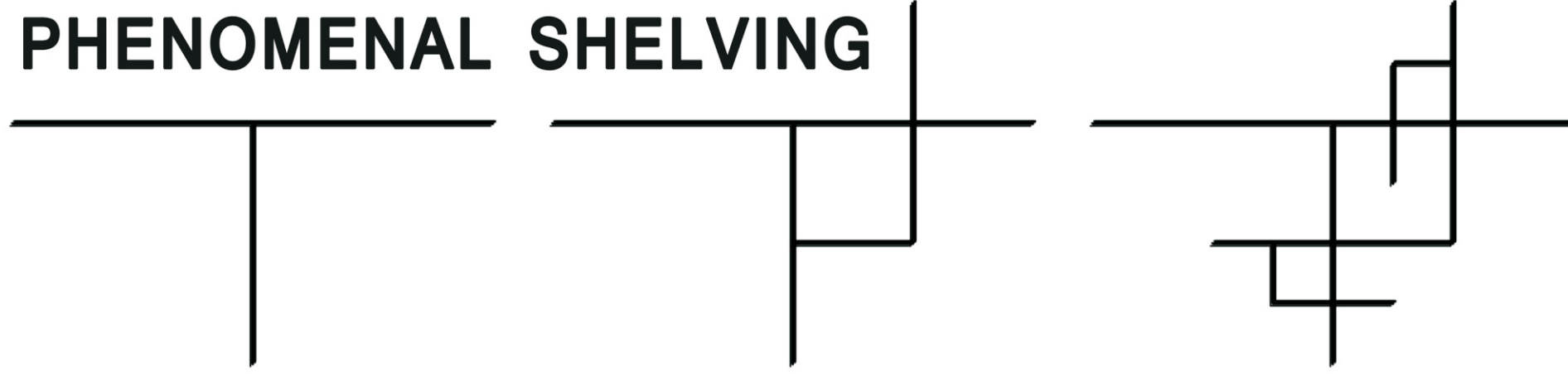


# PHENOMENAL SHELVING



IN RESPONSE TO THE LACK OF SHELVING SPACE AVAILABLE WITHIN THE PHENOMENAL RESEARCH CENTER (PRC) AT SOUTHERN ILLINOIS UNIVERSITY, A MODULAR SHELVING UNIT HAS BEEN DEvised TO MEET THE USERS NEEDS AND PERSONAL VISUAL TASTE. THE MODULAR COMPOSITION EXPLORES THE CONCEPT OF LINDENMAYER SYSTEM'S AS A SOLUTION OF INTERCHANGEABLE UNITS FLEXIBLE TO THE USER'S VISION.

# INTERPRETATIVE PROCESS

## Input:

- String: A+, A--^+
- Interpretation Rules:

