

Cross-Maze

By: Jessie Macomber, Esmeralda DeLoera, Gabby Keim, Regan Campbell



Research



Precedents:

- Earth Sciences Building Staircase
 - Vancouver, Canada
- Albina Yard- Sherpa Connections
 - Portland, OR, USA
- Holland Create Space
 - Netherlands
- Waugh Thistleton Installation
 - Gallery's are modular CLT "blocks"
 - Victoria & Albert, London, UK (Milan currently)



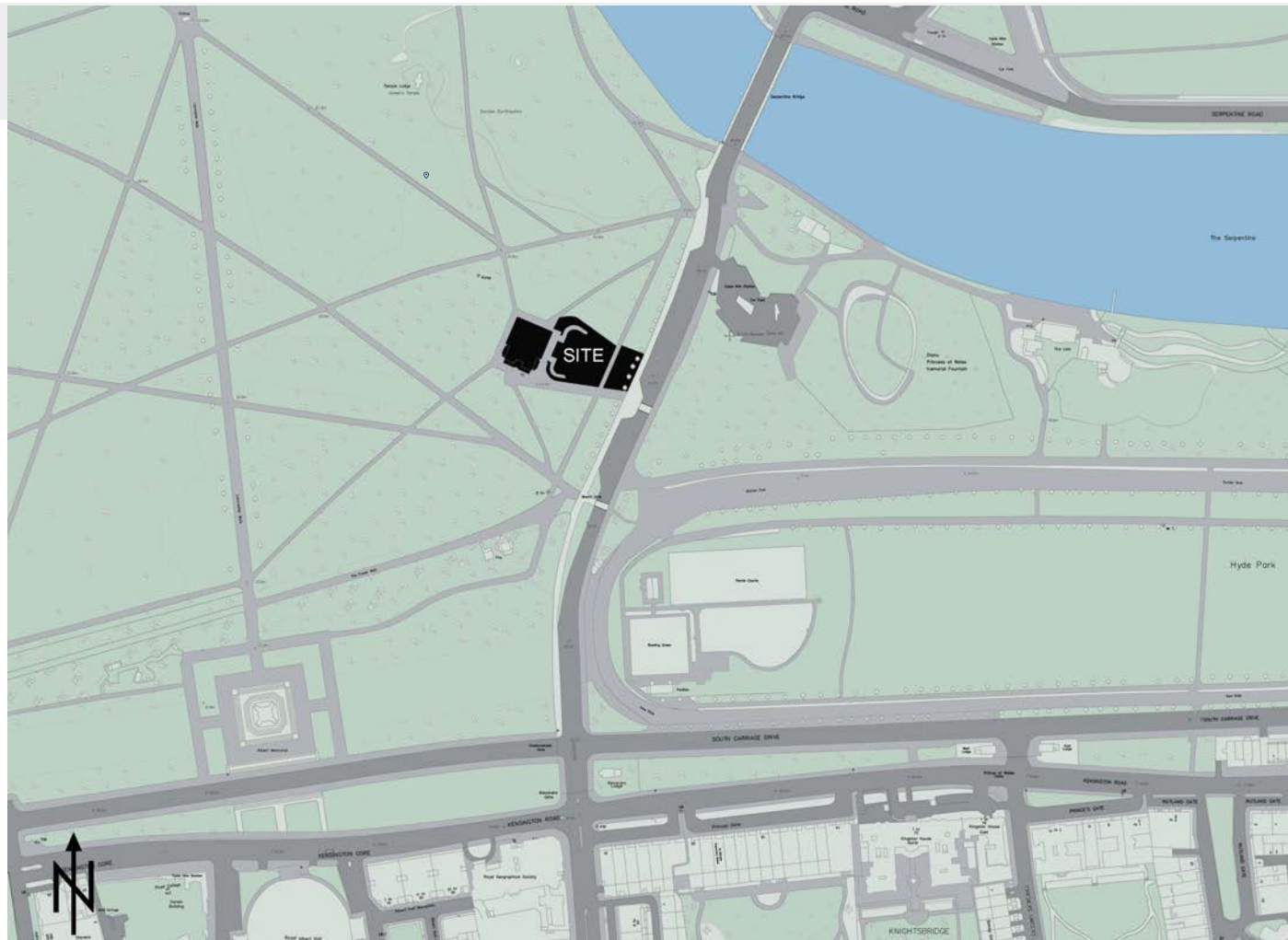
Goals

1. Communicating that CLT is a practical, strong and versatile material
2. Promoting sustainability within construction and structures
3. Interactive for users in order to learn and create interest










