

# algorithmic architectures

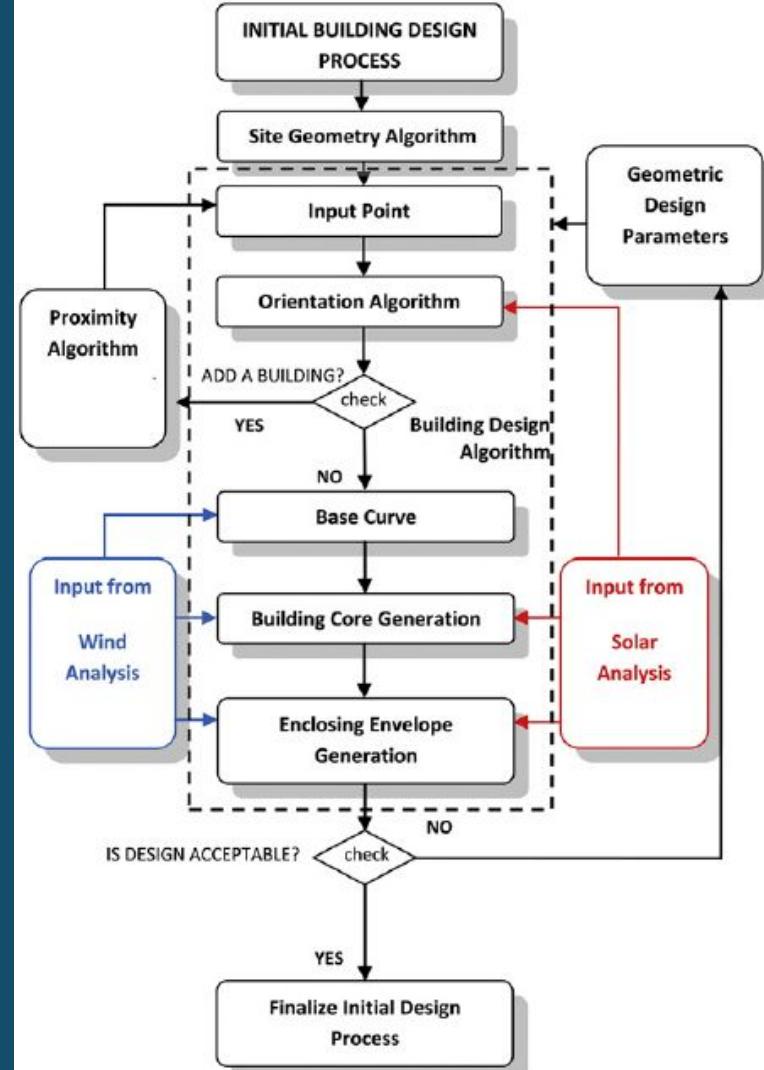
an architect's case  
study on parametric  
design

graphics by CeCe Smith



# parametric design

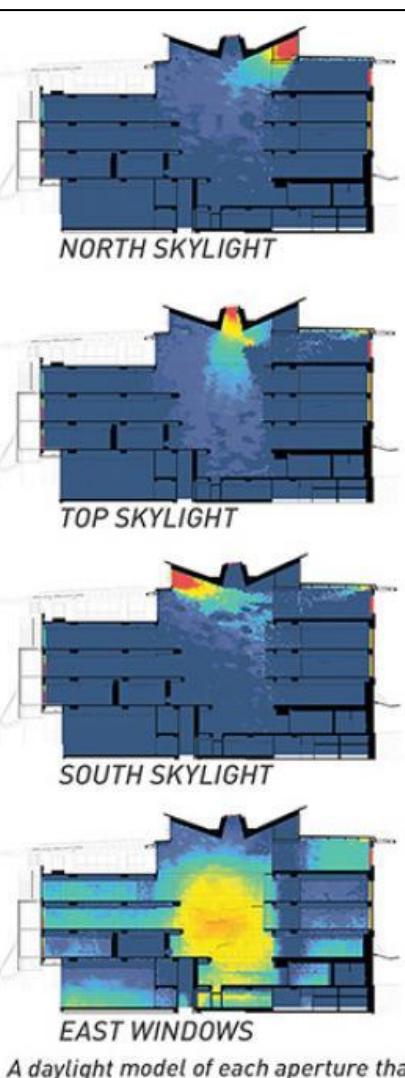
algorithmic thinking + methods  
to solve design problems