- (+) = Turn right 90 degrees
- (-) = Turn left 90 degrees
- (^) = Scale x2

## Result:



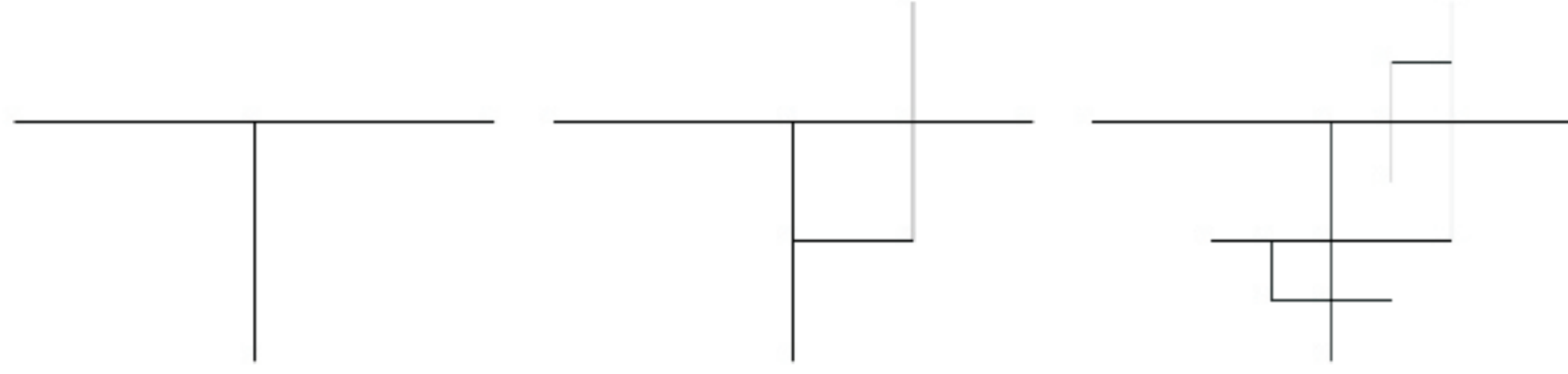
# GENERATIVE PROCESS

## Input:

- Initial String: A: A+, A--^
- Start: A
- Iterations: 10

## Replacement Process:

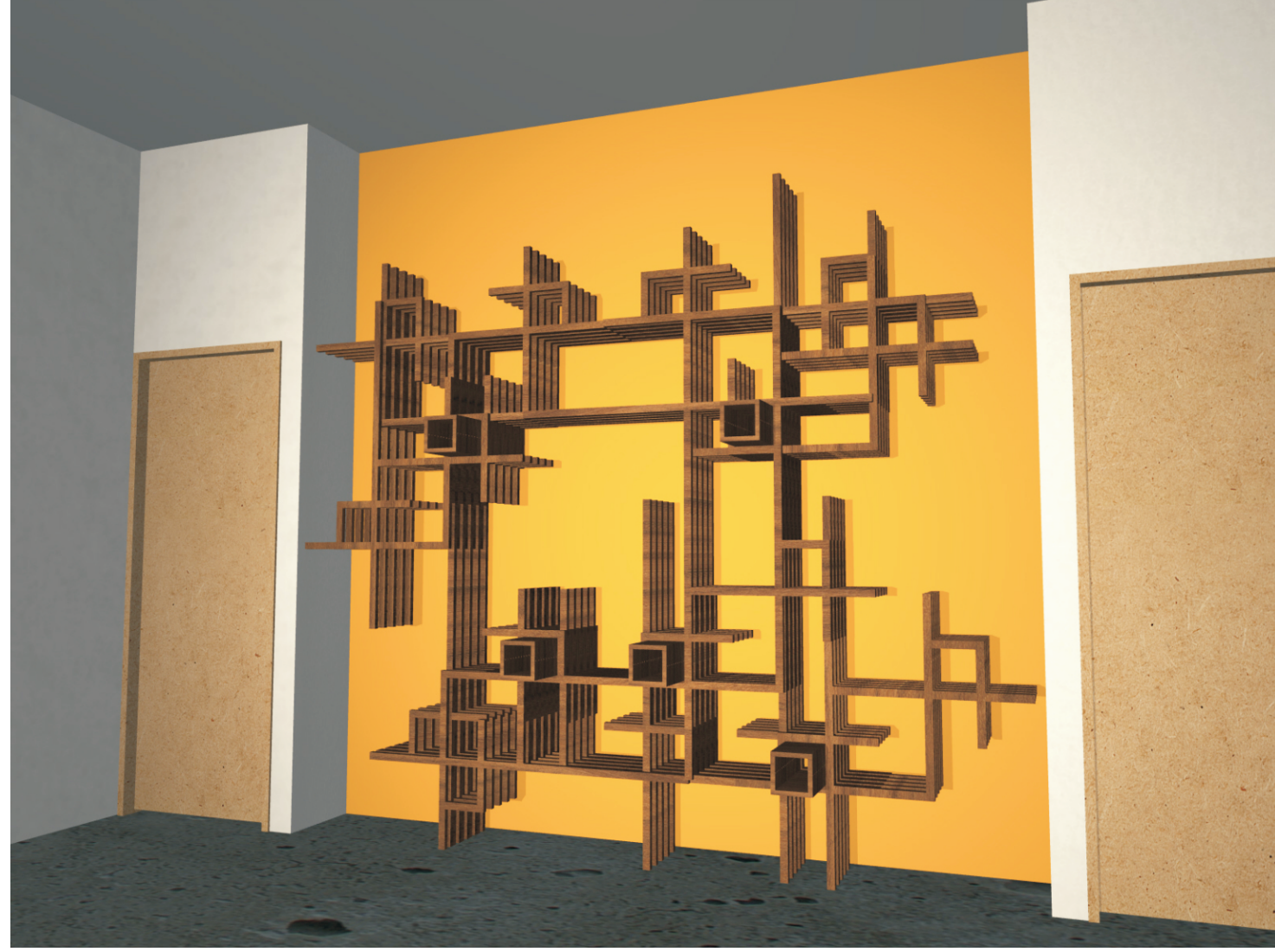
