

GEFALTETES HOLZ

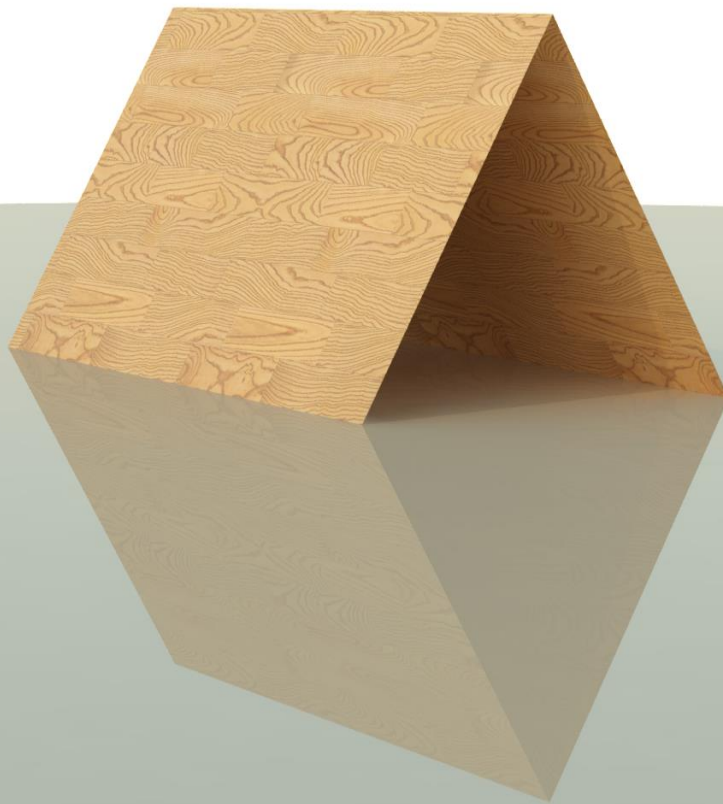
38. Geometrietagung
Strobl, 9. – 11. November 2017

DIESER VORTRAG ENTHÄLT PRODUKTPLAZIERUNGEN

KOLLEGEN

MILENA STAVRIĆ ... IAM

THOMAS BOGENSPERGER ... HOLZBAU.FORSCHUNGS.GMBH

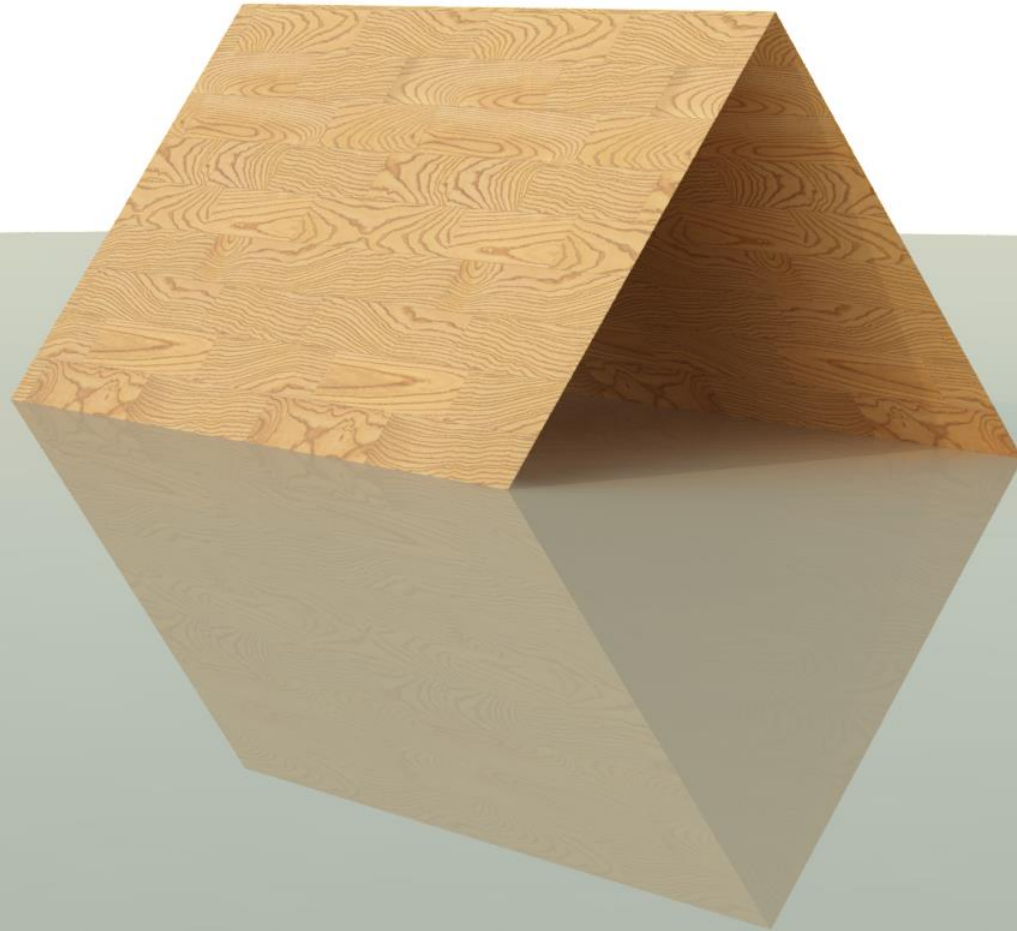


-1

GEFALTETES
HOLZ
=
IRRITUM

SEHR SCHLECHTES RENDERING VON „GEFALTETEM HOLZ“!

MINUS + MINUS \neq PLUS



OFFENE THEATER BÜHNE IN NEUSATZ/WOJWODINA

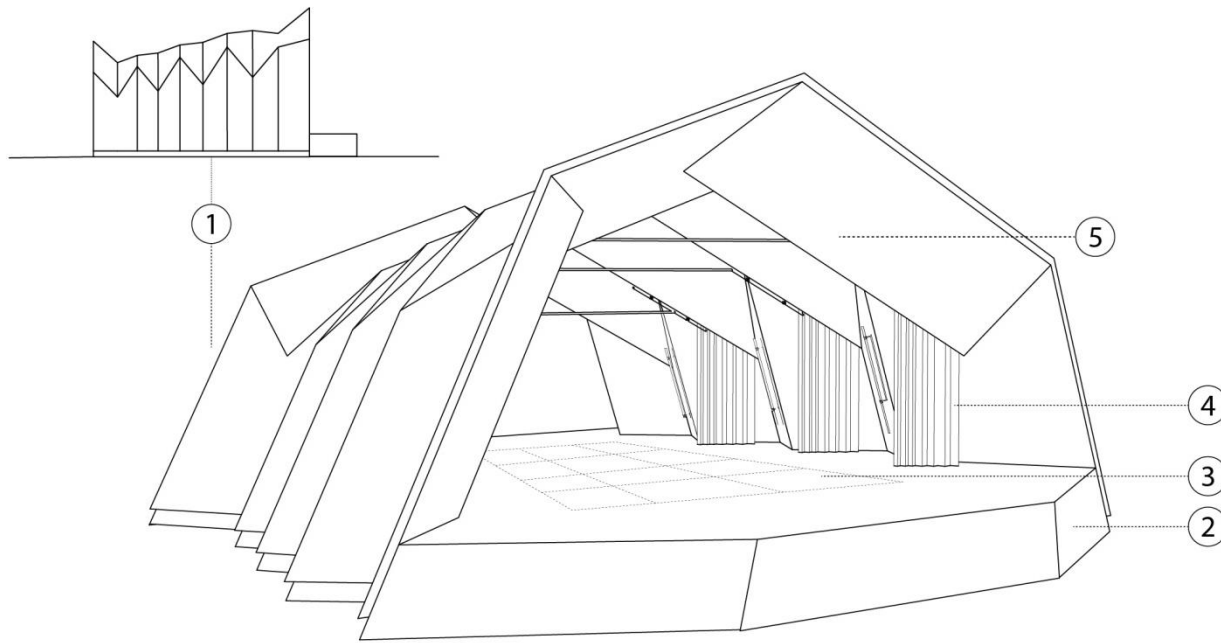


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WORKSHOP



PETERWARDEIN/PETROVARADIN ... EXIT-FESTIVAL



0

Constraints for parametrical model

Limitation of size and weight (transportation)
 Strong wind (robustness)
 Rebuild 3-times
 Acoustic properties
 Spatial experience (relief perspective)

-> Choice: CLT
 -> offset problem, connection (angle)