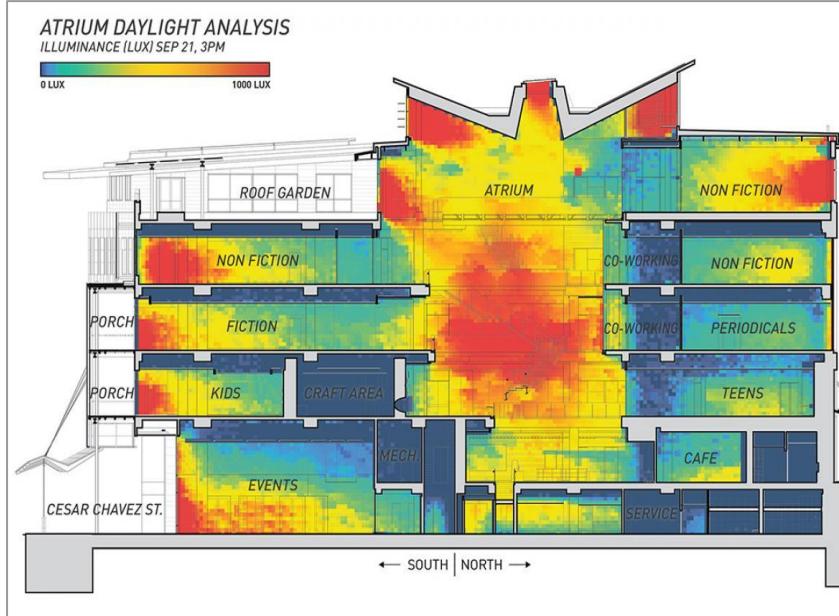
# constraints

variables that inspire  
architectural design

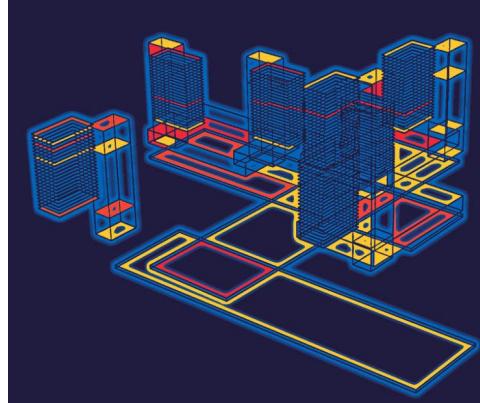
site	context
location	style
topography	materiality
density	precedents
orientation	efficiency
boundaries	energy
climate	water
orientation	efficiency
regulations	stakeholders
zoning	occupants
approvals	
	budget
	time
Bldg program	
Bldg purpose	
type	
Space reqs	
Bldg purpose	



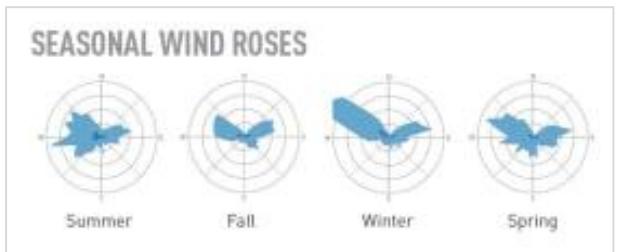
*A daylight model of each aperture type*



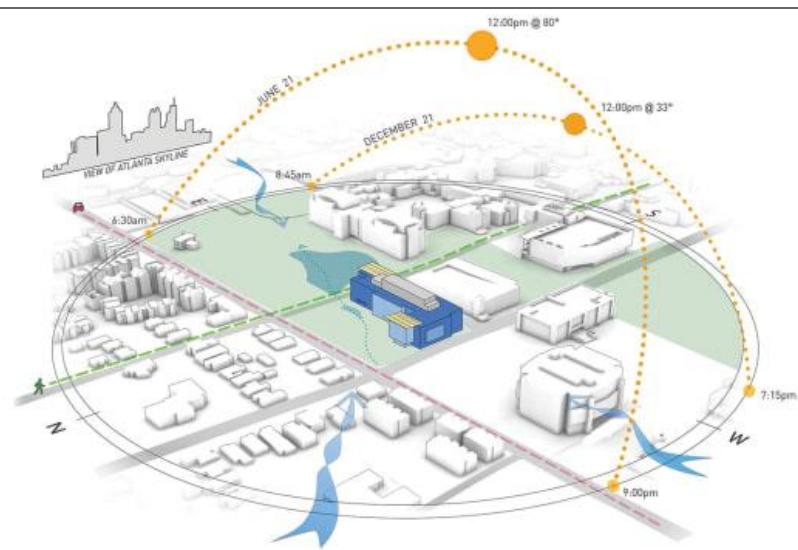
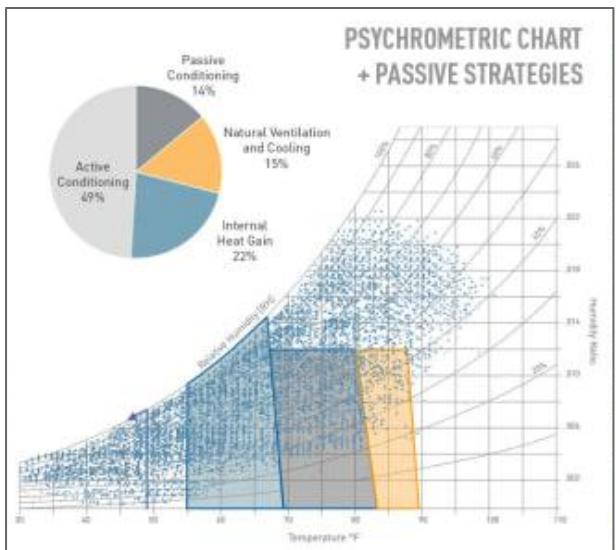
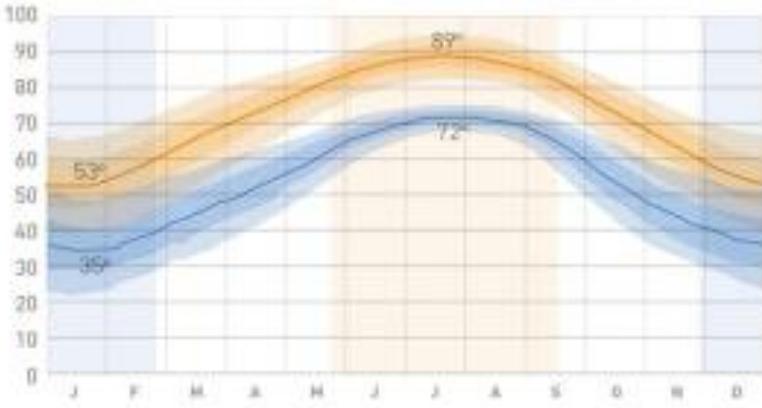
New Austin Central  
Library, TX