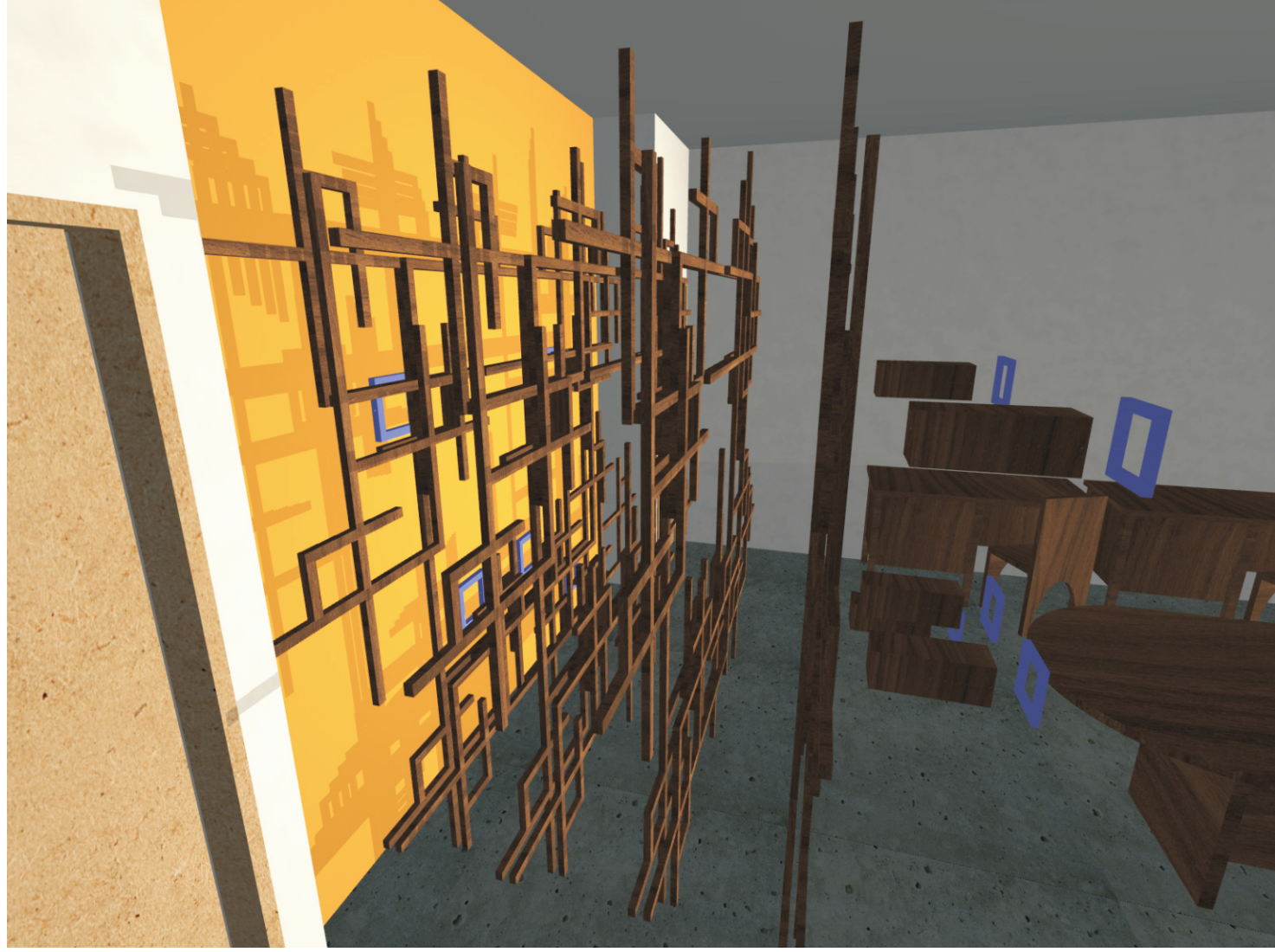
- 0) A
- 1) A+, A--^
- 2) A+, A--^+, A+, A--^--^
- 3) A+, A--^+, A+, A--^--^+, A+, A--^+, A+, A--^--^--^
- 4) A+, A--^+, A+, A--^--^+, A+, A--^+, A--^--^+, A+, A--^+, A+, A--^--^--^+, A+, A--^--^--^+, A+, A--^--^--^--^

