

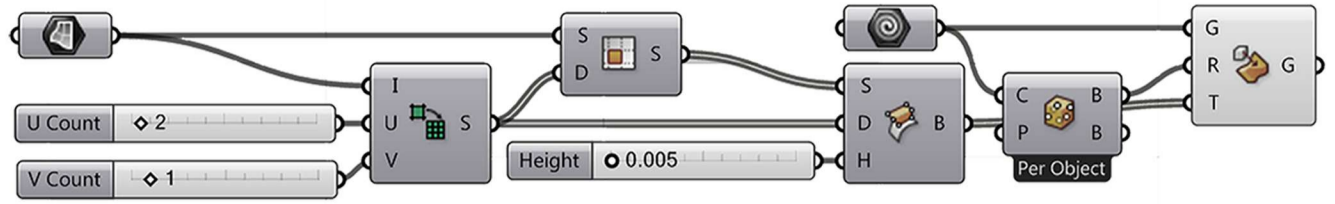


# THE ENERGY PARASITE

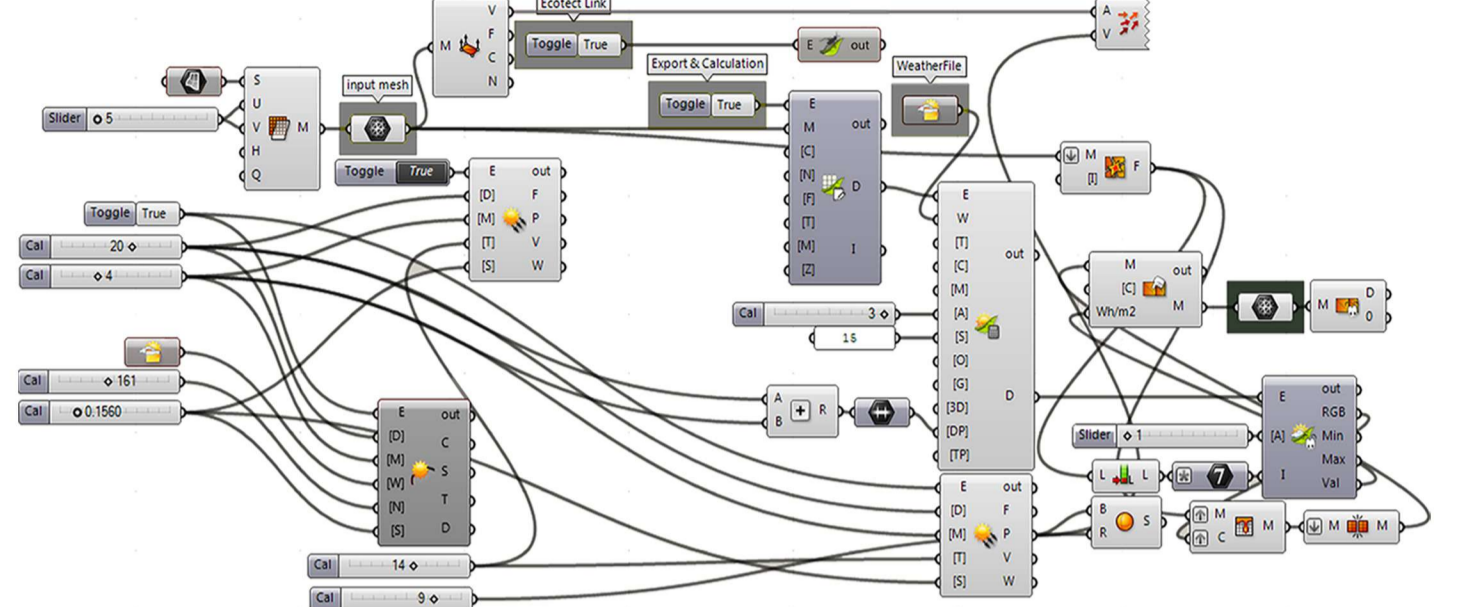
SUPPORTED BY **TEMME OBERMEIER**  
EXPERTS FOR MEMBRANE BUILDINGS  
www.to-experts.com  
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## 3D-PARAMETRICAL SCRIPTS

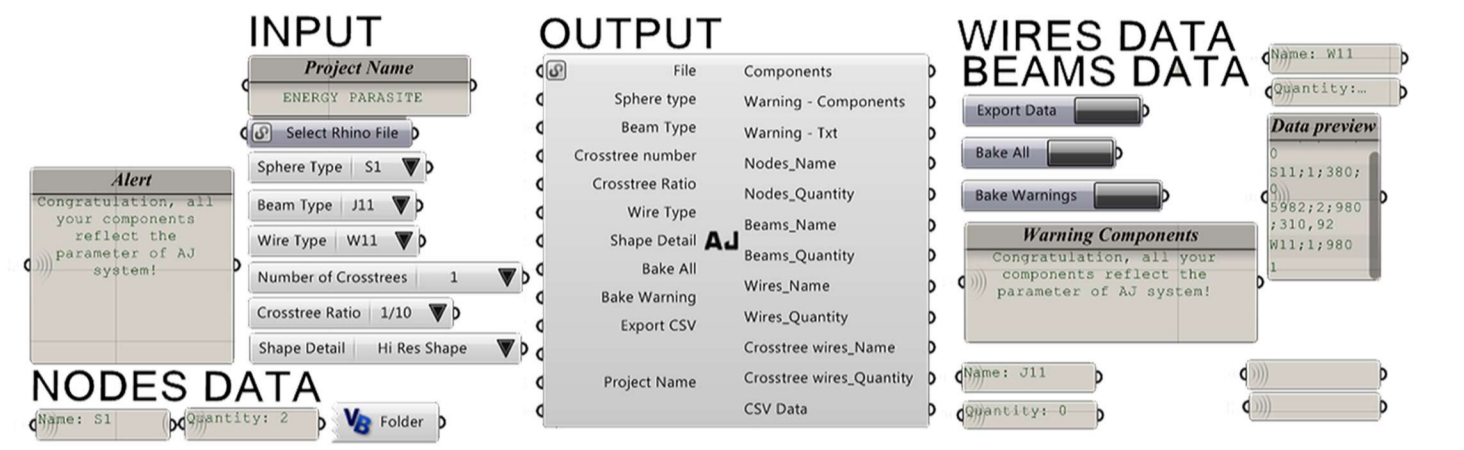
### MEMBRANE PANELING / RHINO GRASSHOPPER DIVIDING LOFTED SURFACE / DISTRIBUTING SOLAR CELLS



