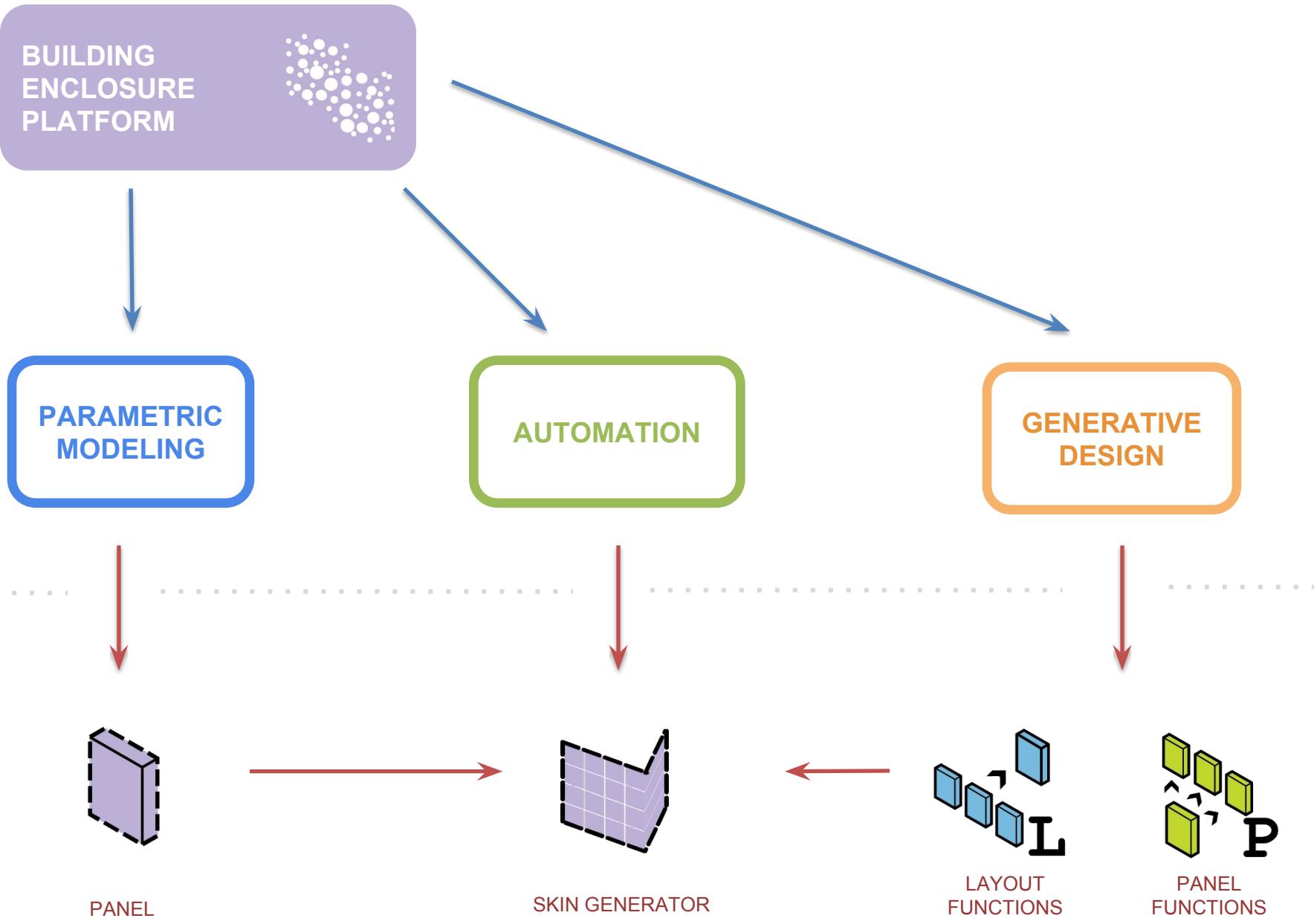


A close-up, perspective view of a modern building's facade. The facade features a grid of vertical columns and horizontal rows of panels. The panels are primarily white, with some showing a grid pattern, while the windows are a translucent blue. The overall effect is a complex, geometric texture.

# **COMPUTATIONAL TOOLS FOR ENVELOPE DESIGN**

**SANTIAGO GARAY**





## PARAMETRIC MODELING API

*Add\_Window(width=x, height =y)*

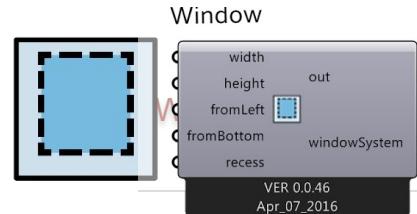
*Modify\_LouverShading(spacing)*

*Draw\_Mullions()*

...

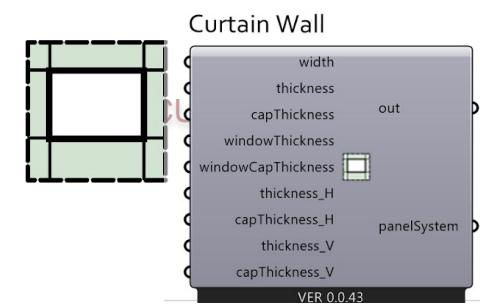
## VISUAL SCRIPTING COMPONENTS

### Single Action



**AddWindow**(width=Window['width'],  
height=Window['height'], fromLeft=Window['fromLeft'],  
fromBottom=Window['fromBottom'],  
recess=Window['recess'])