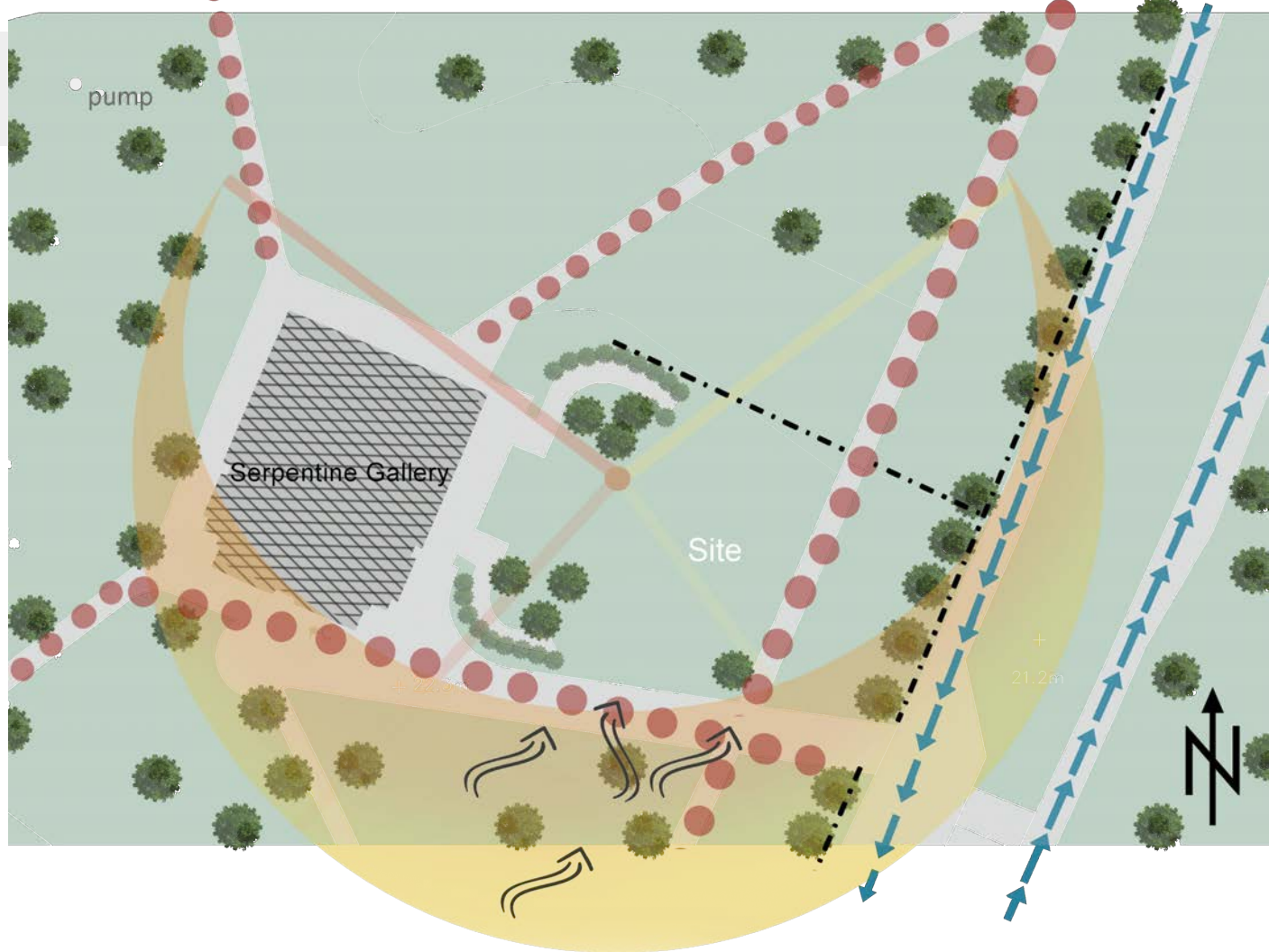
Location

Kensington Gardens,
London, England, UK

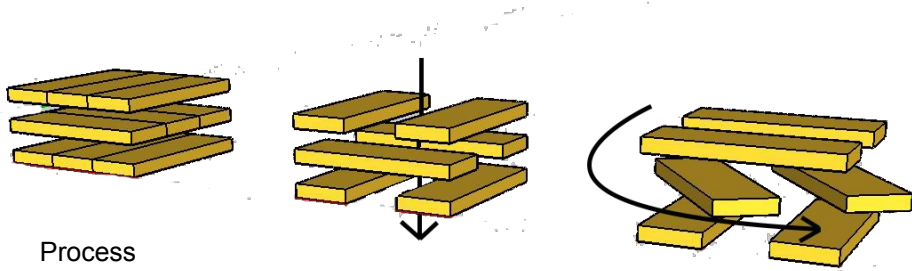


Site Analysis

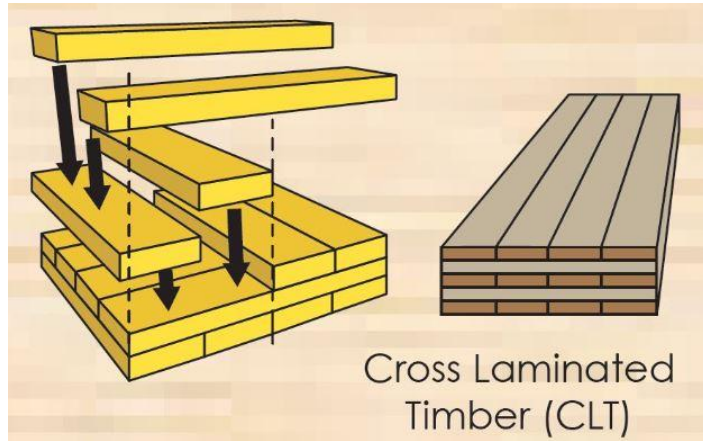
-  Sun Path
-  Wind
-  Pedestrians
-  Vehicles/ Bikes
-  Fence
-  Trees
-  Shrubs



Concept



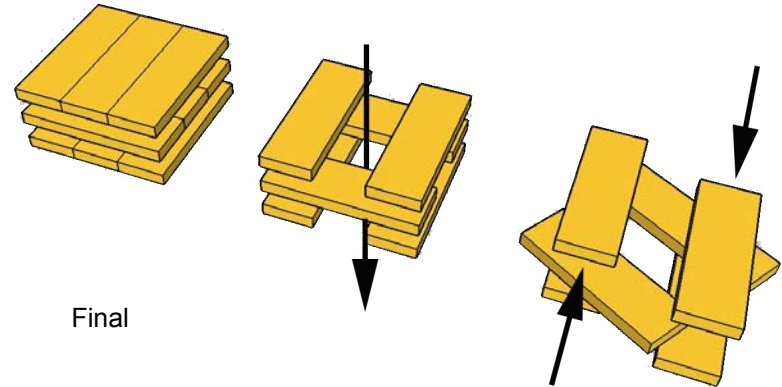
Process



Cross Laminated
Timber (CLT)

<https://www.bca.gov.sg/BuildableDesign/clt.html>





- Took perpendicular assembly of a CLT slab
- Expanded the elements
- Voided the middle to create an atrium
- Twisted each layer (level)
- Created ramps between each level for circulation



Final

Proposed Site



-  Trees
-  Cat tails & reeds as bio-filters
-  Bushes
-  Bench (kind community)