Solution: Conical form, which is opened in front and back side

OFFENE THEATER BÜHNE

12m x 9m x 6.5
 Stage: ~250m² CLT
 Platform: ~120 m² CLT



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OFFENE
THEATERBÜHNE

- RENDERING -

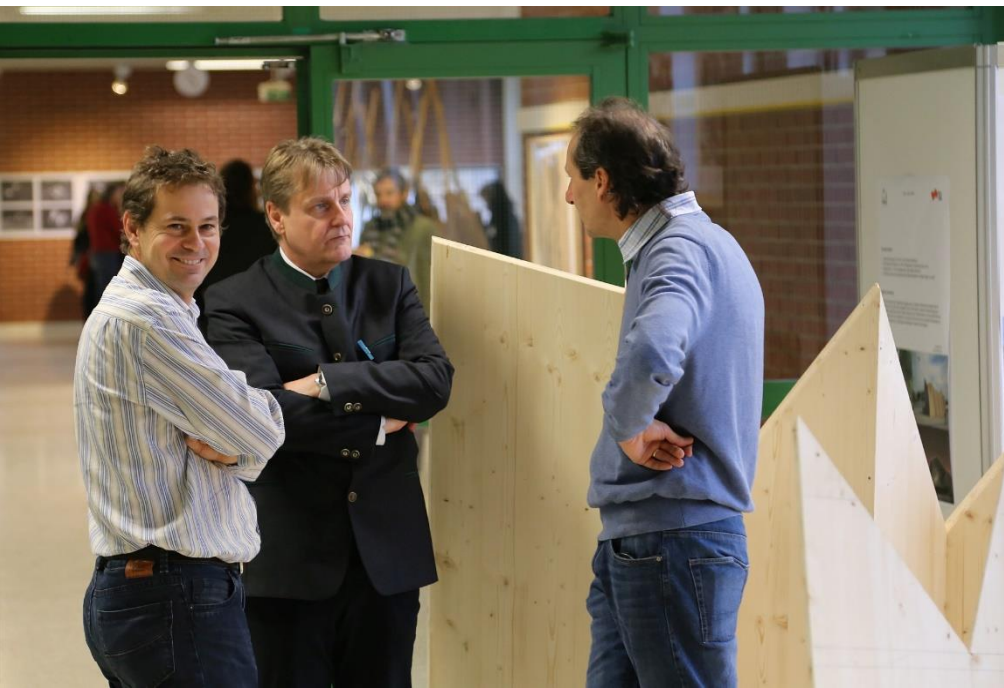


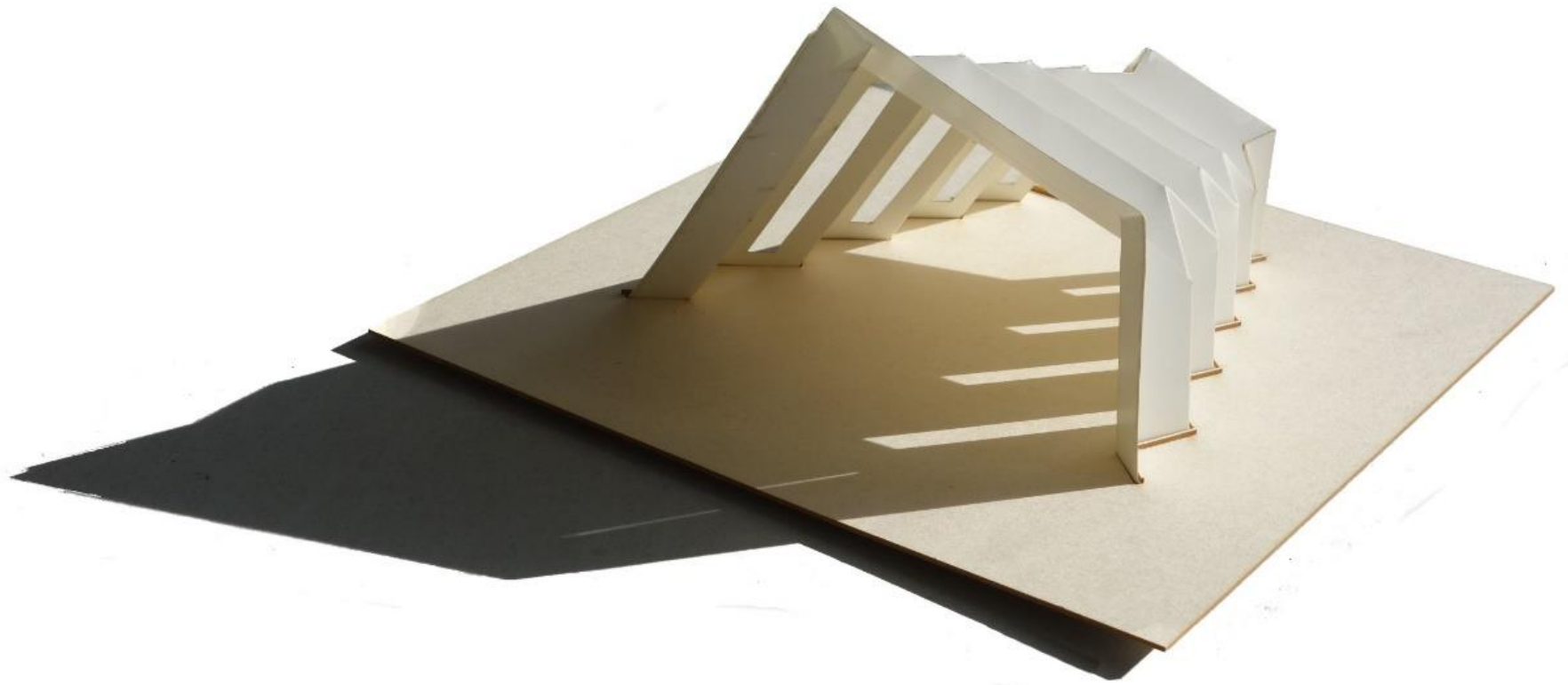
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OFFENE THEATER BÜHNE