# daylight modeling



### MONTHLY AVERAGE HIGH AND LOW TEMPS



# confluence park



# site plan



**Confluence Park**

Site Plan  
1" = 200'-0"

1. Confluence Park
2. San Antonio Riverwalk
3. San Antonio River
4. San Pedro Creek

5. San Pedro Creek Greenway
6. Mission Concepción
7. Concepción Park

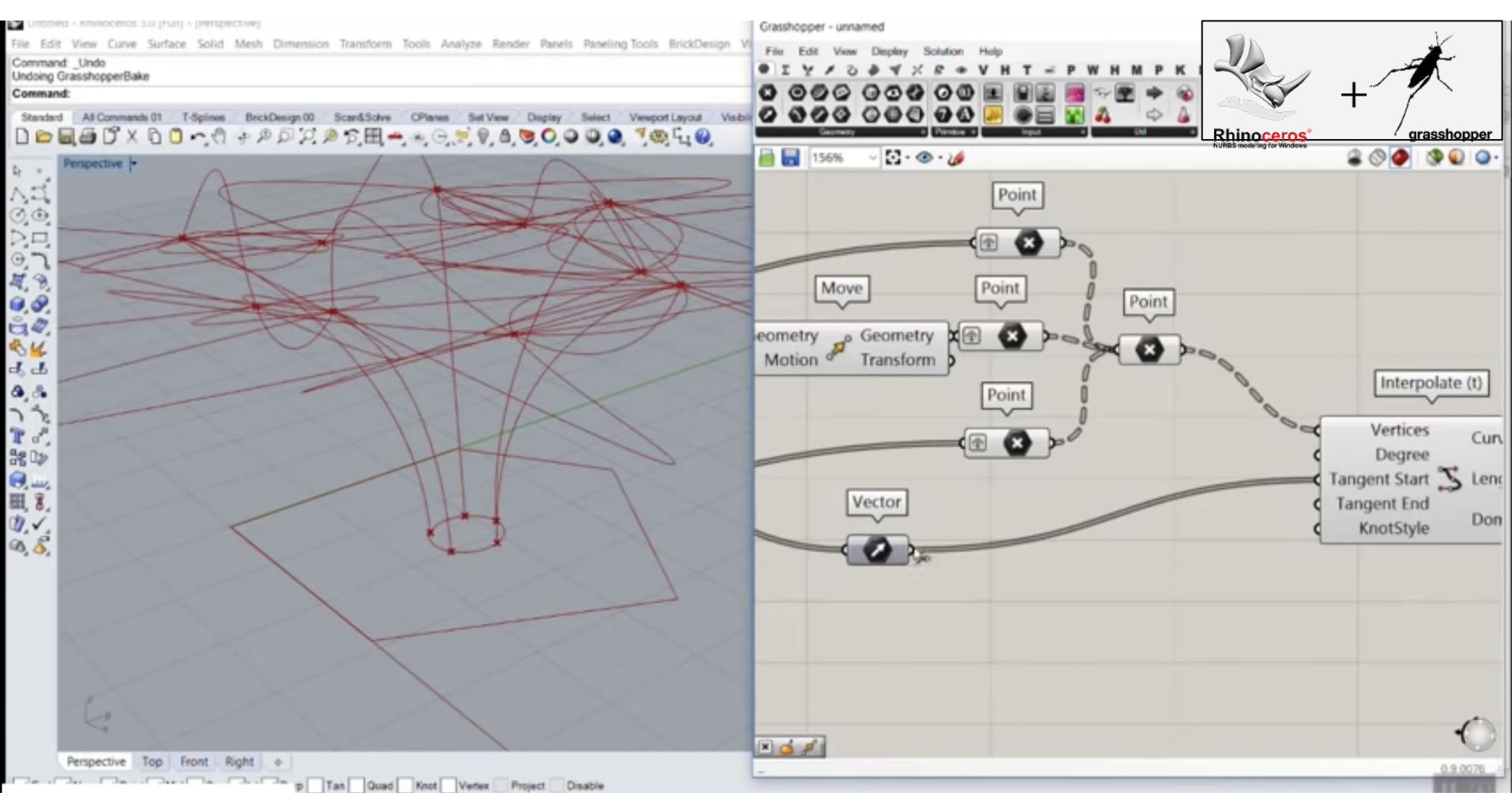


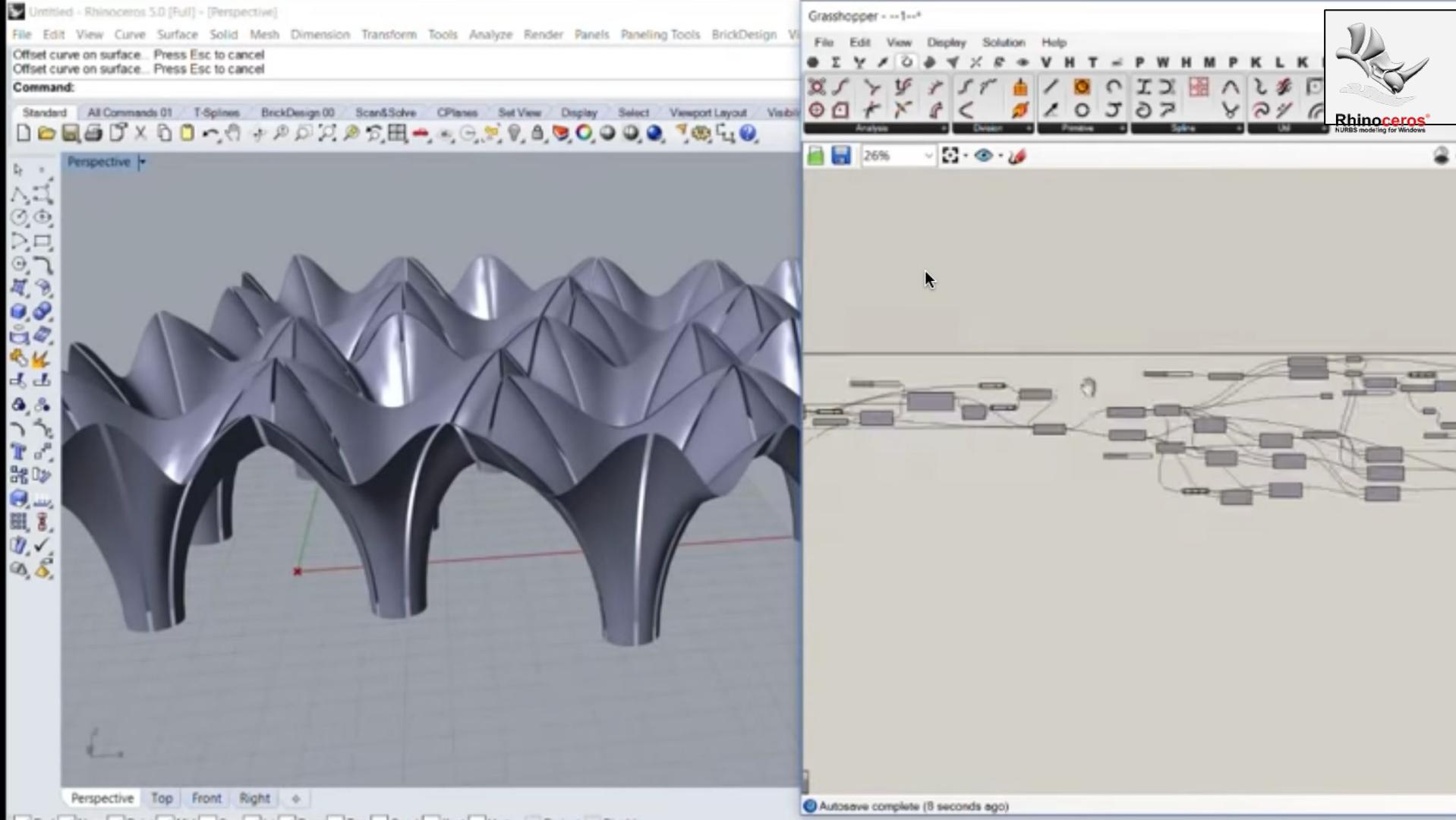
# site + floor plan

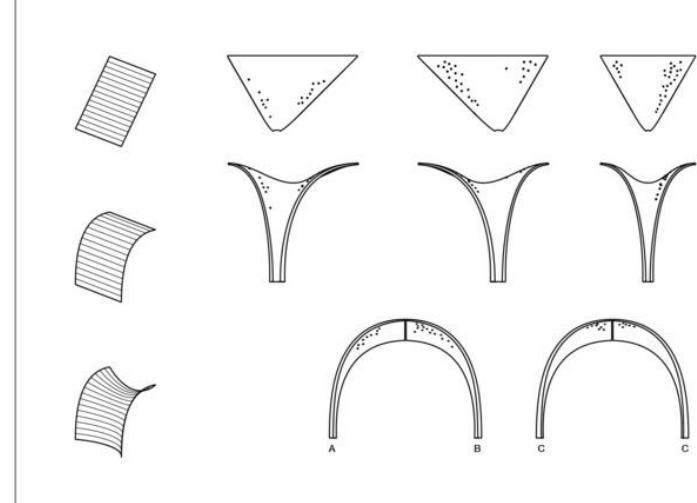
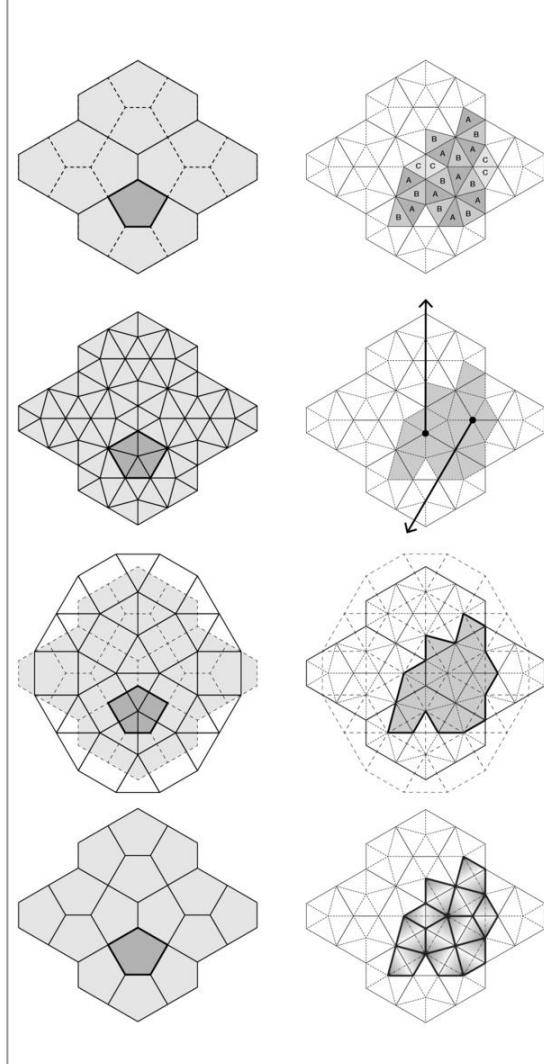
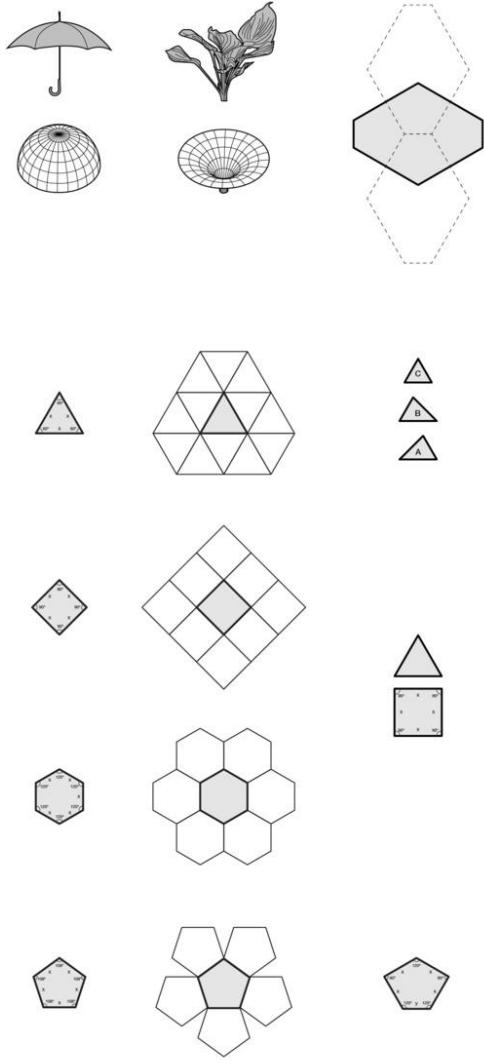






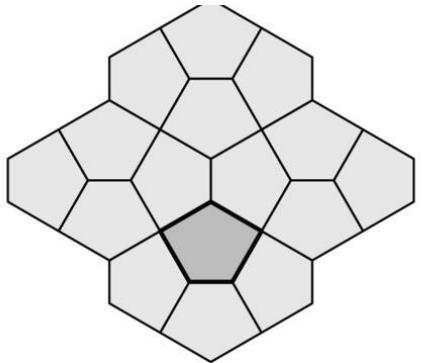




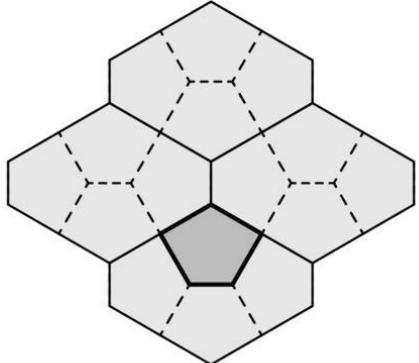


- concept