### Multiple Actions



```
AddPane('_P_Glass_SP', thickness=0.06, offset=0.06, offsetEdge=0.06)
AddMullionType('PanelLeft', width=0.1, thickness=0.3, capThickness=0.06)
AddMullionType('PanelRight', width=0.1, thickness=0.3, capThickness=0.06)
AddMullionType('PanelTop', width=0.1, thickness=0.3, capThickness=0.06)
AddMullionType('PanelBottom', width=0.1, thickness=0.3, capThickness=0.06)
AddMullionType('WindowBottom', width=0.1, thickness=0.3, capThickness=0.06)
AddMullionType('WindowTop', width=0.1, thickness=0.3, capThickness=0.06)
AddMullionType('WindowLeft', width=0.1, thickness=0.3, capThickness=0.06)
AddMullionType('WindowRight', width=0.1, thickness=0.3, capThickness=0.06)
```

# BUILDING ENCLOSURE PLATFORM

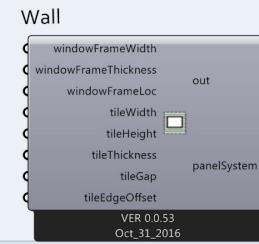


## VISUAL SCRIPTING COMPONENTS

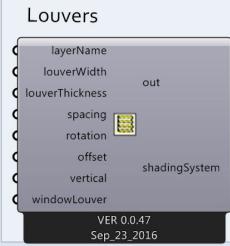
Window Systems



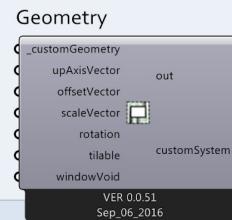
Panel Systems



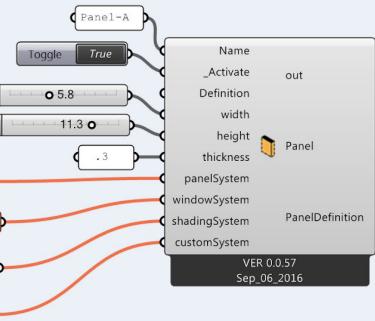
Shading Systems



Custom Systems



Panel



BUILDING  
ENCLOSURE  
PLATFORM



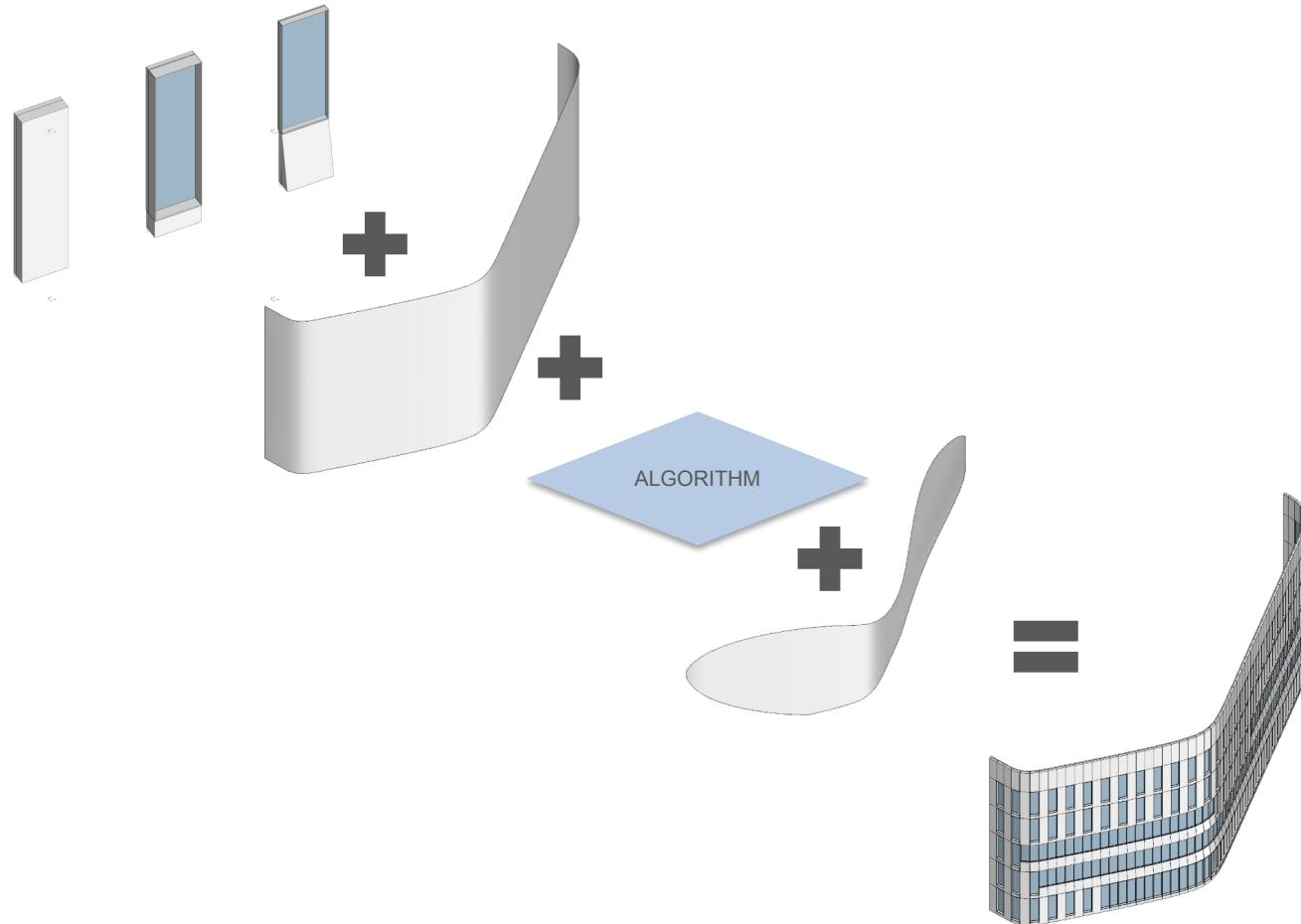
AUTOMATION



BUILDING  
ENCLOSURE  
PLATFORM



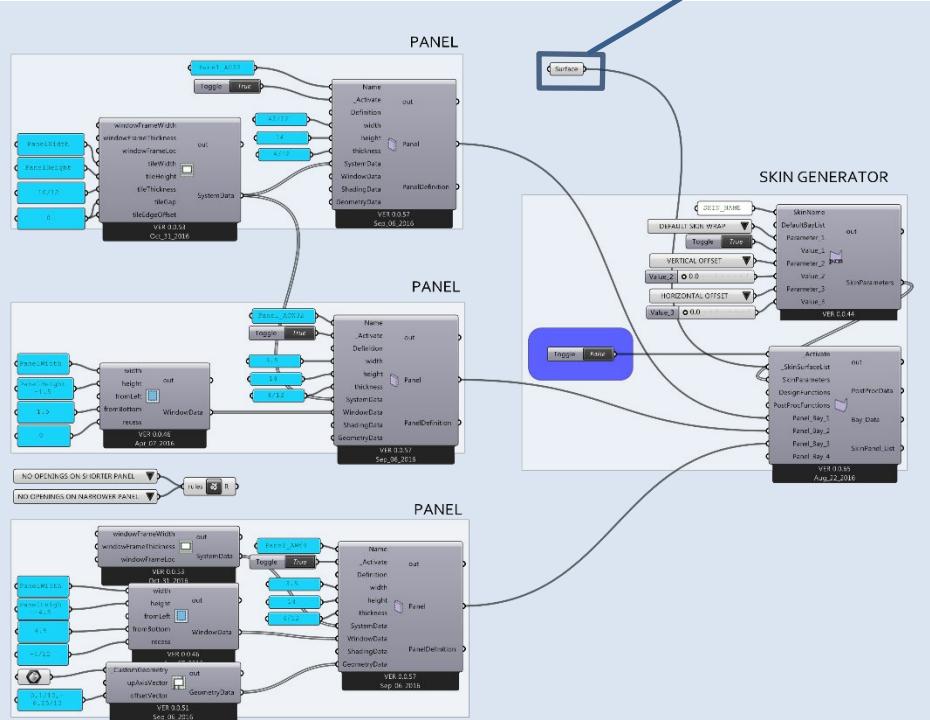
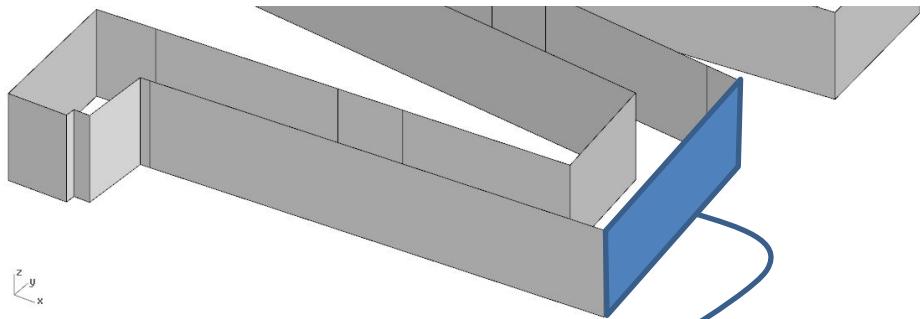
## LAYOUT AUTOMATION SCHEME