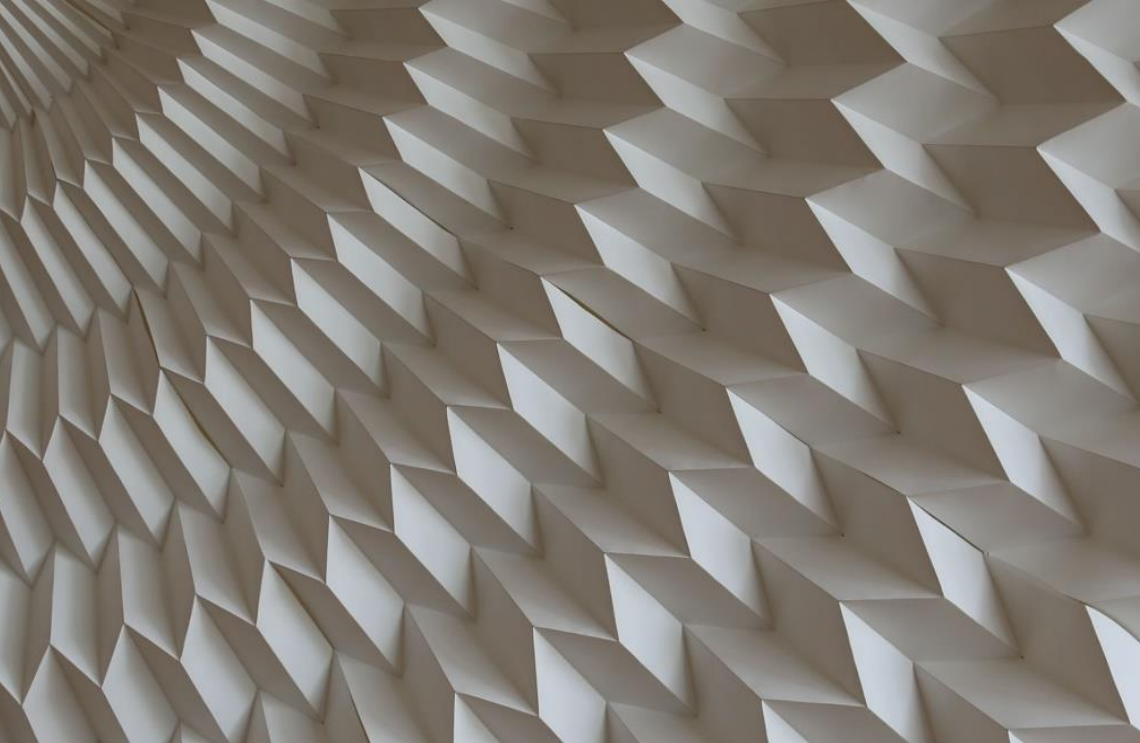
PROTOTYPE 1 : 4

HTBLVA ORTWEIN/GRAZ





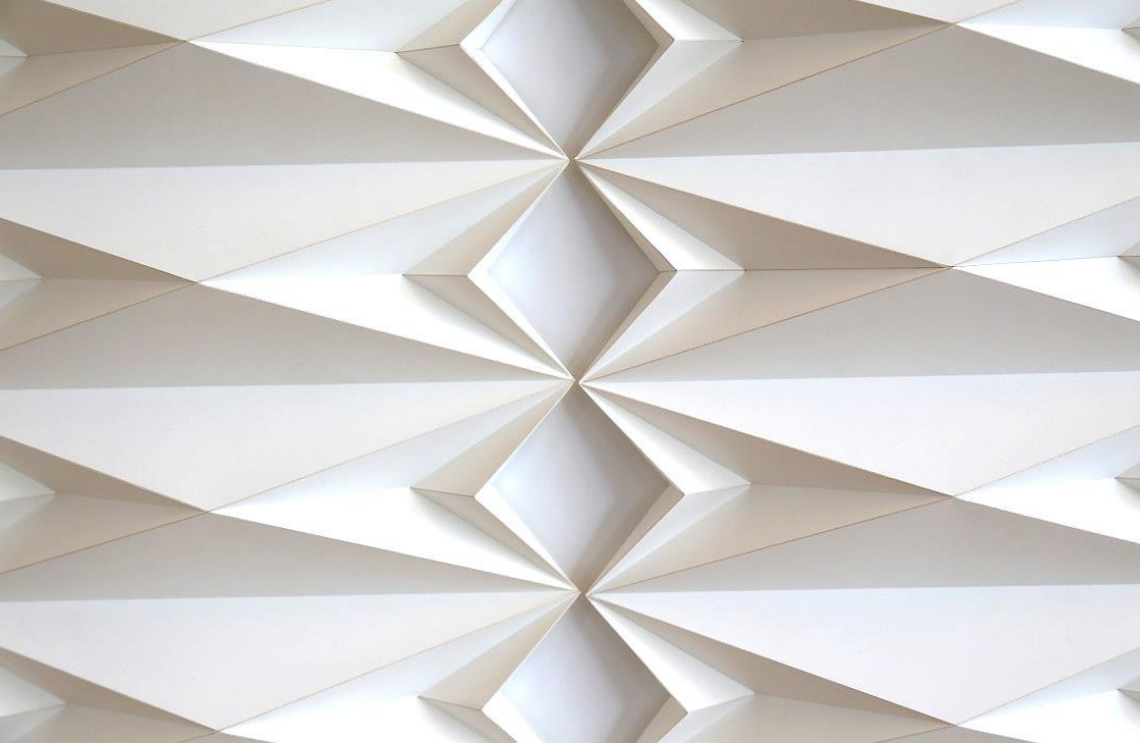
LASERCUTTER-MODELL



1

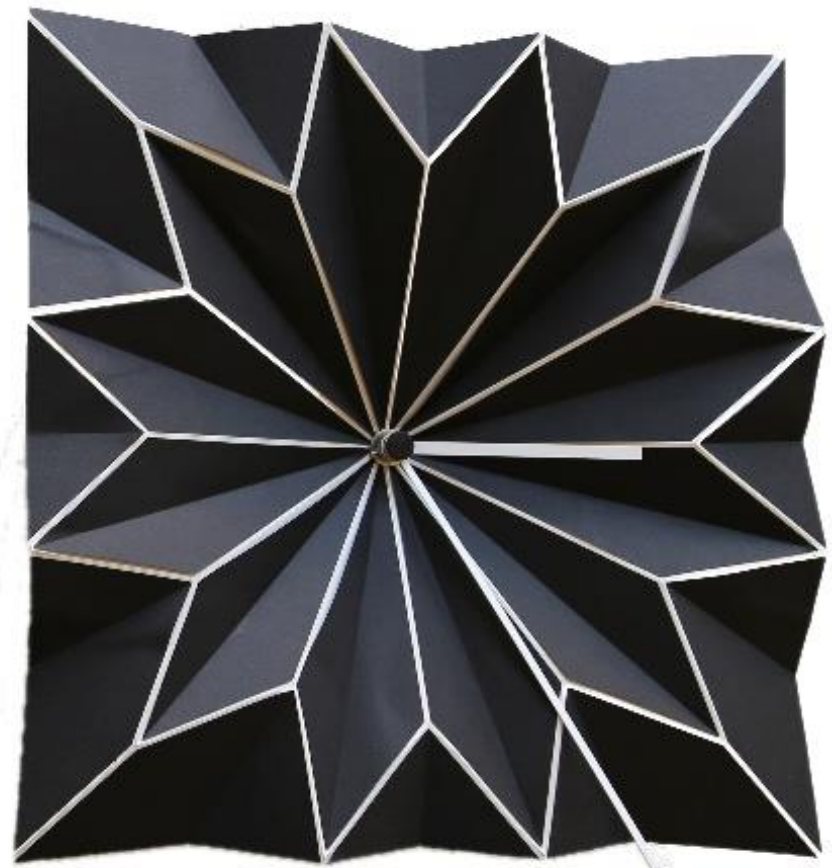
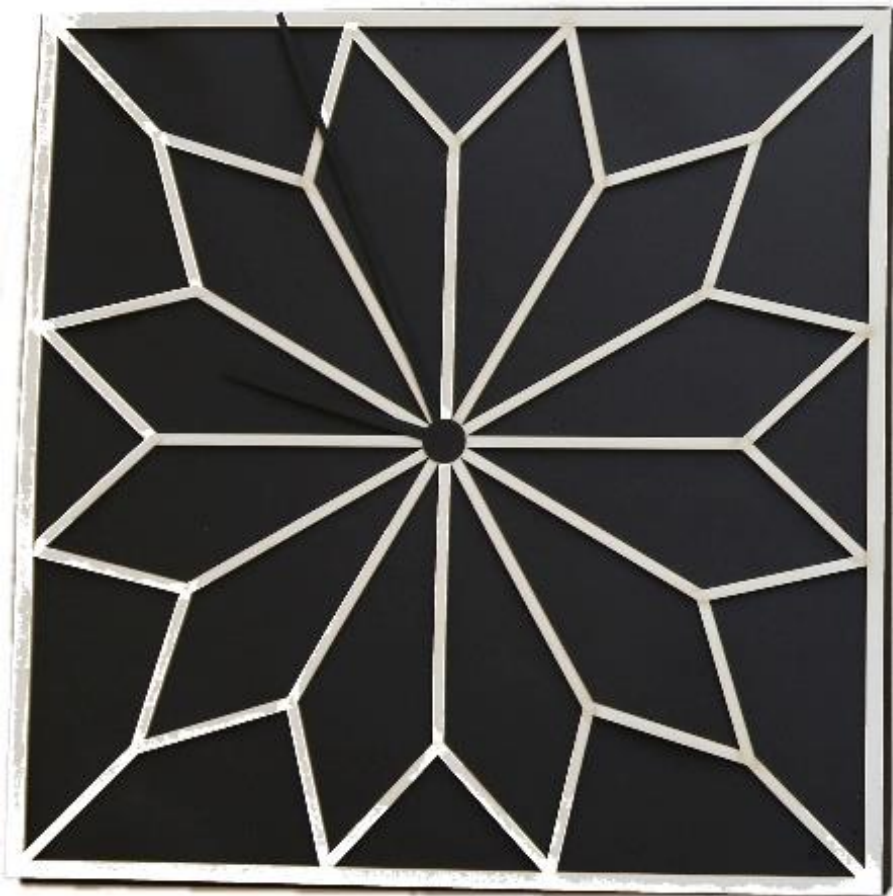
MOTIVATION

KOMBINATION
FALTUNG + MATERIAL



1

MOTIVATION



PRODUKT DESIGN



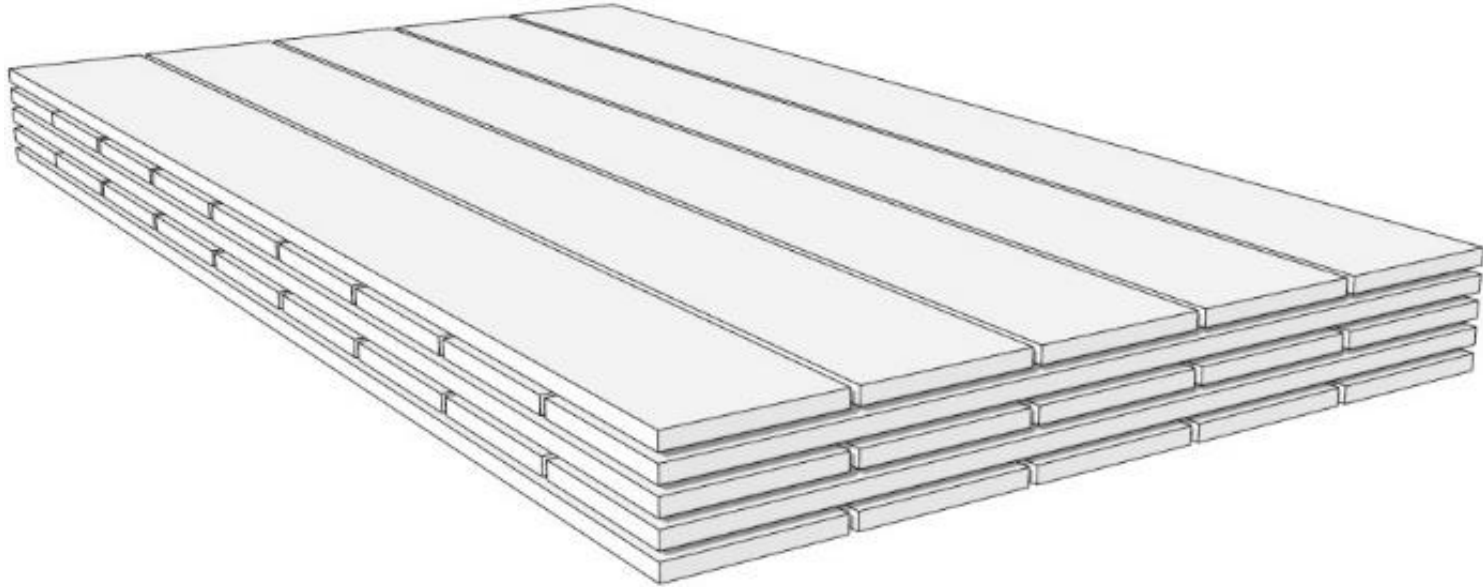
PRODUKT DESIGN



1

MOTIVATION





Brettsperrholz – BSP
Spezielle Richtung, ungerade Schichtenanzahl

Chapele St. Loup in Switzerland, Arch. Danilo Mondada

Folded Plate-Hut, Osaka, Ryuichi Ashizawa Architects

Théâtre de Vidy, Lausanne

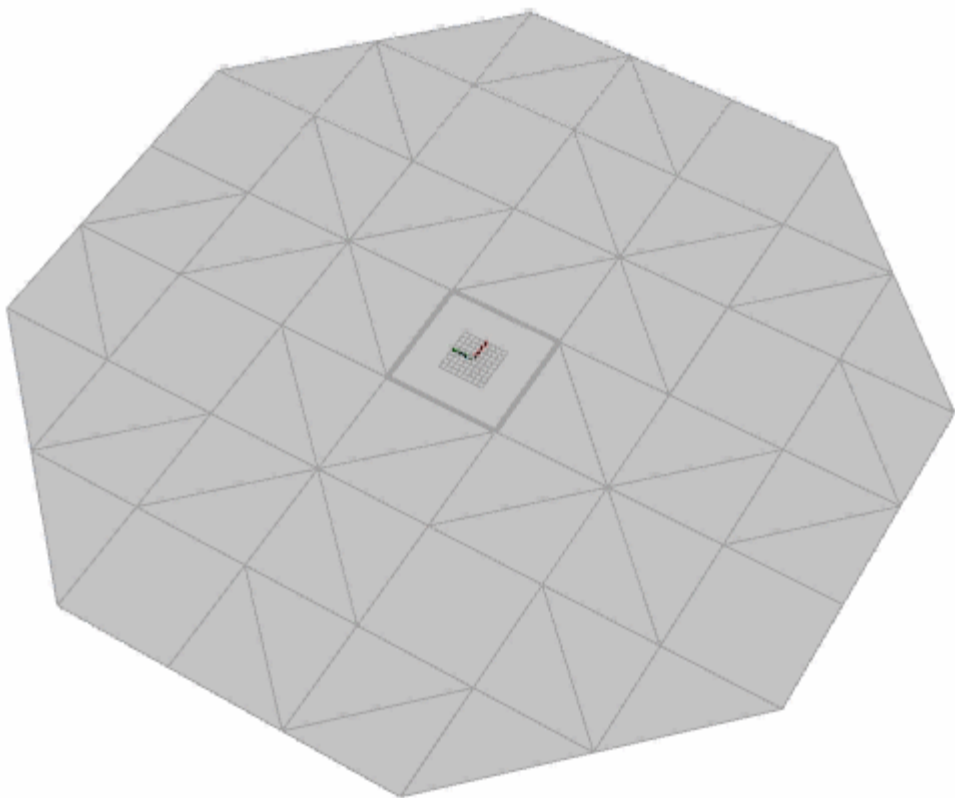
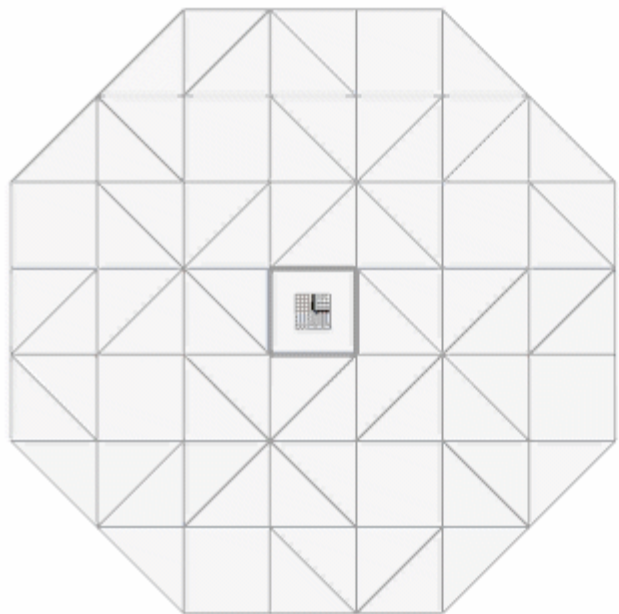
Yves Weinand (Arch.), Blumer Lehmann (ausf. Holzbau, Engineering)