- simple form
- iterations on form
- function

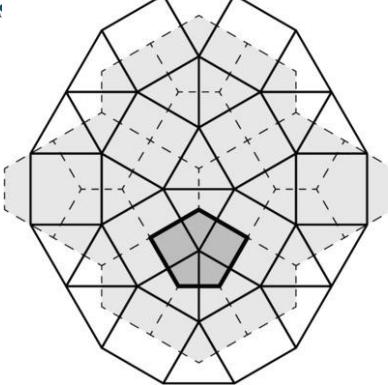
create the base pentagon grid



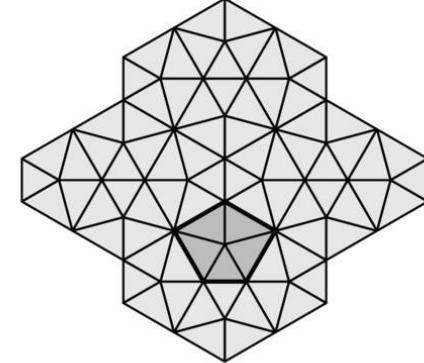
form a hexagonal grid w/ 4 pentagons



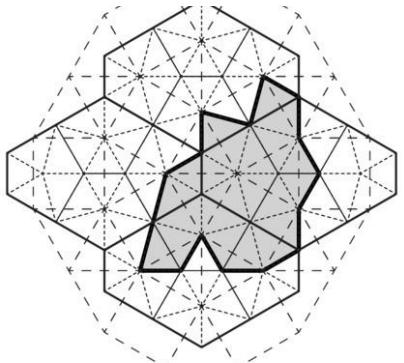
form dual pentagon grid using a combo of equilateral triangles +



