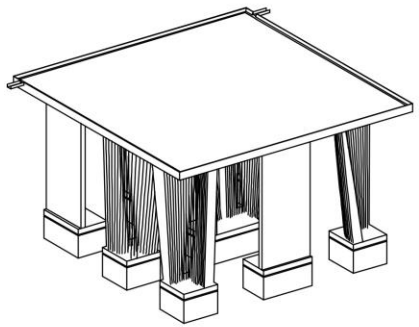
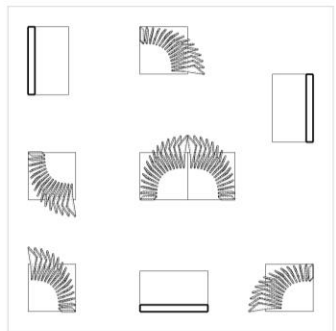
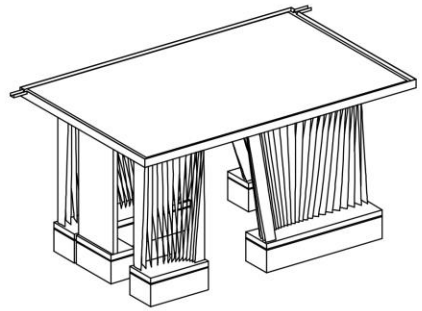
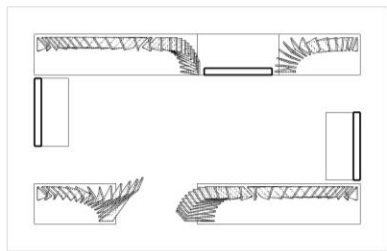