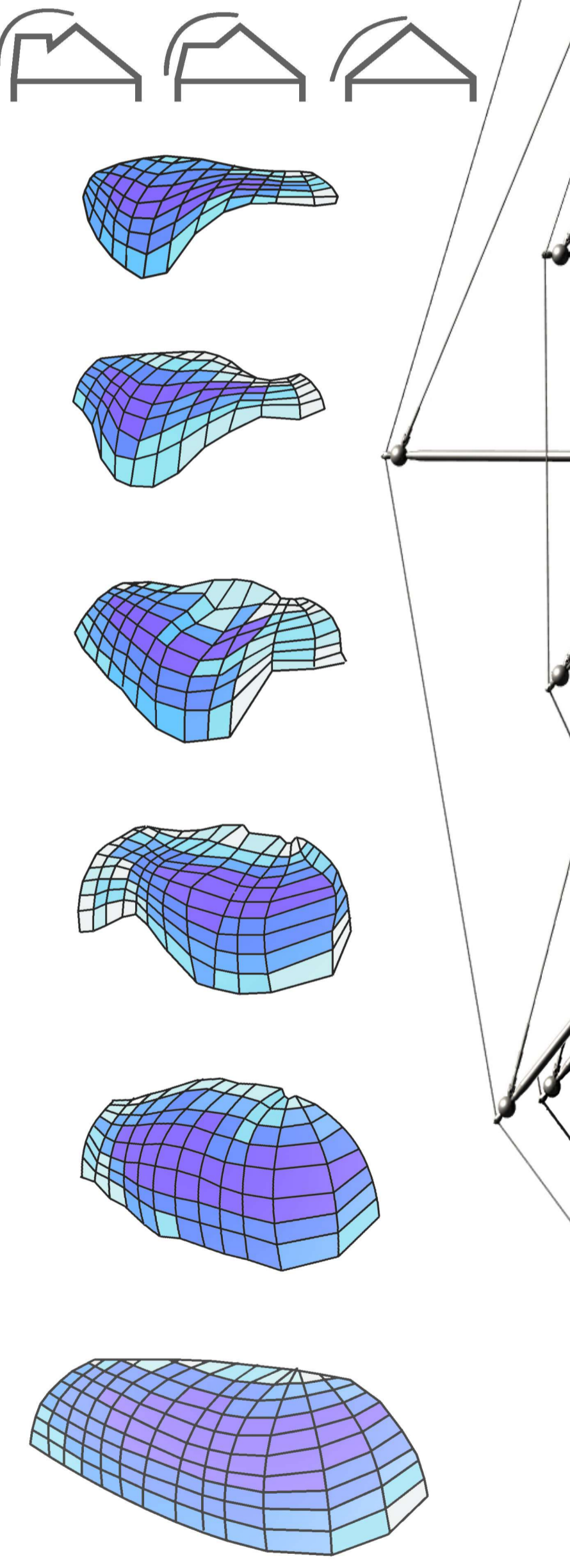
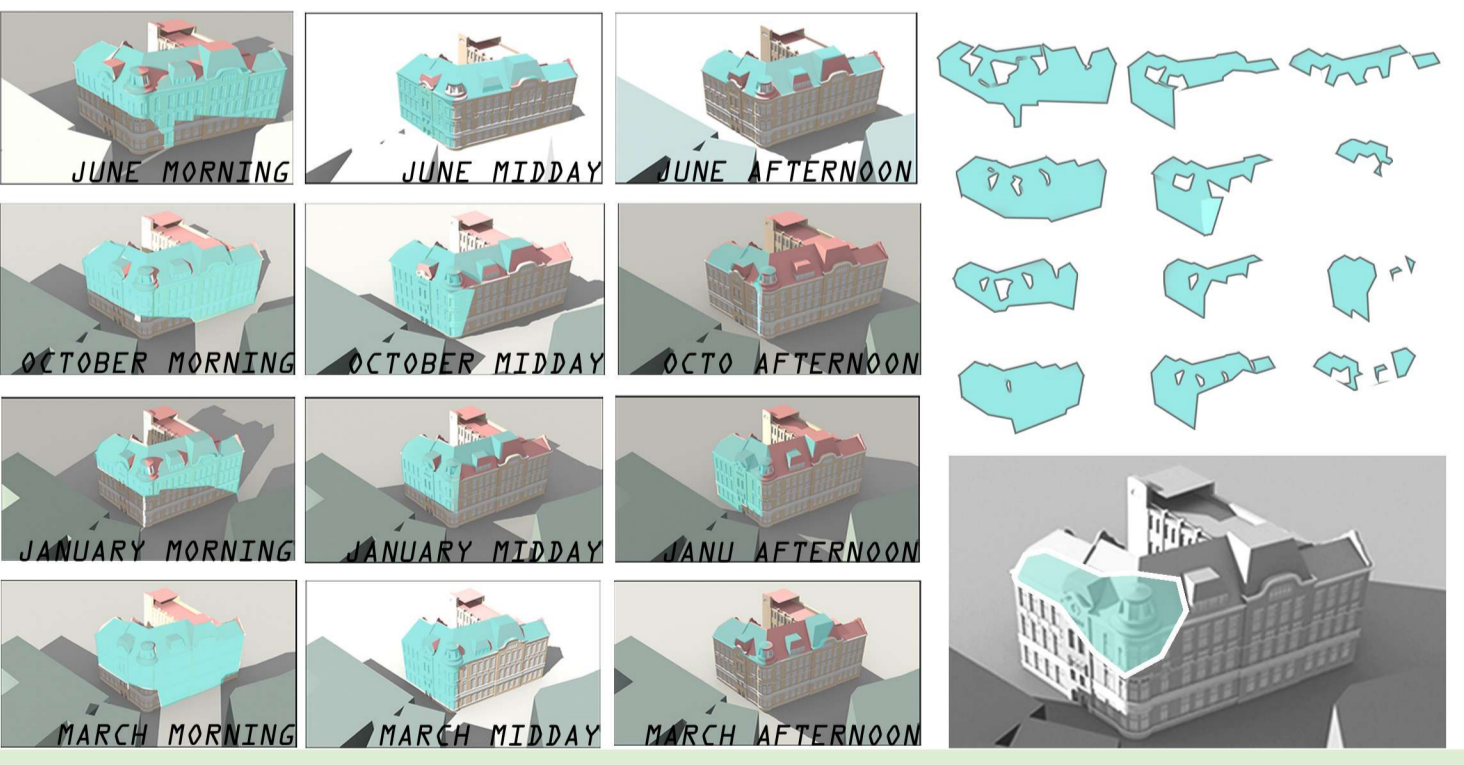
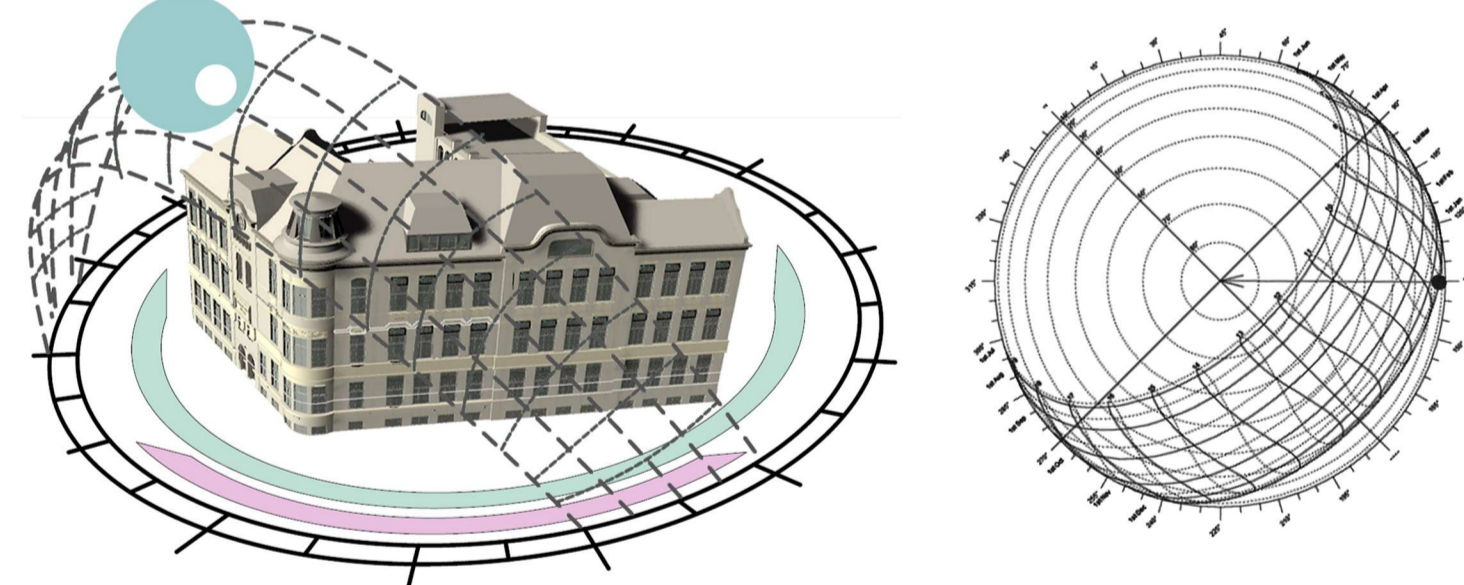
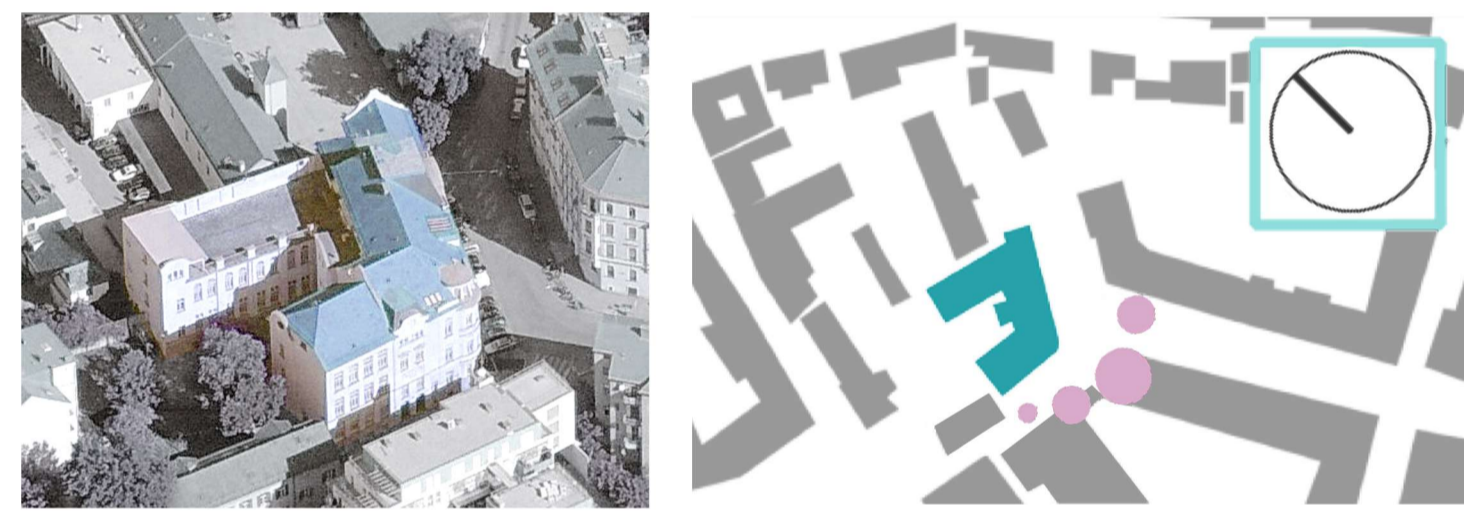
### SOLAR ANALYSIS/ GRASSHOPPER / GECO / ECOTECT DEFINING SOLAR PATH / EXAMINING SHADES / EVALUATE SURFACE VARIATIONS / CHOOSING ULTIMATE SURFACE BASED ON EFFICIENCY