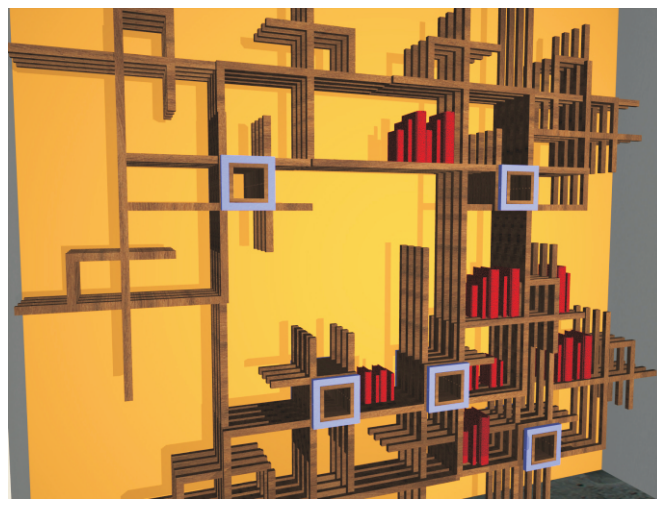
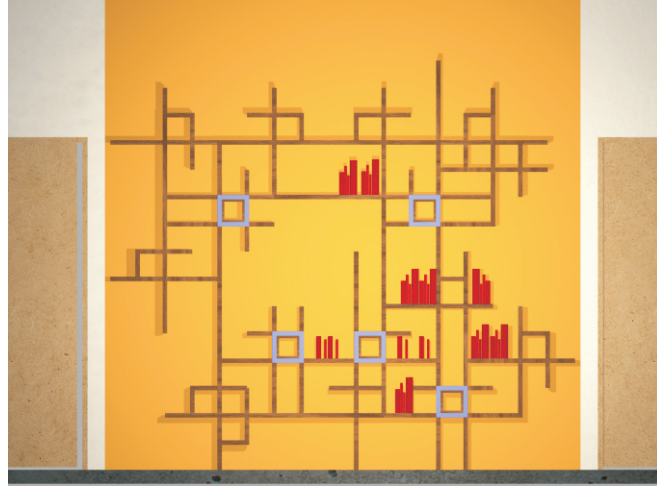
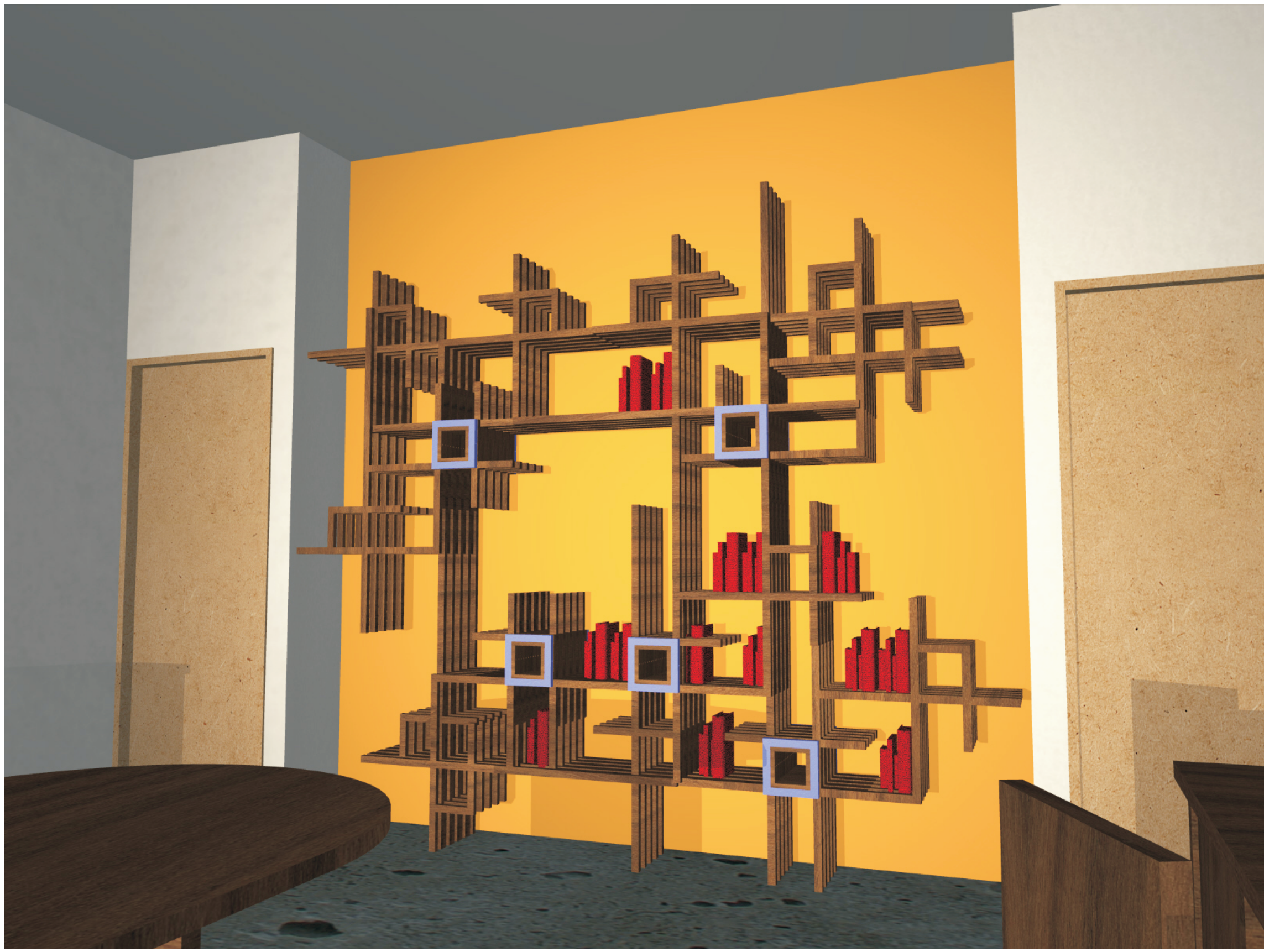