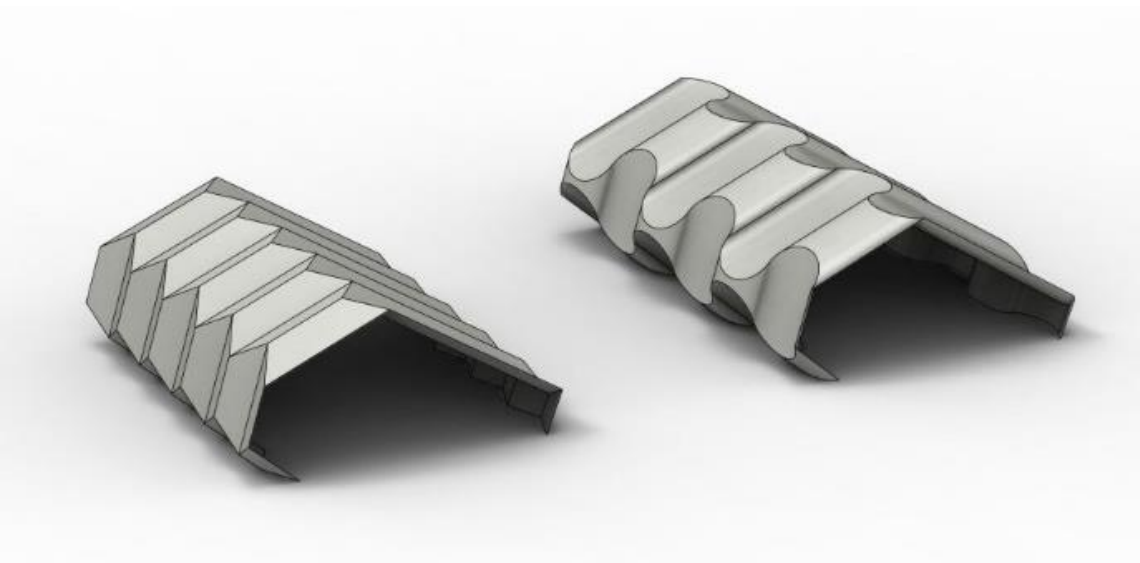
2

ARCHITEKTUR - REFERENZ -

Gehry Technologies / Al-Bahr Towers Investment

Murinsel Graz

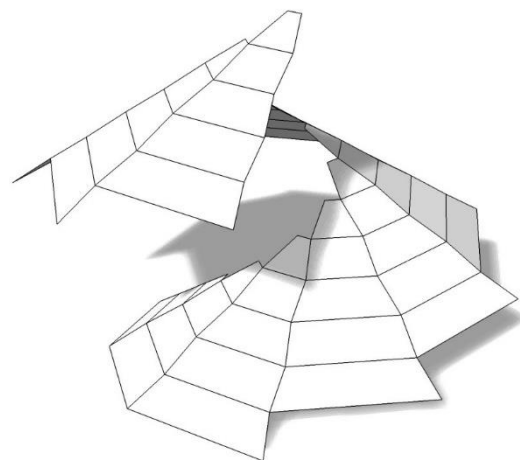
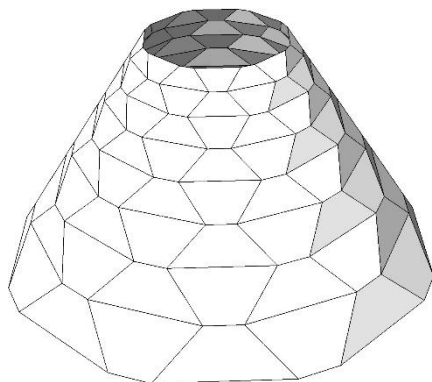
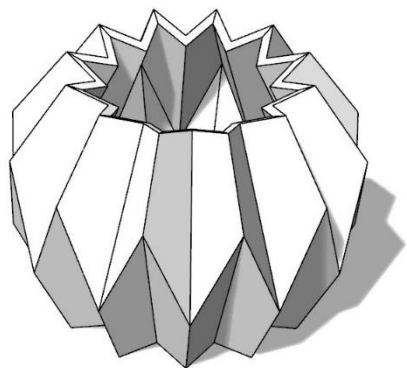
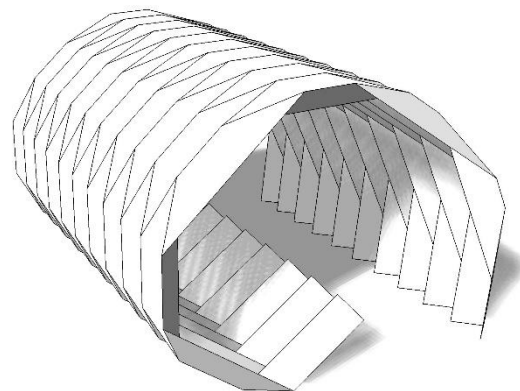
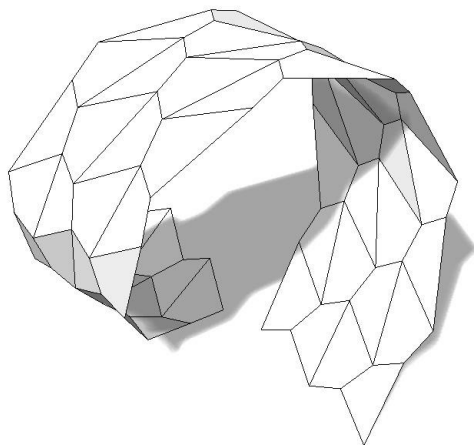
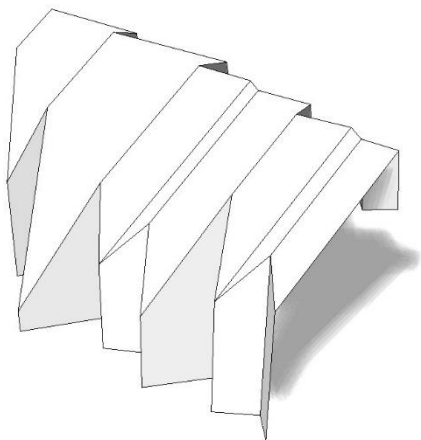