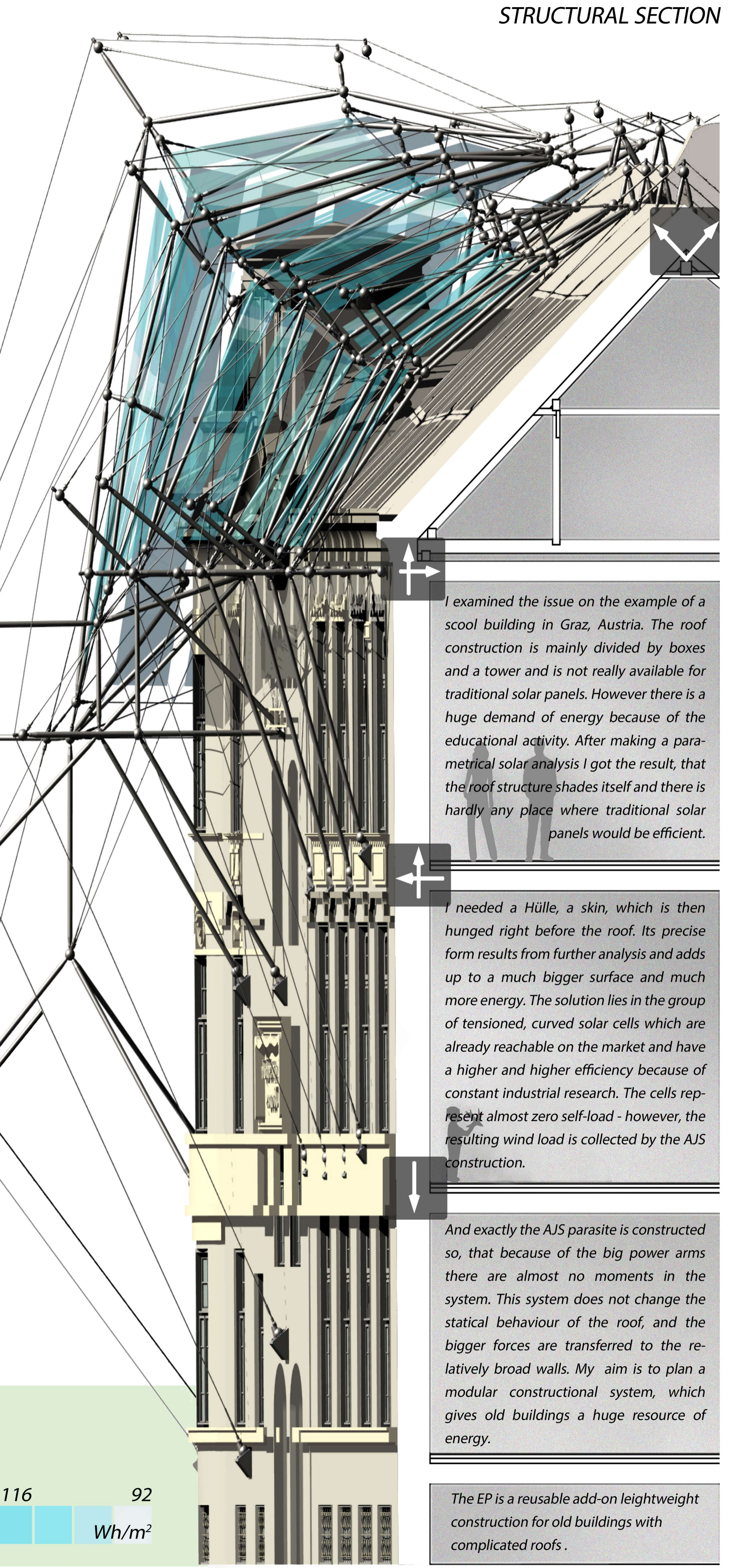
### ABSOLUTE JOINT SYSTEM / RHINO GRASSHOPPER DEFINING BASIC GEOMETRY / GENERATING EXACT STRUCTURE



