

SARAH LYNN MACTAGGART | UIUC B. ARCH

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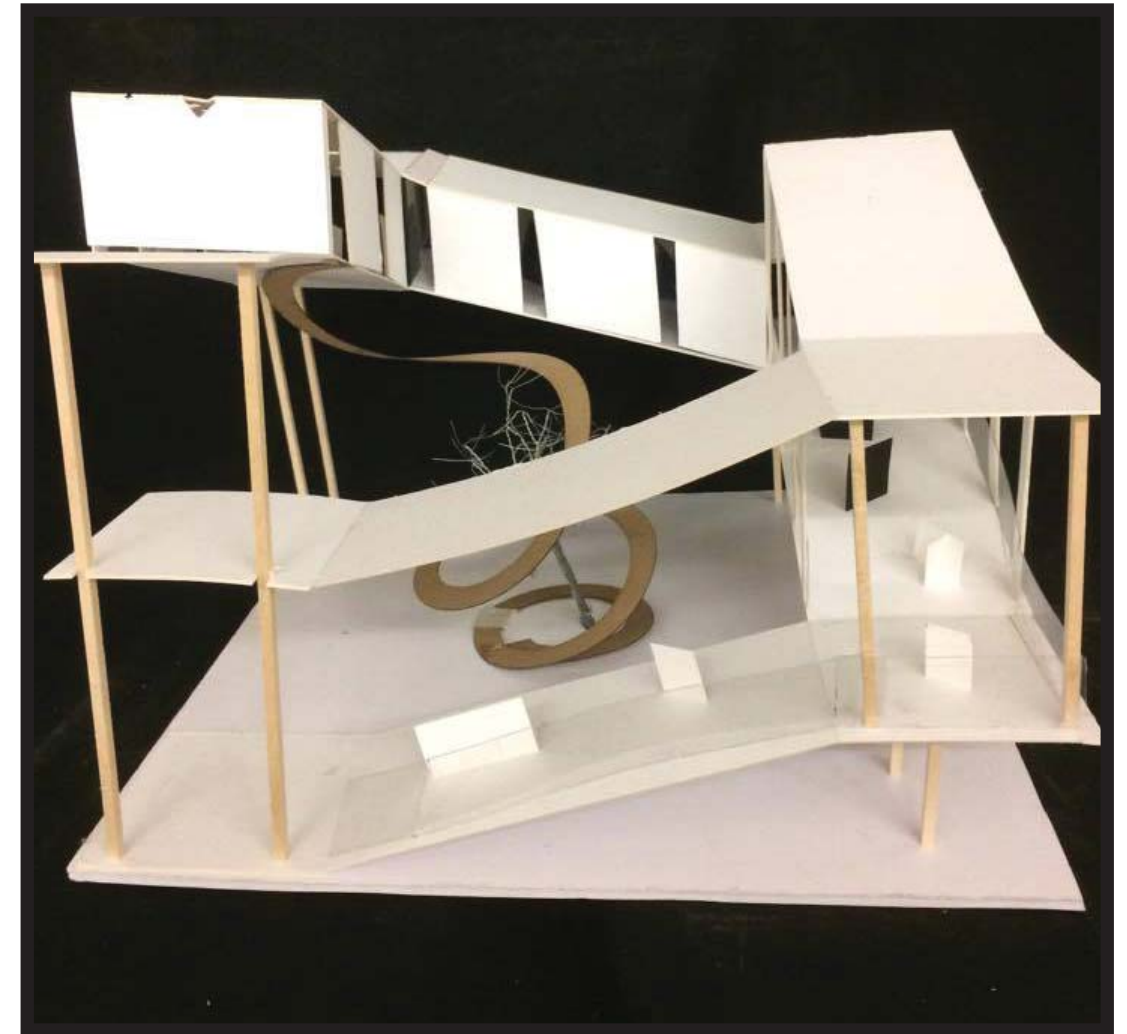
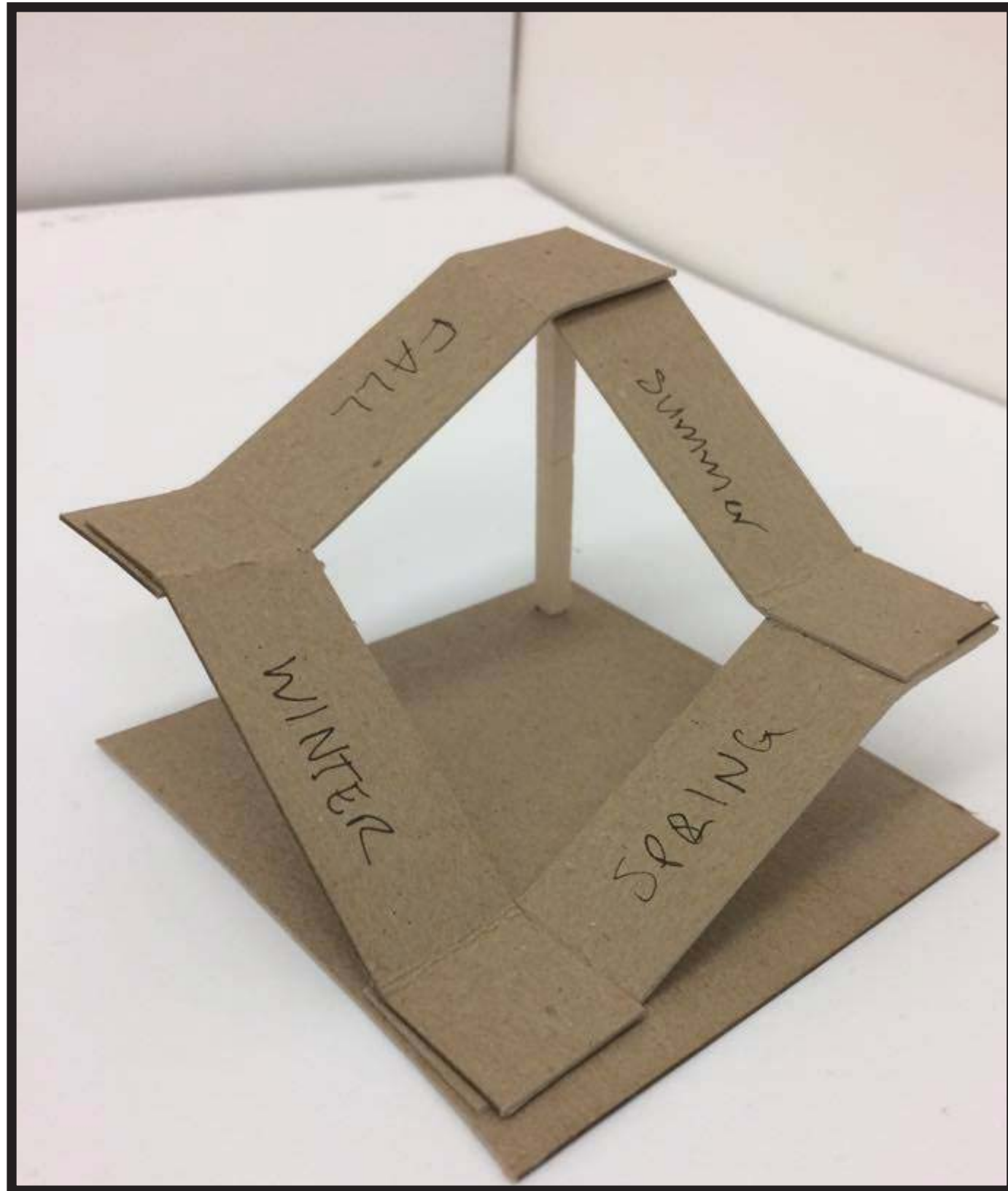