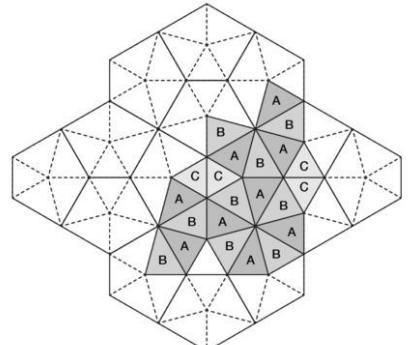
subdivide each pentagon into smaller triangles



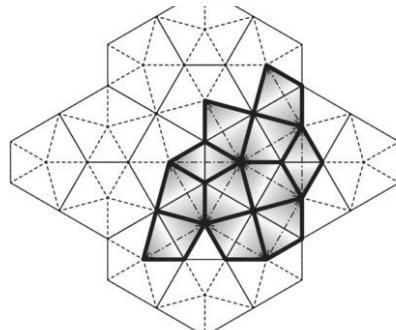
create cantilevered roofline from irregular selection of triangles



compose new triangular grid made from only 3 triangle types (A,B,C)



pair triangles into arches made of either:  
-A-B or -C-C combo



open volume to orient grid towards the confluence

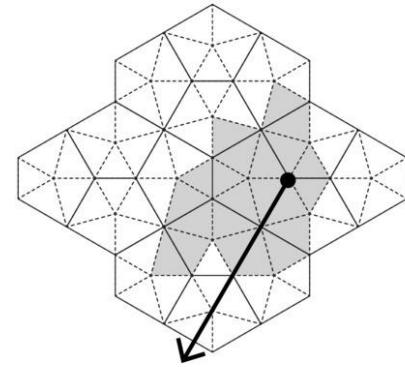
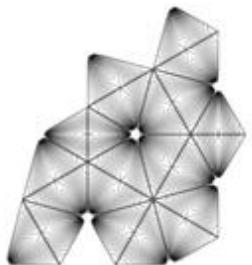
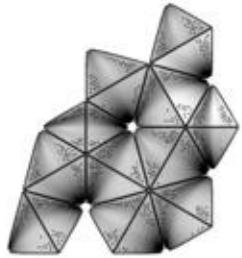
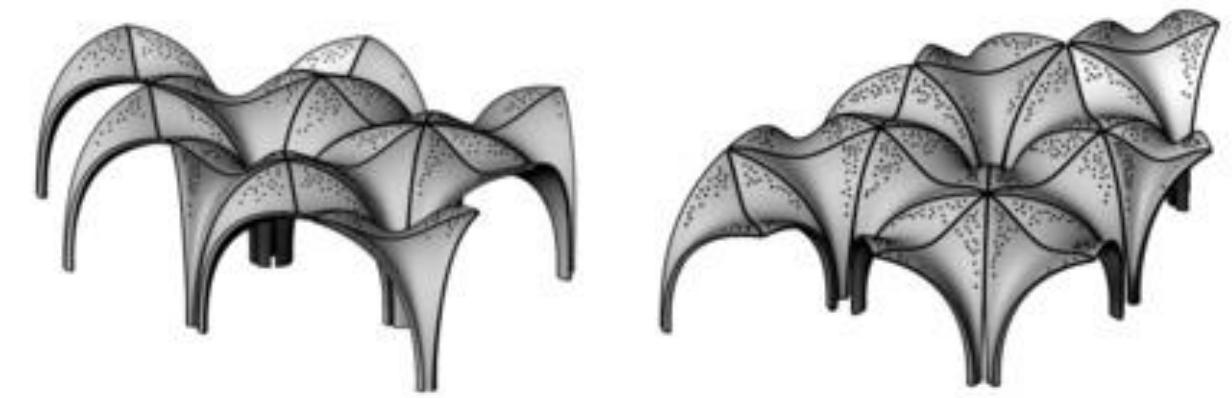


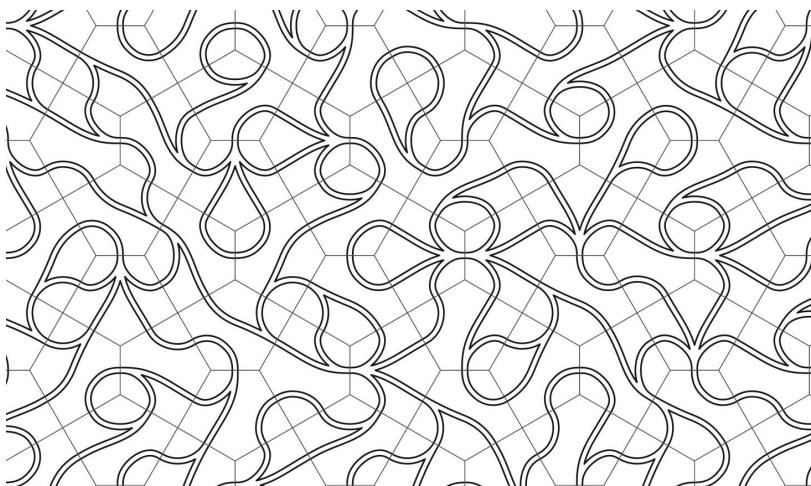
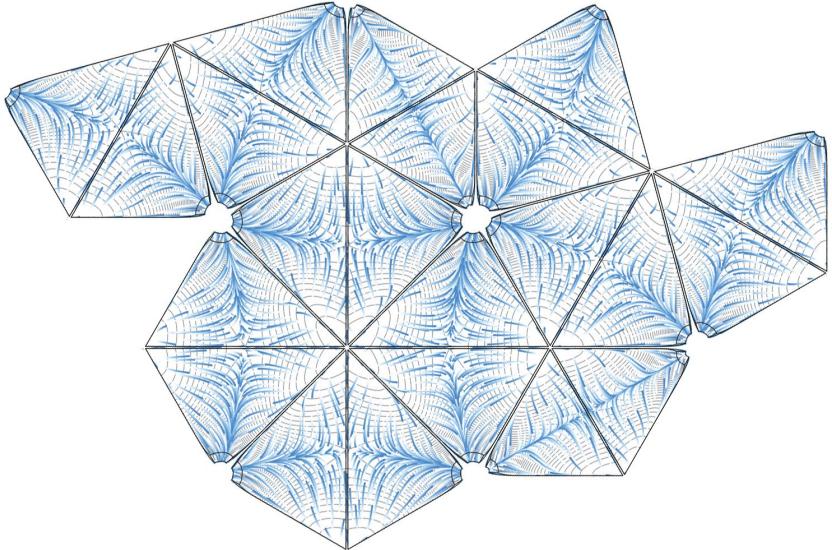
photo: Casey Dunn