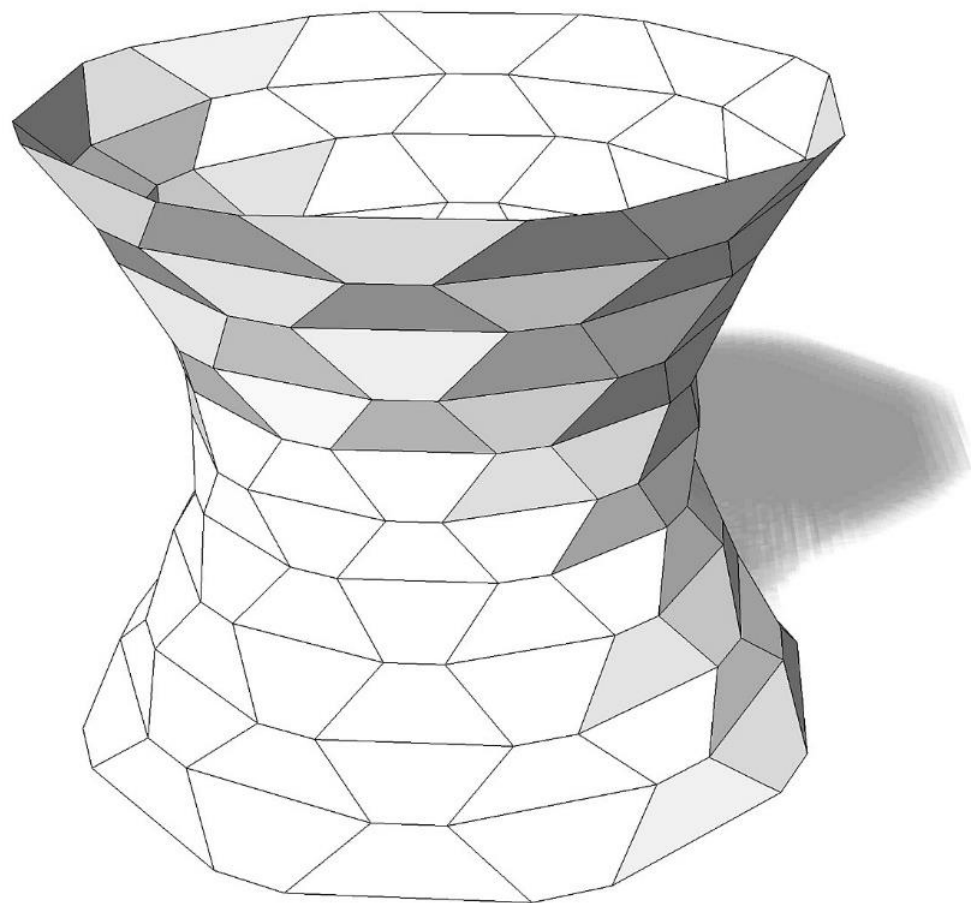


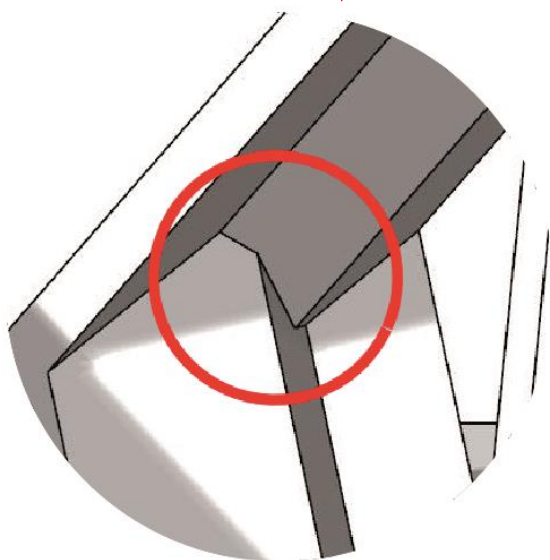
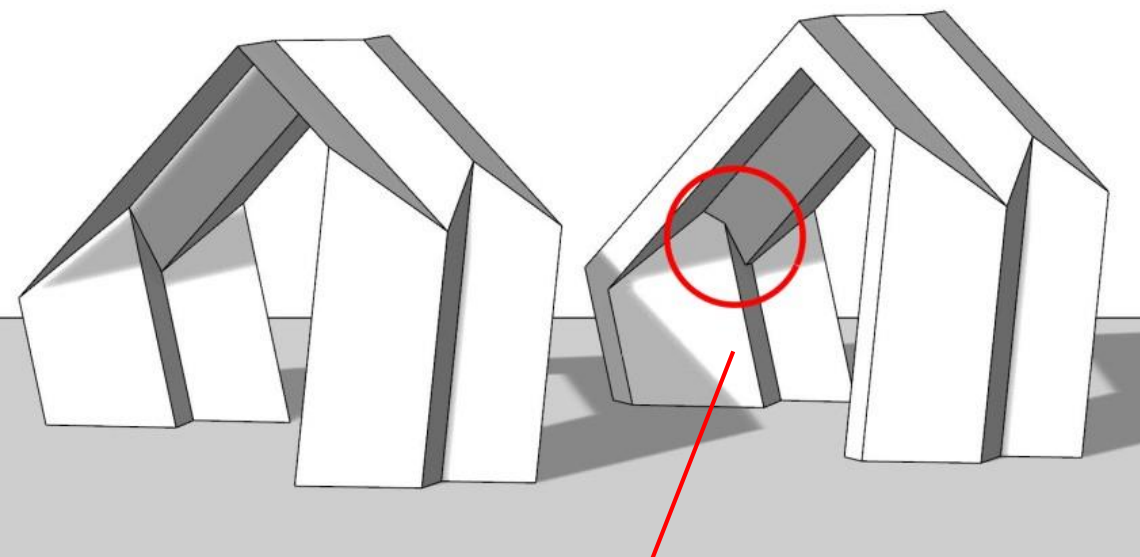
3

GEOMETRIE

LINEAR
AND
CURVED FOLDING



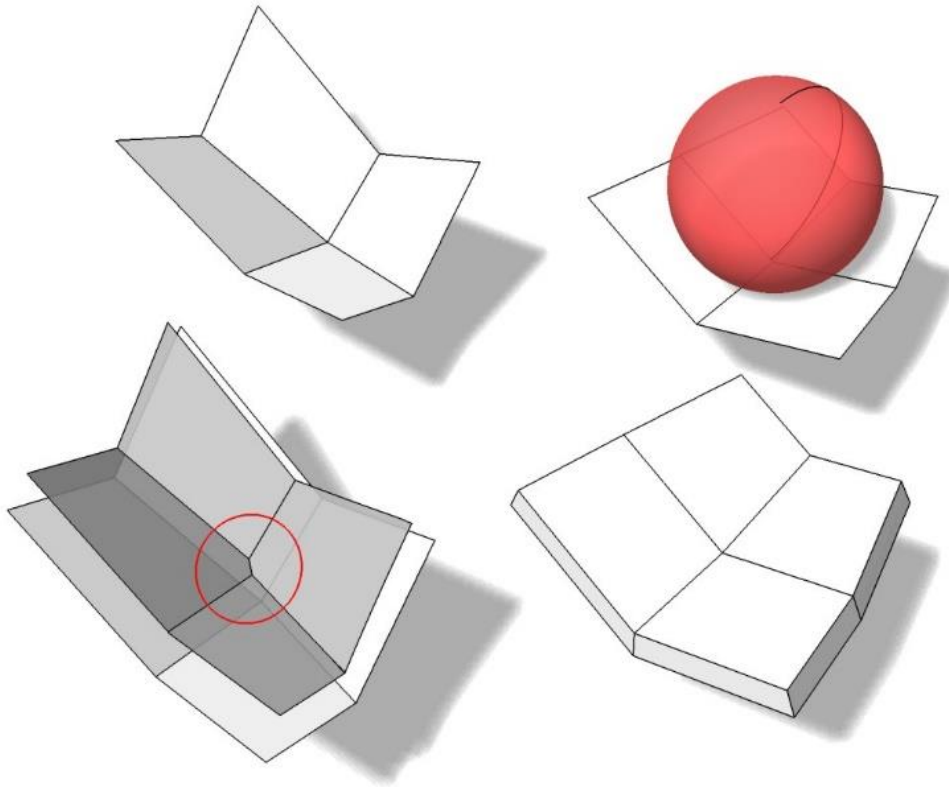




3

GEOMETRIE

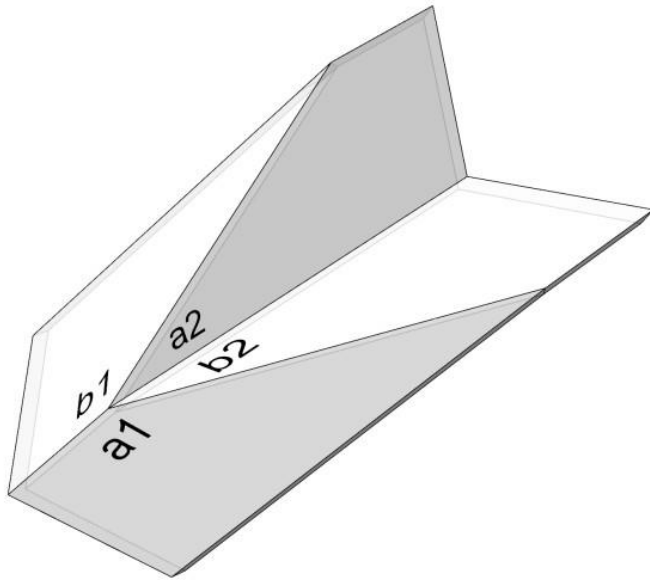
MATERIAL -> OFFSET



3

GEOMETRIE

MATERIAL -> OFFSET



3

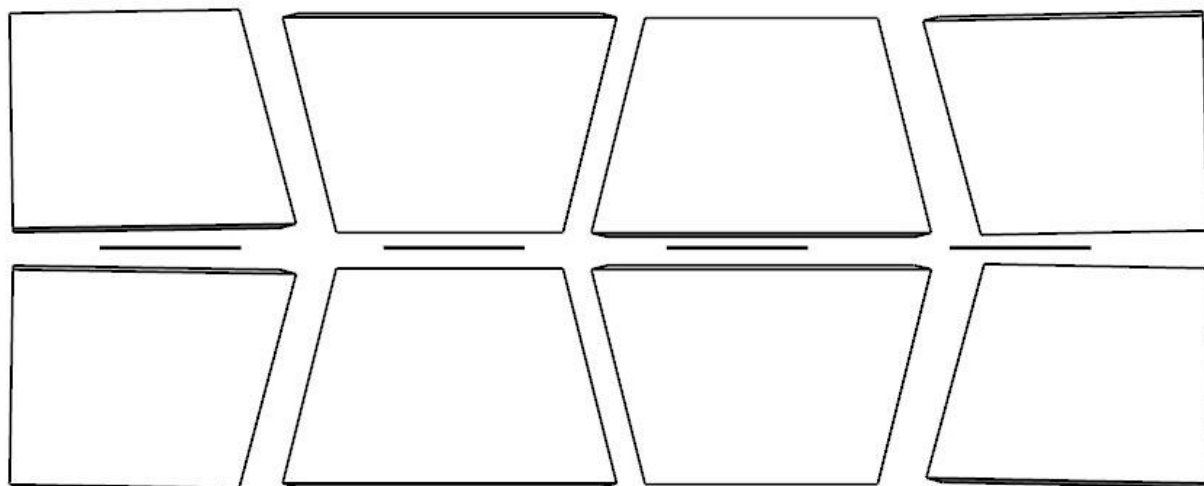
GEOMETRIE

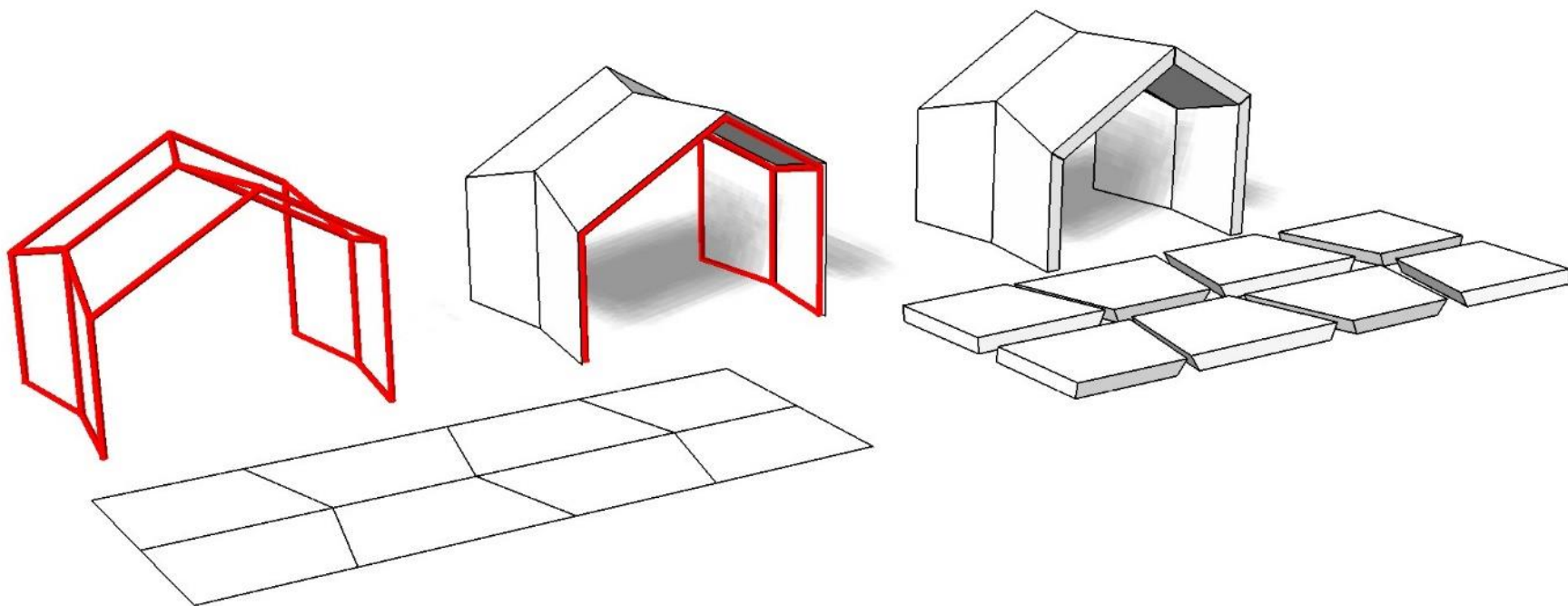
- KONISCHE KNOTEN -
 $a1 + a2 = b1 + b2$