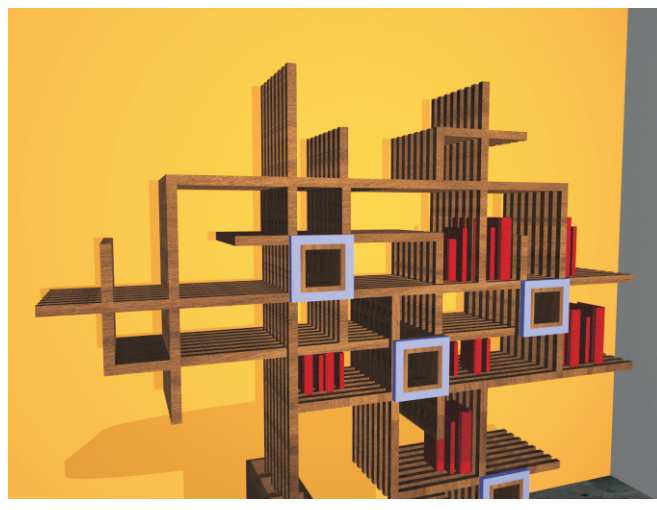
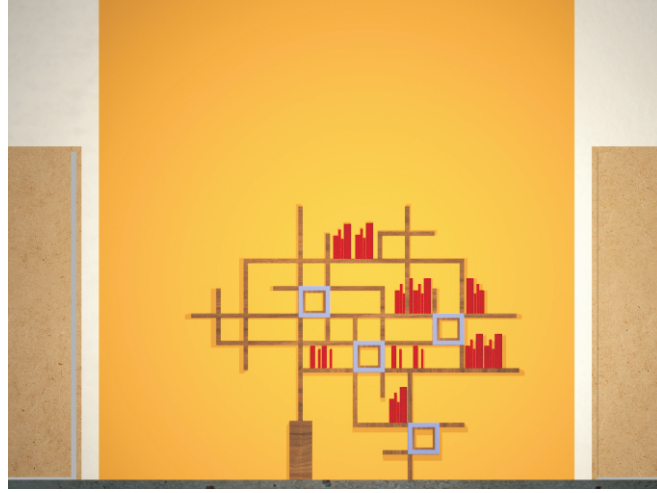
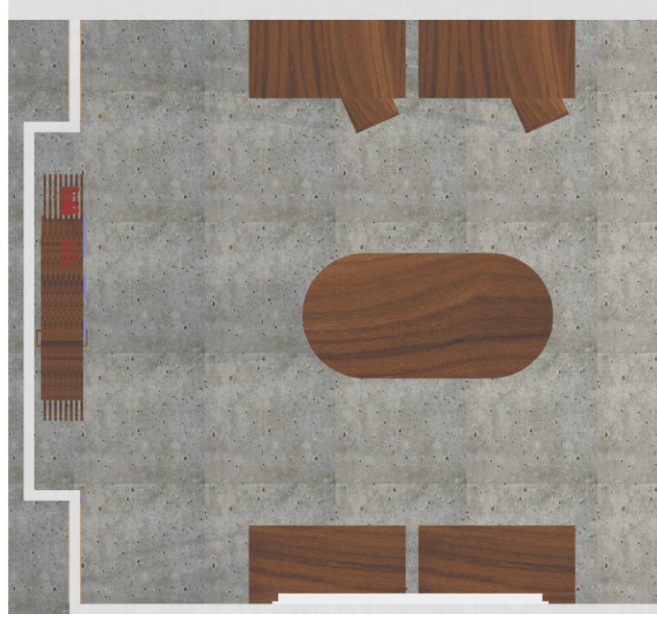
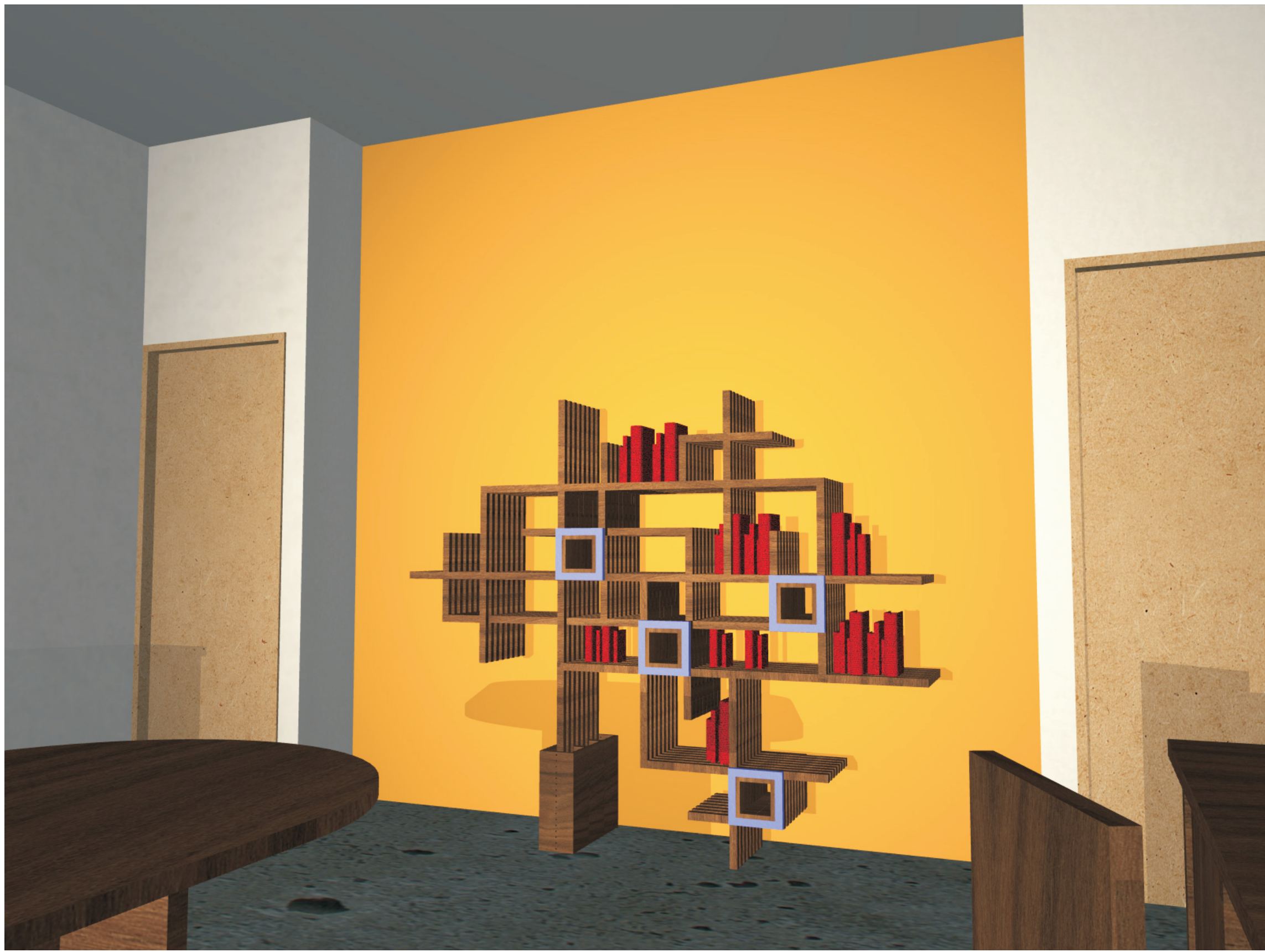
In a pursuit to create a responsive, adaptable, user derived design, attention was directed towards L-Systems as a concept. L-Systems also known as Lindenmayer System was targetted for its growth process based on specific variables influencing the overall design.

