



DESIGNING A LANDSCAPE BENCH

BY: TYLER N. HOLDEN

OPENING REMARKS

A Design + Build project:

A Thesis that questions what a landscape bench is and what it could be.



2010

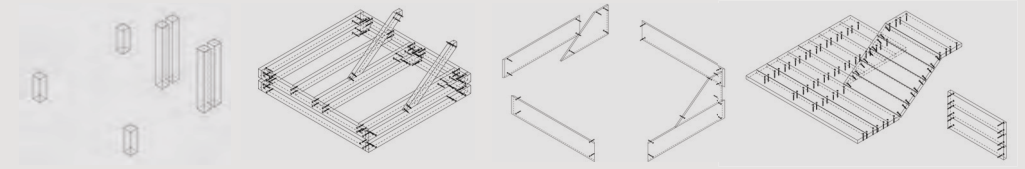


2023

A Special Thanks to:

Committee Members: • Richard Alomar • Holly Nelson • Vincent Javet

Other Contributors: • Future Green Studio • The Willard Brothers
• 18 Lumber • Other Rutgers Staff • Friends & Family



TEAMMATES

Collaboration:

A second set of eyes, another's design opinion, or construction knowledge facilitated the learning and building process.

Willard Brothers



<https://www.willardbrothers.net/>

Future Green Studio

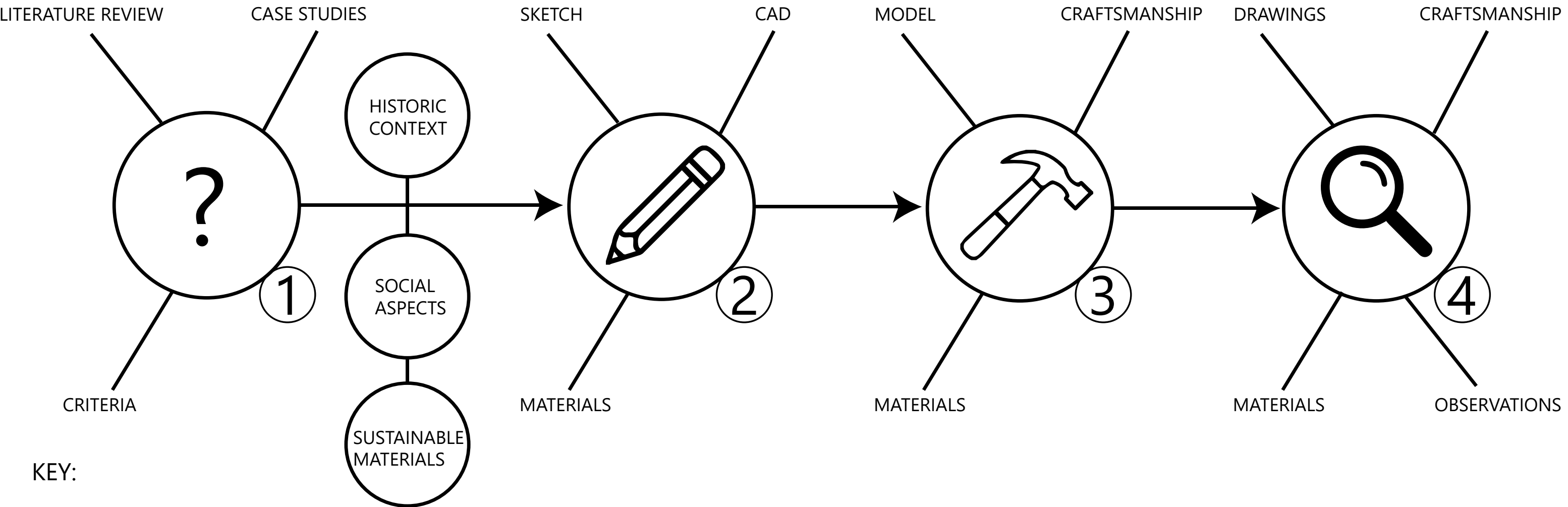
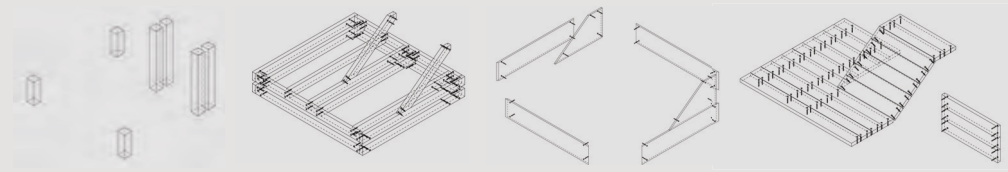


<https://futuregreenstudio.com/>

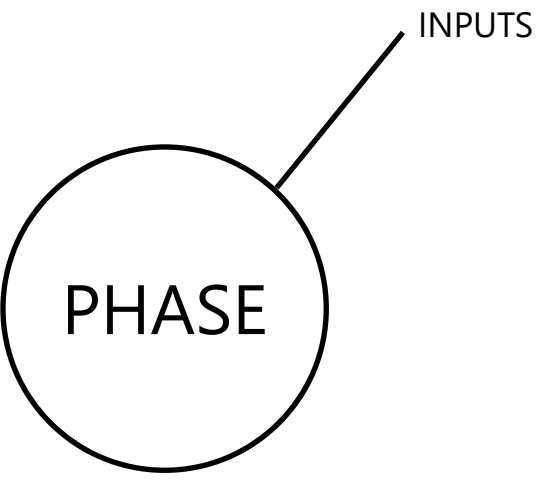
Blake Hall



RESEARCH + PROCESS TIMELINE



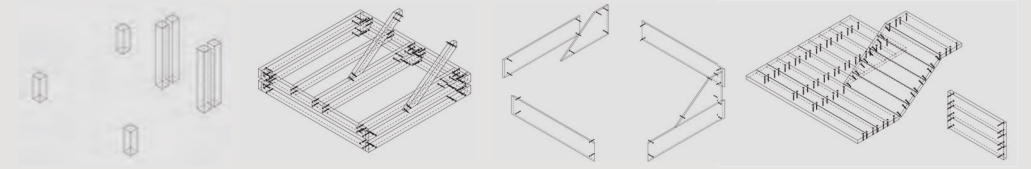
- KEY:
- ① RESEARCH QUESTION
 - ② DESIGN + SITE SELECTION
 - ③ FABRICATION + CONSTRUCTION
 - ④ IMPLEMENTATION



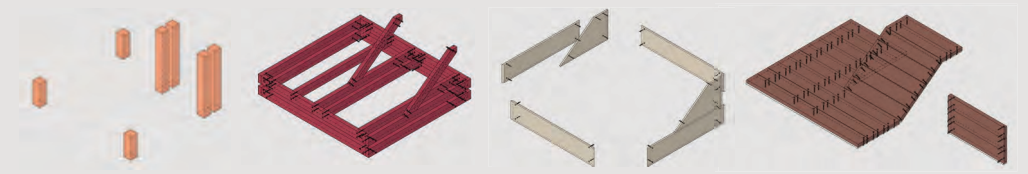
THE REASONS

An Exploration of:

- Historic and site relevance through sustainable material selection and design.
- Social interaction on and around benches.
- Connection between site, material, and form.
- The design-build process.



CHAPTERS



1. *THE BENCH IN THE LANDSCAPE*

- A Brief History of the Bench through History
- People, Benches, and Social Space

2. *DESIGN PROCESS*

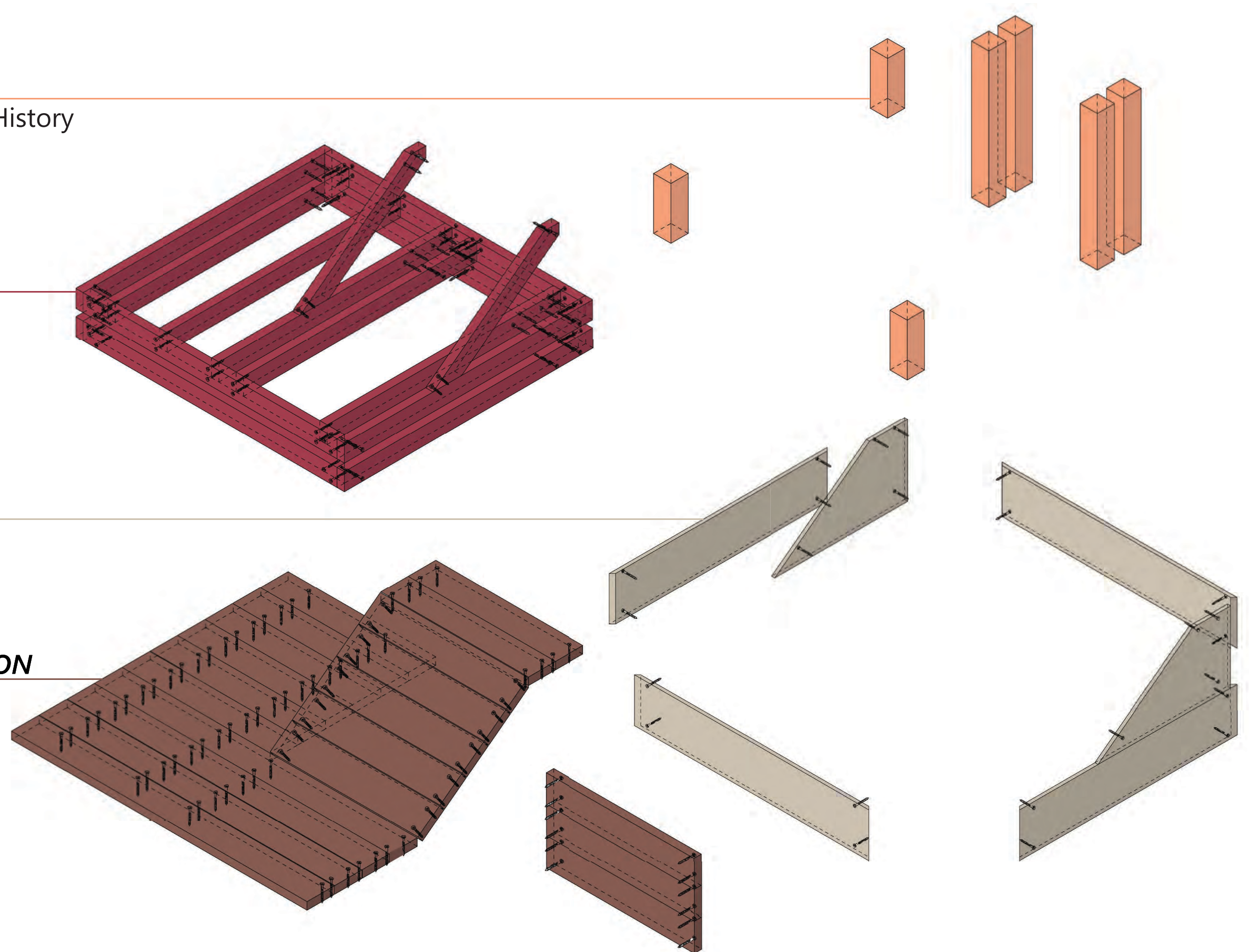
- The Design Process
- Site and Material Research
- My Personal Design Process

3. *FABRICATION*

- The Build Process

4. *OBSERVATIONS AND CONCLUSION*

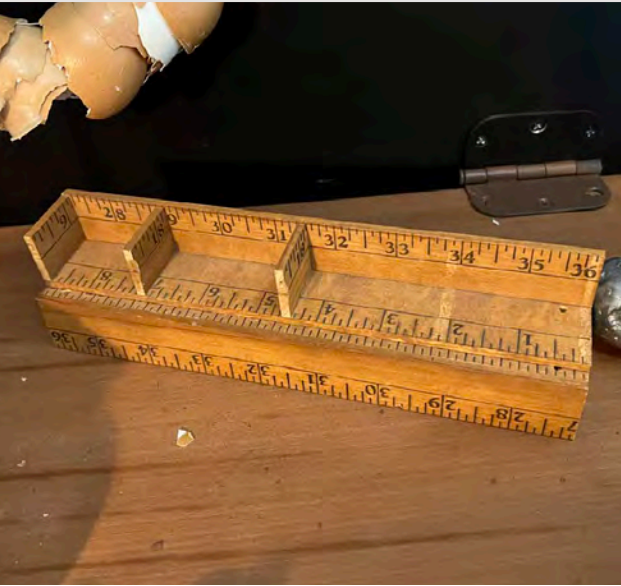
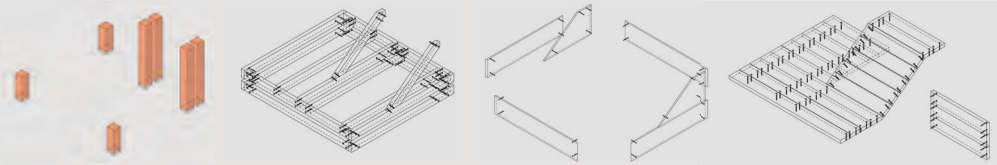
- People and the Bench
- Takeaways



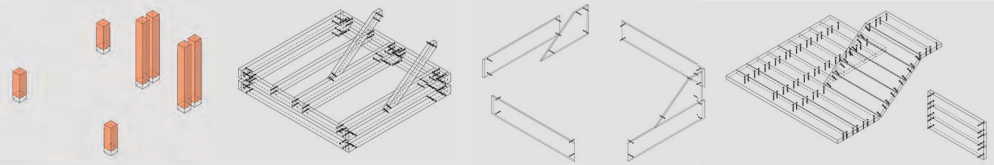
1. THE BENCH IN THE LANDSCAPE



BENCHES



HISTORIC BENCH CATALOG



?????