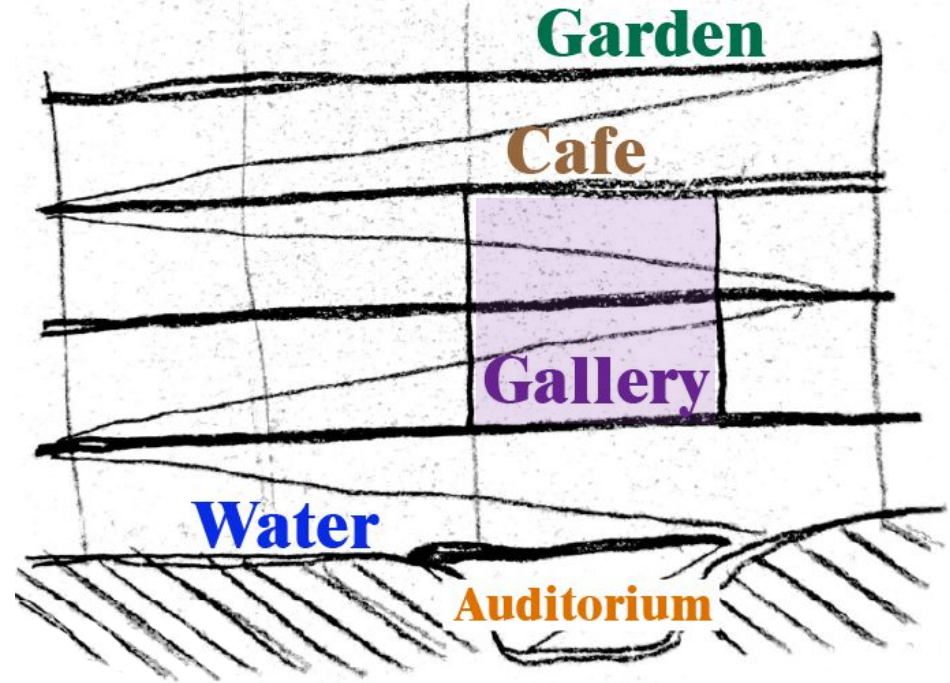
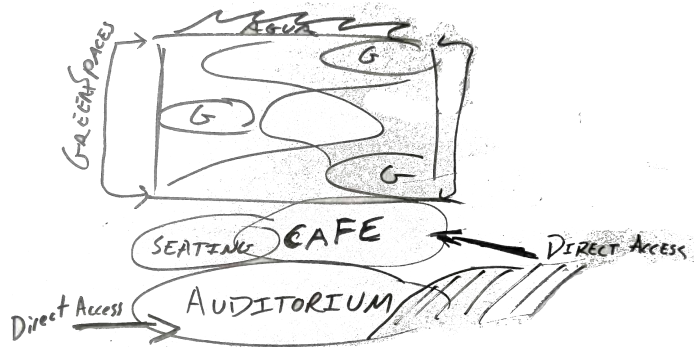
Programming

Required:

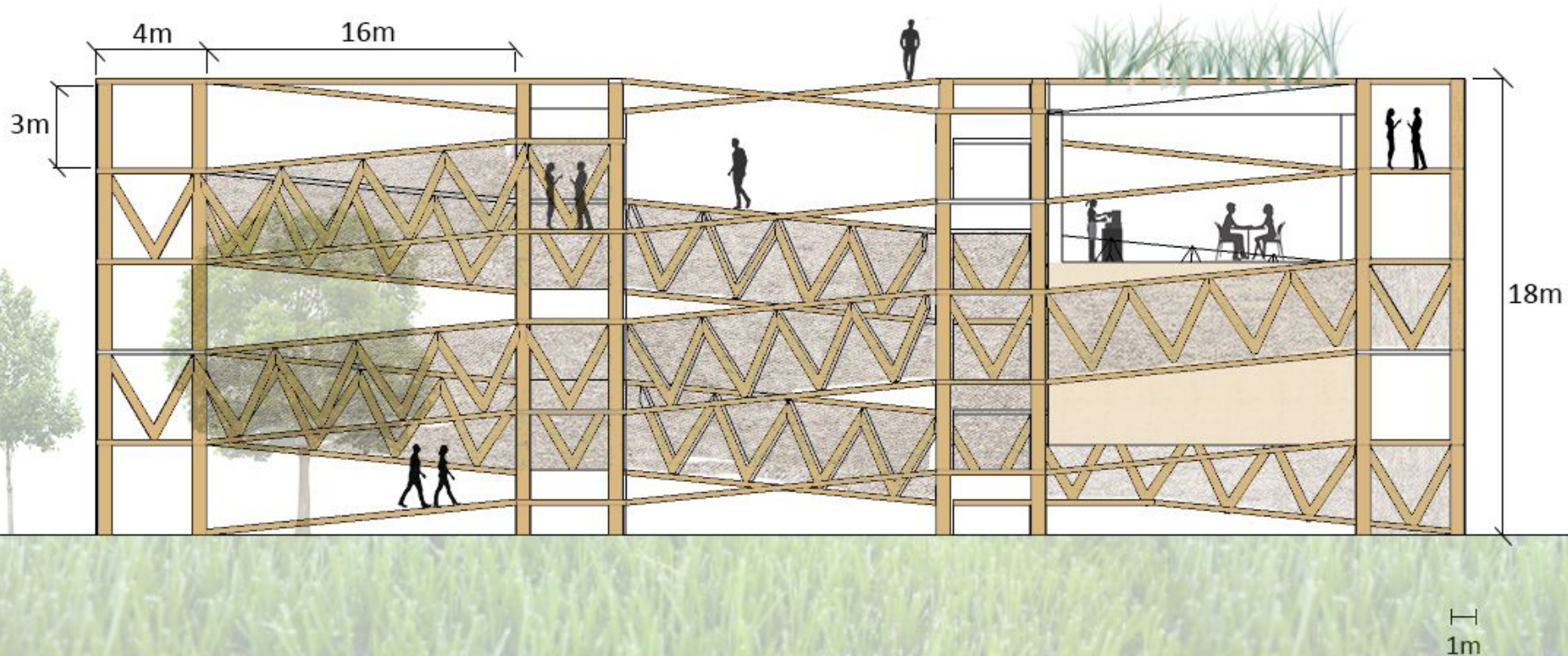
- Auditorium, cafe