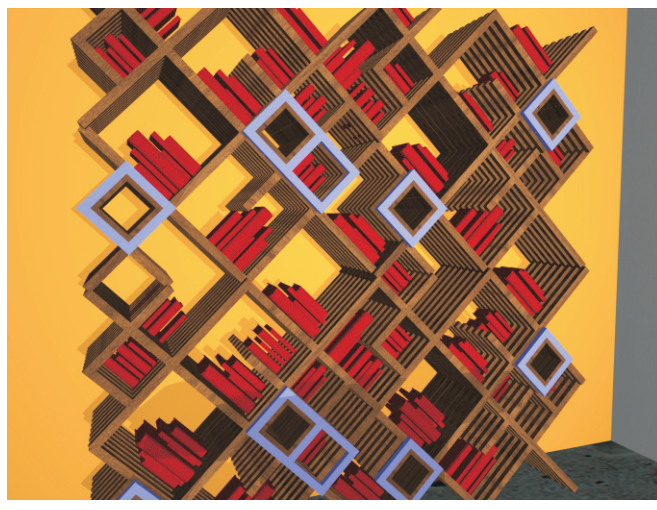
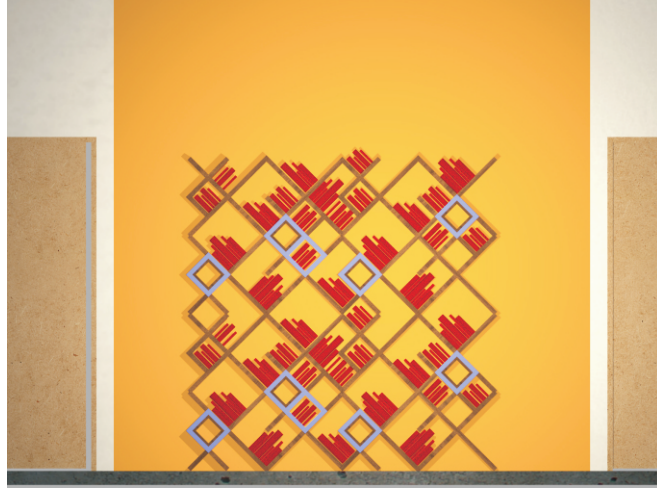
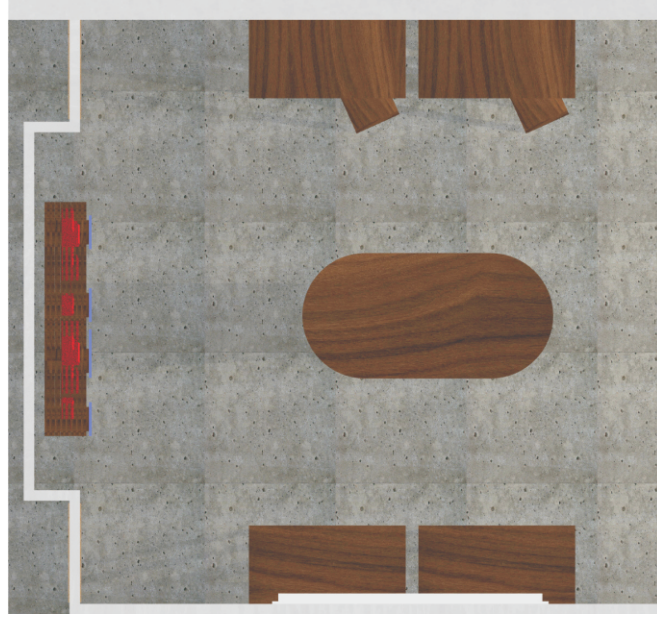
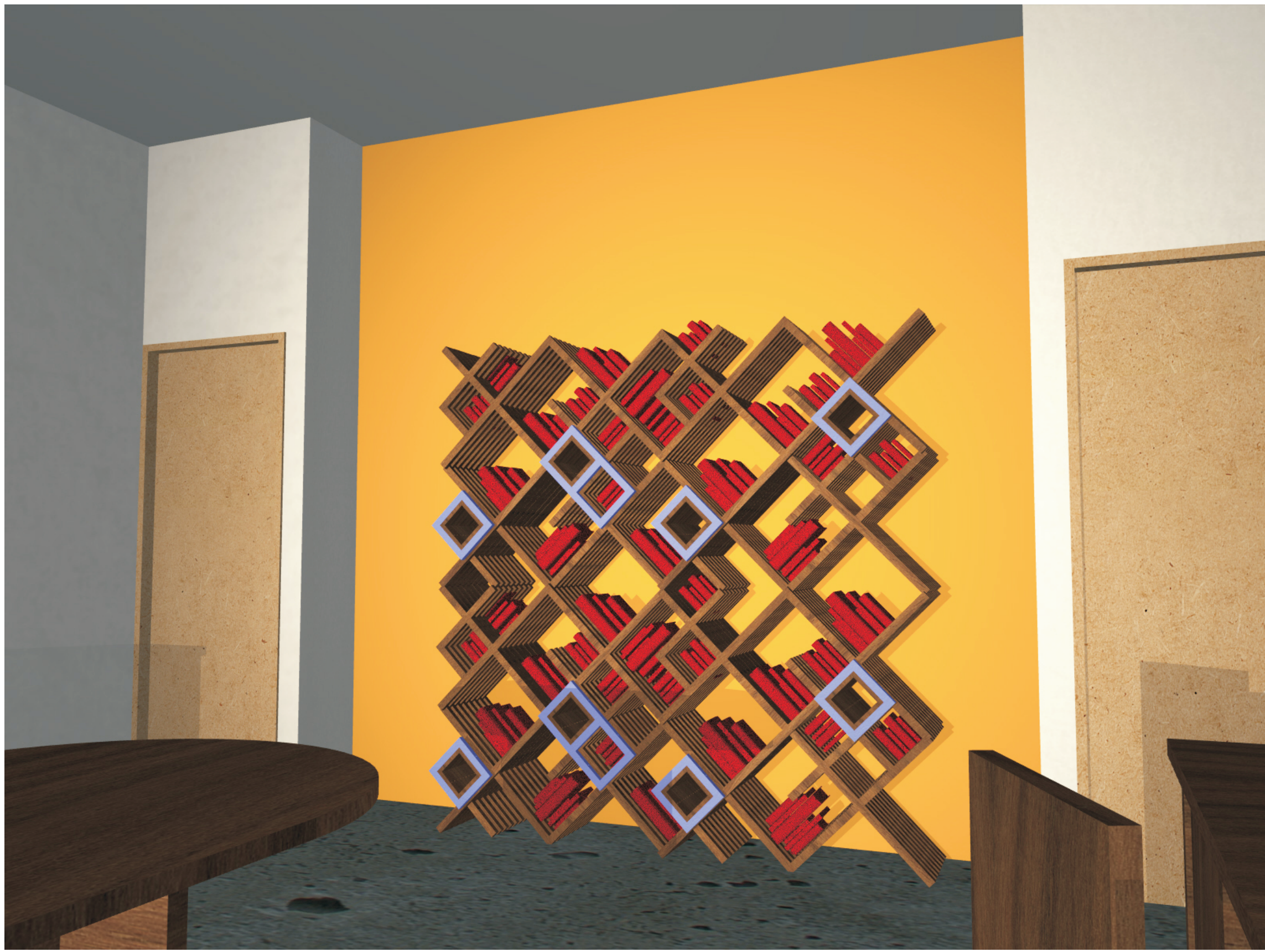
This fractal system is made up of a unit that replicates itself multiple times, each copy being transformed by a function.