# BUILDING ENCLOSURE PLATFORM



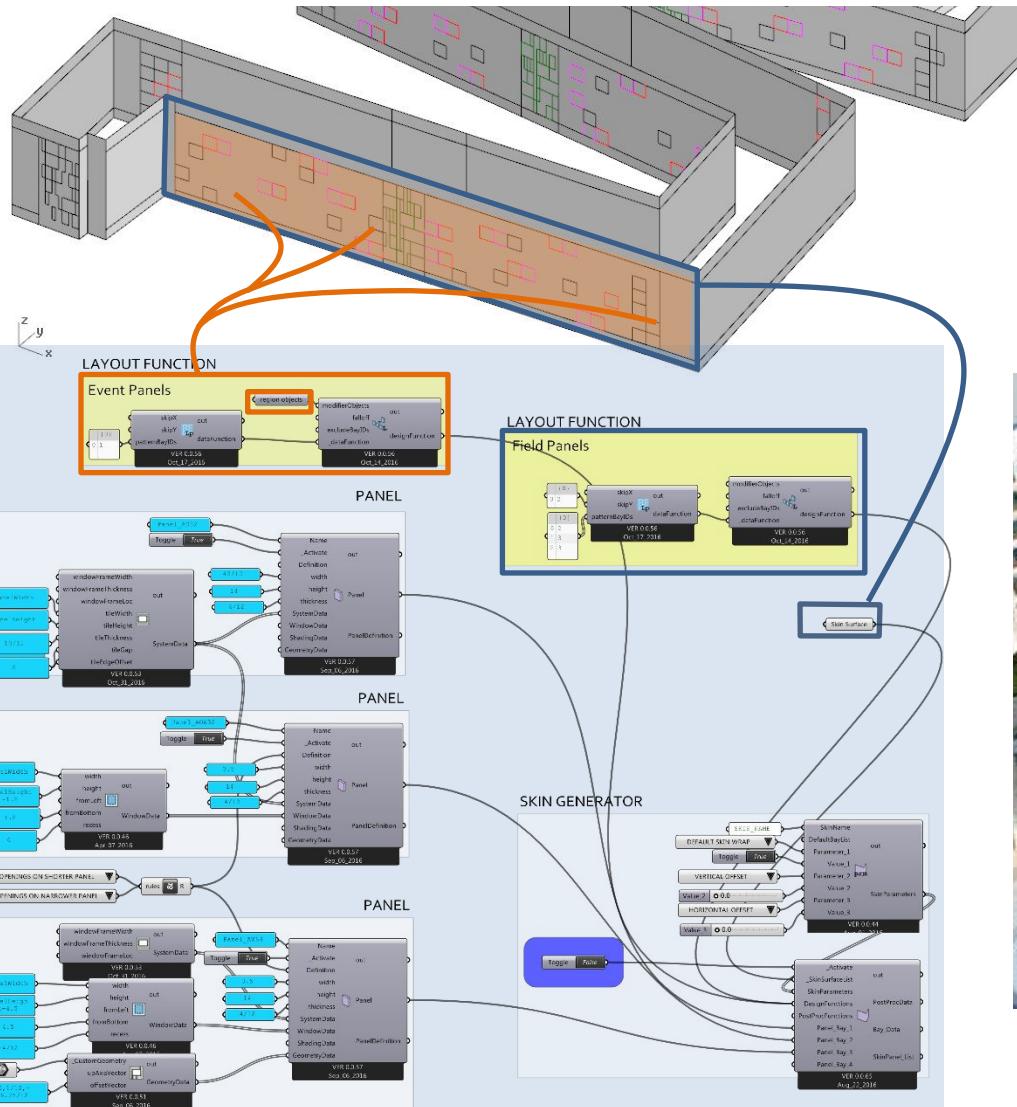
## LAYOUT CONTROLLERS IMPLEMENTATION



# BUILDING ENCLOSURE PLATFORM



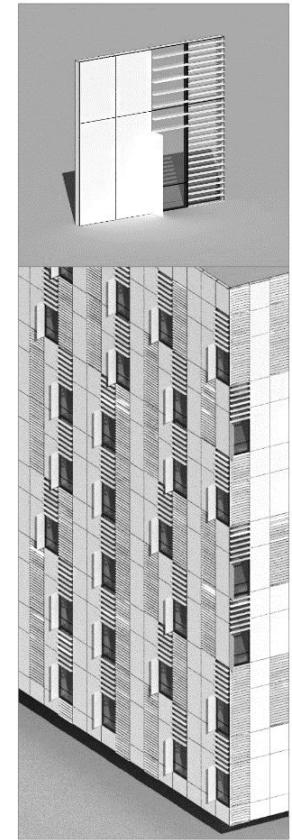
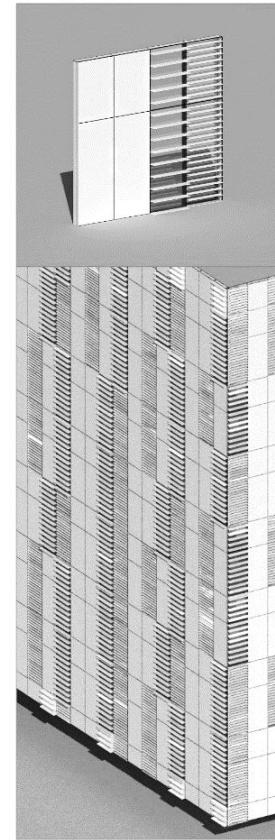
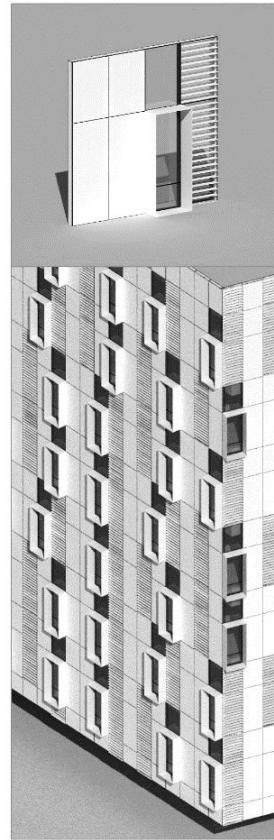
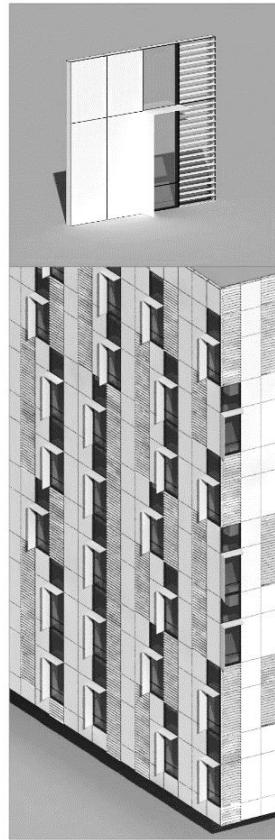
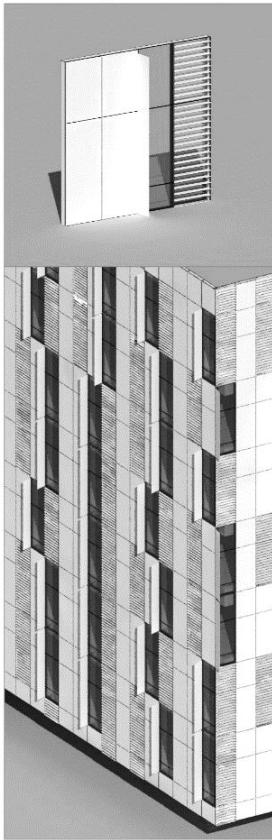
# LAYOUT CONTROLLERS IMPLEMENTATION