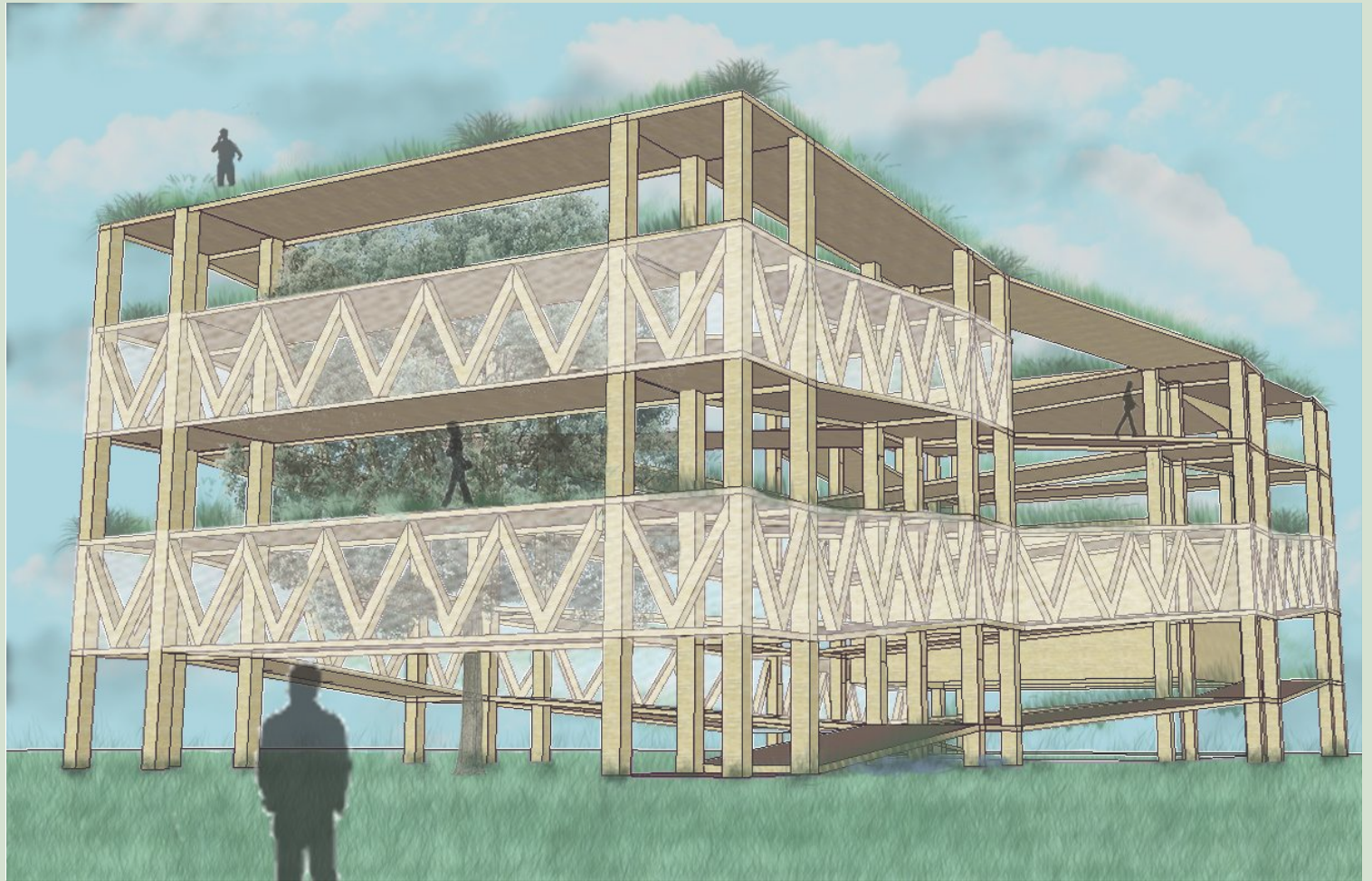
Proposed:

- Garden & water for sustainability & biophilia



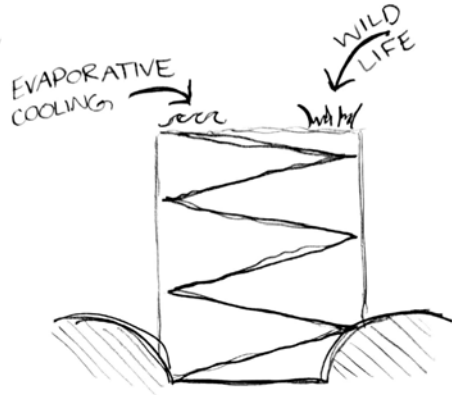
Southeast Elevation



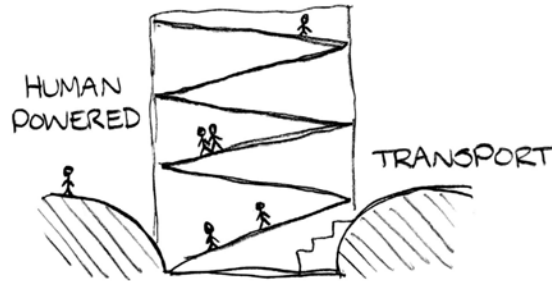


Sustainability

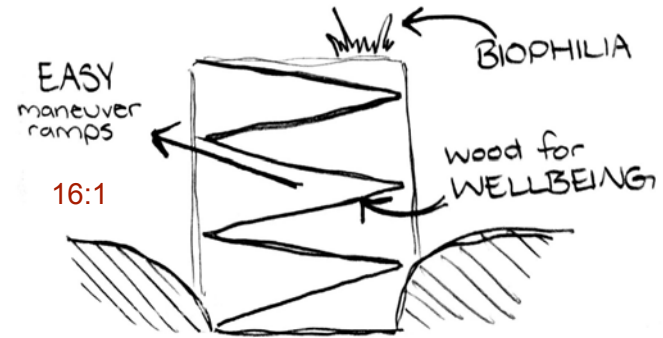
Provides
micro-climates



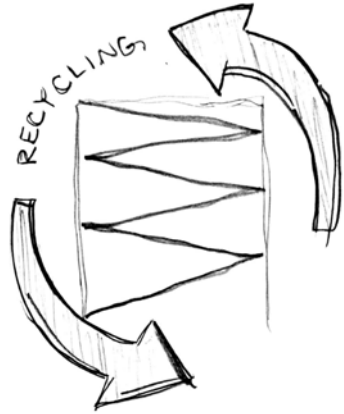
Requires
human-powered
transportation



Provides human
comfort

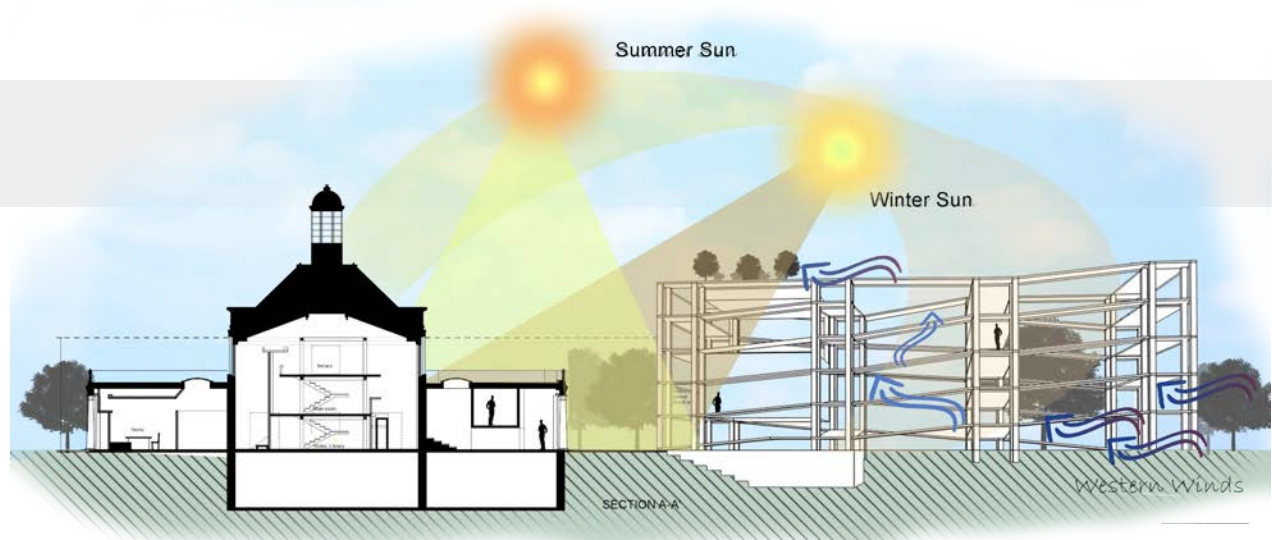


Sustainability



Can be recycled

Use PUR adhesive

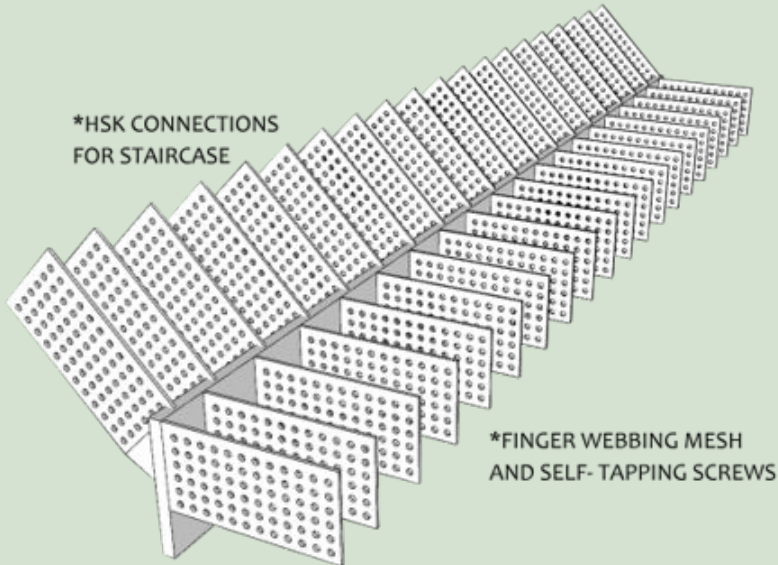


- Western winds flow through the structure making it comfortable via natural ventilation
- Retention Ponds as cooling mechanisms