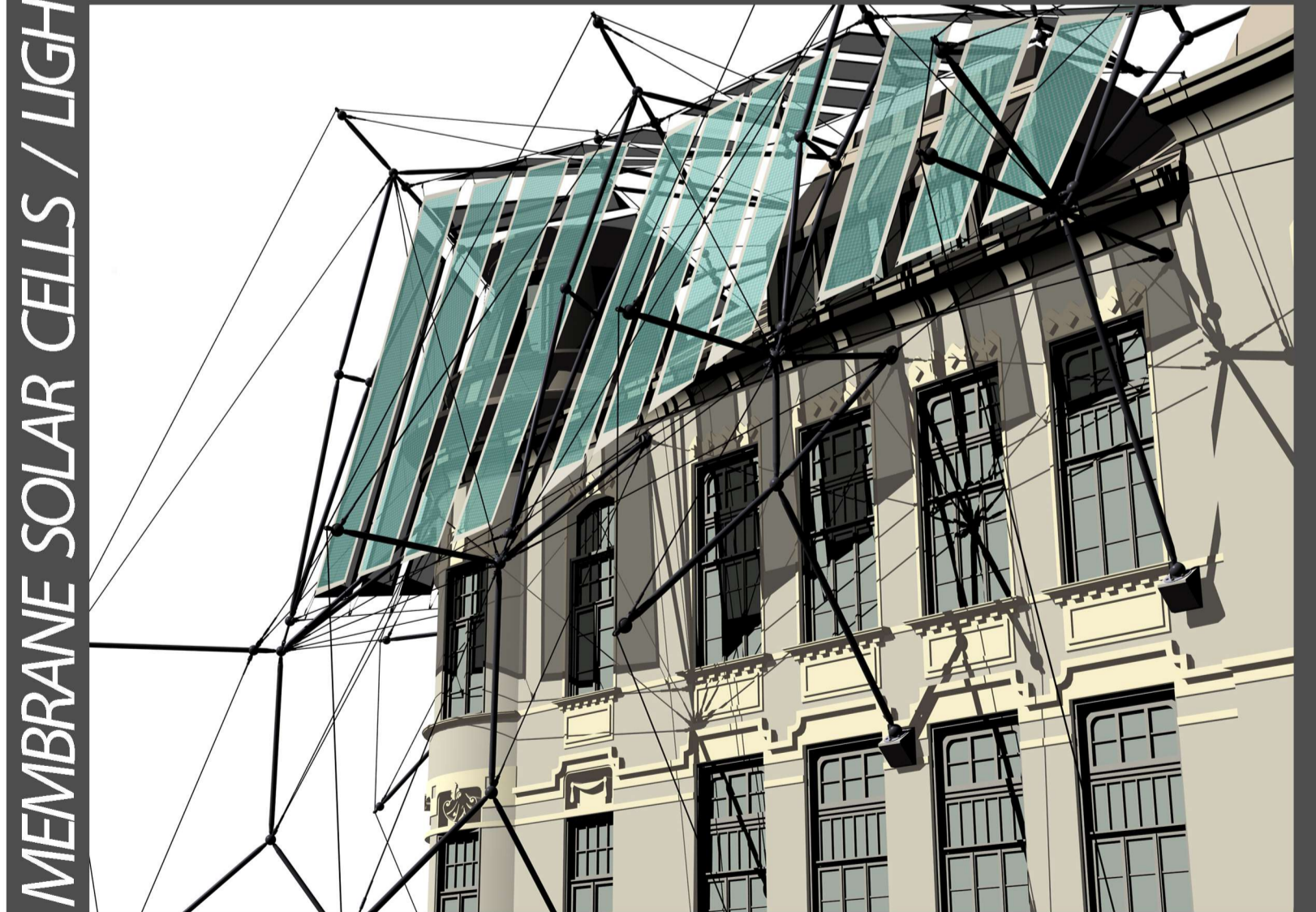
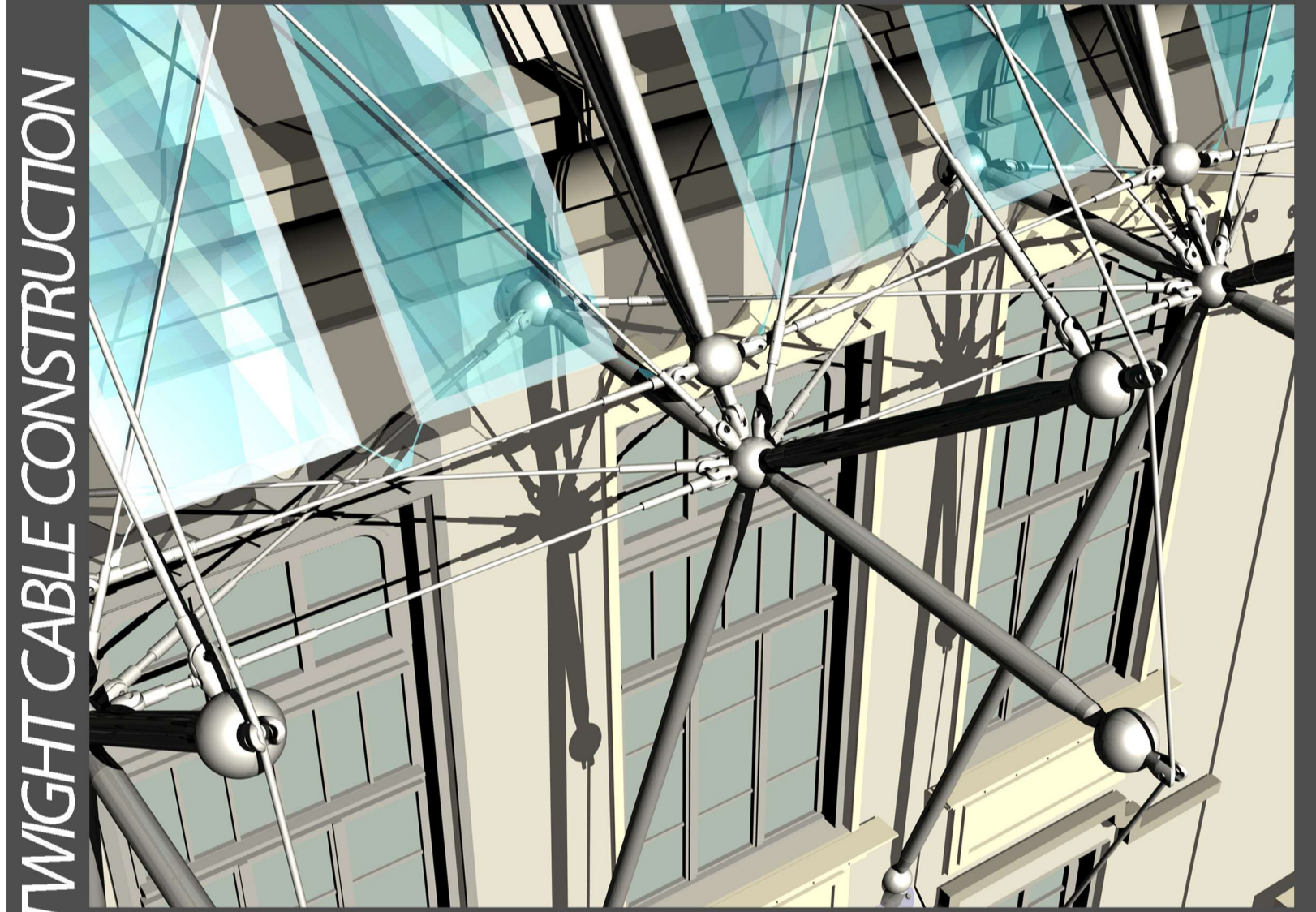
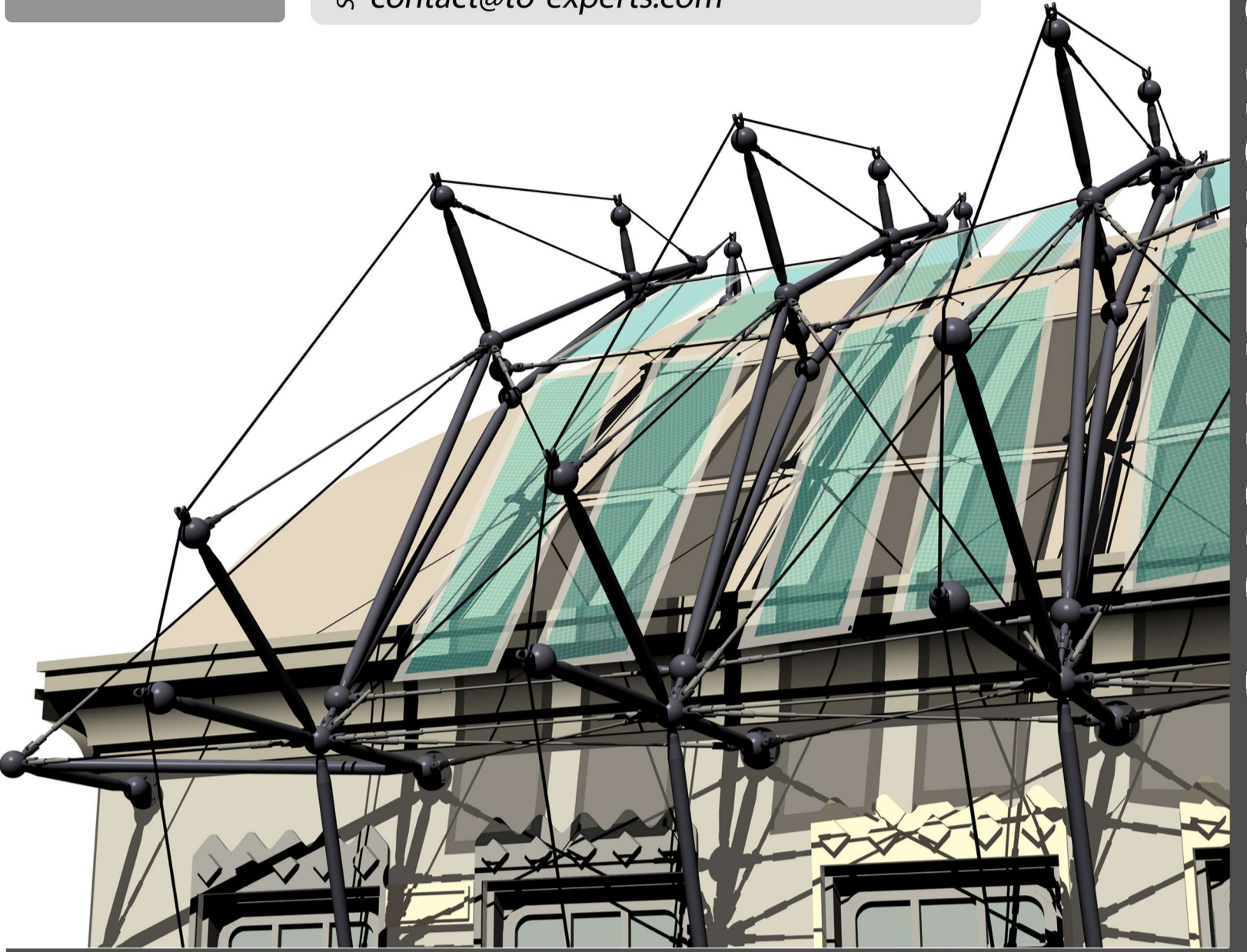
### EXAMINING THE ISSUE OF SOLAR ANALYSIS ON THE EXAMPLE OF A HIGH SCHOOL BUILDING IN AUSTRIA, GRAZ