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# CONCEPTUAL DESIGN



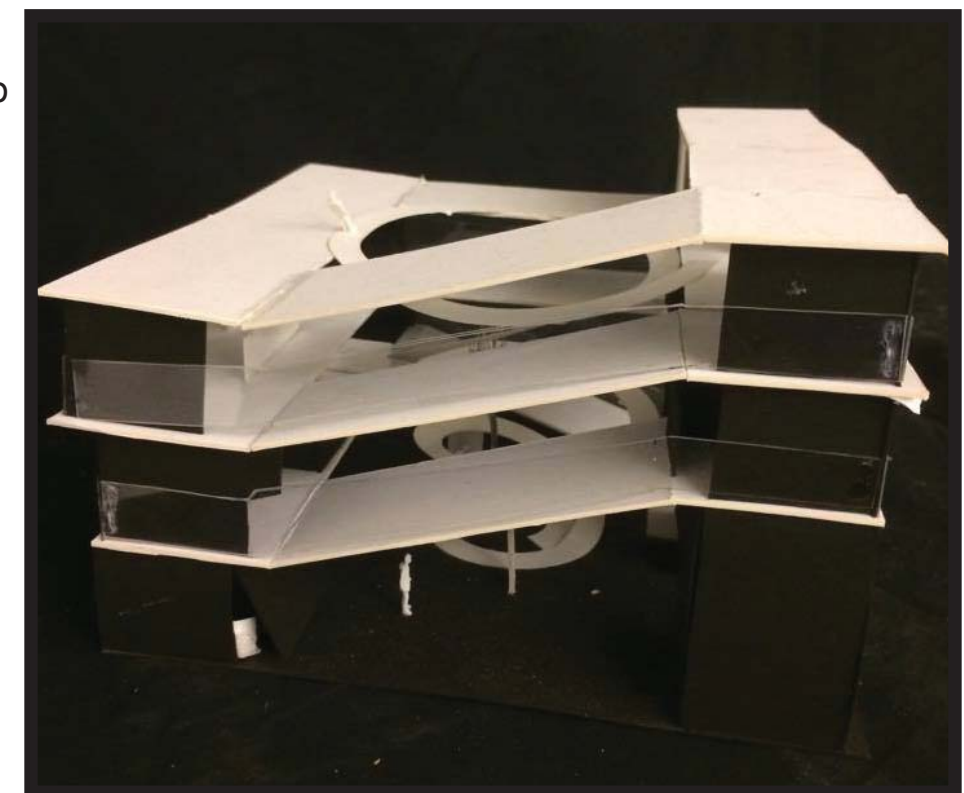
## PARK PAVILION

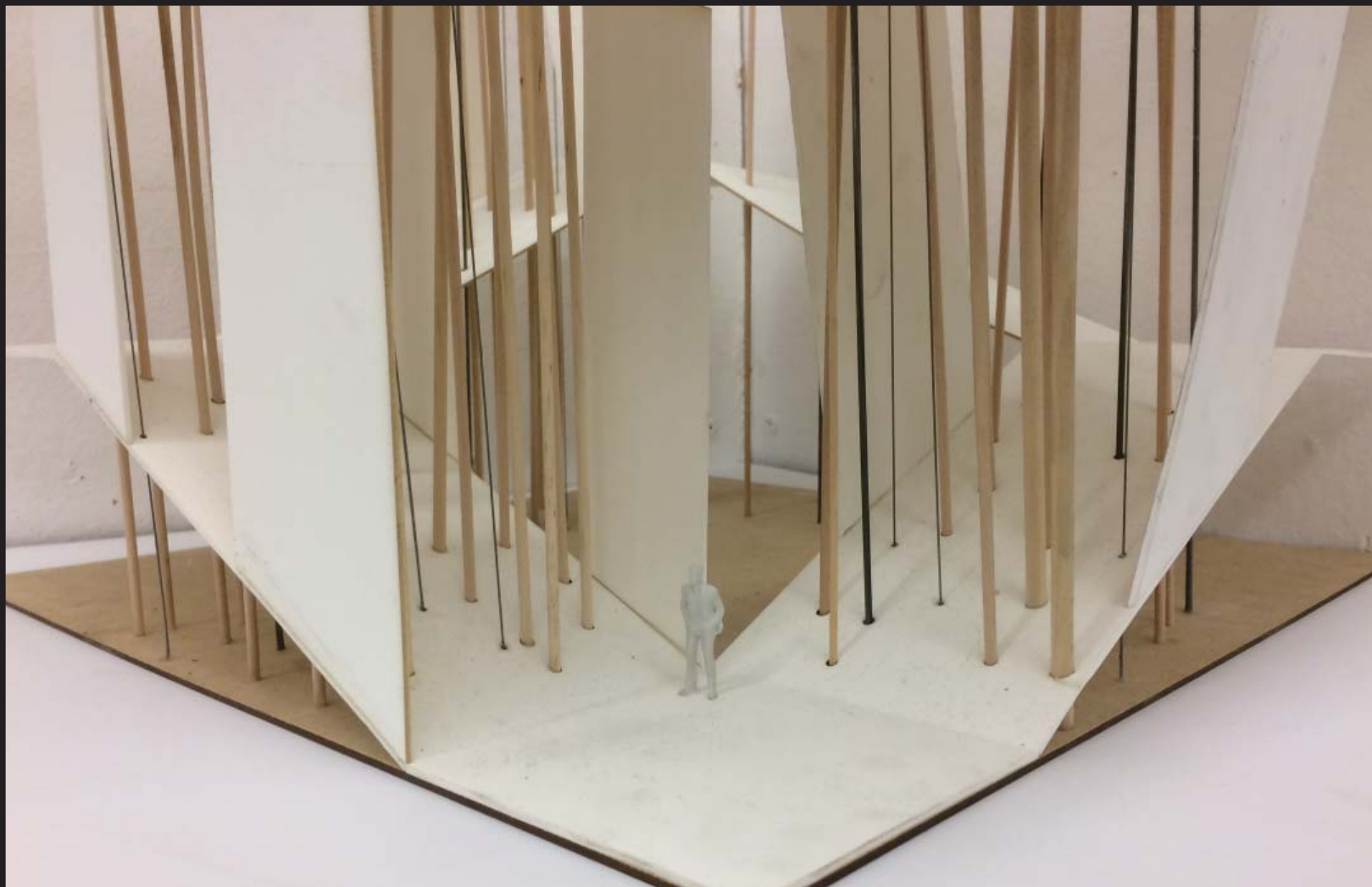
In Graphics for Architects, I created a model using planes, and then chose which planes to keep for a one-point perspective drawing. I created a pavilion with a glass roof to enjoy the fresh air and sunshine on a bright day. This project used knowledge of materials and aesthetics to create a space for people to enjoy.