2023 CE



Bronze Age 5,000 years ago - 1,400 years ago
First documented form of seating



Bronze Age 5,000 years ago - 1,400 years ago
Ra, the ancient egyptian god of the sun



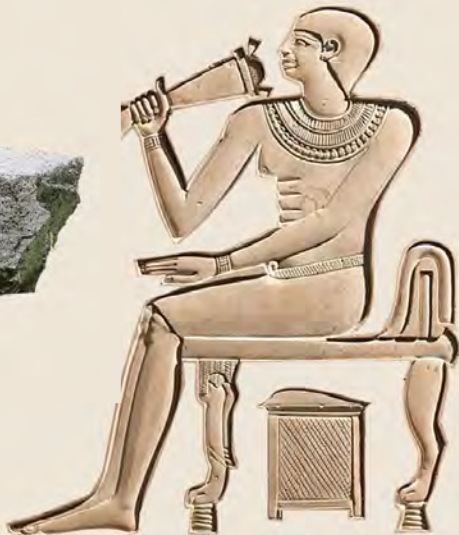
Modern Era 1800 AD to present
Camille Monet on a Garden Bench, Painting by Monet



Modern Era 1913
Family portrait of owners of first Lutyens Bench



Stone Age 3.3 Million years ago - 5,000 years ago
Caveman gathering on rock



Bronze Age 5,000 years ago - 1,400 years ago
Egyptian hieroglyph drinking wine on a bench



Medieval Era 500 AD to 1500 AD
Medieval nobles sitting on a bench in a pitched tent playing a board game

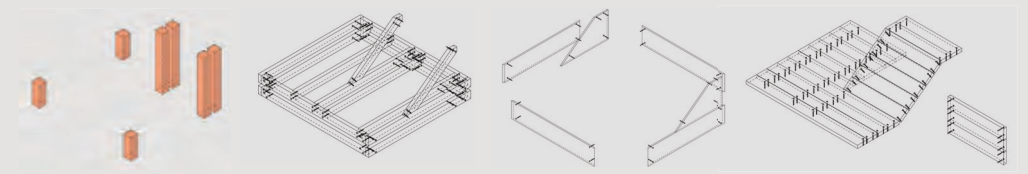


Modern Era 1952
Woman sleeping on bench in Central Park



Modern Era 2023
Man sitting on Victor Stanley Lily bench

CASE STUDIES



SIR EDWIN LUTYENS



VICTOR STANLEY



STREETLIFE



JAMES C. ROSE



<https://www.lutyens-furniture.com/the-thakeham-bench-a-place-in-history/>



<https://victorstanley.com/>



<https://www.streetlife.nl/us>



<https://www.asla.org/2014awards/018.html>

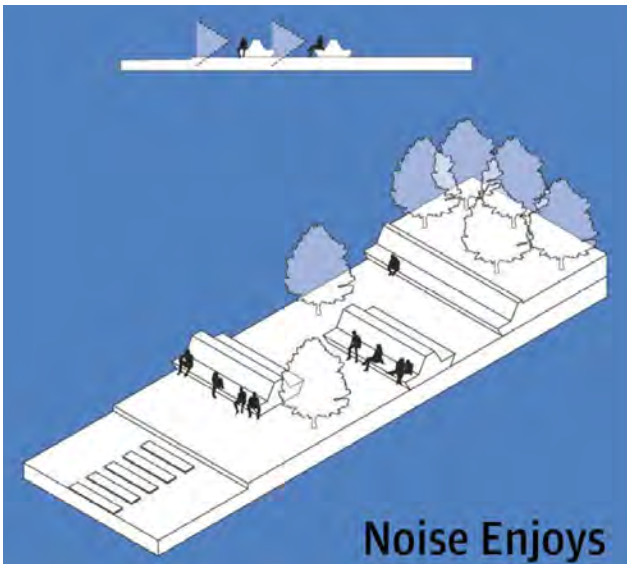
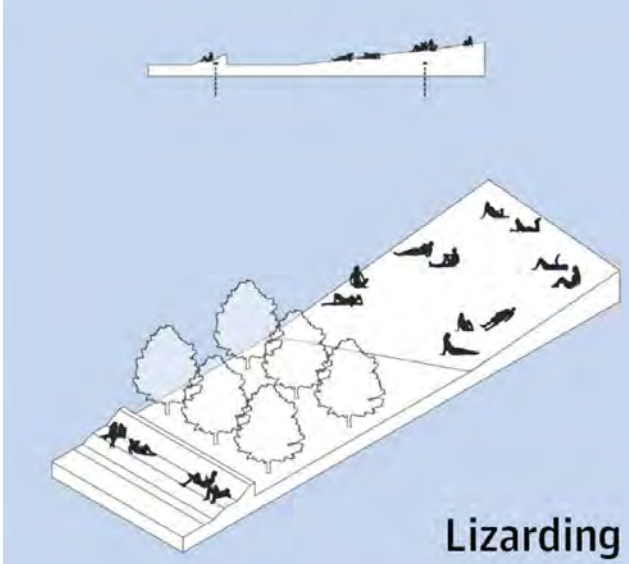
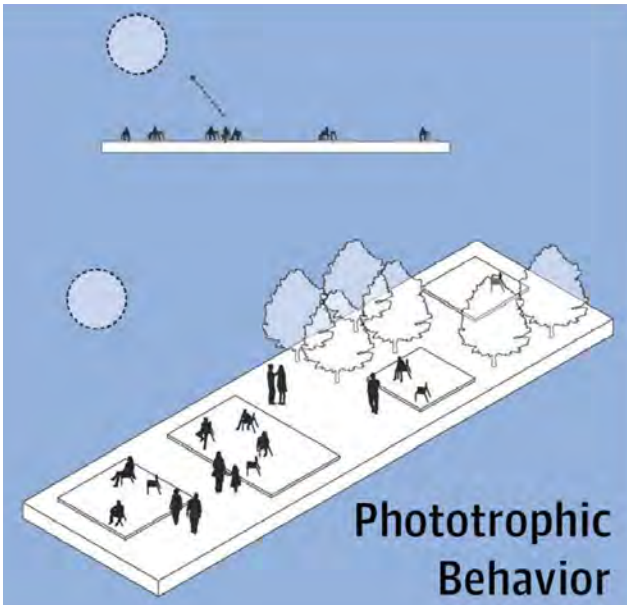
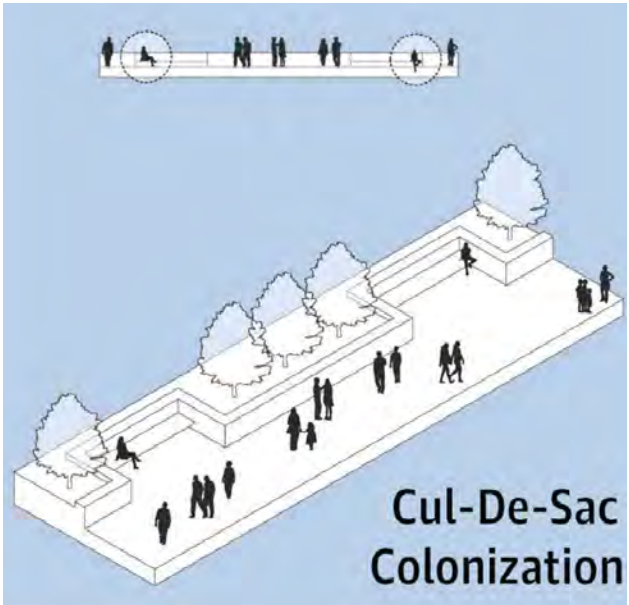
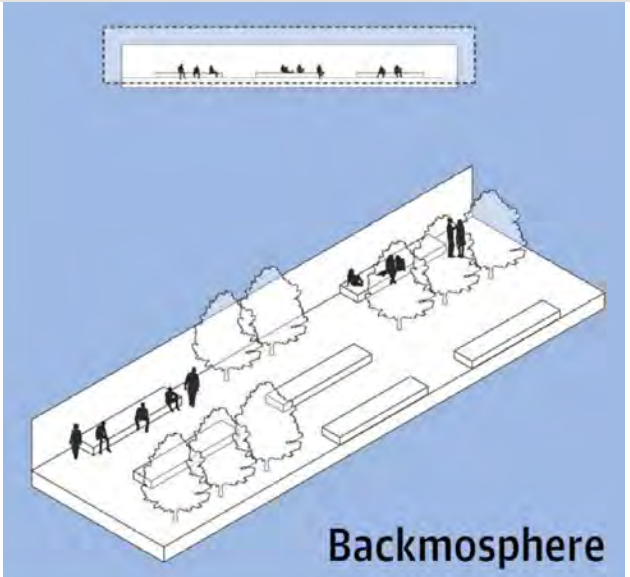
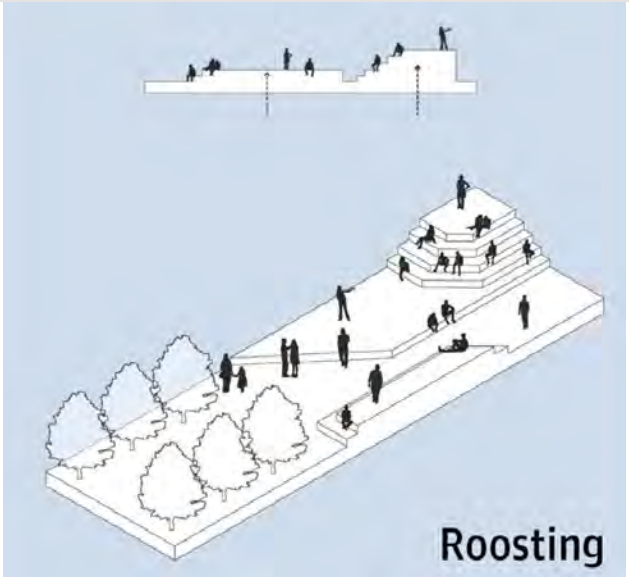
PEOPLE AND SPACE

The Social Life of Small Urban Spaces



William H. Whyte

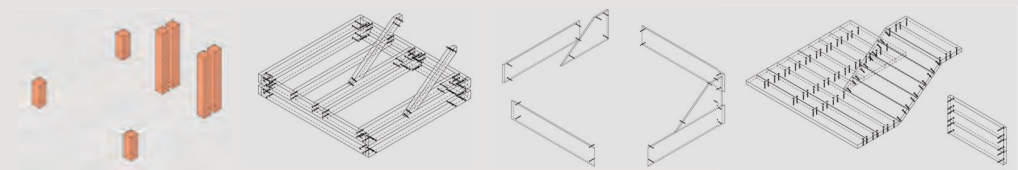
Project for Public Spaces



“People like to sit where there are places for them to sit” - *William H. Whyte*

<https://www.theguardian.com/cities/gallery/2019/aug/01/lizarding-and-flex-allure-how-do-you-use-your-city>
Whyte, William H., Jr. 1917-1999. *The Social Life of Small Urban Spaces*. Washington, D.C.

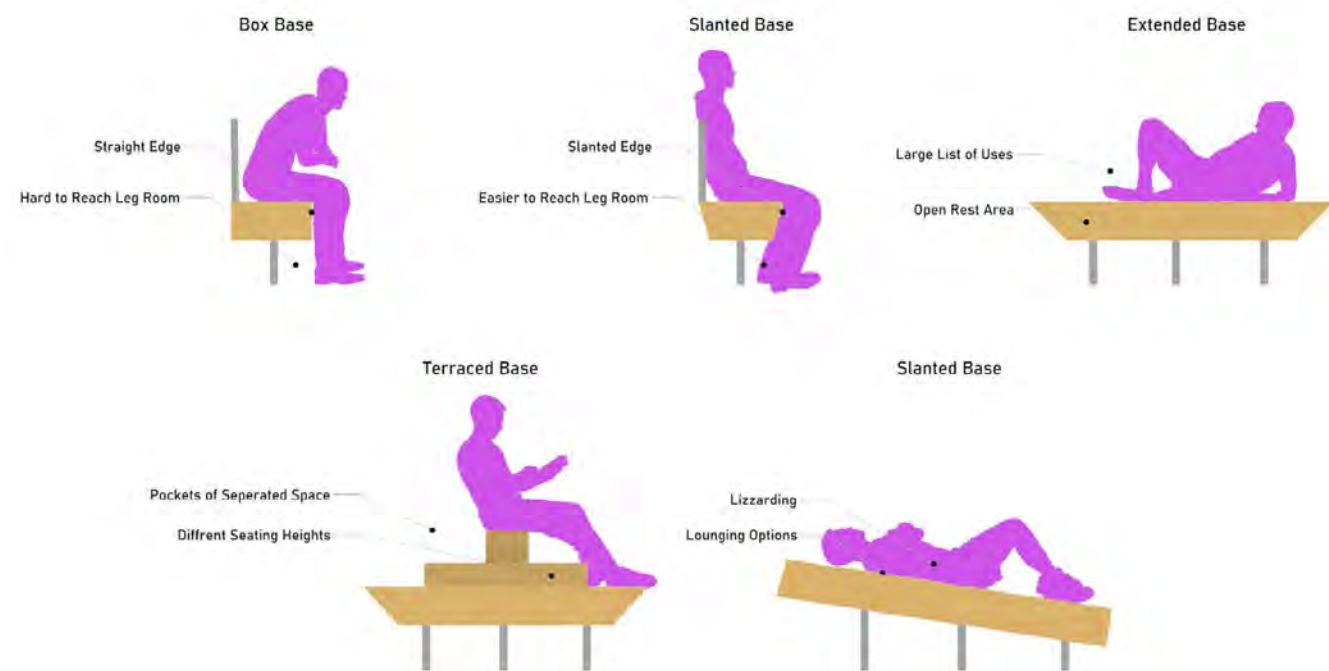
PEOPLE AND SEATING



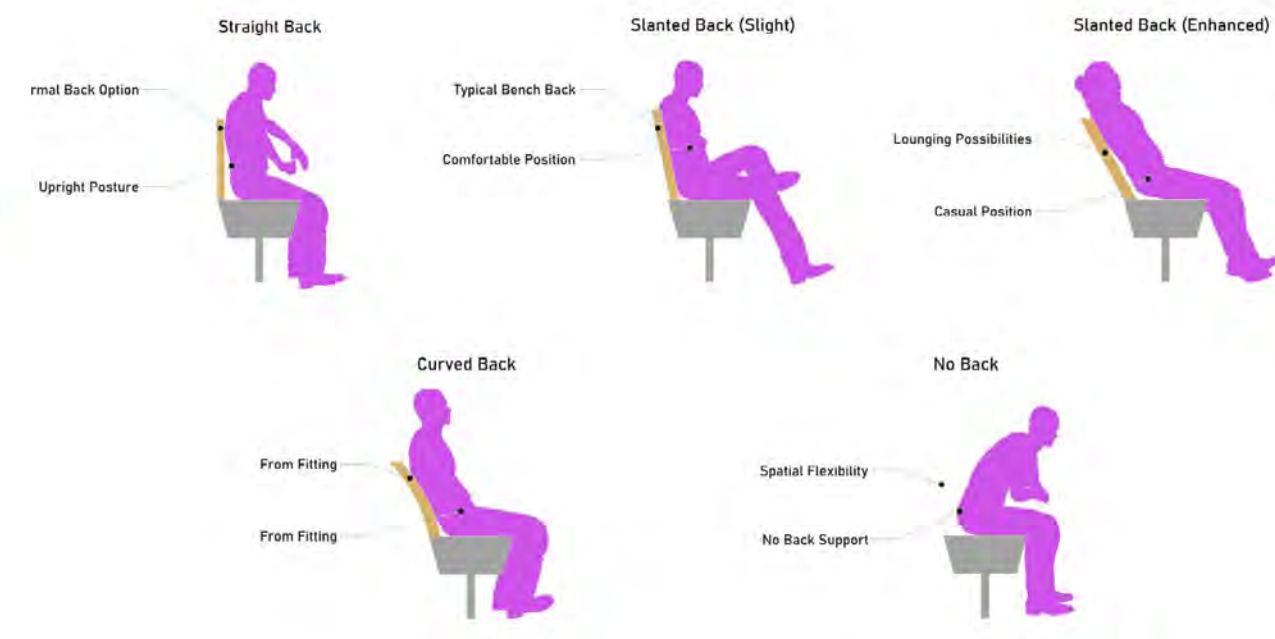
The Parts of a Bench:

- The Base
- The Back
- The Footing

Bench Base Variations



Bench Back Variations



How to Bench:

- Rest

Recover

Sleep

Sit

Remember

Meeting

Privacy

Watch
- Think

Read

Phone

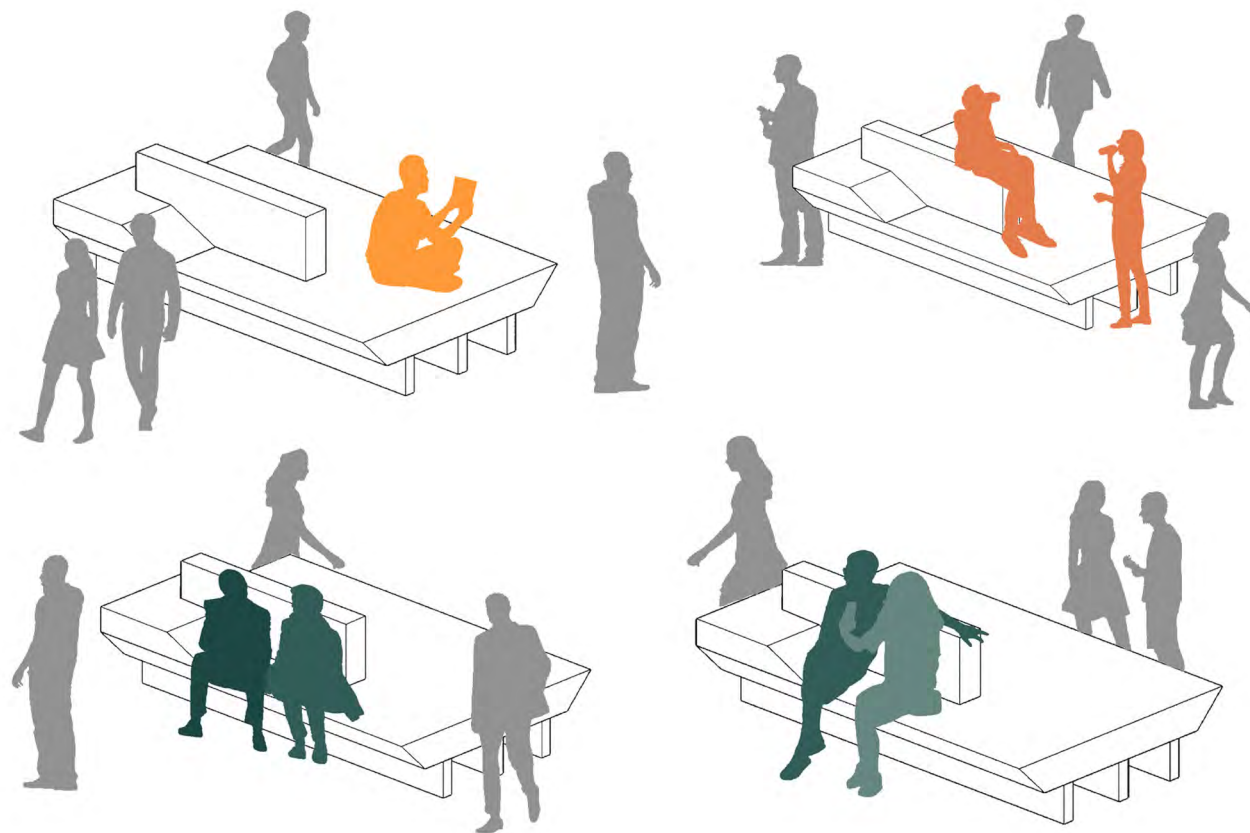
Eat

Listen

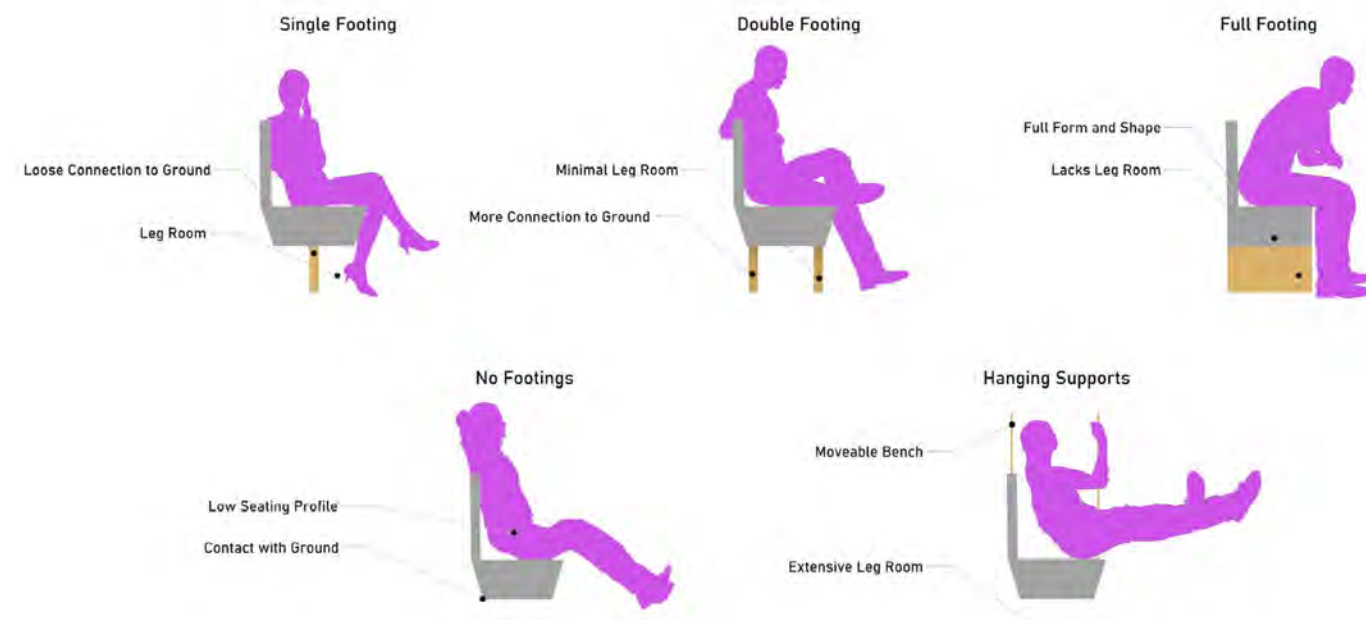
Socialize

Lounge

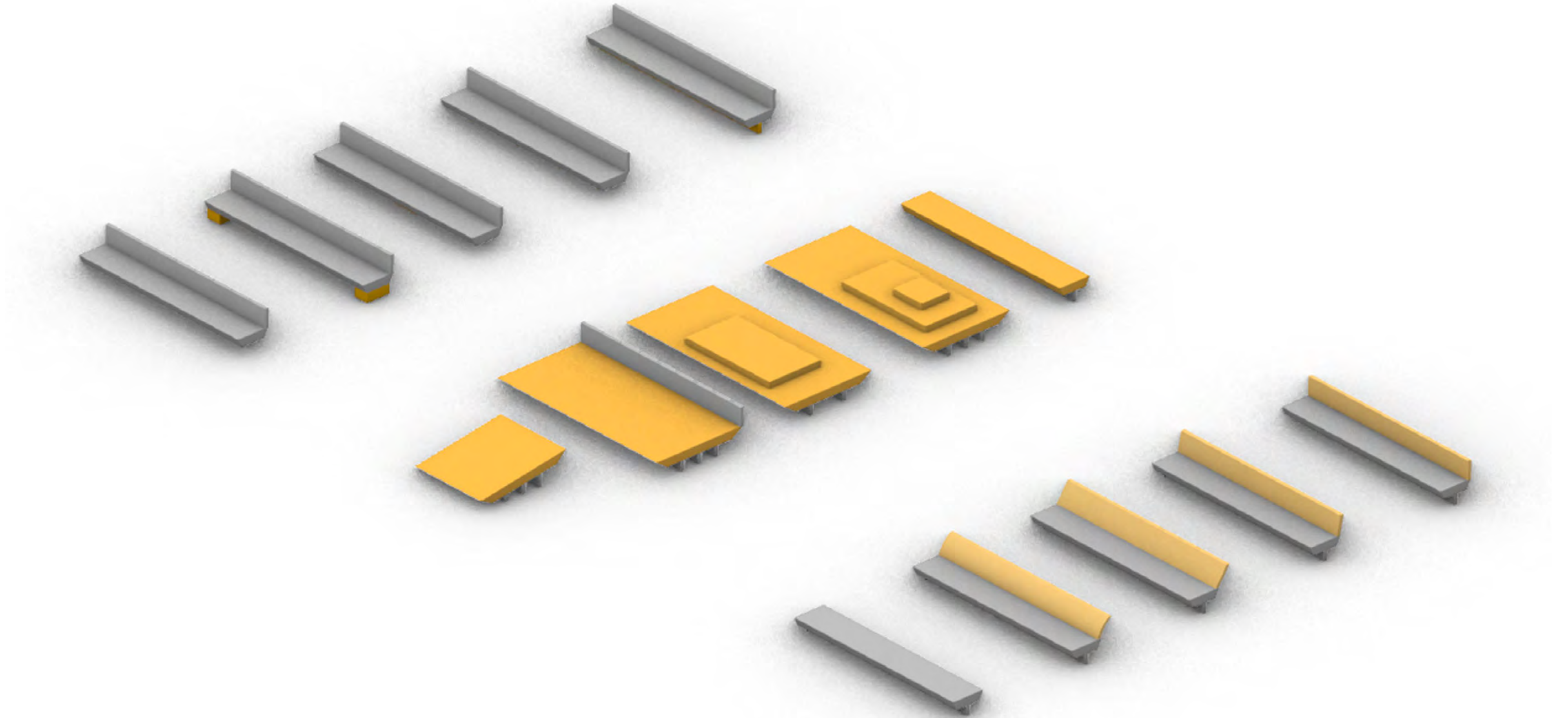
Call



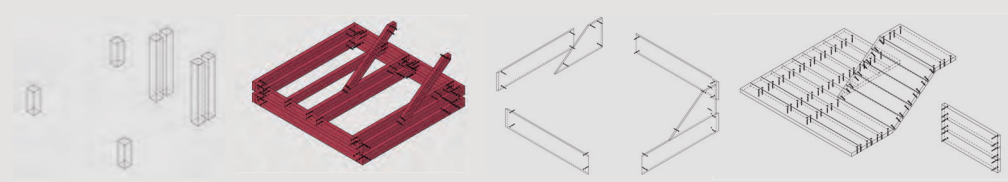
Bench Footing Variations



2. THE DESIGN PROCESS

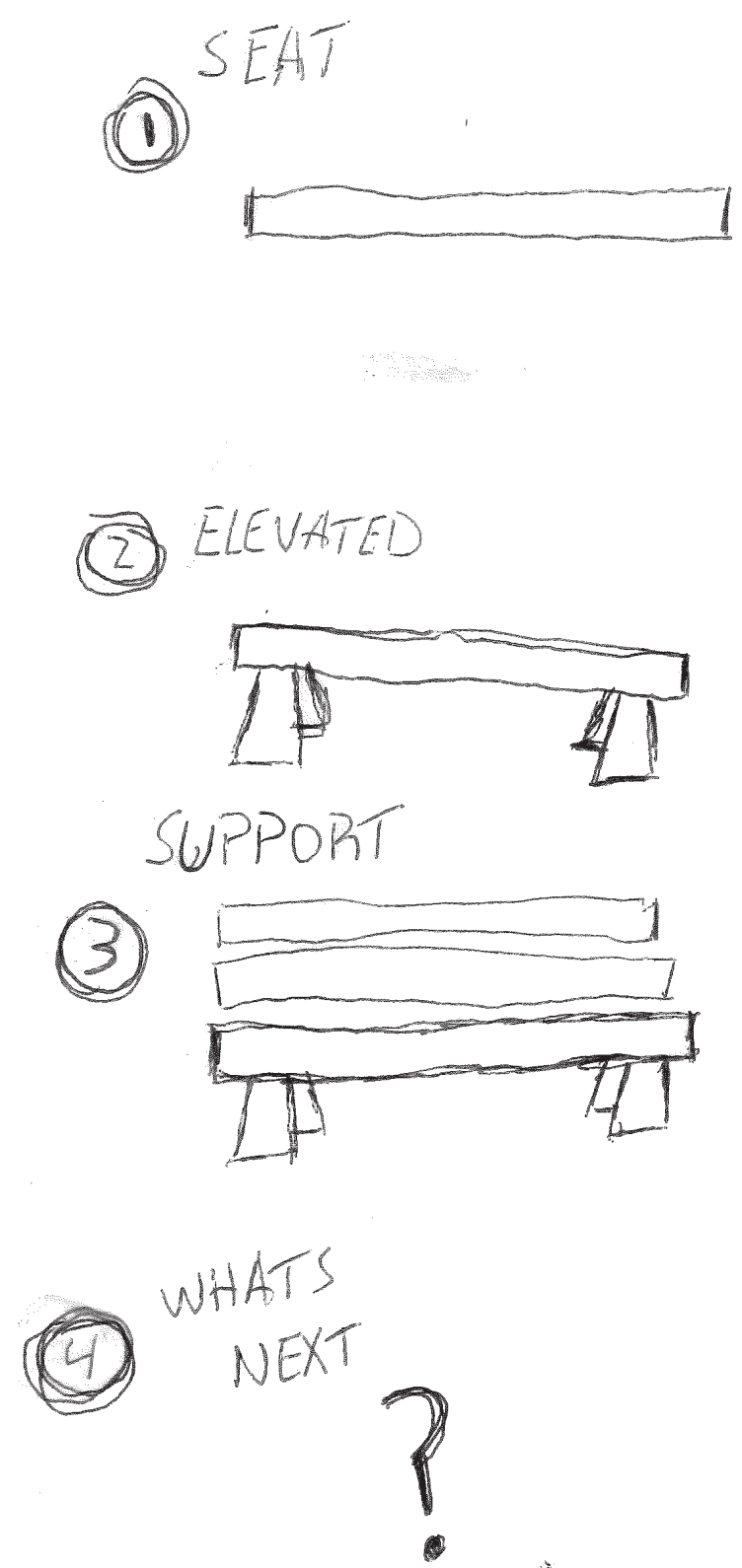


DESIGN CRITERIA

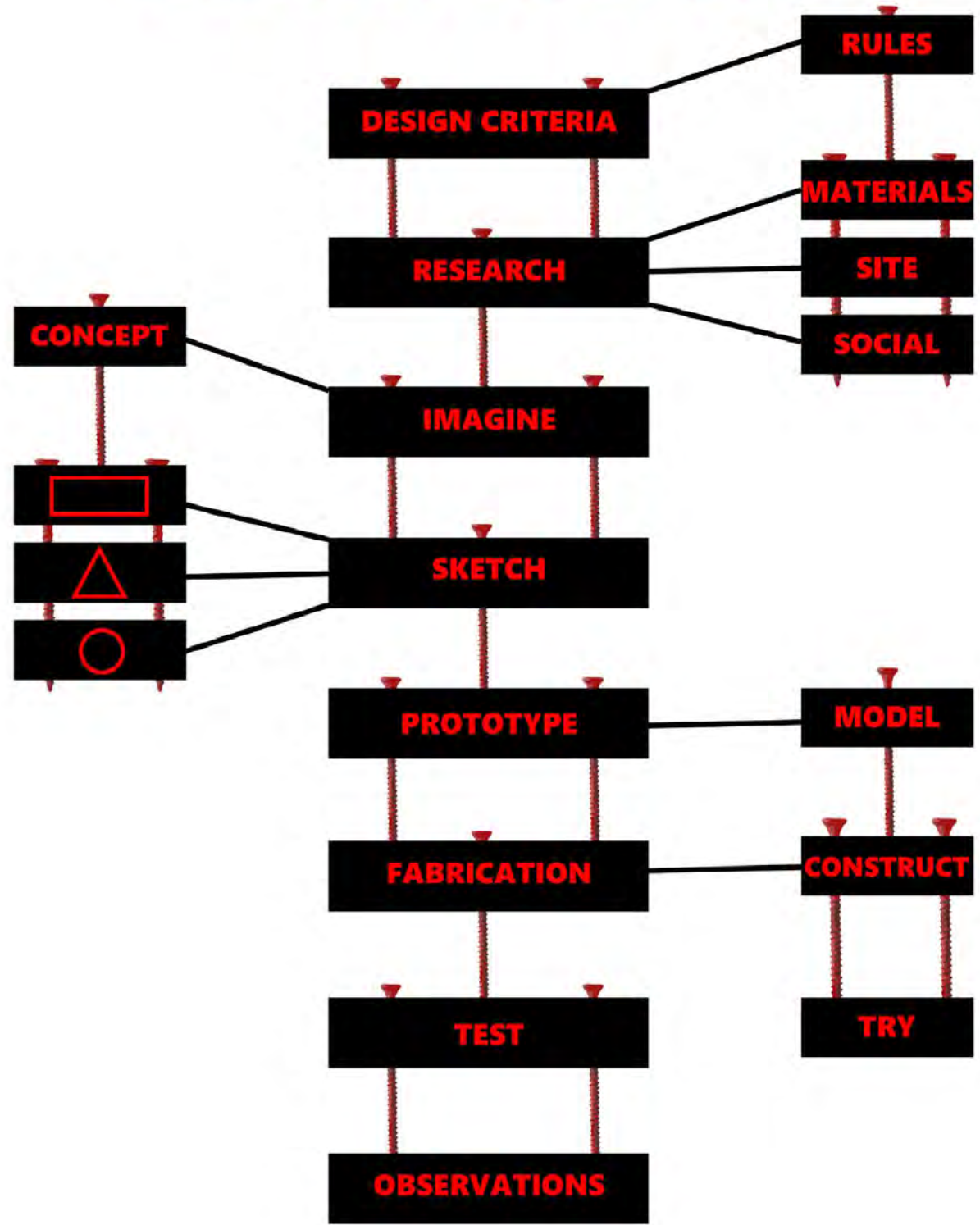


The Principles:

- The use of sustainable, and site-specific materials.