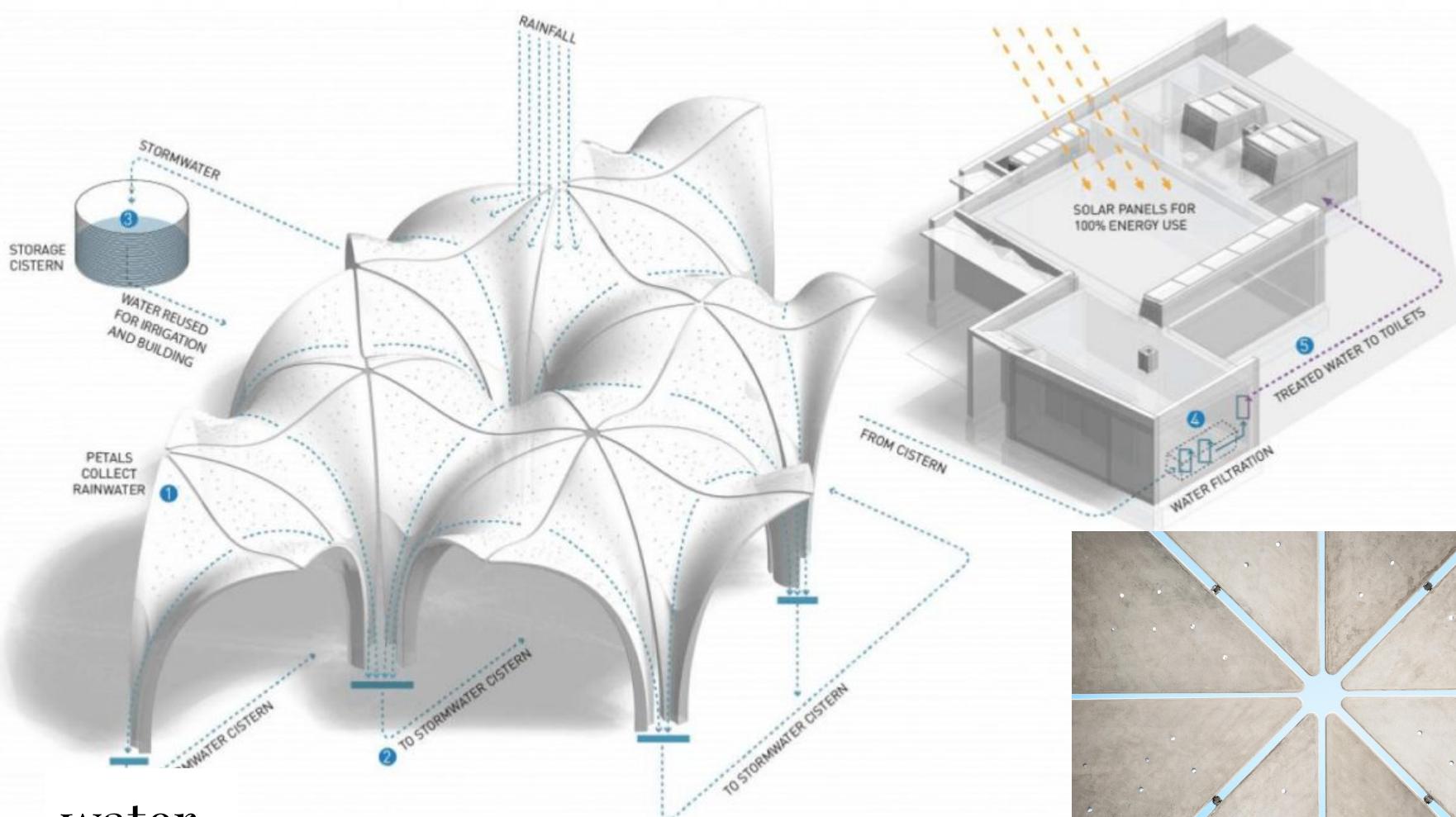




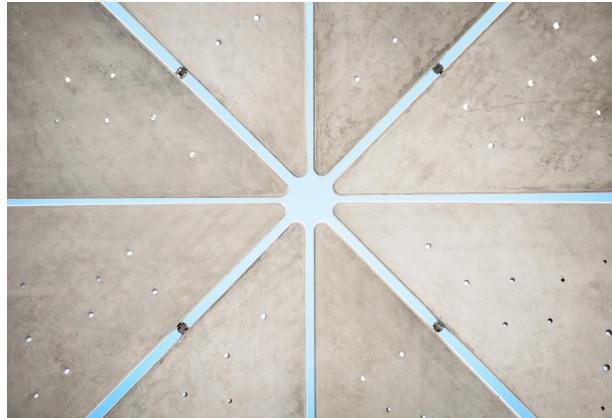


Malibu sunset

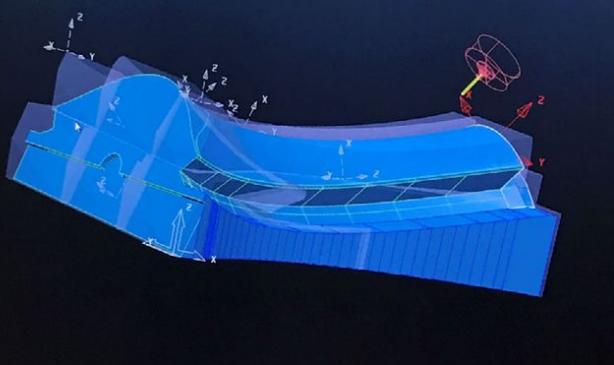