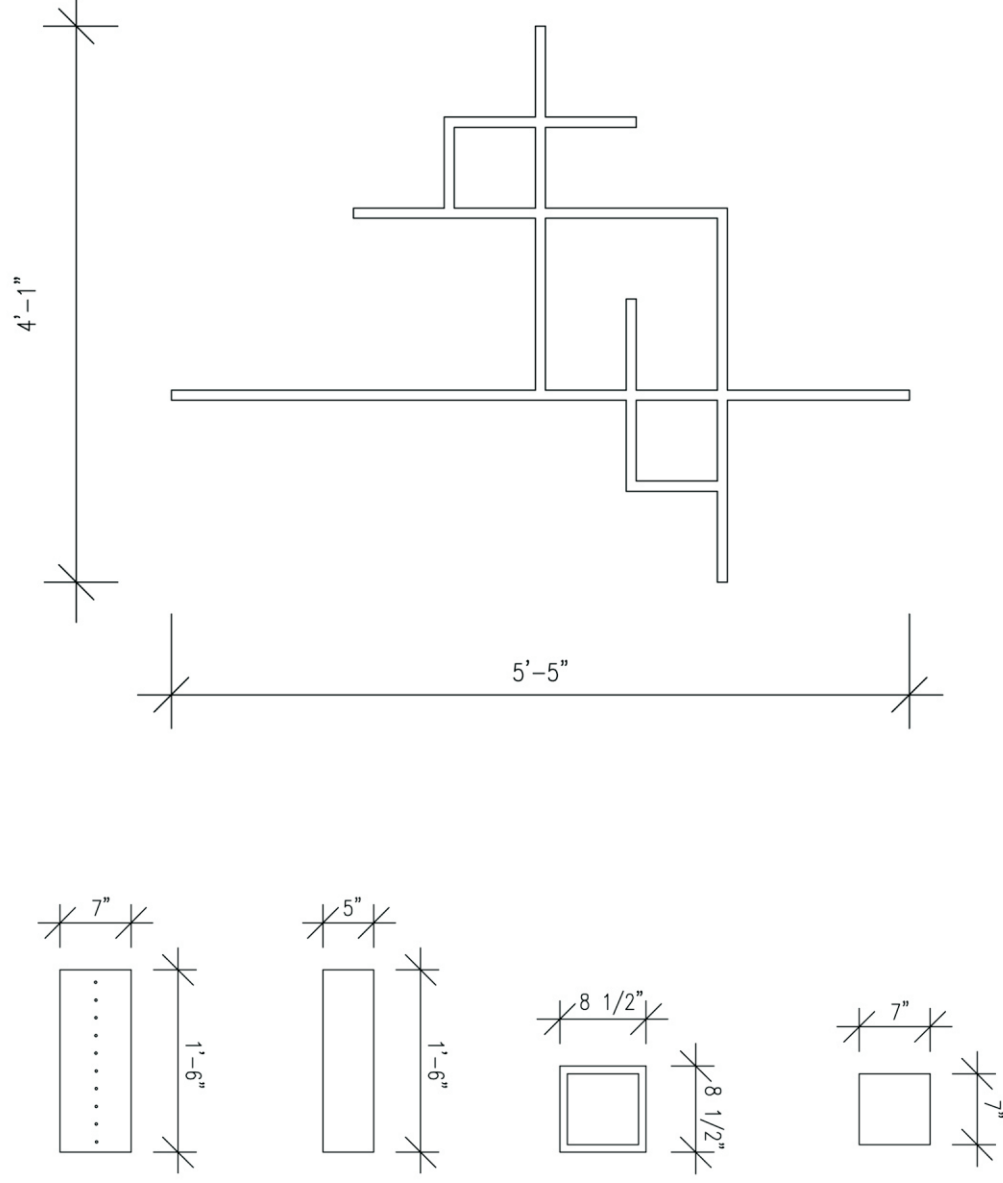
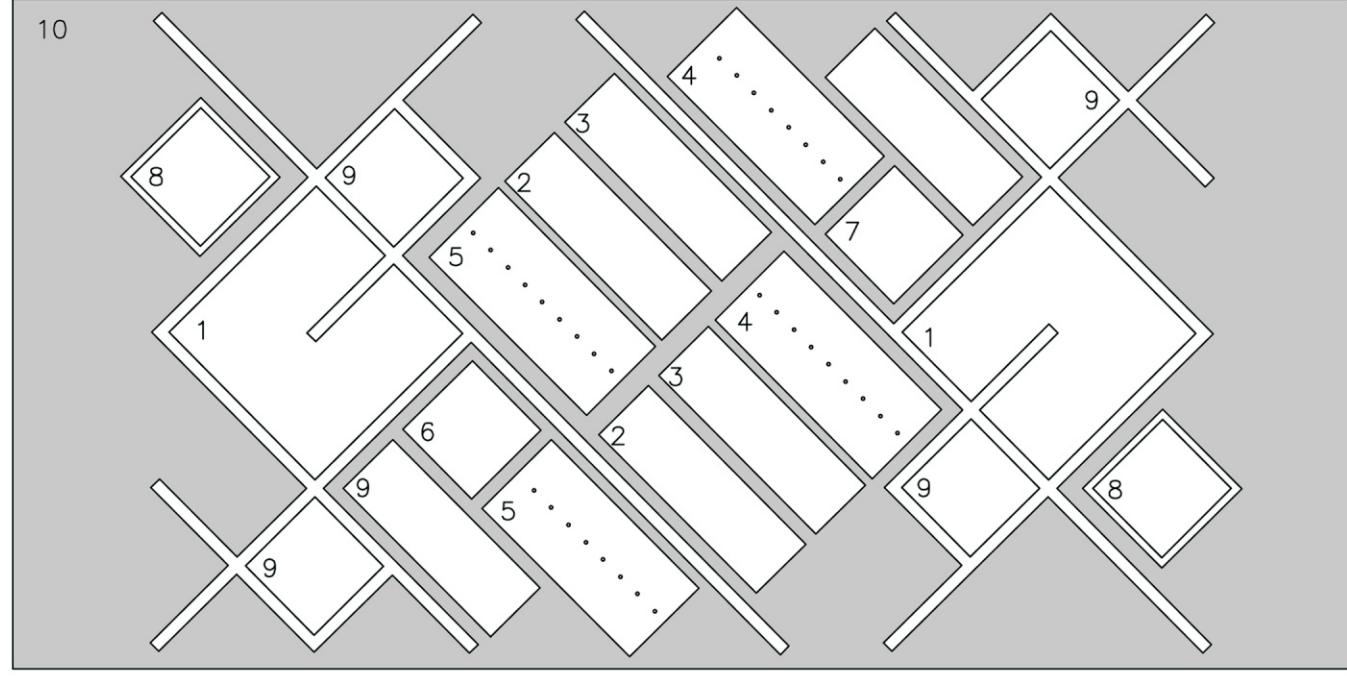