## STRUCTURAL SECTION



## MEMBRANE SOLAR CELLS / LIGHTWIGHT CABLE CONSTRUCTION

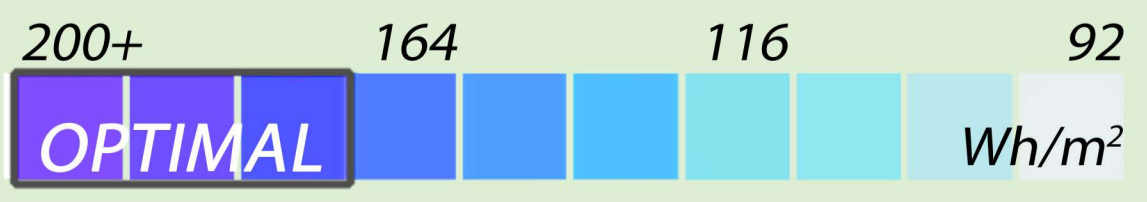


THE BUILT ENVIRONMENT OF THE HUMAN ACTIVITIES RESULTS IN ENORMOUS ENVIRONMENTAL IMPACT, WHICH IS NEARLY CATASTROPHICAL. IT IS TIME TO TAKE THE REVITALIZATION OF OLD HOUSES SERIOUSLY - BY ADDING TRADITIONAL SOLAR CELLS, RENEWING FACADE ELEMENTS OR EVEN TO DESIGN COMPLEX SOLAR CONSTRUCTIONS OR INTELLIGENT FACADE SYSTEMS - ETC. MY PARASITE CONSTRUCTION IS A SYSTEM OF TENSIONED WIRES AND COMPRESSED BEAMS - A SOLAR CELL HÜLLE, TENSIONED IN FRONT OF THE OLD ROOF CONSTRUCTION. THE ENERGY PARASITE IS A NOTION, AN ADD-ON STRUCTURE.

## SURFACE DEFINITION BASED ON SOLAR ANALYSIS

### PRODUCING SOLAR ENERGY WITH THE LIGHTEST CONSTRUCTION ON THE MOST EFFICIENT PLACE

# THE ENERGY PARASITE



I examined the issue on the example of a school building in Graz, Austria. The roof construction is mainly divided by boxes and a tower and is not really available for traditional solar panels. However there is a huge demand of energy because of the educational activity. After making a parametrical solar analysis I got the result, that the roof structure shades itself and there is hardly any place where traditional solar panels would be efficient.

I needed a Hülle, a skin, which is then hunged right before the roof. Its precise form results from further analysis and adds up to a much bigger surface and much more energy. The solution lies in the group of tensioned, curved solar cells which are already reachable on the market and have a higher and higher efficiency because of constant industrial research. The cells represent almost zero self-load - however, the resulting wind load is collected by the AJS construction.

And exactly the AJS parasite is constructed so, that because of the big power arms there are almost no moments in the system. This system does not change the statical behaviour of the roof, and the bigger forces are transferred to the relatively broad walls. My aim is to plan a modular constructional system, which gives old buildings a huge resource of energy.

The EP is a reusable add-on lightweight construction for old buildings with complicated roofs.