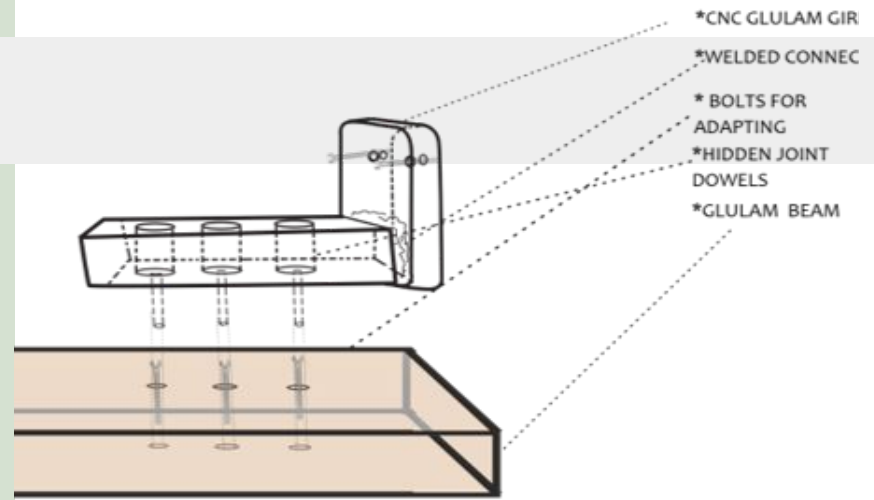
Uses human-powered circulation



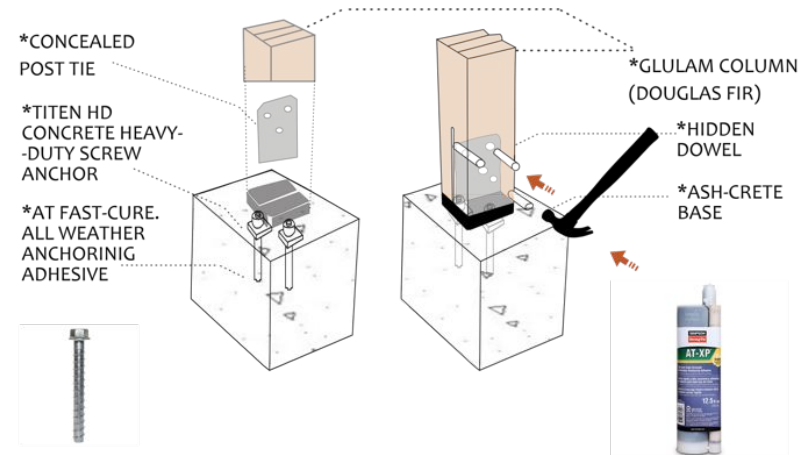
Structure CLT & Glulam



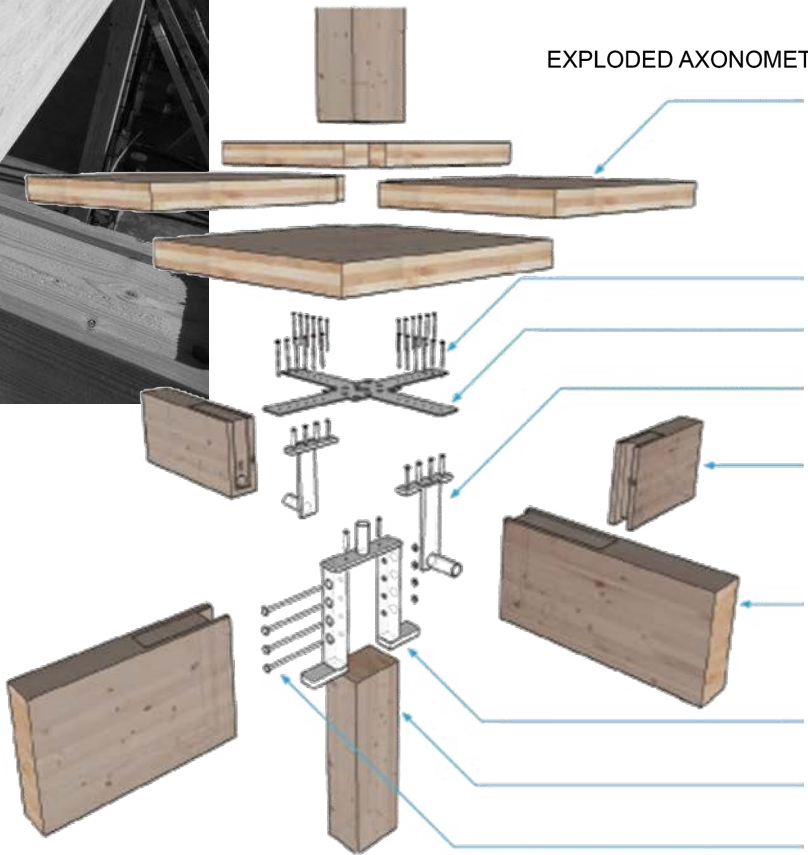
<https://www.youtube.com/watch?v=LTQjDml5q7w&t=292s>



COLUMN TO BASE CONNECTION



Albina Yard- Portland, OR, USA



EXPLODED AXONOMETRIC- COLUMN/BEAM ASSEMBLY
3- PLY CLT

ENGINEERED SELF-TAPPING
SCREWS

LASER CUT STEEL TRAP

STEEL SEISMIC BEAM HANGER

6-3/4\"/>

6-3/4\"/>

STEEL SEISMIC GIRDER
HANGER

12\"/>

ENGINEERED BOLTS

Envelope

- Breathable polyester
- Translucent
- Located on walls of ramps with trusses
- Simple rope ties to continue rhythm of pavilion



Works Cited

<http://www.tensilefabric.co.uk/fabric-structures/fabrics.aspx>

<https://www.indiamart.com/proddetail/polyester-canvas-11686590155.html>

<https://i.pinimg.com/originals/bd/25/b5/bd25b58b1091915d124631356eb192c9.jpg>

https://leverarchitecture.com/projects/albina_yard