water





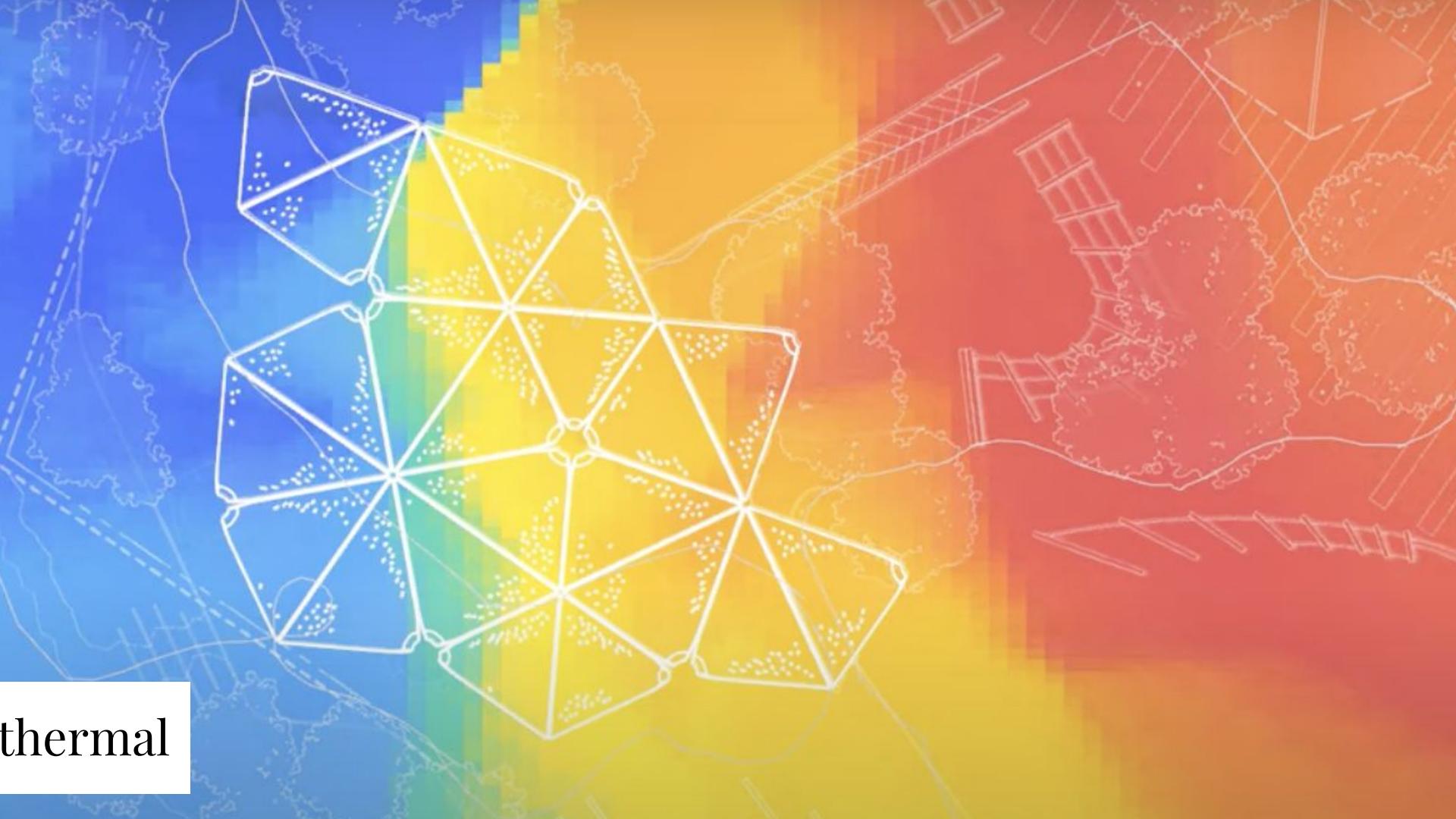


# prefab+ assembly on site





thermal





Malibu sunset