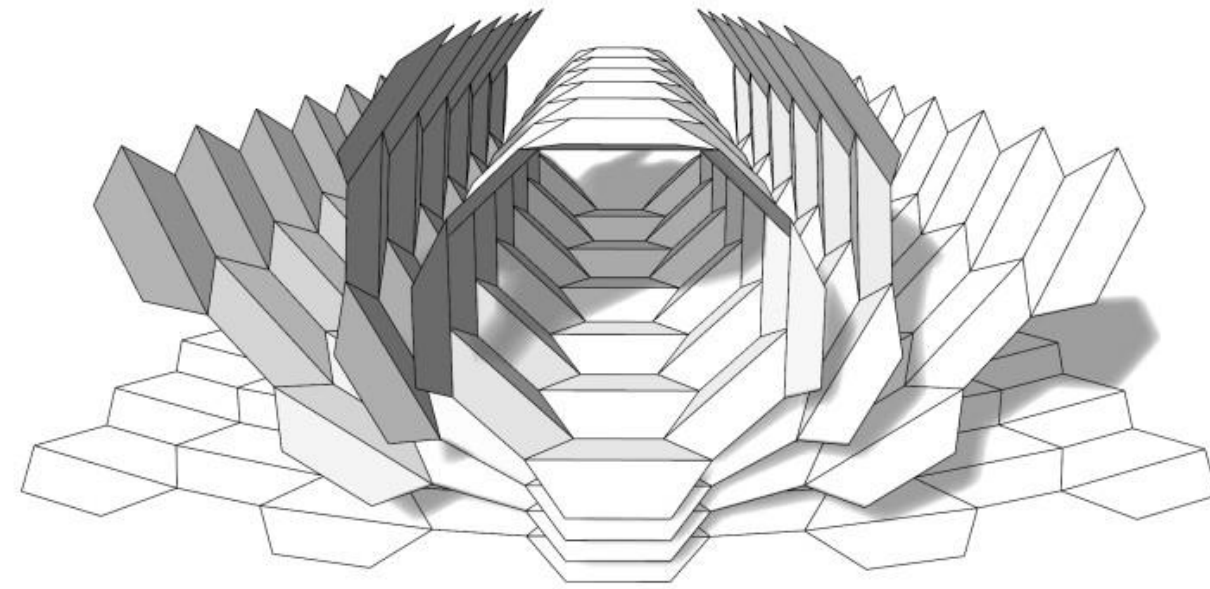


3

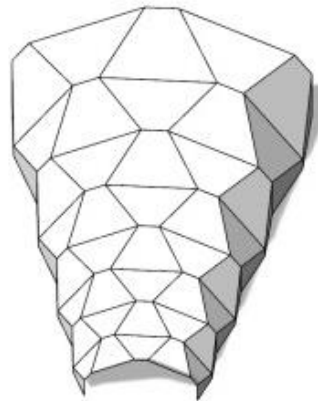
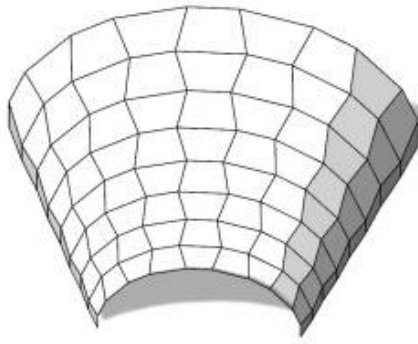
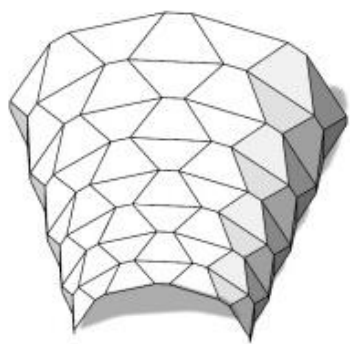
GEOMETRIE - NESTING – MATERIAL EFFIZIENZ







4

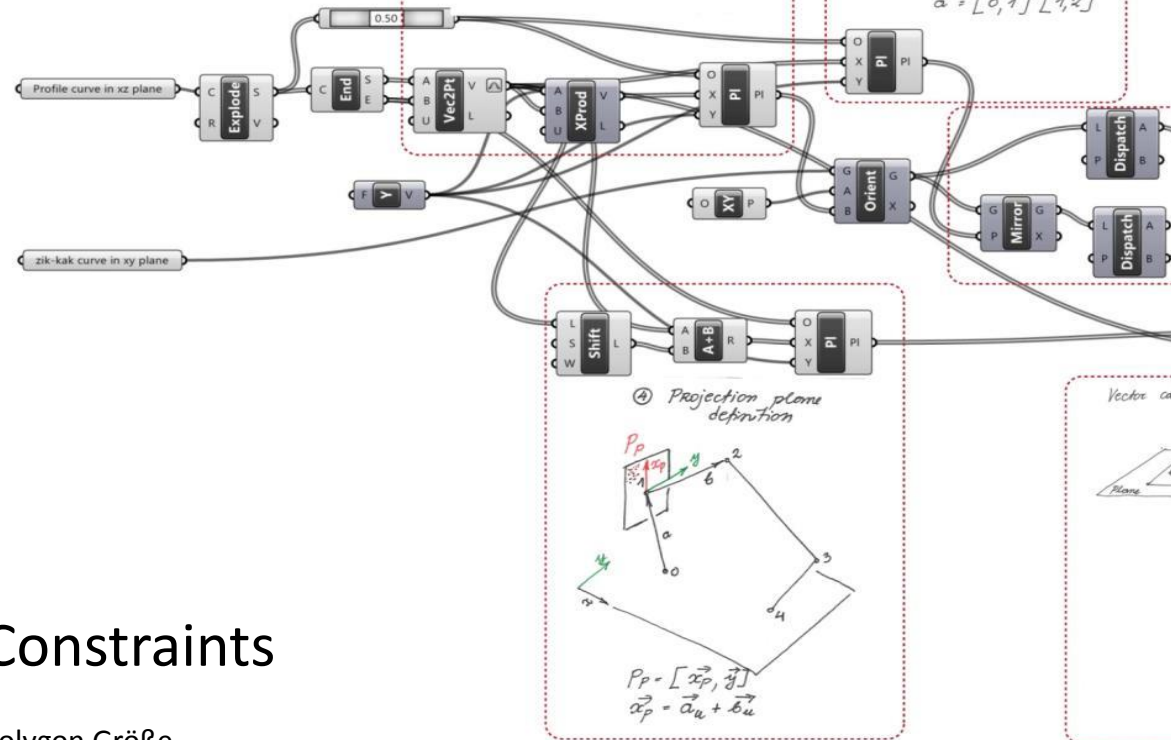
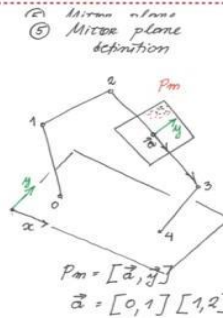
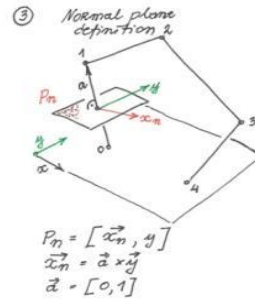
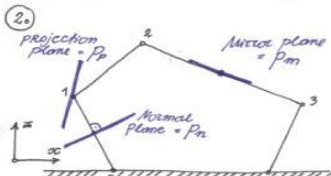
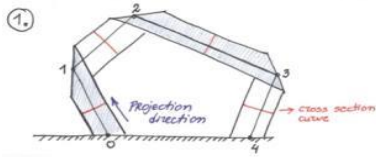


PARAMETRISCHES
MODELL

4

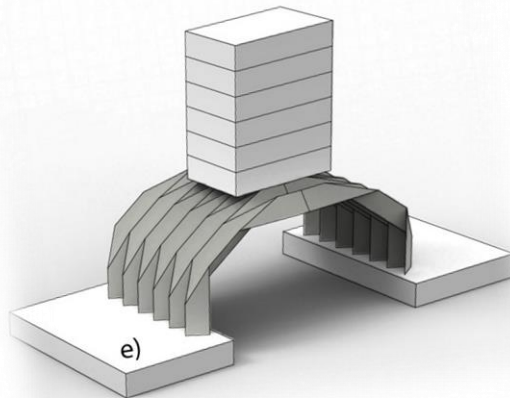
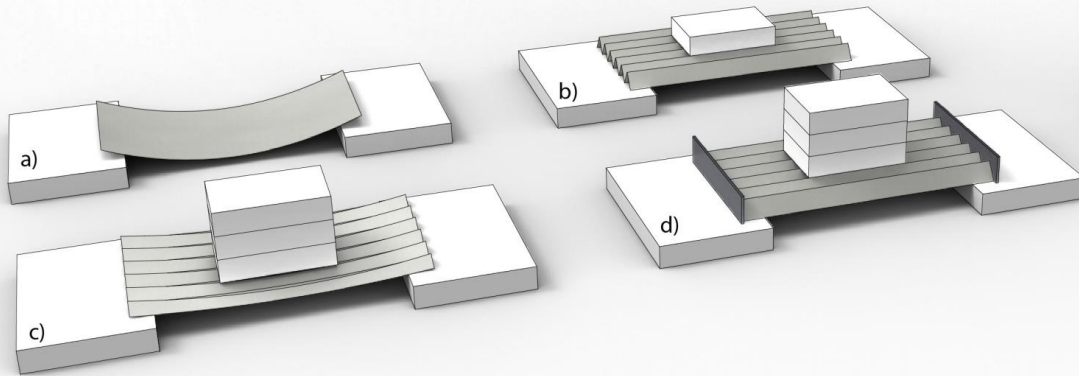
PARAMETRISCHES
MODELL

folding | vector calculation | übung_03



Constraints

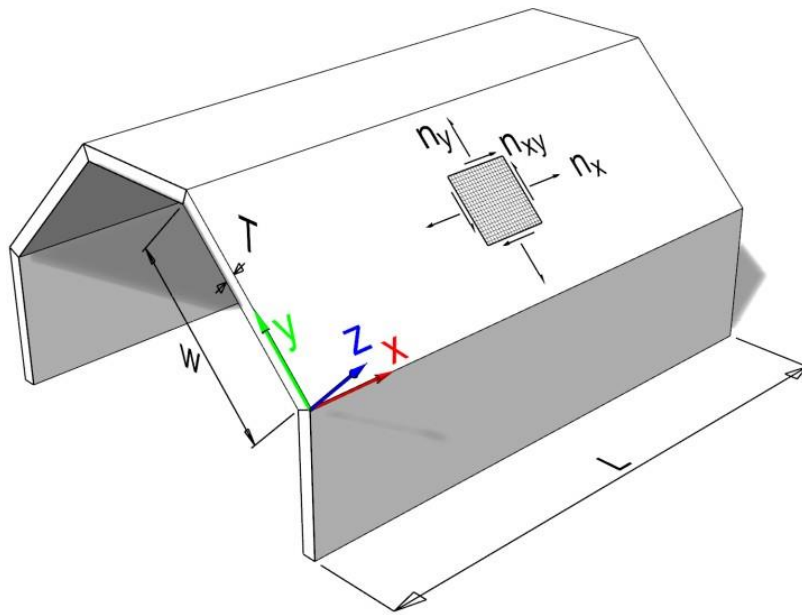
Polygon Größe
Dicke
Variable Winkel
Seitenlängen
...