- The creation of social interaction that differs from traditional benches.
- A final form that reflects site specificity and enables social interaction.



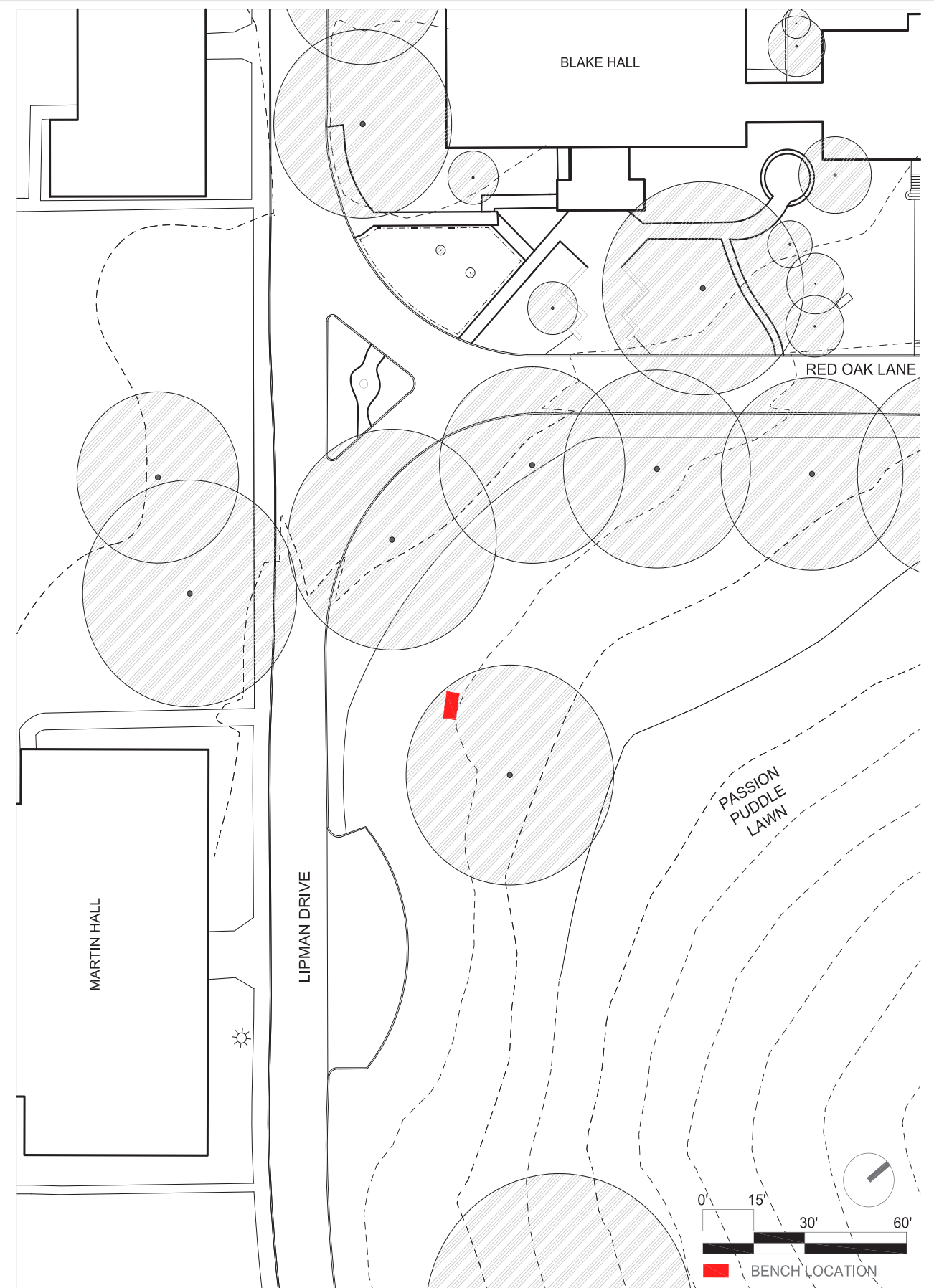
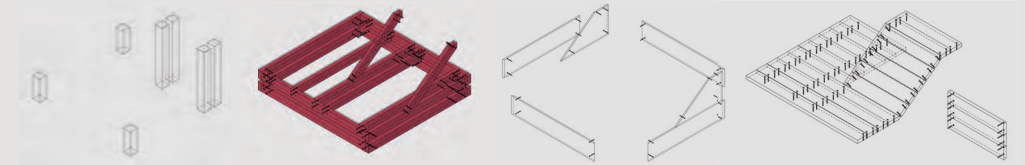
DESIGN PROCESS



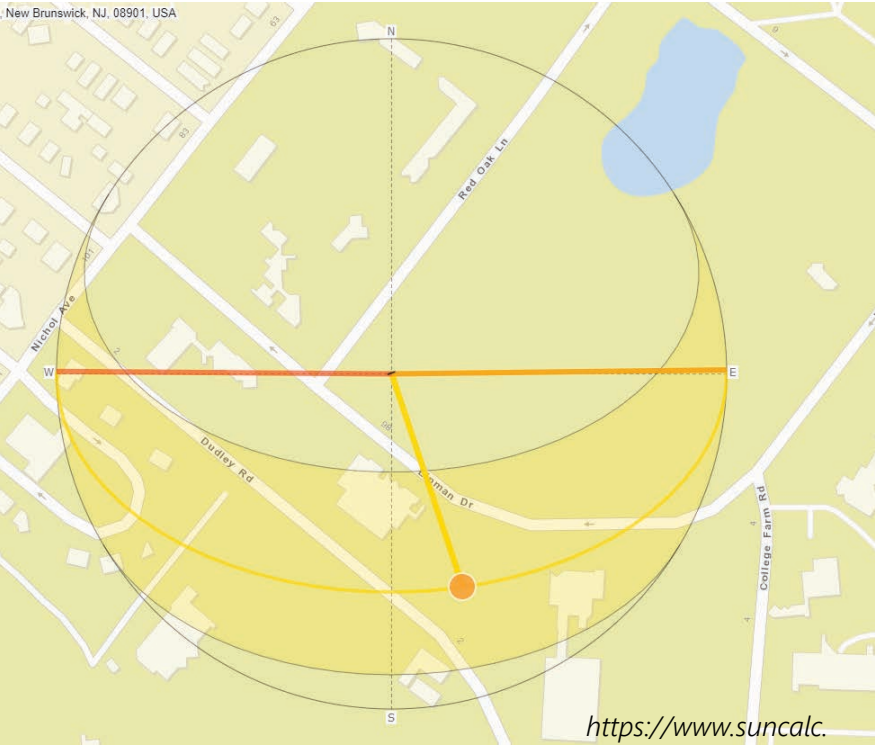
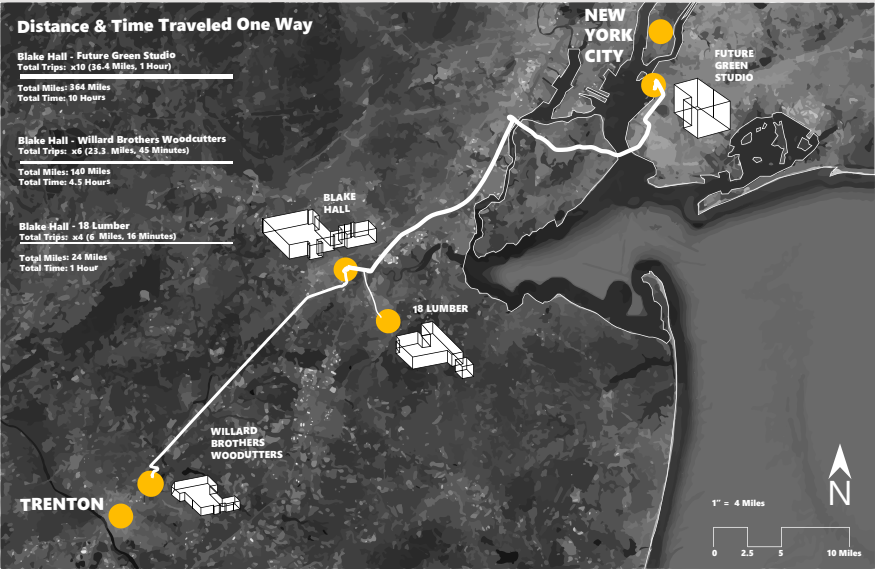
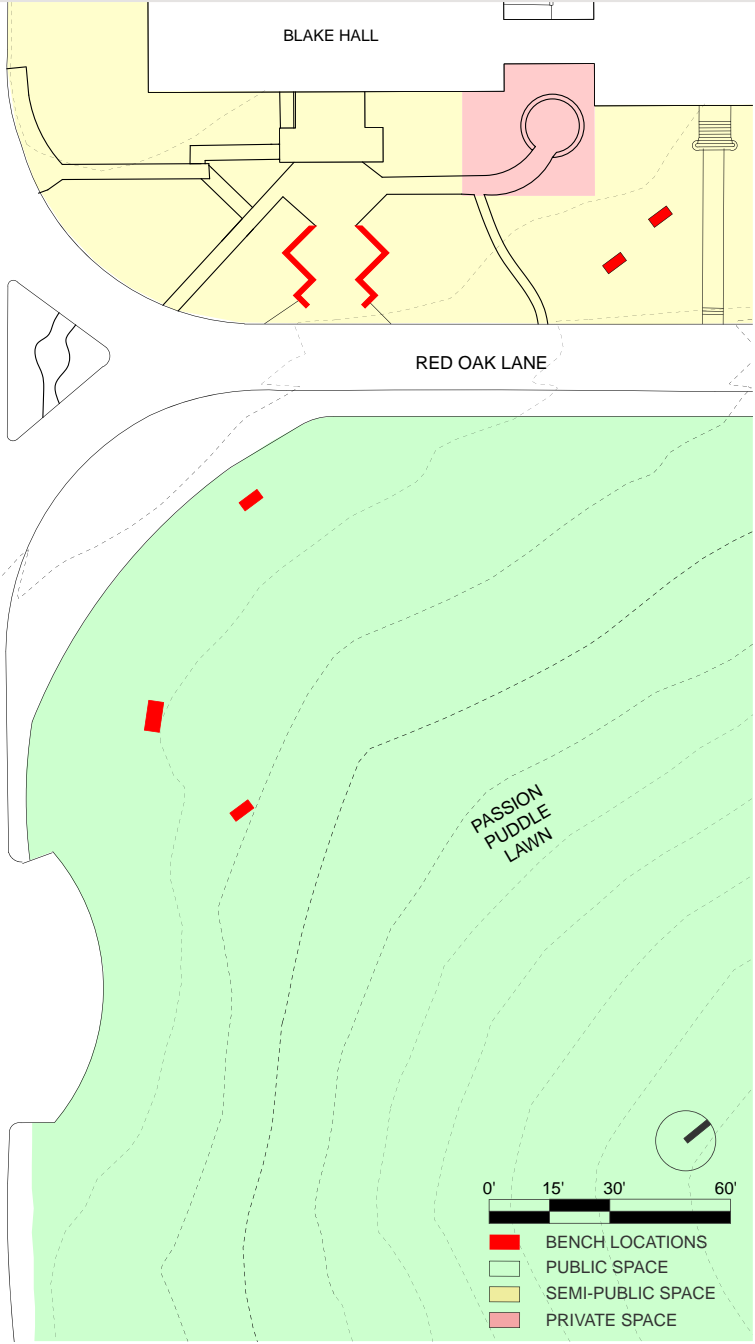
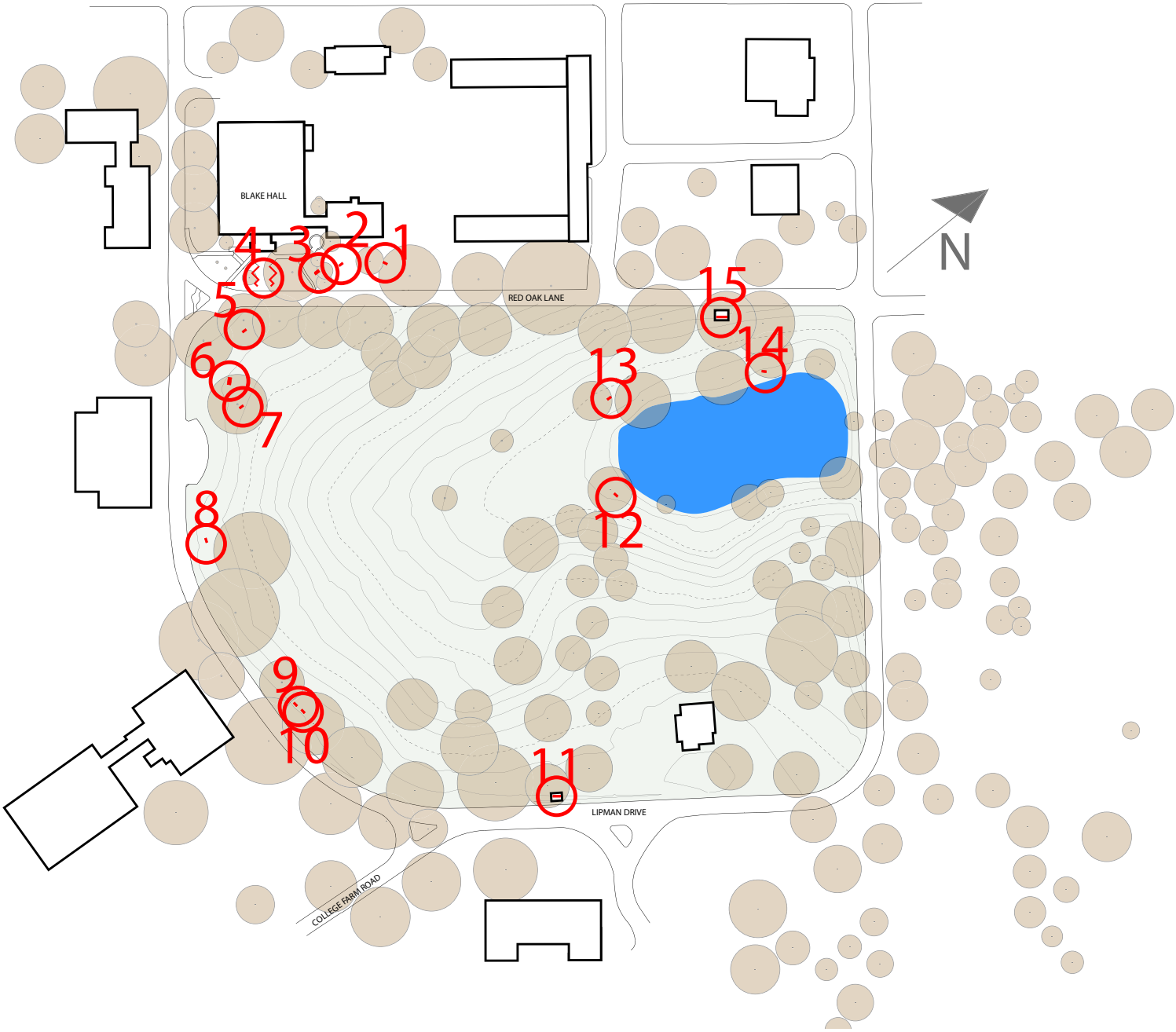
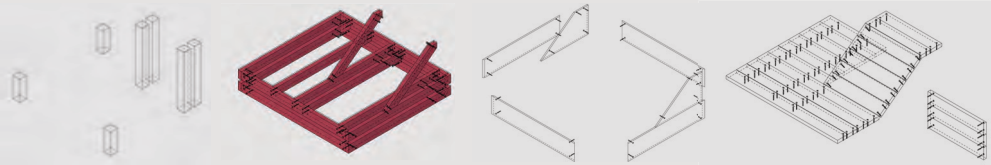
THE SITE