#### PRELIMINARY DESIGN

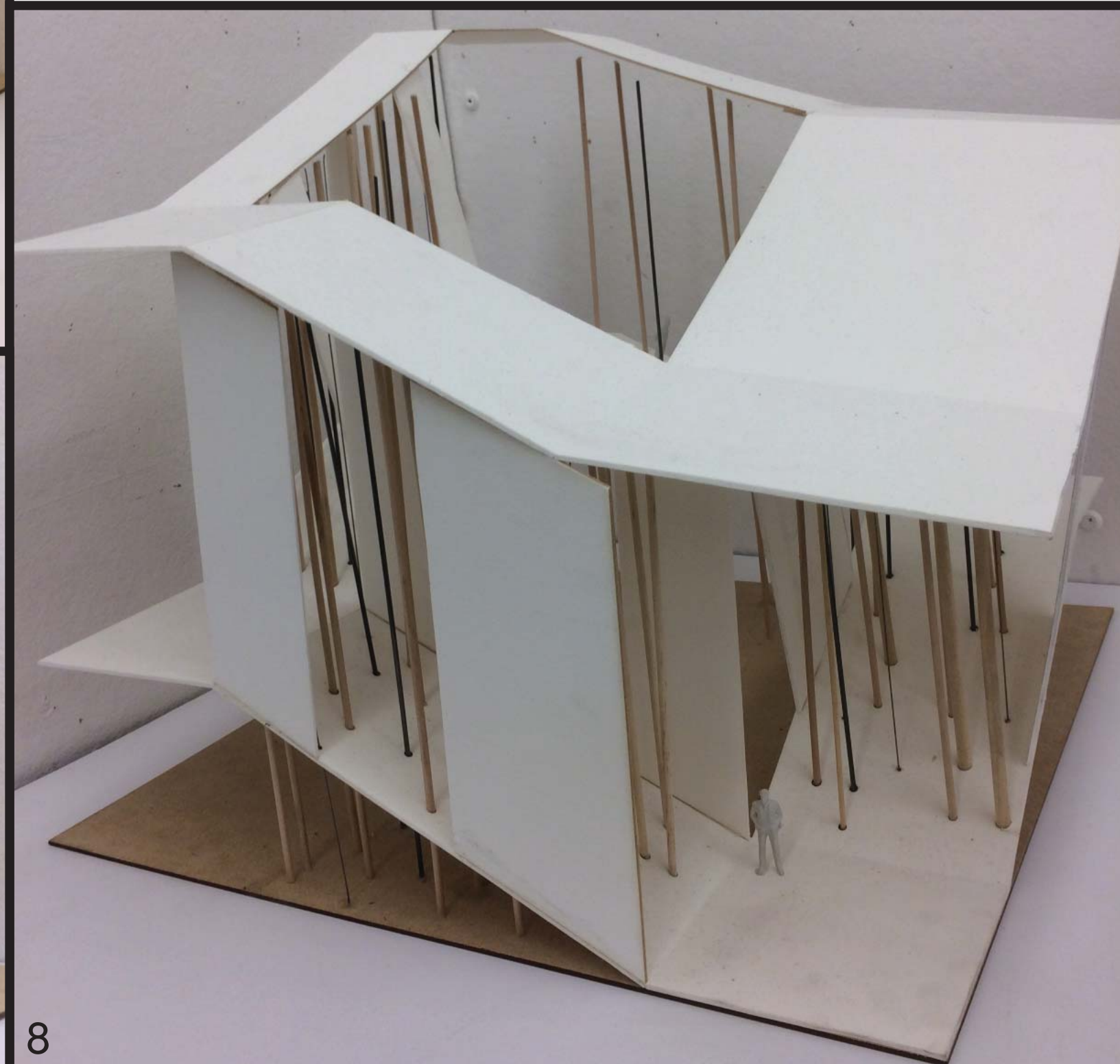
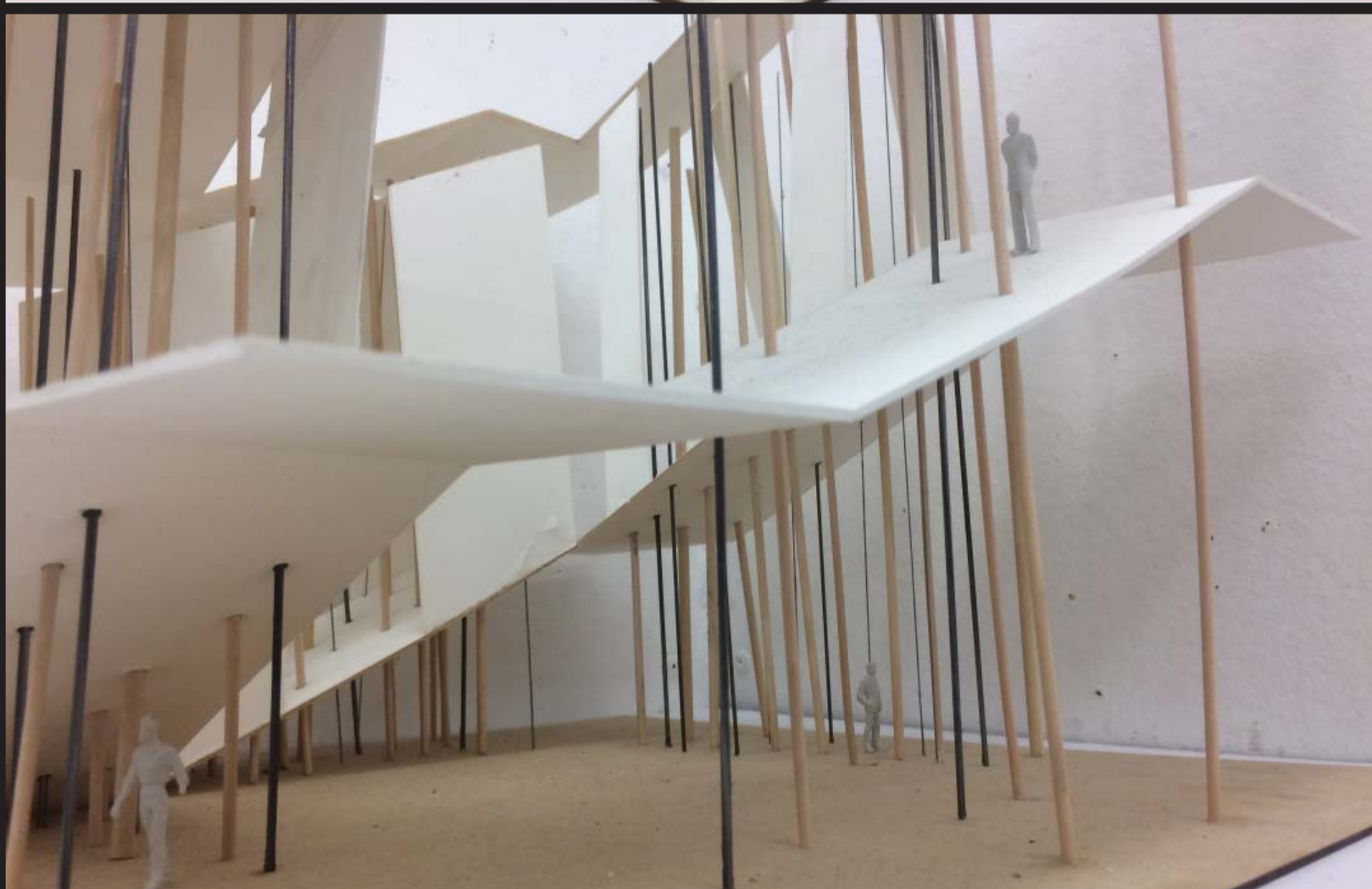
My Four Seasons project began with the idea of having ramps with one central spiral ramp and four flat areas with walls to convey the feeling of each seasons, but the design was too heavy (right). Next I lightened the design with minimal supports, and made the design of only four ramps with small landings that were flat, but the design did not capture the continuous flow of the seasons (top). In response to that, I played with scrap materials, and came up with a design that would be a continuous flow, and continued this idea in the final project.





## THE FOUR SEASONS

My final project for Graphics for Architects included a continuous path as an individual visits each of the four seasons. The monumental scale emphasizes the importance of nature and how the weather of the four seasons has a person looking up. In the summer, children fly kites high in the sky and look at the clouds; in the fall, people look up to the trees to look at the colorful leaves, in the winter, people do not look up as much, but on that first snow, one can't help but look up to catch a snowflake; and in the spring, it rains a lot, so people constantly look at the sky for a forecast. The coziness of the seasons change which is represented by the density of the dowels and wire. Winter is the densest as people retreat between walls to stay warm, but in summer, people enjoy the open air when outside.