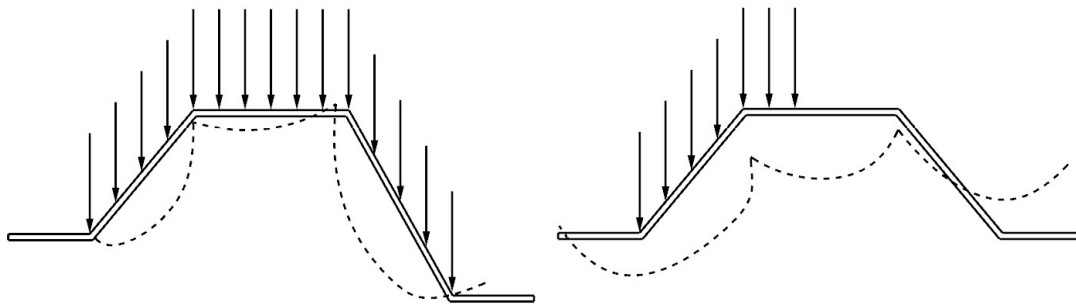
A folding structure can cover a large span without bending of the individual parts

5

MECHANISCHE STRUKTUR



PRISMATISCHES FALTEN



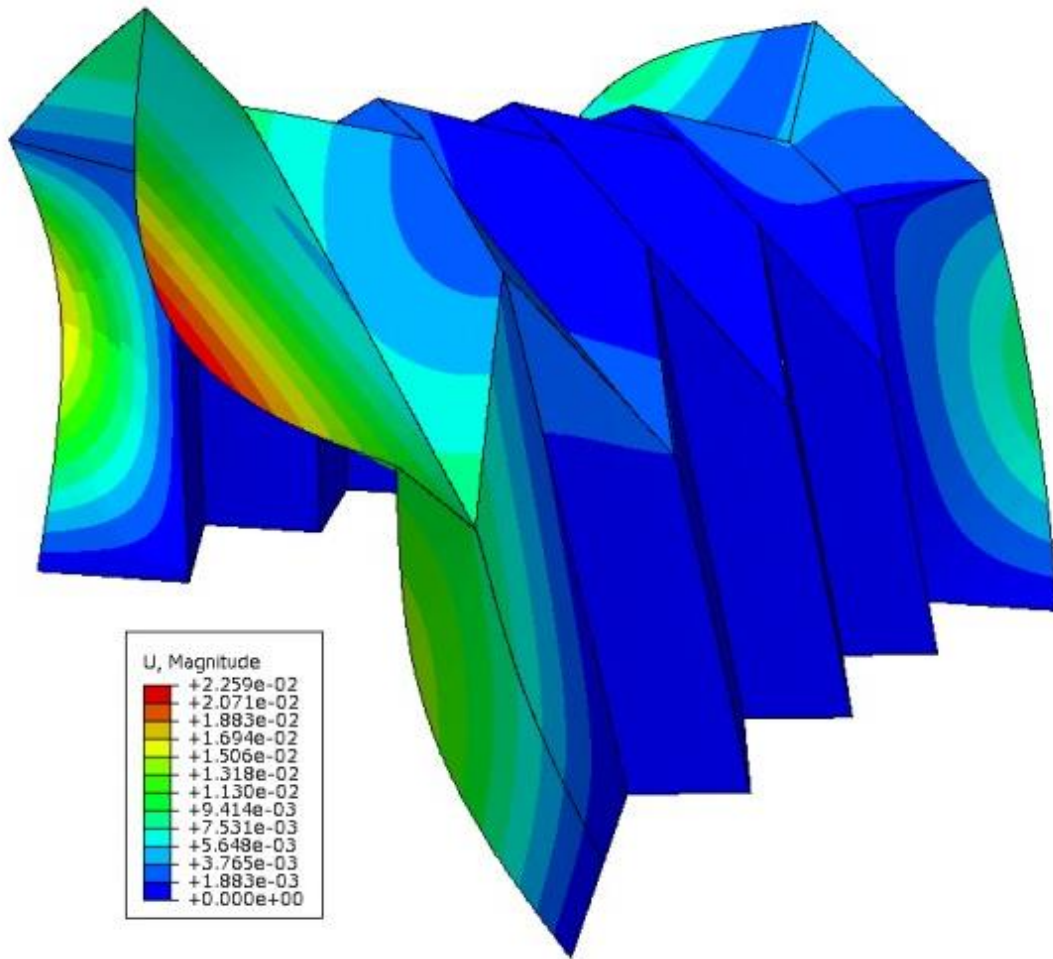
Platten-Deformation

5

MECHANISCHE STRUKTUR

ELEM. FALTTHEORIE
ODER

FEM



5

MECHANISCHE STRUKTUR

- STATISCHE ANALYSE -

CLT: 5 layer, 3.7 inch

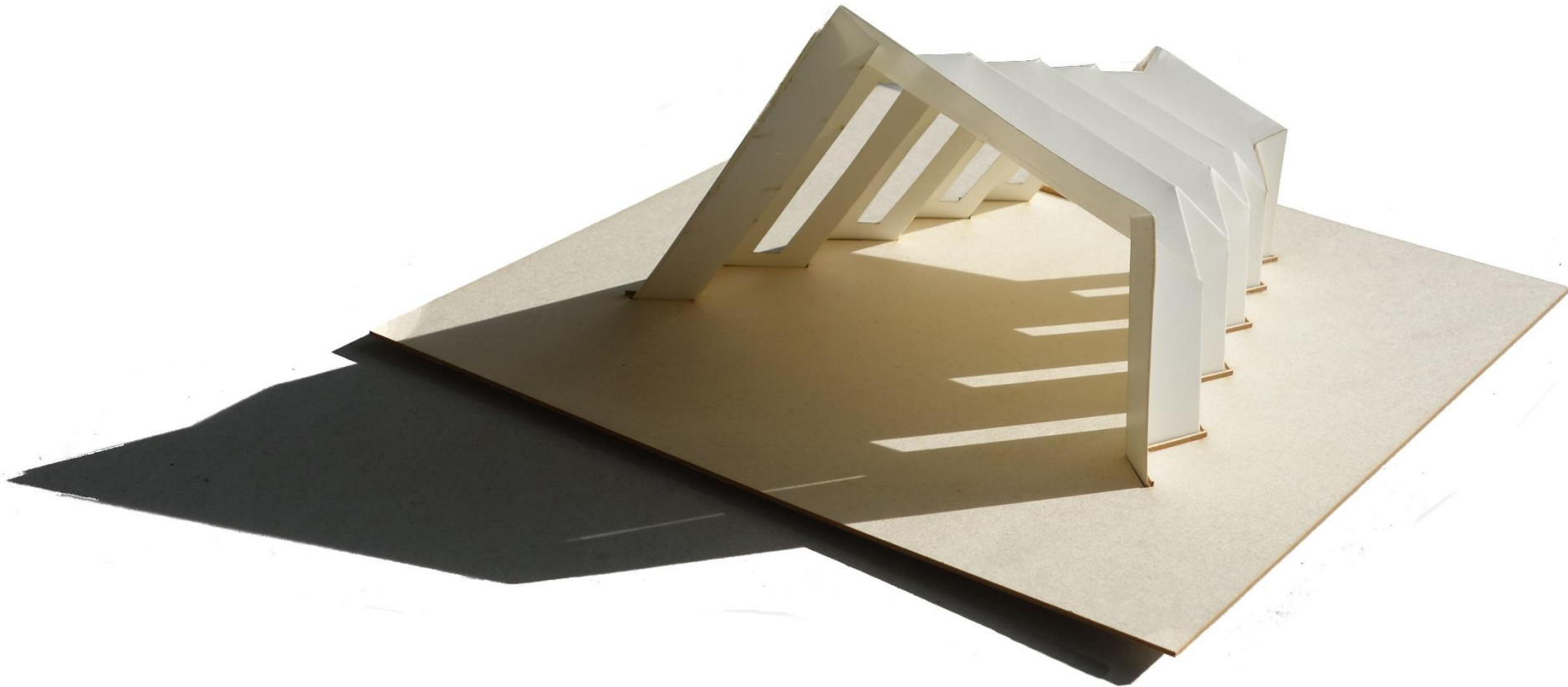
Extended panels have to be braced

Screws: $d = 0.3\text{in}$, $l = 8\text{in}$

WAS BLIEB: EIN MODELL



Statik