Location Matters:

- North America
- United States
- New Jersey
- Middlesex County
- New Brunswick, 08901
- Rutgers University
- Cook Douglass Campus
- Passion Puddle Area
- Blake Hall, 93 Lipman Dr



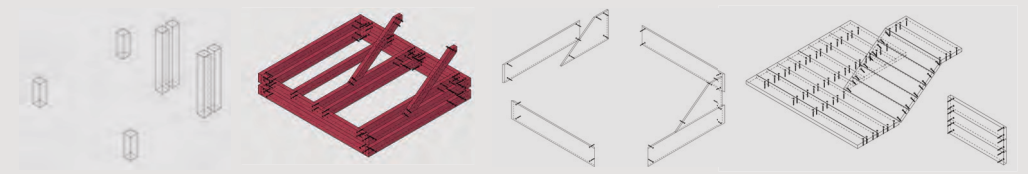
SITE INVENTORY AND ANALYSIS



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

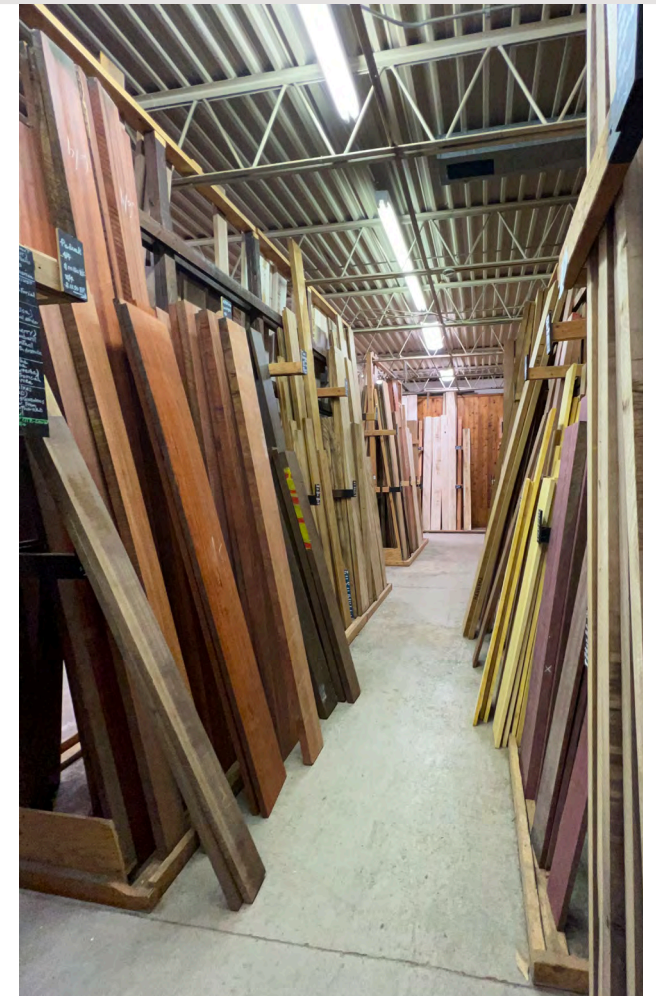
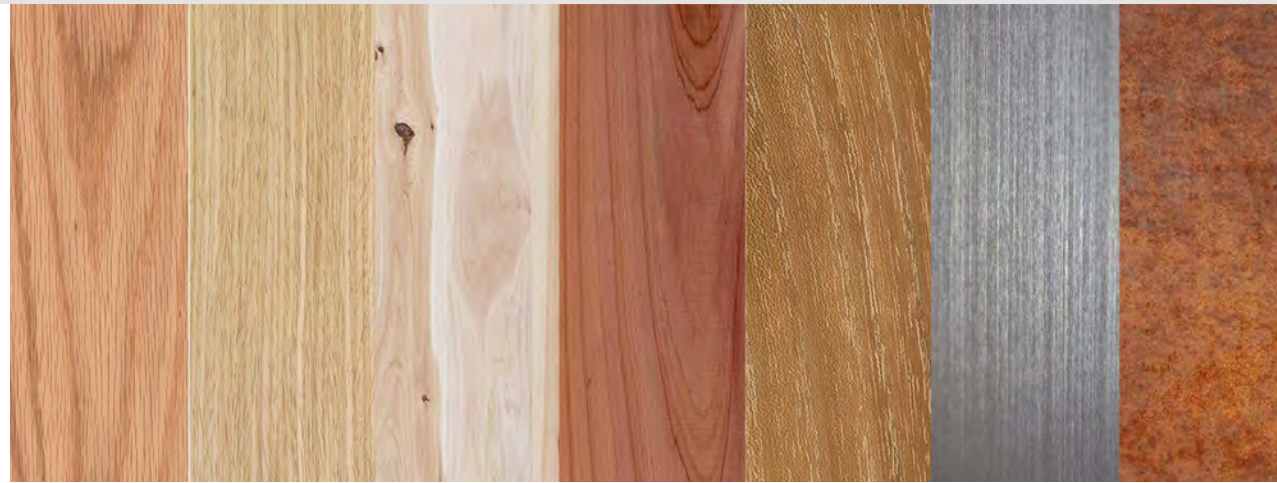


MATERIAL RESEARCH AND SELECTION



Material Selections:

- 15 boards of 10' 2x4 pressure treated Southern Pine
- 15 boards of 10' 2x6 Western Red Cedar
- 4 boards of 4'x8' $\frac{3}{4}$ " AC Fir Plywood
- 2 boards of 8' 4x4 Reclaimed lumber
- 1 5lb Box of 9x3" Deckfast® Epoxy Screws
- 1 Gallon paint can of Benjamin Moore Arborcoat Brown Semi-Solid Stain



Technical drawings of various structural components. From left to right: a small vertical column, a larger vertical column, a rectangular frame structure, a truss structure, a large rectangular frame structure, and a series of parallel beams.

5' 3' 2 3/4'

CRANK 2x4 FRAME

4x4 POSTS

CRANK

BLAKE HALL DRAFTING TABLE

(5')

TABLE

FOOT REST

GRADE

UPPER SUPPORT (2 3/4')

PARTS OF DRAFTING TABLE

4x4 POST

2x6 TABLE

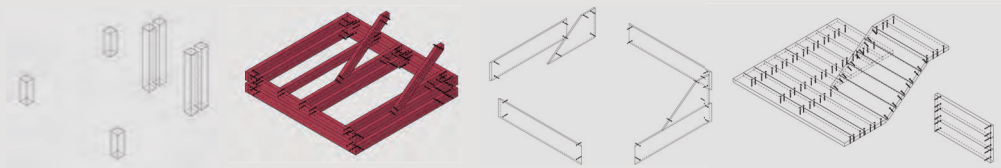
2x4 FRAME

CRANK

Hand-drawn technical drawings of a mechanical device, likely a rack and pinion assembly. The drawings include:

- Perspective View (Top Left):** Shows a 3D view of the rack and pinion assembly. Labels include "RIGHT" and "LEFT" with arrows indicating orientation.
- Side View (Middle Left):** A vertical cross-section of the rack. Labels include "BACK" at the top, "4 1/2" for the total height, and "2 3/4" for the rack thickness. Dimensions for the rack segments are given as 6 1/4, 11 1/2, and 1 1/2.
- Top View (Middle Right):** A horizontal cross-section of the rack. Labels include "LEFT" and "RIGHT" with arrows. Dimensions include "4 1/2" for the total width, "4" for the rack width, and "2 3/4" for the rack thickness. A note "Total Width" is present.
- Assembly Diagram (Bottom):** A detailed schematic of the rack and pinion mechanism. Labels include "SWIVEL" for the top pivot, "RACK" for the curved gear, "PINIONS" for the small gears, "WORM GEAR" for the large gear, "RACK GUIDE" for the support structure, and "BEARING" for the support of the worm gear. A note "Duplicate Drive - Worm Gear" is present. A slot cut for worm gear attachment is indicated.

PROTOTYPE



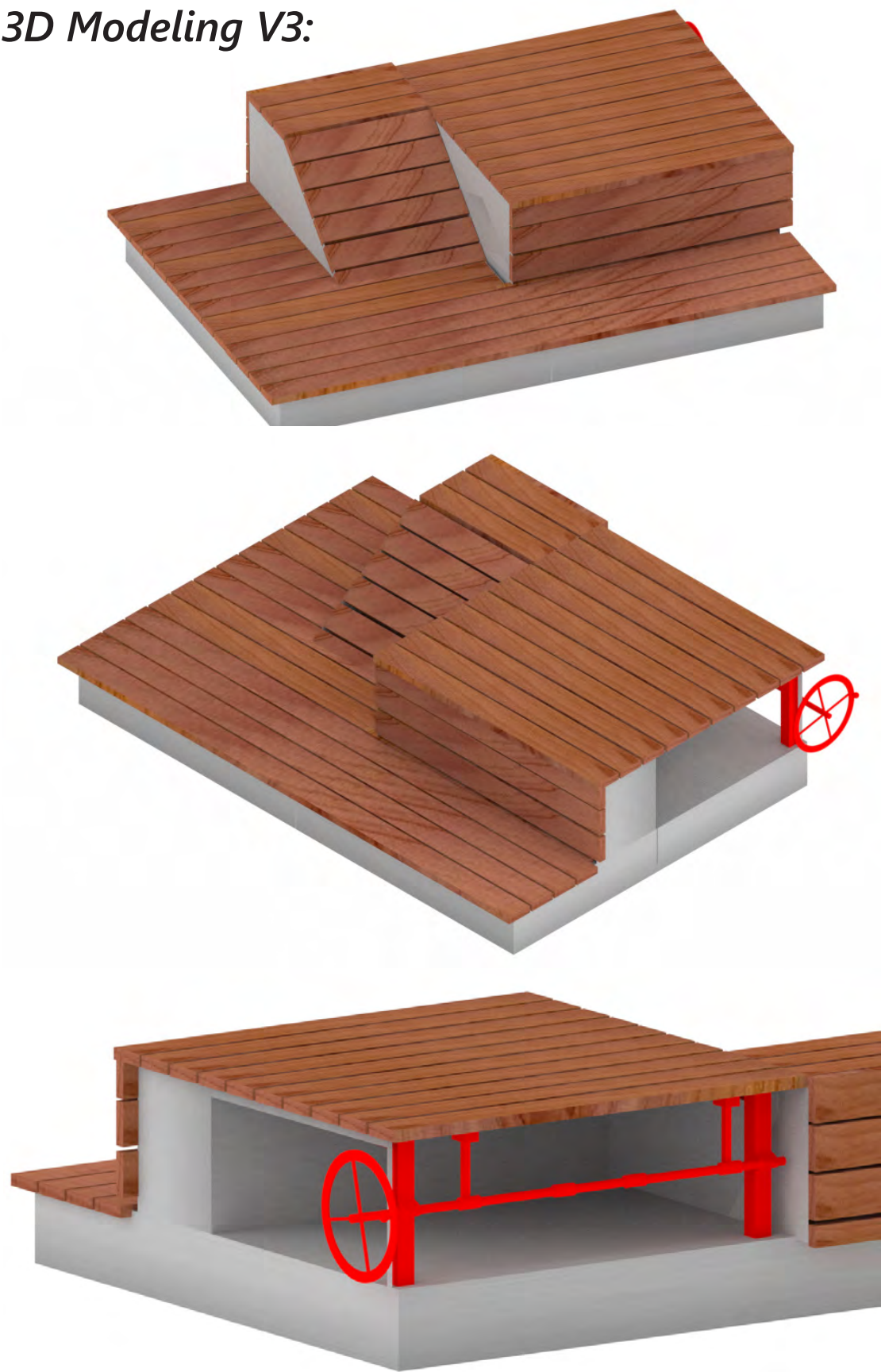
3D Modeling V1:



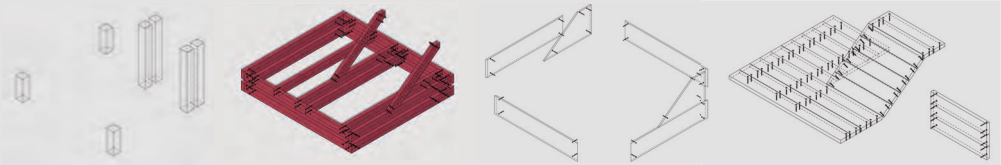
3D Modeling V2:



3D Modeling V3:

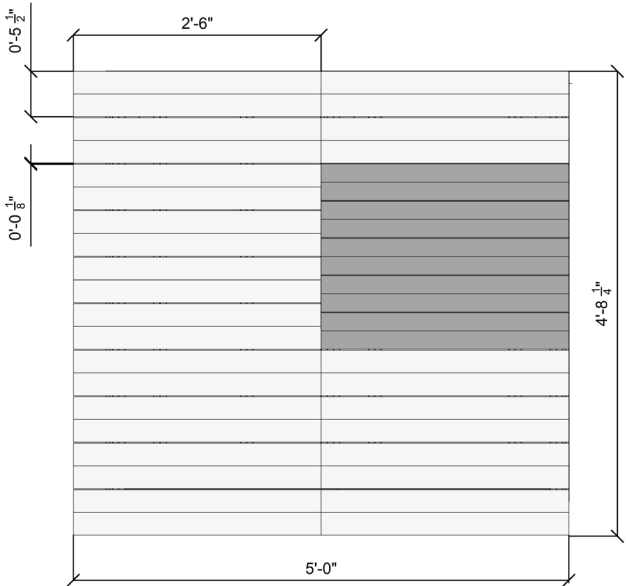


PROTOTYPE TO CAD

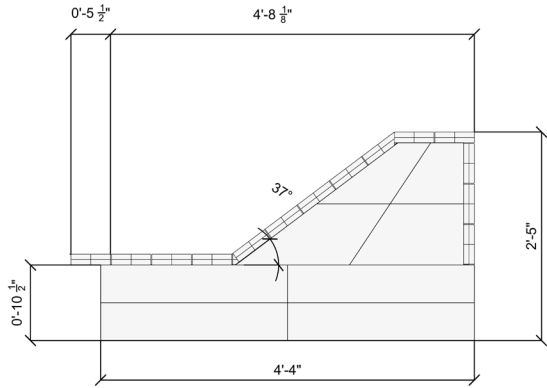


Left Module:

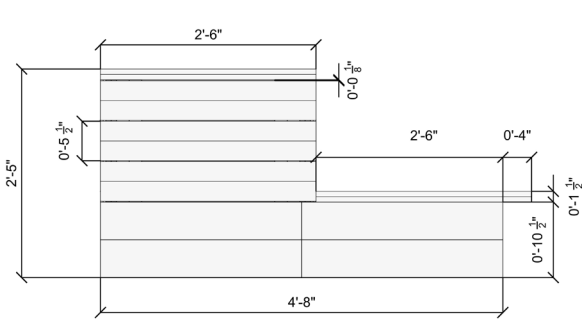
TOP VIEW



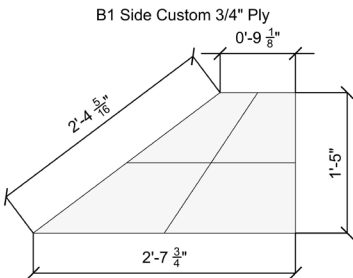
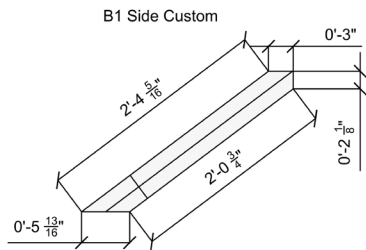
RIGHT VIEW



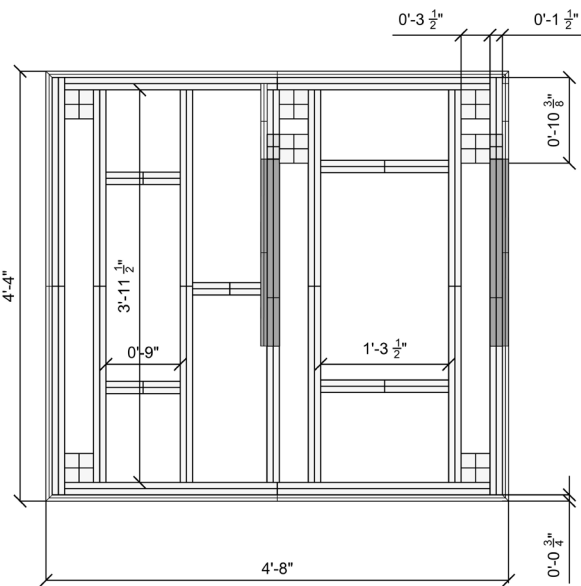
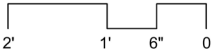
BACK VIEW



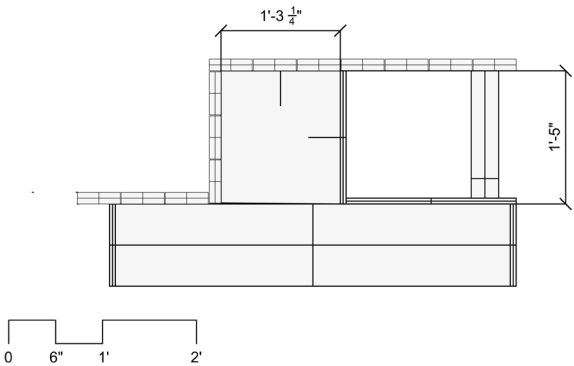
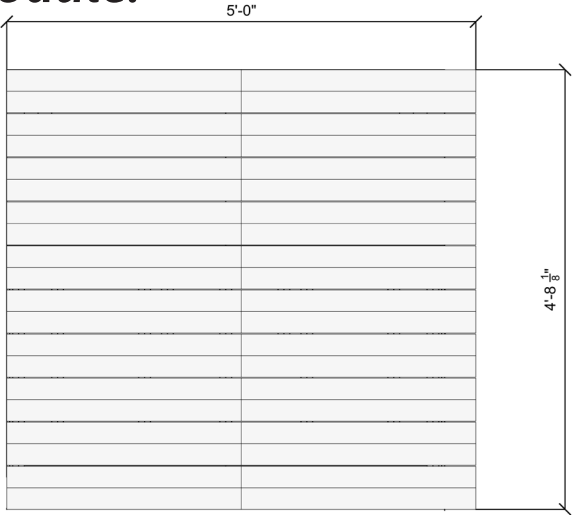
CUSTOM



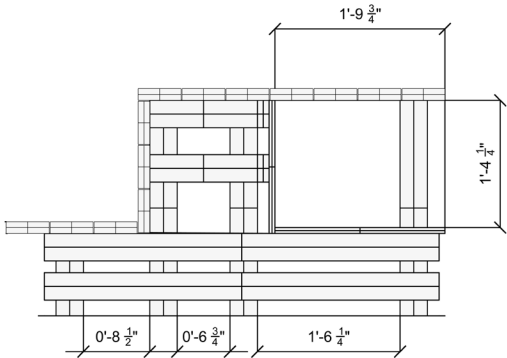
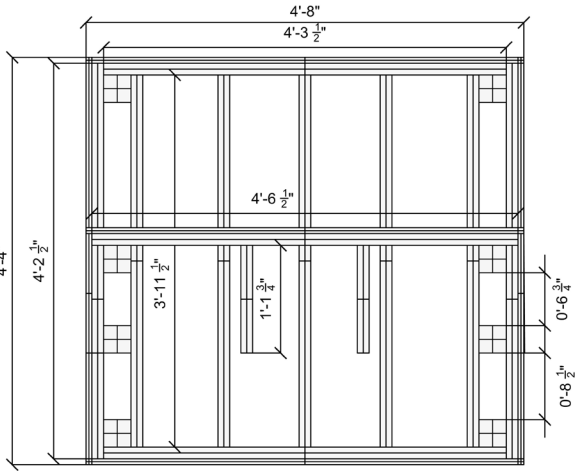
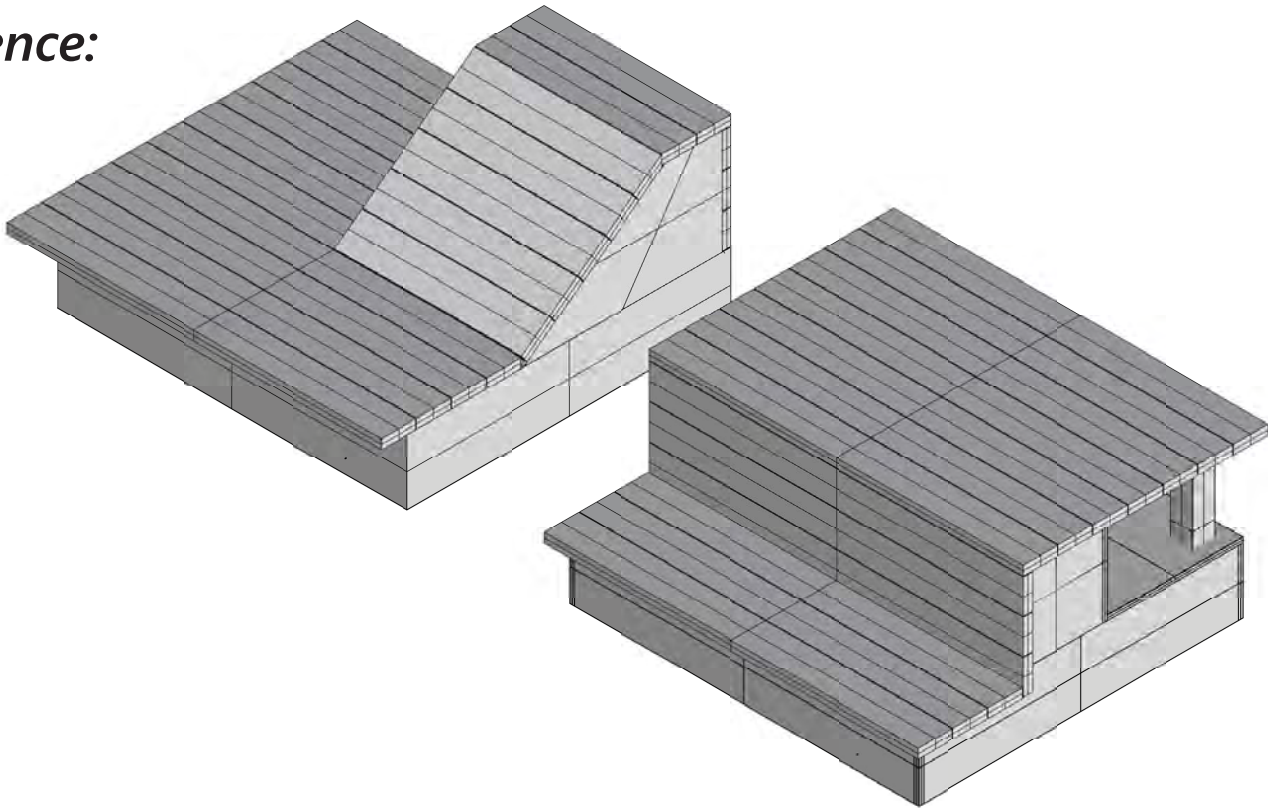
Scale: 1" = 1'



Right Module:



3D Reference:



FINAL DESIGN

MATERIALS LIST

- 4"x4" PRESSURE TREATED LUMBER

2'-3 1/2"

X8
- 10 1/2"

X7
- 2"x4" PRESSURE TREATED LUMBER

4'-6 1/2"

X2
- 4'-3 1/2"

X8
- 4'-2 1/2"

X8
- 3'-11 1/2"

X10
- 3'-8 1/2"

X1
- 1'-1 3/4"

X4
- CUSTOM SIZE

X2
- 3/4" AC PLYWOOD

1'-5"

X2
- CUSTOM SIZE

X2
- 4'-4"

X4
- 4'-8"

X4
- 4'-8"

X1
- 4'-8"

X1
- 2"x6" WESTERN RED CEDAR LUMBER

2'-6"

X16
- 5'-0"