"We have got this giant fusion generator in the sky called sun."  
 Elon Musk  
 Founder of SolarCity, Tesla Motors, SpaceX

"Converting sunshine into energy has become much cheaper much faster than anyone predicted."  
 Al Gore  
 Nobel Peace Prize Laureate  
 Climate activist, American politician

**CONCEPT OF THE PARASITE**  
**01 REVITALIZING OLD BUILDINGS**

As an activity of 7 billion people there is a huge built surface on the planet. Its extremely important to energize old houses.

**ENERGY CONSUMPTION ON THE PLANET**

TRAFFIC	HOUSES	INDUSTRY	TRASH	NUTRITION
36%	25%	30%	4%	5%

**02 PROTECTING ENVIRONMENTAL RESOURCES - SOLAR CELLS**

As a sign of change in the treatment of the planet solar cells became commonly known and widely used in architecture.

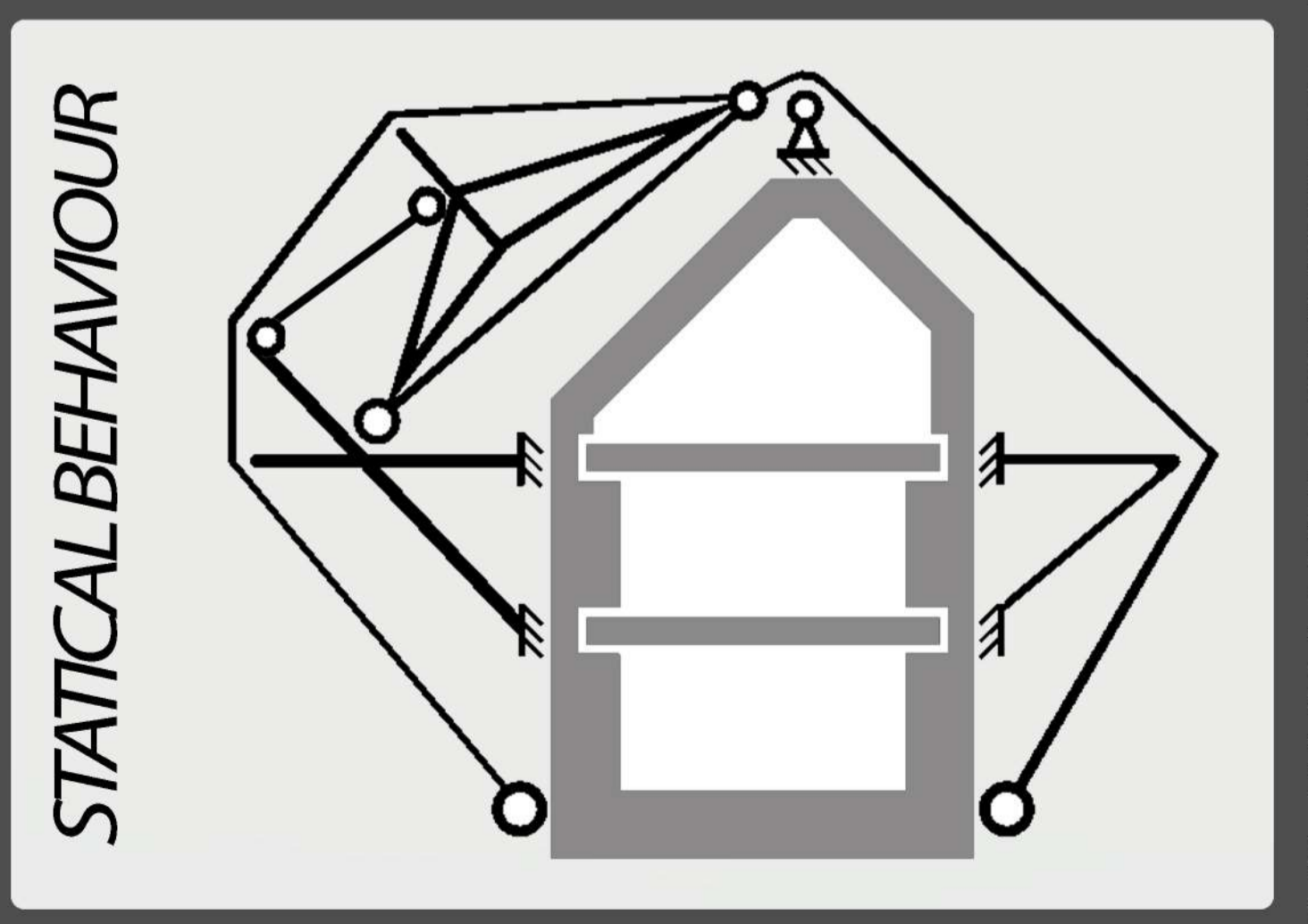
**ENERGY 30% SOLAR**

**03 DISTRIBUTING MEMBRANE CELLS BASED ON SOLAR STUDY**

Parametrical studies help us to find the most efficient form of panelled surface.

**04 ADDING LIGHTWEIGHT TENSIONED CONSTRUCTION**

Curved membrane solar cells are supported by an AJ S wire - beam - construction.



**PRODUCING SOLAR ENERGY WITH THE LIGHTEST CONSTRUCTION ON THE MOST EFFICIENT PLACE**  
**CONCEPT AND MAIN TECHNICAL DETAILS OF THE EP**