BUILDING  
ENCLOSURE  
PLATFORM



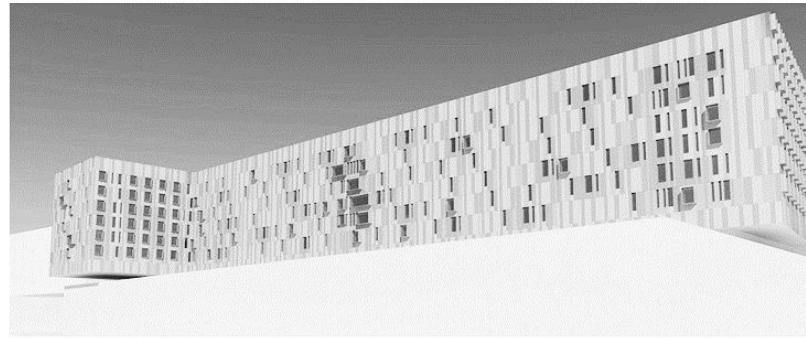
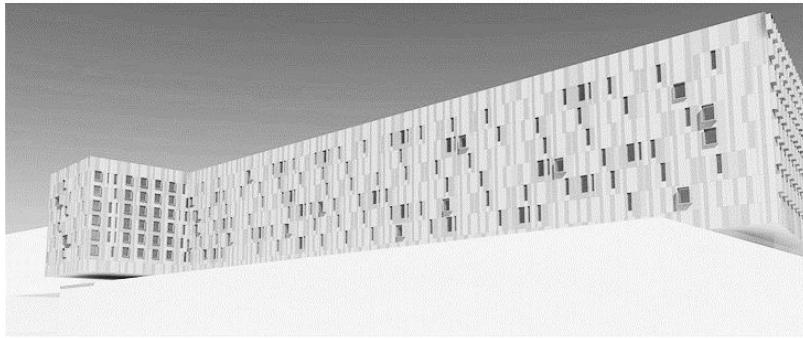
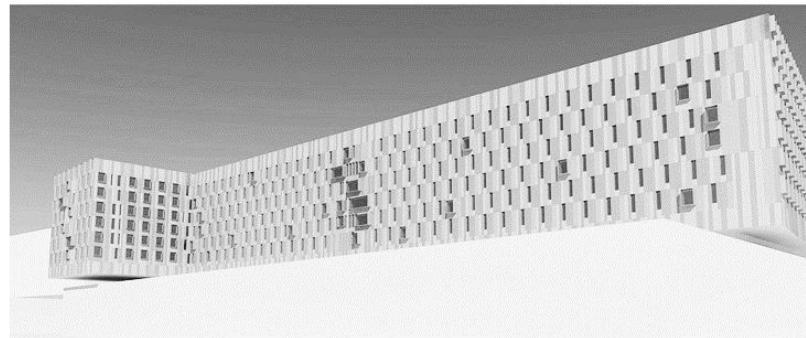
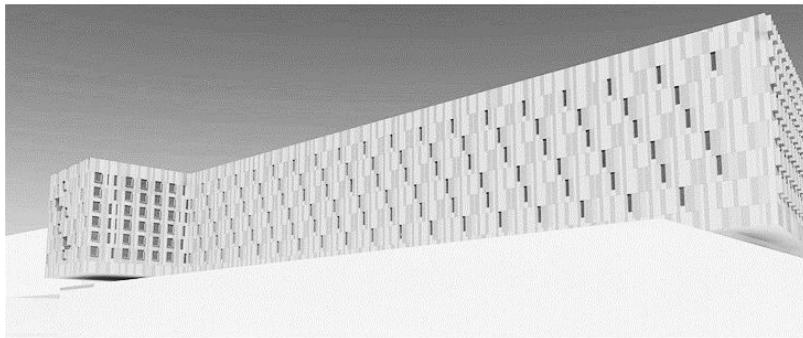
## LAYOUT CONTROLLERS IMPLEMENTATION