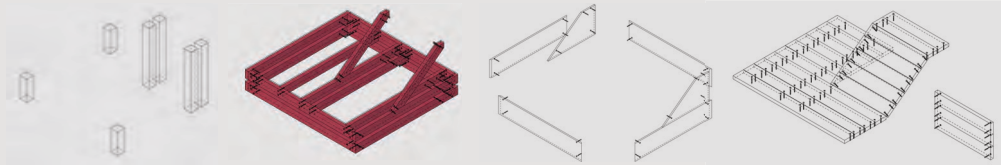
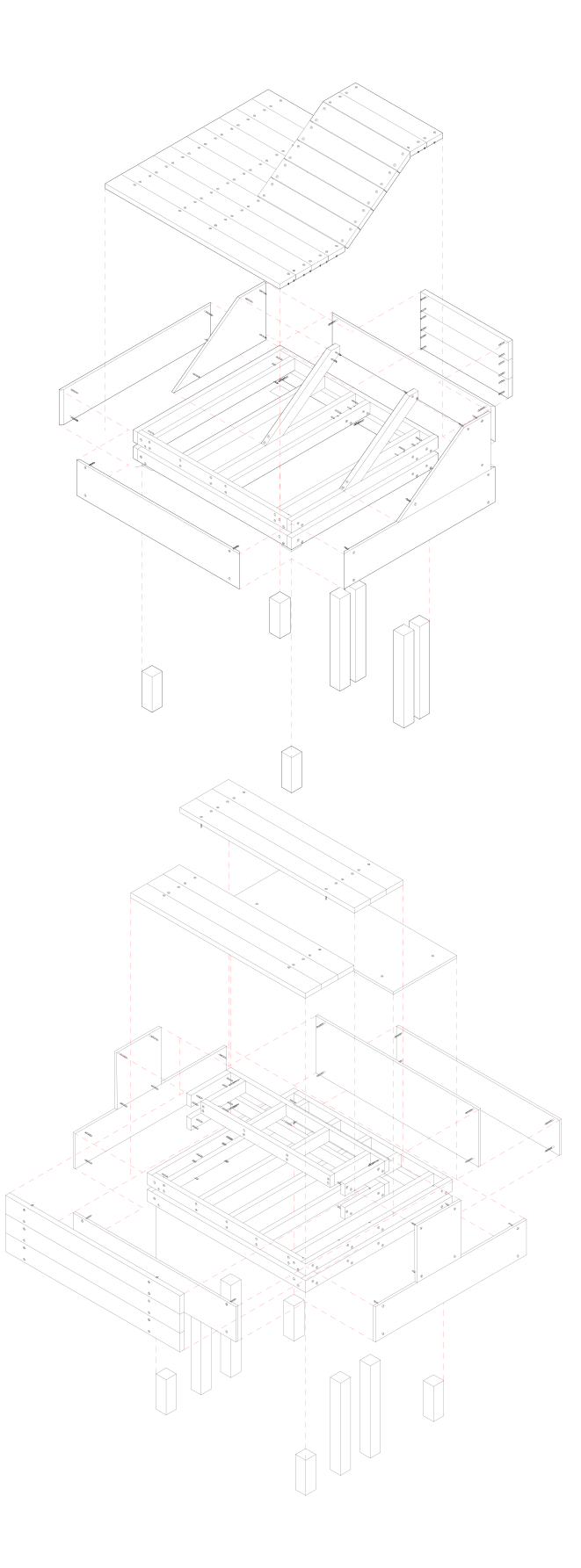
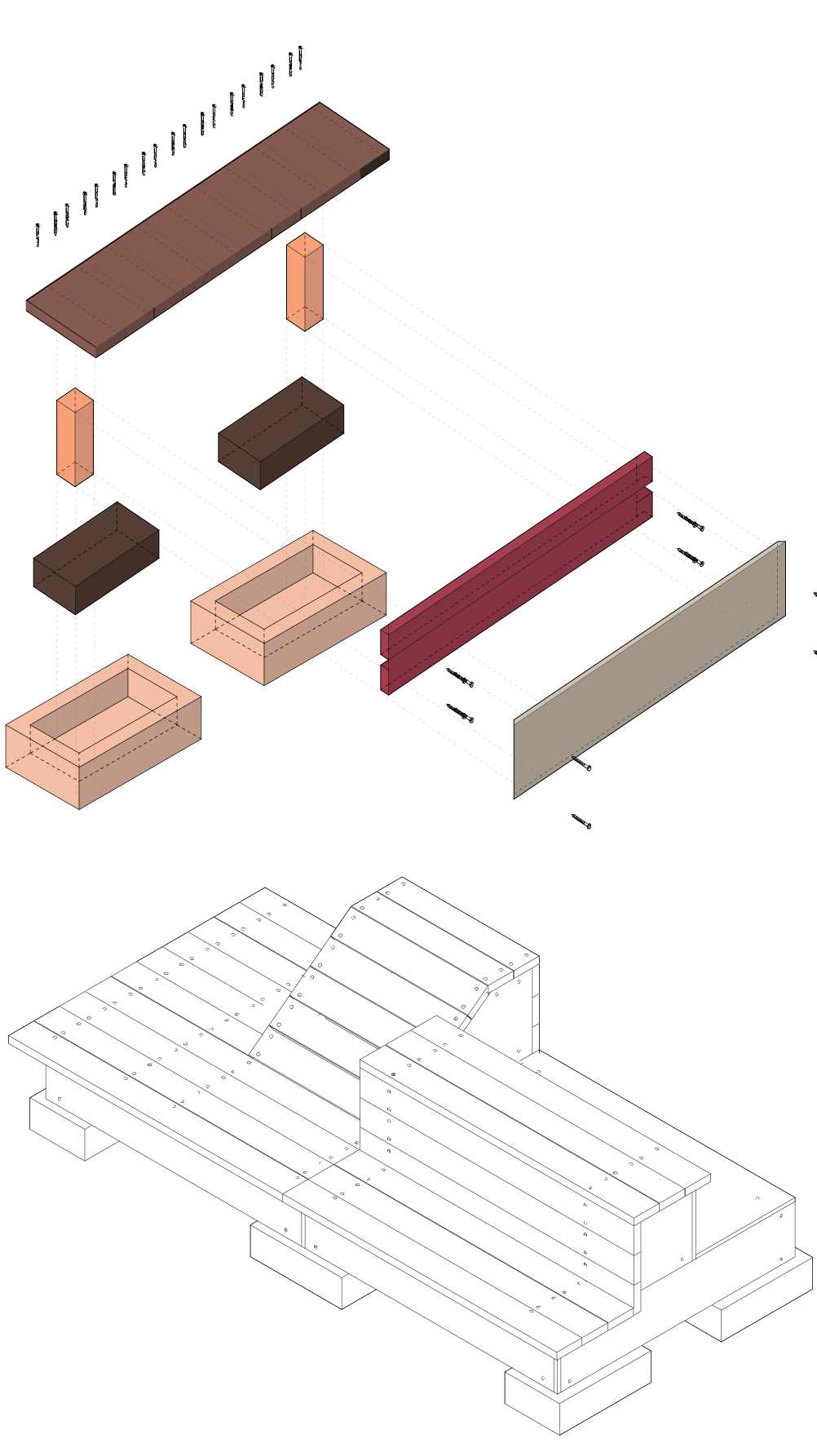
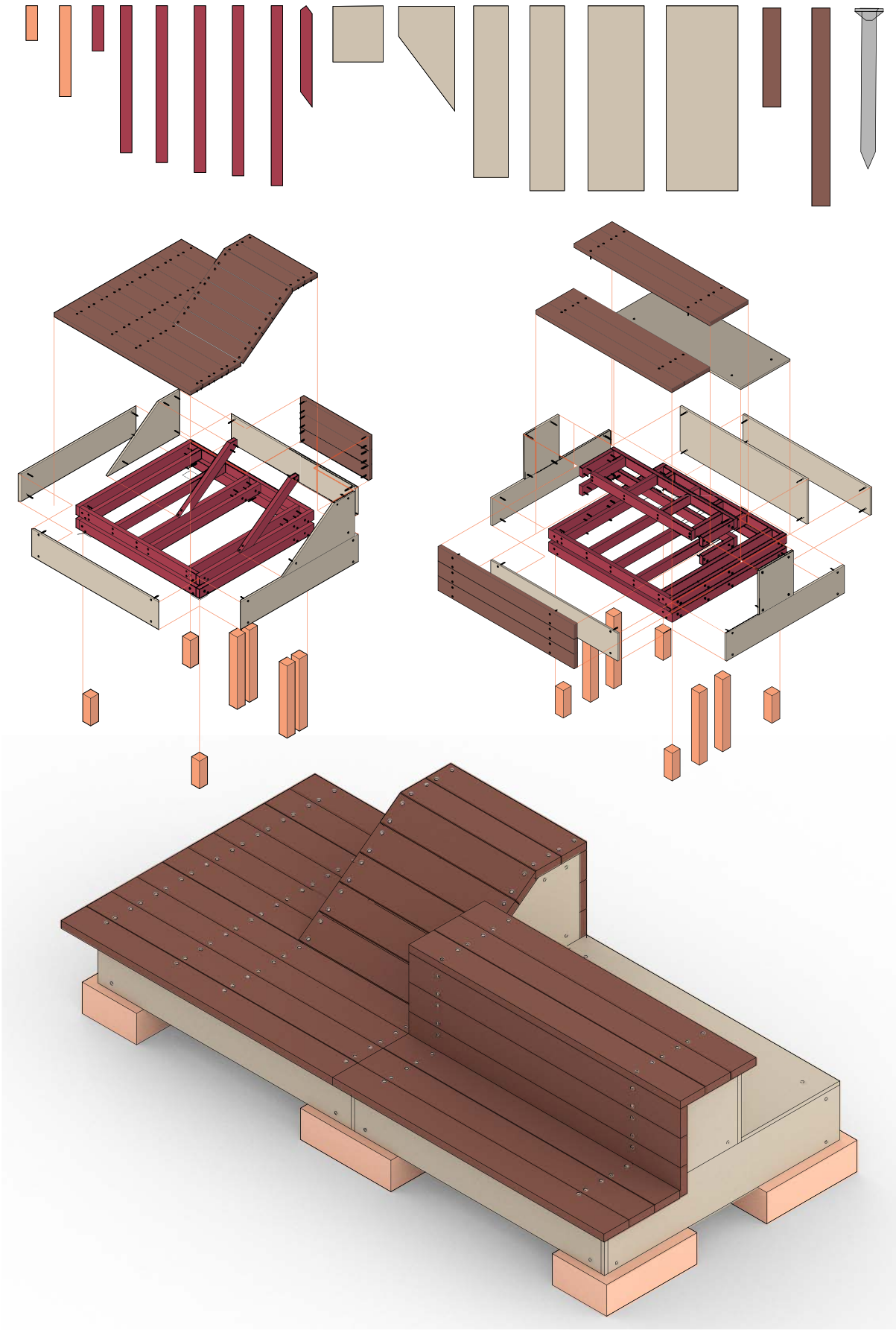
X13
- OTHER
- FOOTINGS

1'-4"

X2
- 1'-8"

X2
- HARDWEAR
- 5 gal.

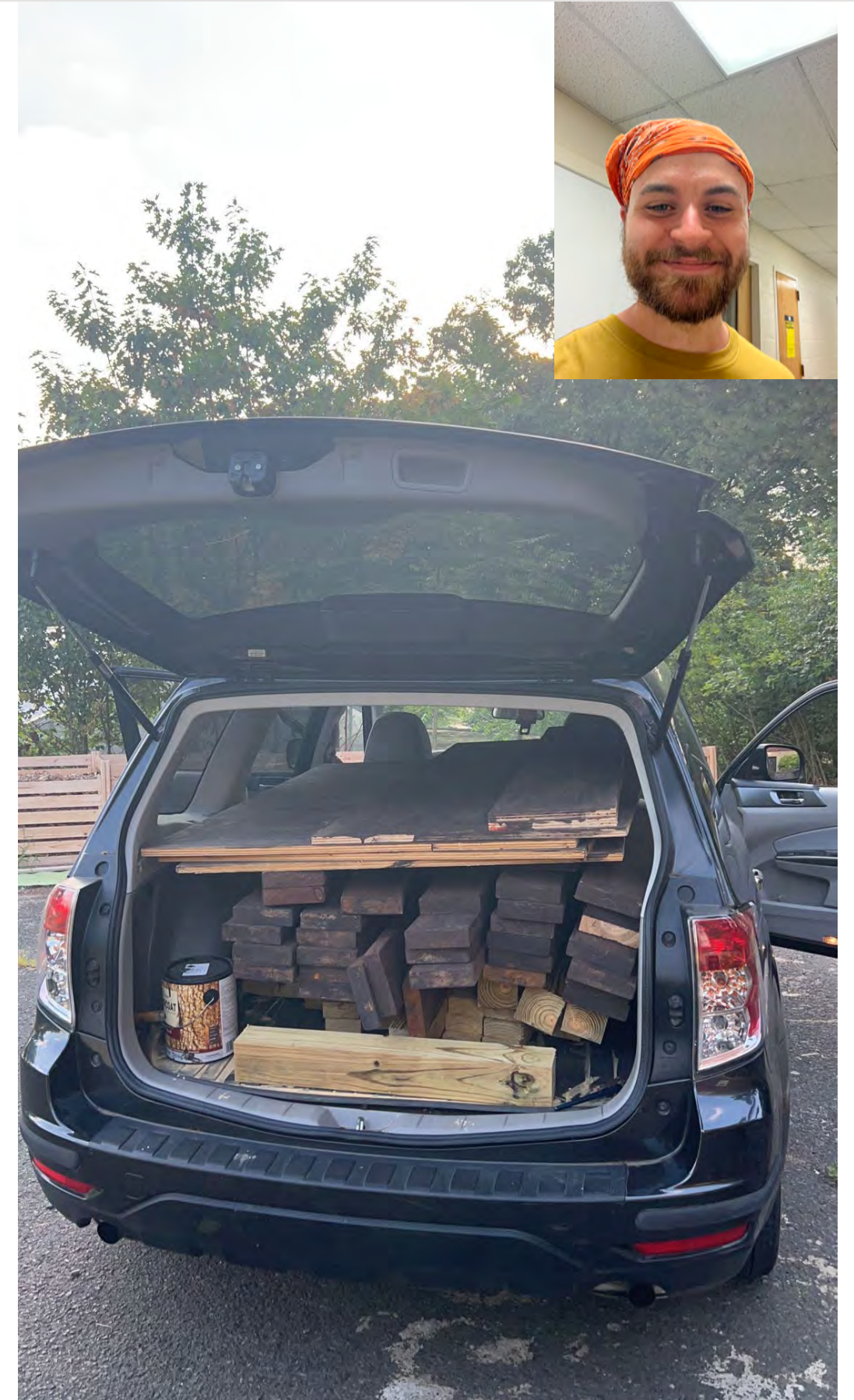
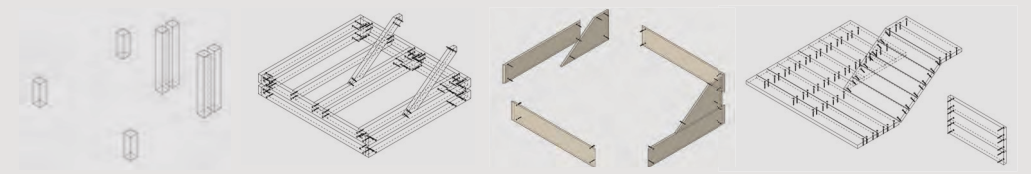
X1
- X372