# FABRICATION DETAILS

## CnC Template

- |                      |                     |
|----------------------|---------------------|
| 1. Modular Piece     | 6. Box Side (back)  |
| 2. Box Side (top)    | 7. Box Side (front) |
| 3. Box Side (bottom) | 8. Box Cap          |
| 4. Box Side (left)   | 9. Void Space       |
| 5. Box Side (right)  | 10. 4'x8'x1/2" Wood |

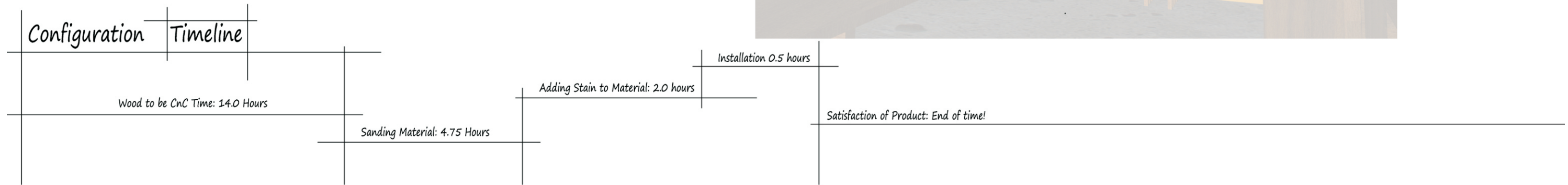


# PROPOSED CONFIGURATION 1

Configuration 1 is designed to cover the entire wall. Capable of holding an estimated 350 books among other items. The shelving unit is created with Douglas Fir larch with a Red Mahogany Stain that allows for a dark visualization to complement the orange wall.

Material	Size	Price Per Unit	Quantity	Total Cost
Douglas Fir Larch	$\frac{23}{32}$ " x 4' x 8'	\$18.01	24	\$432.24
Dowel Rods	$\frac{1}{4}$ " $\emptyset$ x 4'	\$0.98	8	\$7.84
Screws	6 x $\frac{3}{4}$ "	\$3.00 per 100	2 boxes	\$6.00
Red Mahogany Stain	32 fl. oz.	\$7.18	2	\$14.36
Wood Filler	3.25 fl. oz.	\$2.79	2	\$2.79

Overall Configuration Cost: \$463.23  
Installation of Configuration: 16.30 hours



# PROPOSED CONFIGURATION 2

Material	Size	Price Per Unit	Quantity	Total Cost
Douglas Fir Larch	$\frac{23}{32}$ " x 4' x 8'	\$18.01	28	\$534.54
Dowel Rods	$\frac{1}{4}$ " $\emptyset$ x 4'	\$0.98	9	\$9.34
Screws	6 x $\frac{3}{4}$ "	\$3.00 per 100	2 boxes	\$6.00
Red Mahogany Stain	32 fl. oz.	\$7.18	2	\$14.36
Wood Filler	3.25 fl. oz.	\$2.79	2	\$2.79

Overall Configuration Cost: \$567.03  
Installation of Configuration: 16.50 hours

Configuration 2 results in using the modular piece in a different orientation while used for the same purpose. The modular piece turned at a 45 degree angle is less effective in holding objects, but has the capacity to hold roughly 250 books.