BUILDING  
ENCLOSURE  
PLATFORM



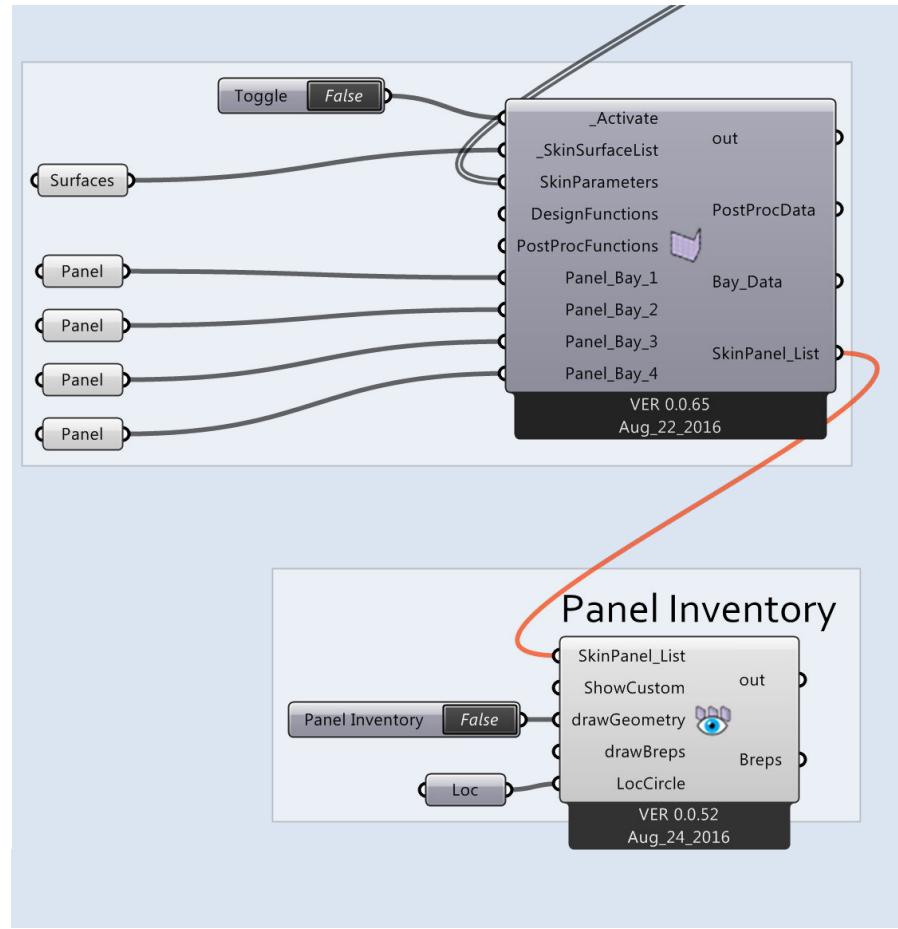
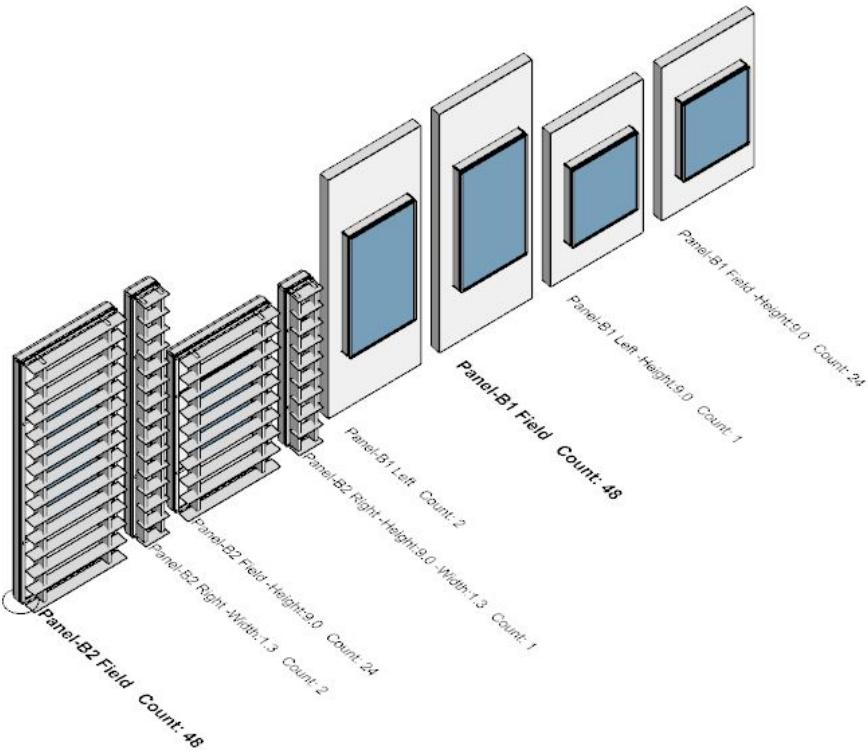
## LAYOUT CONTROLLERS IMPLEMENTATION