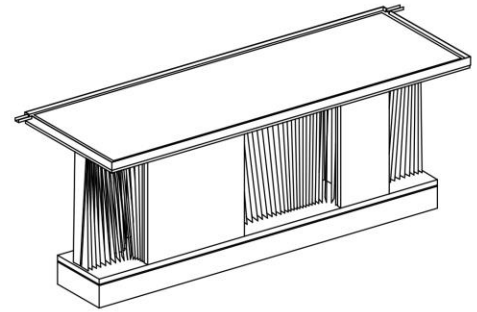


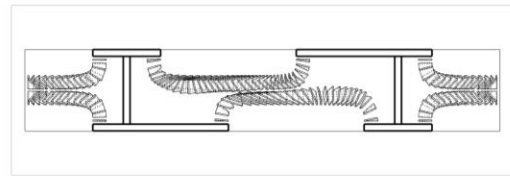
Type 1: Square



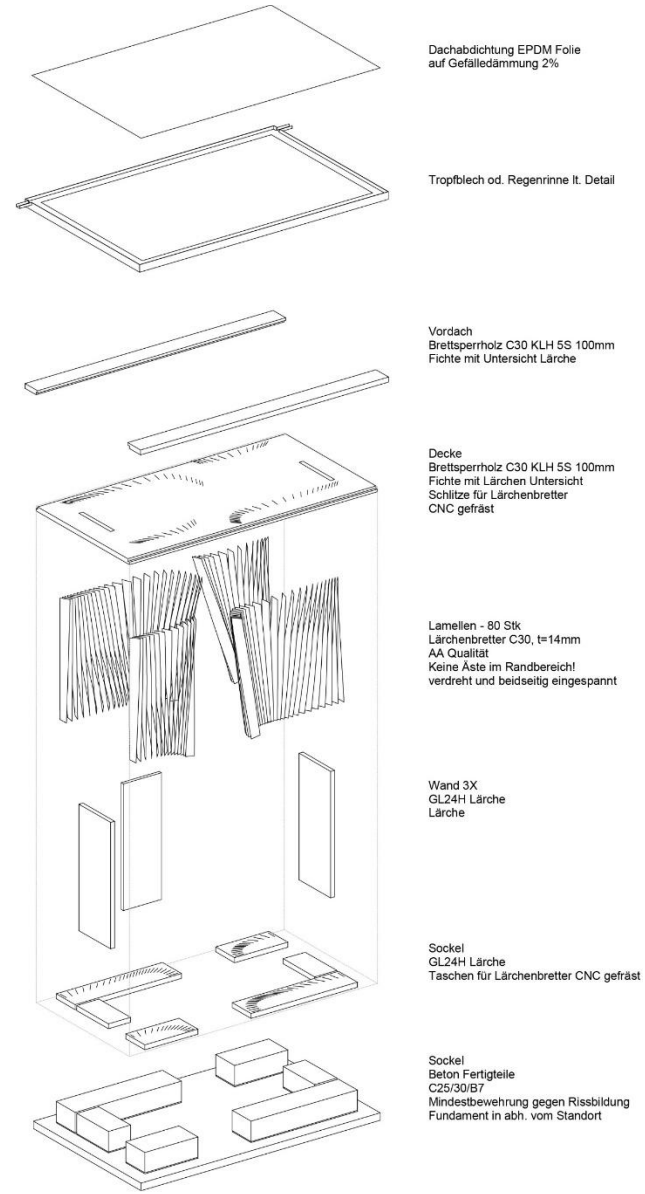


Type 2: Rectangular





Type 3: Narrow



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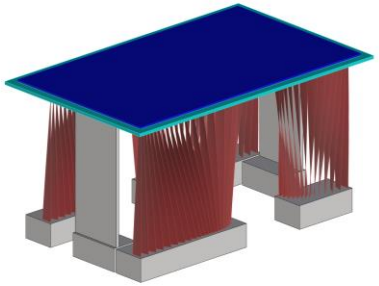
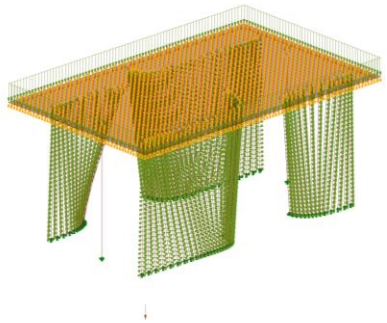
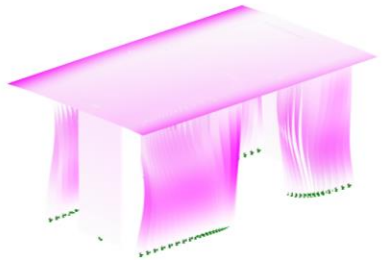
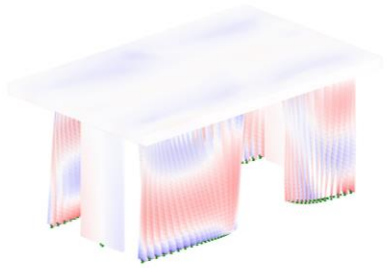
Rhino model & Parametric Setup



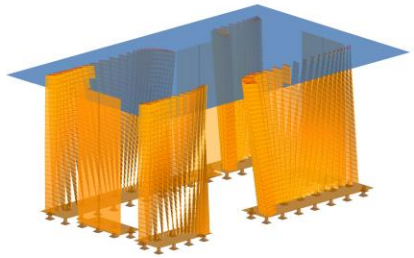
Karamba3D initial structural analysis

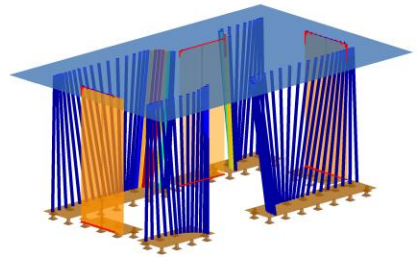


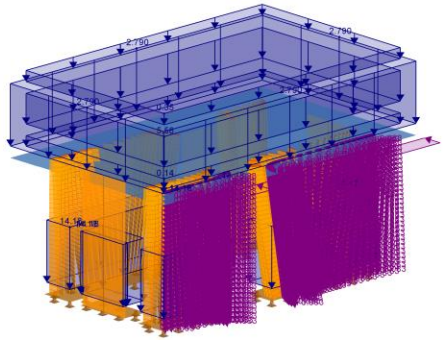


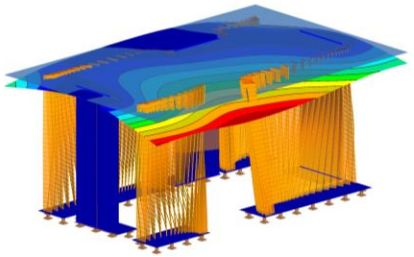


Detailed code checks in RFEM







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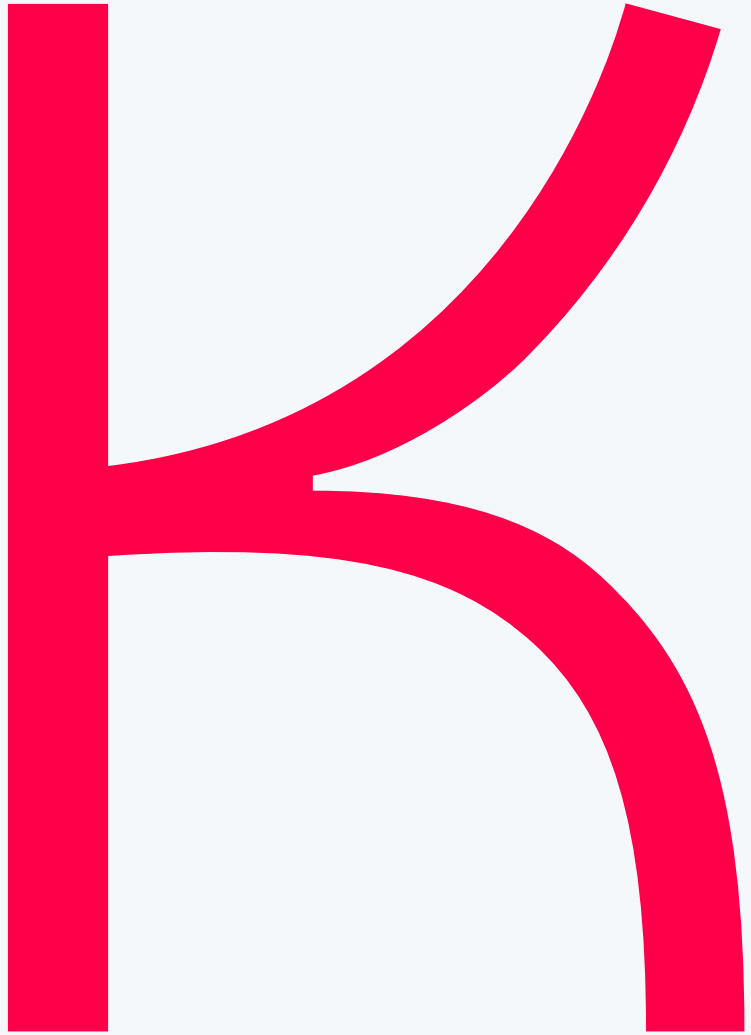

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