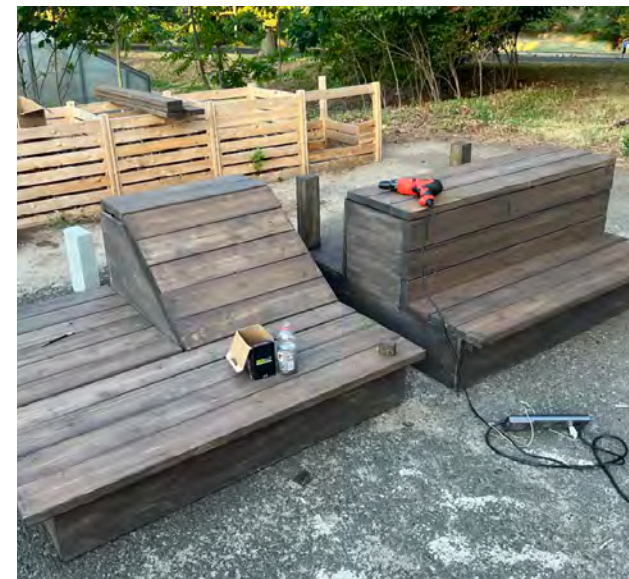
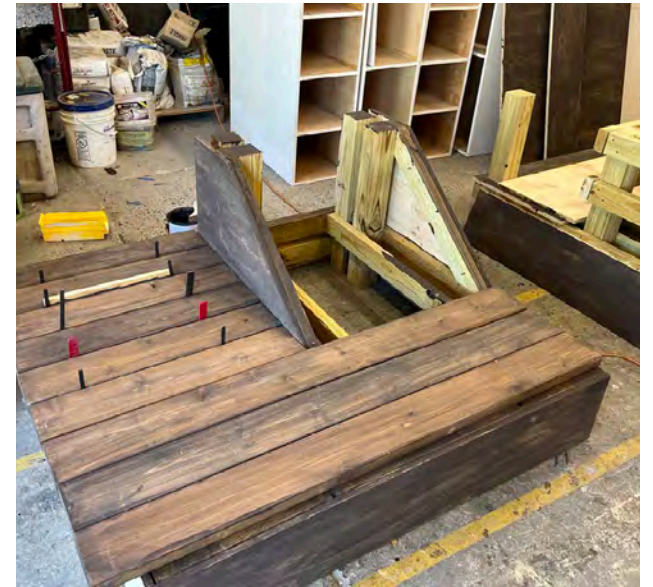
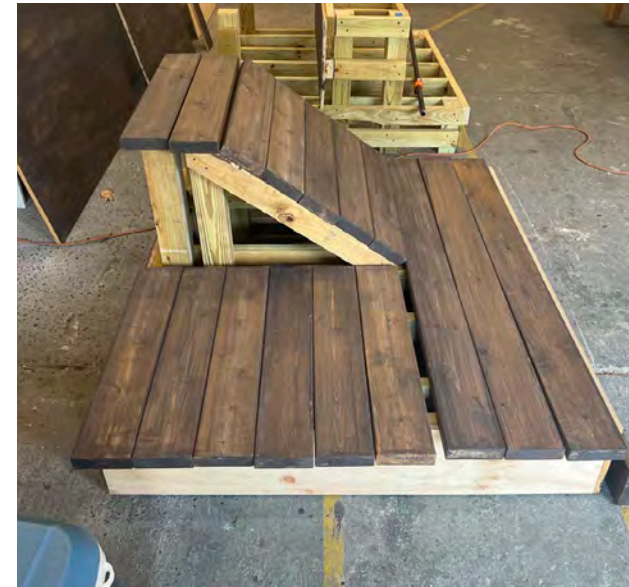
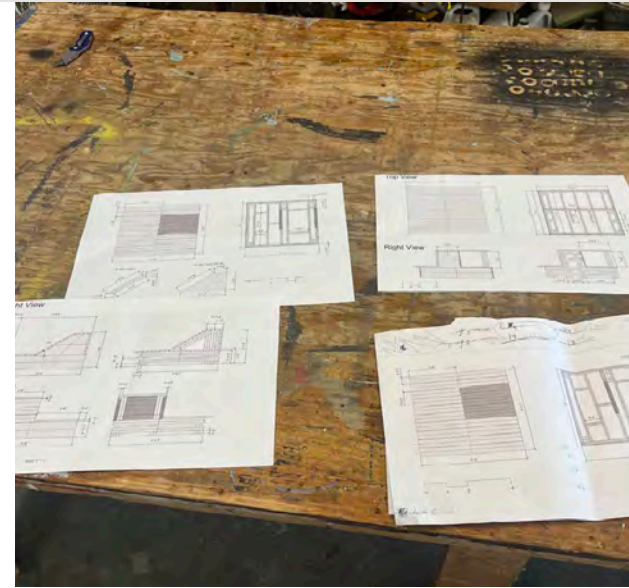
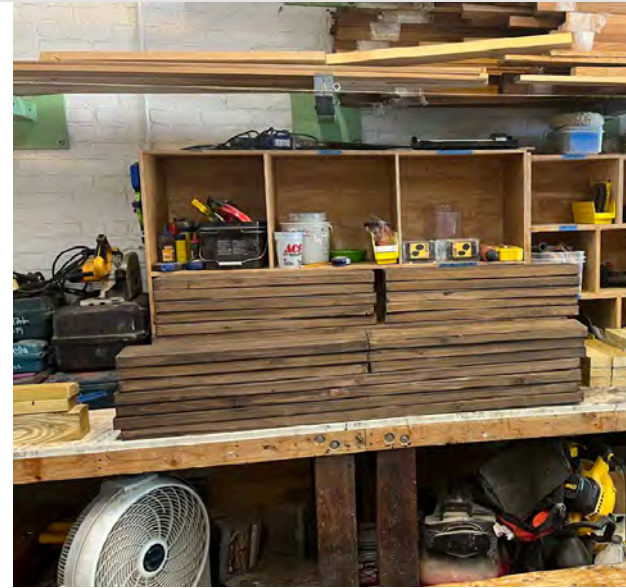
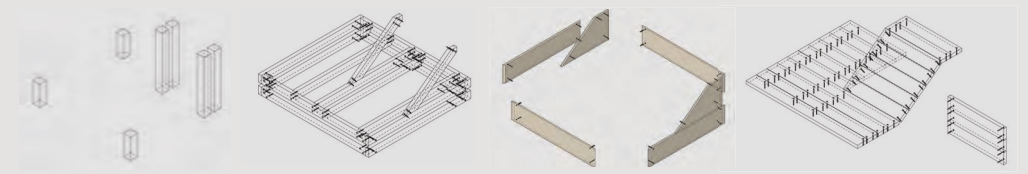
3. FABRICATION



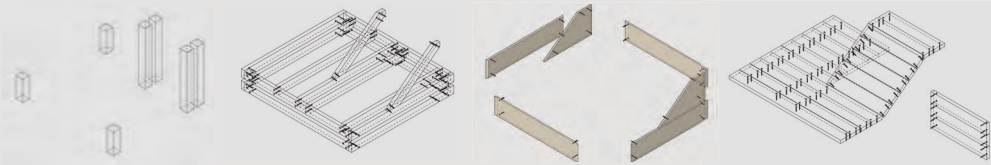
MATERIAL PREP



ASSEMBLY



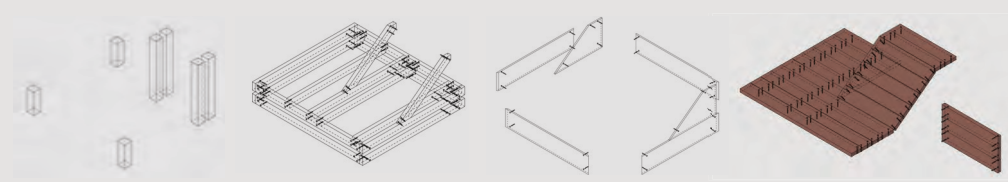
INSTALLATION



4. OBSERVATIONS AND CONCLUSION



HOW TO BENCH?



Socialising



Sitting



Exploring



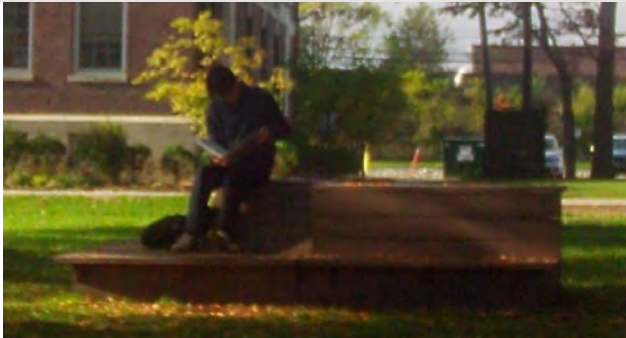
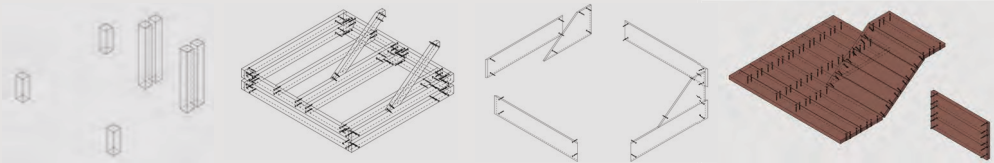
Phone



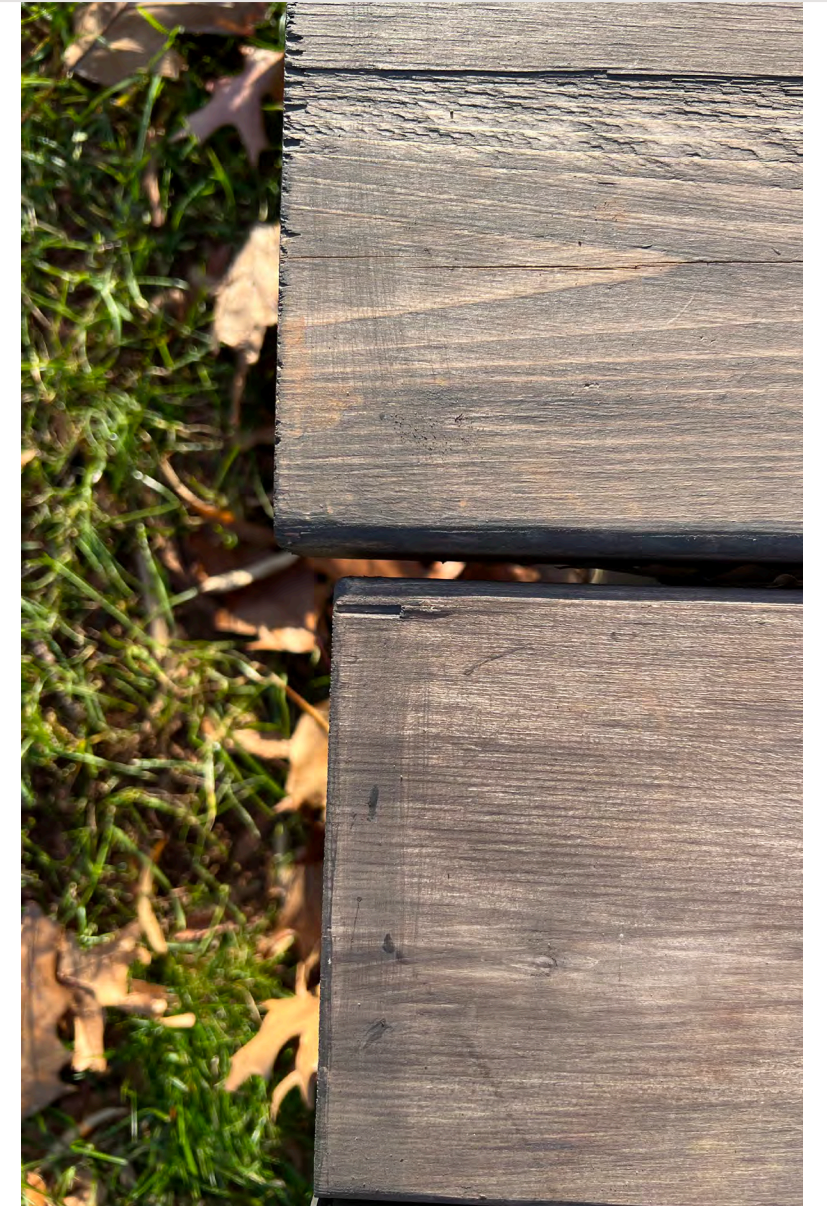
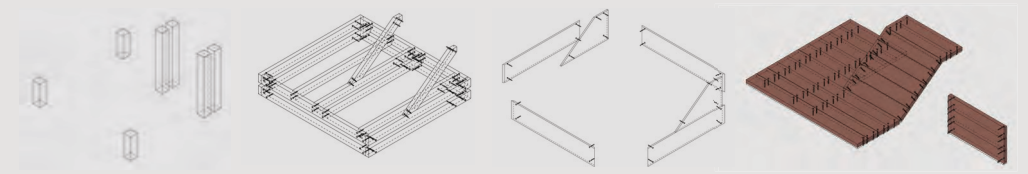
Other



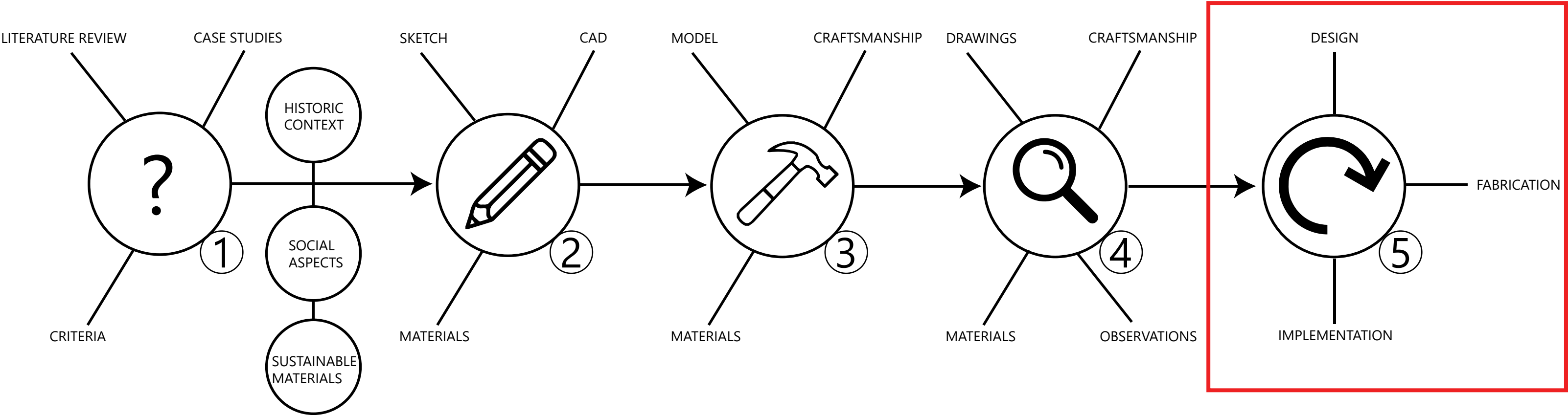
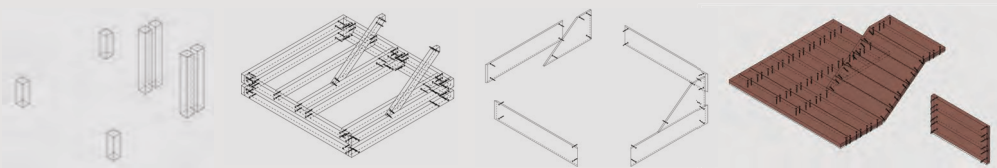
PEOPLE



IMAGINE, DESIGN, TEST, **REPEAT**



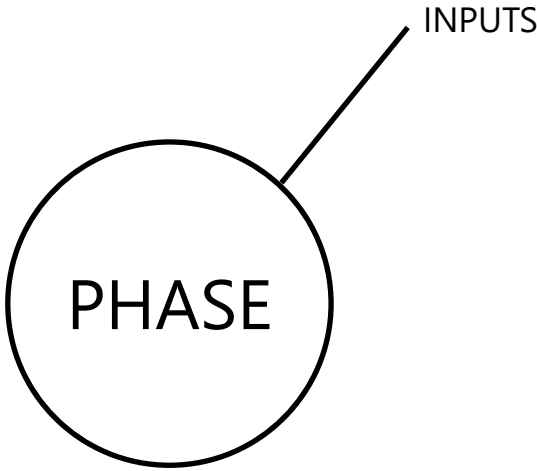
THE TIMELINE OF DESIGN



KEY:

- 1 RESEARCH QUESTION
- 2 DESIGN + SITE SELECTION
- 3 FABRICATION + CONSTRUCTION

- 4 IMPEMEMTNATION
- 5 NEXT STEPS



QUESTIONS