# BUILDING ENCLOSURE PLATFORM



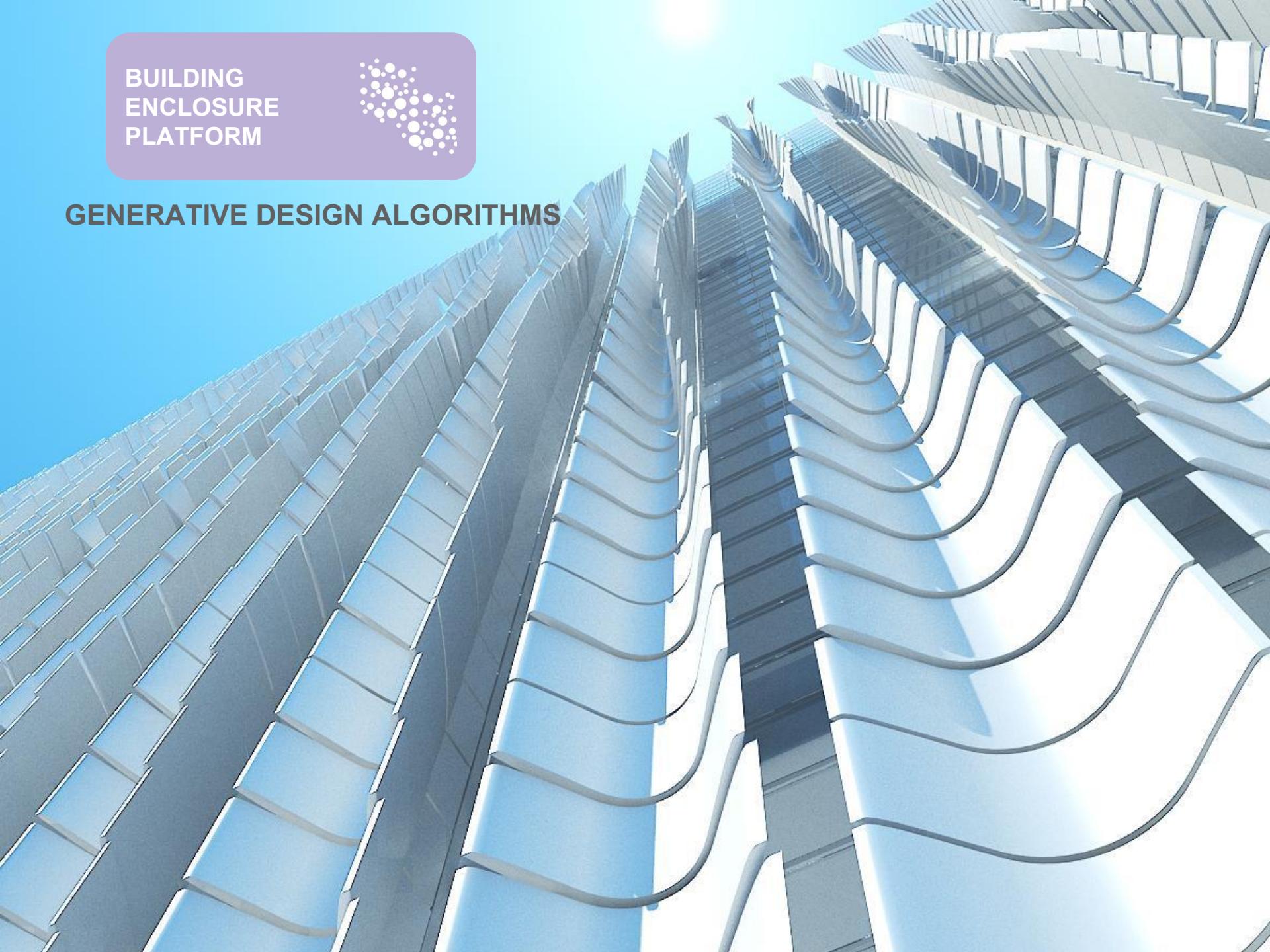
## PANEL TRACKING



BUILDING  
ENCLOSURE  
PLATFORM



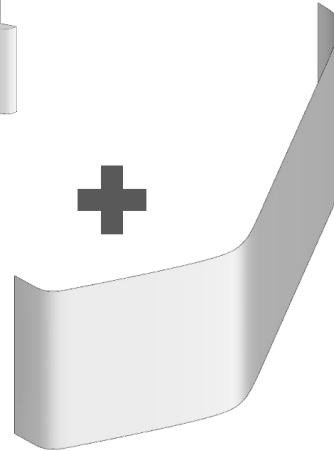
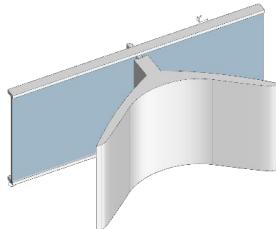
GENERATIVE DESIGN ALGORITHMS