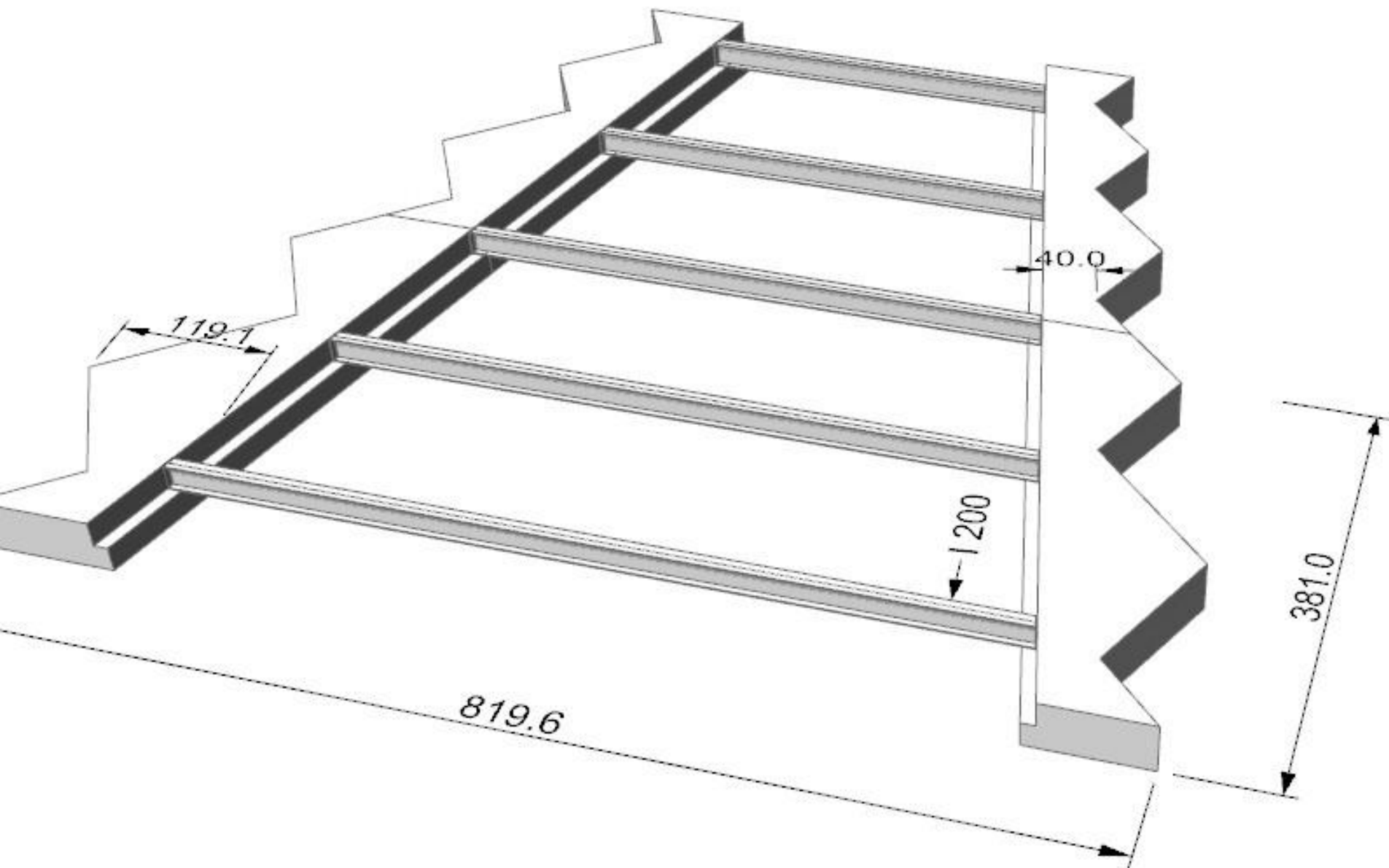
6

PROJEKT
HOLZFALTATELIER
- GMÜND/KÄRNTEN -



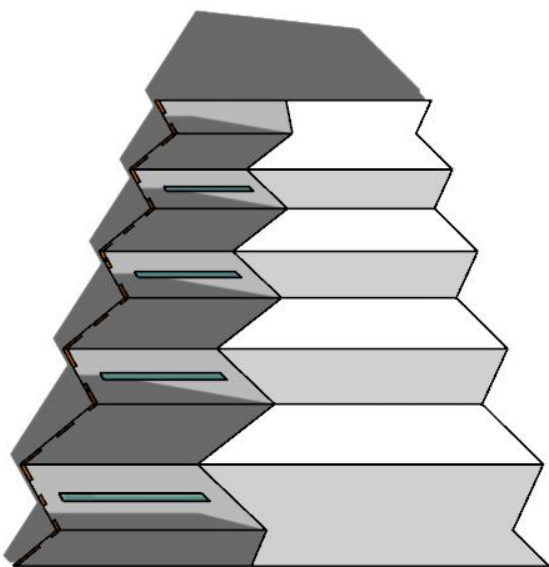
RESTAURANT



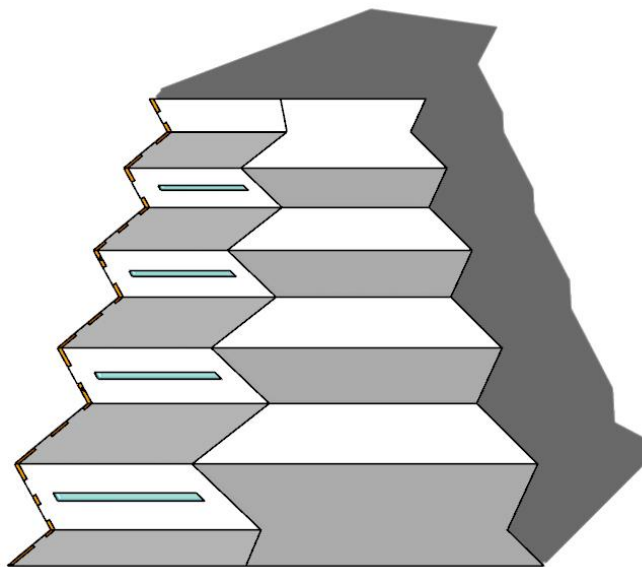


FUNDAMENT

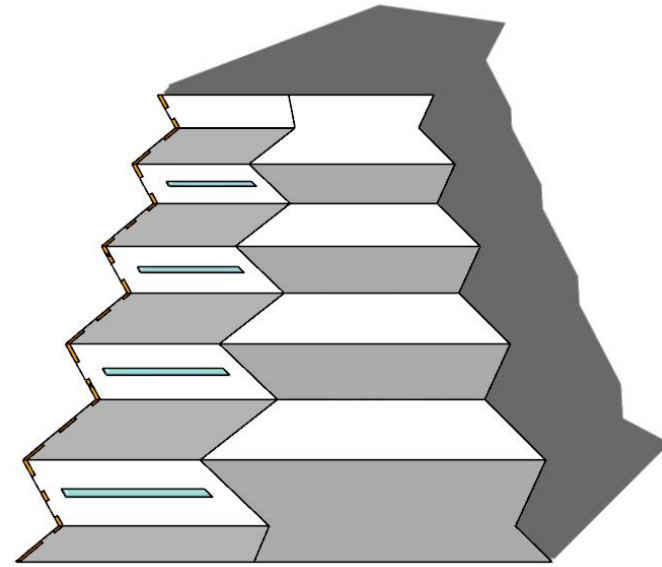
SCHATTENGRENZEN



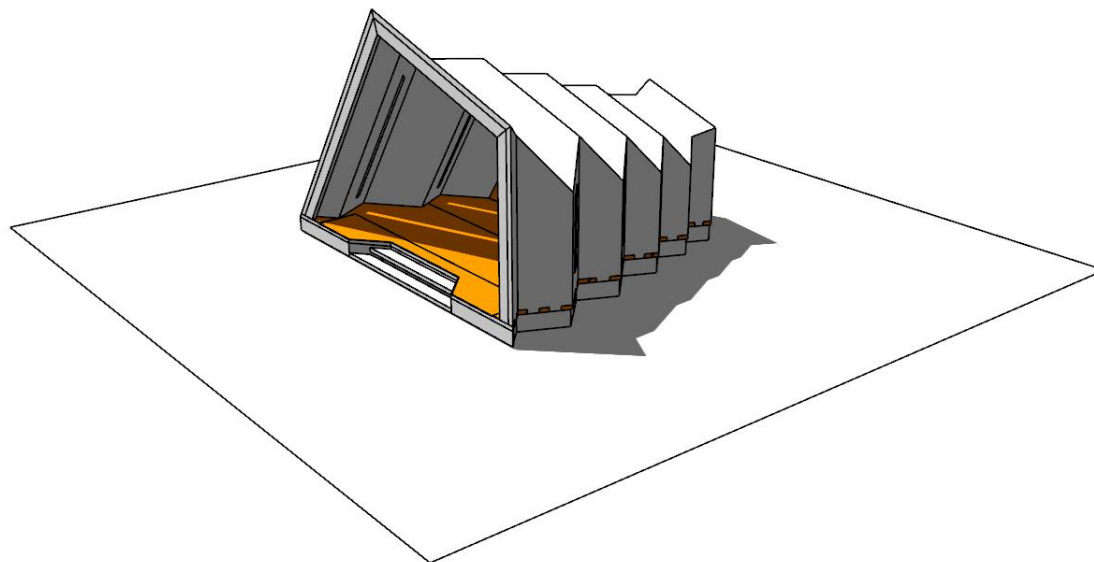
SO



S

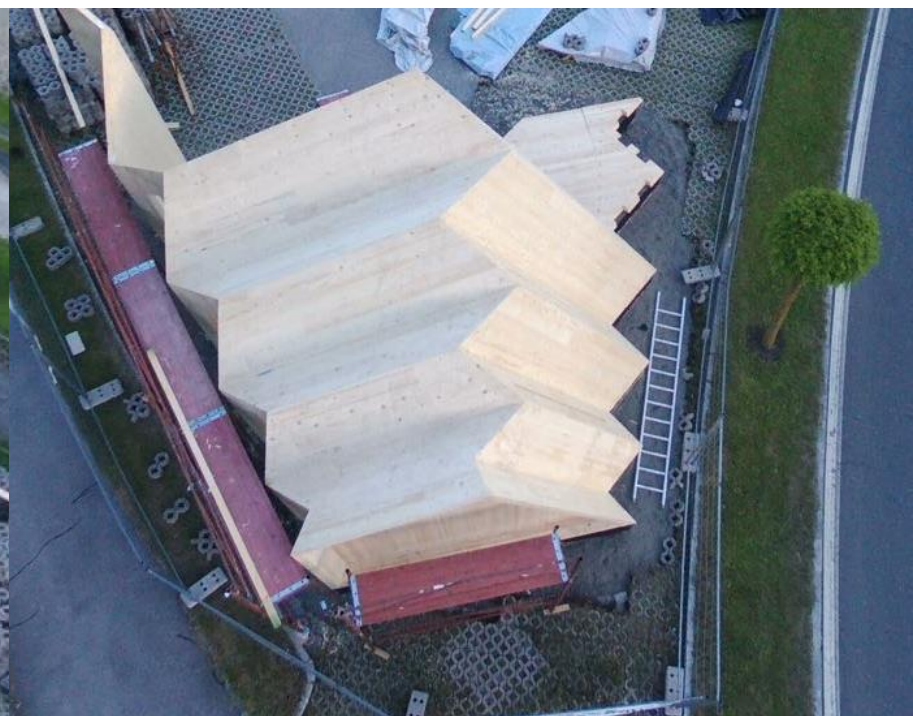


SW



RENDERINGS





RICHTIGE FASERRICHTUNG!!!







DETAILS - TOLERANZEN

HASSLACHER NORICA TIMBER

From wood to wonders.

 KUNSTLERS







DANKE FÜR IHRE AUFMERKSAMKEIT!