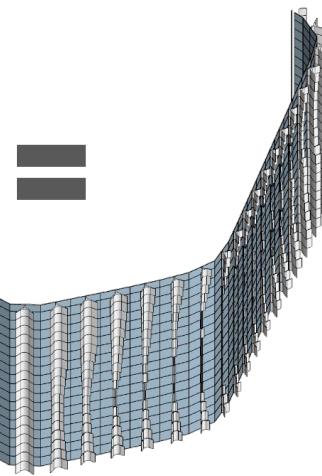
BUILDING  
ENCLOSURE  
PLATFORM



## GENERATIVE PANEL SCHEME



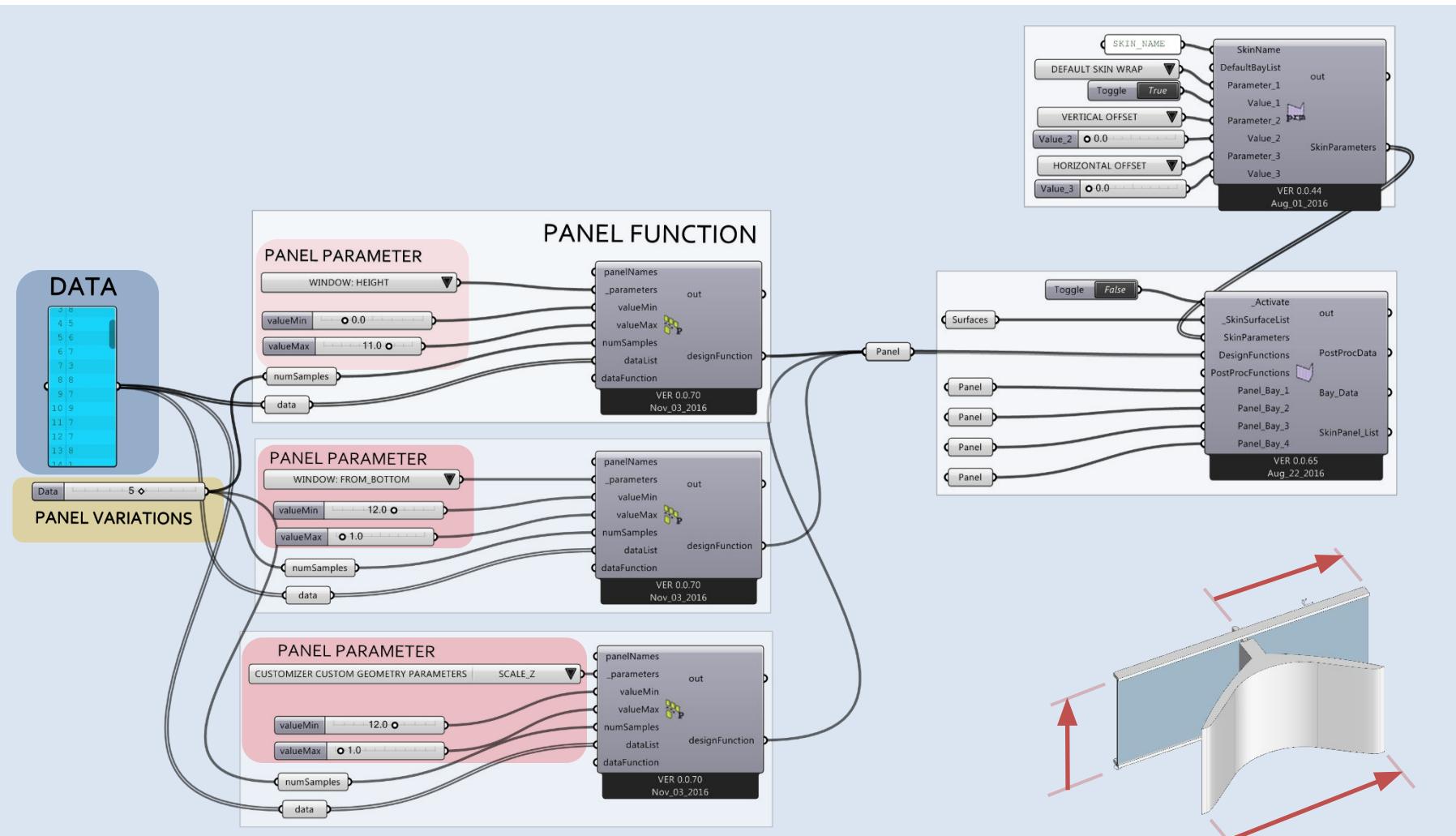
DATA



# BUILDING ENCLOSURE PLATFORM



## GENERATIVE PANEL CONTROLLER IMPLEMENTATION



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ENCLOSURE  
PLATFORM



## GENERATIVE PANEL CONTROLLER IMPLEMENTATION

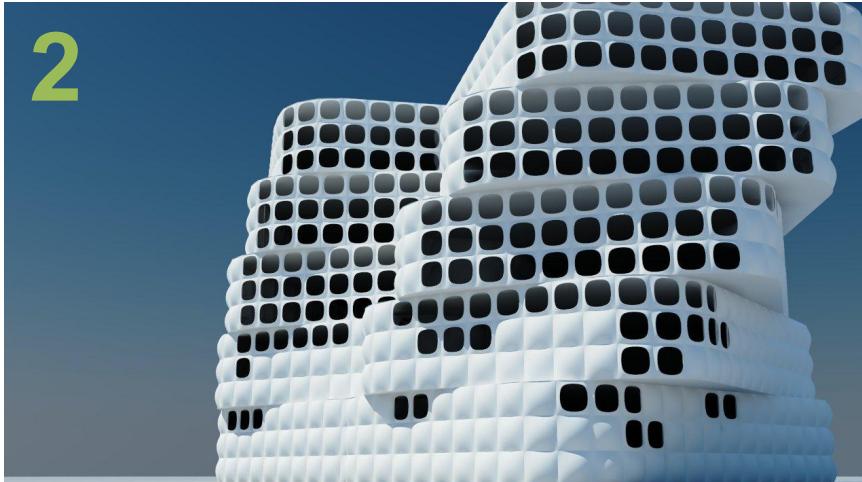


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## CONTROLLED GENERATIVE CUSTOMIZATION

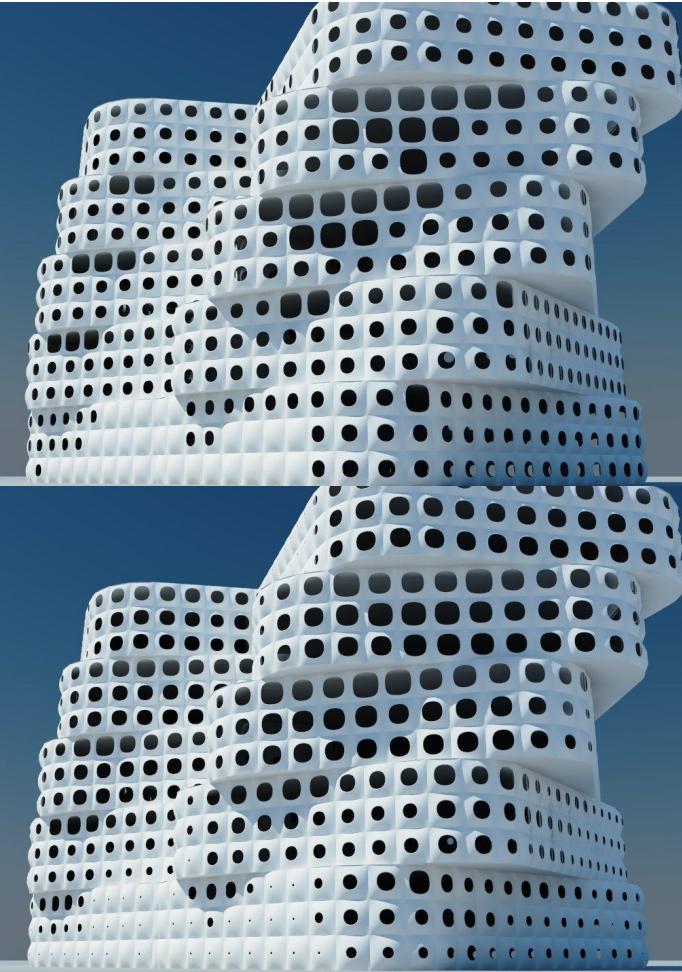
2



3



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BUILDING  
ENCLOSURE  
PLATFORM



## DATA-DRIVEN GENERATIVE CUSTOMIZATION



BUILDING  
ENCLOSURE  
PLATFORM



## PERFORMANCE-DRIVEN GENERATIVE CUSTOMIZATION



# BUILDING ENCLOSURE PLATFORM



## BIM INTEGRATION