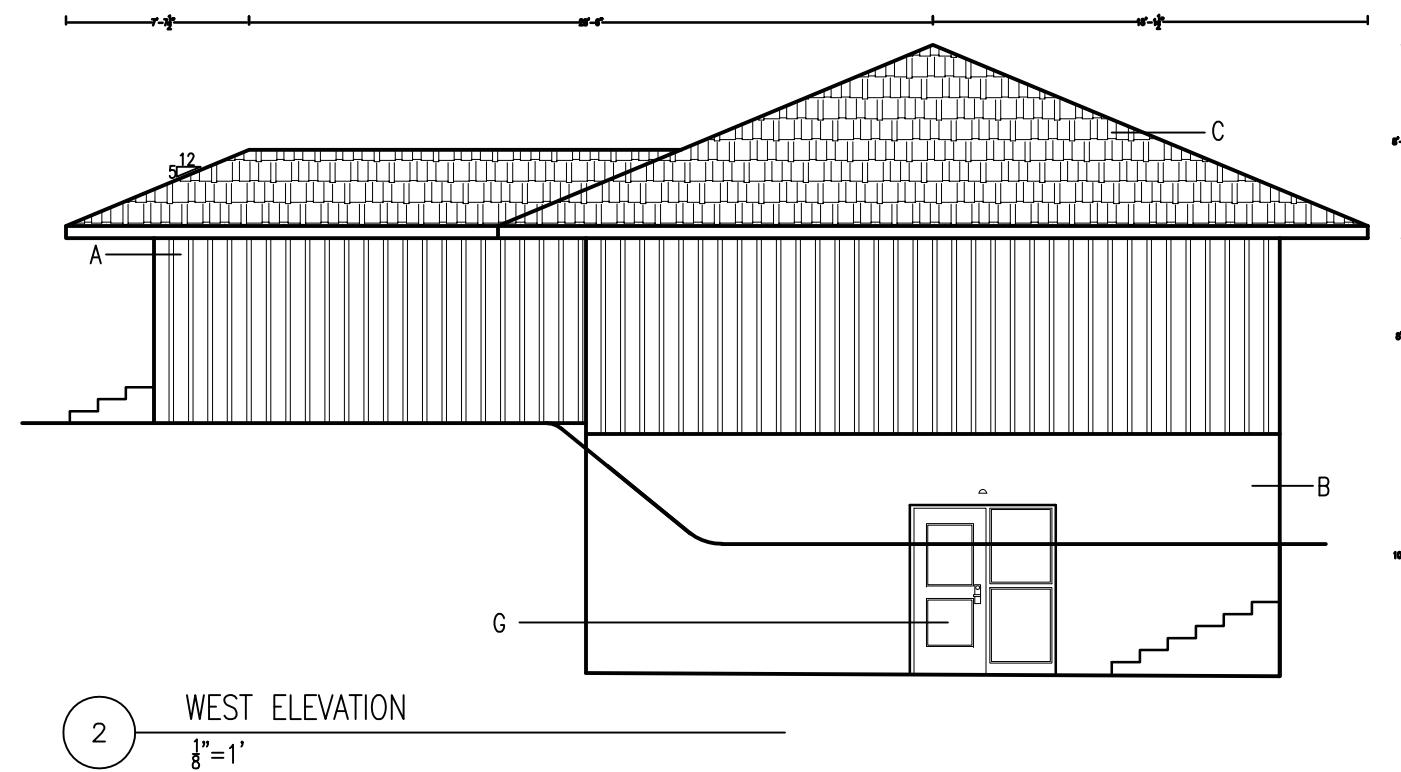
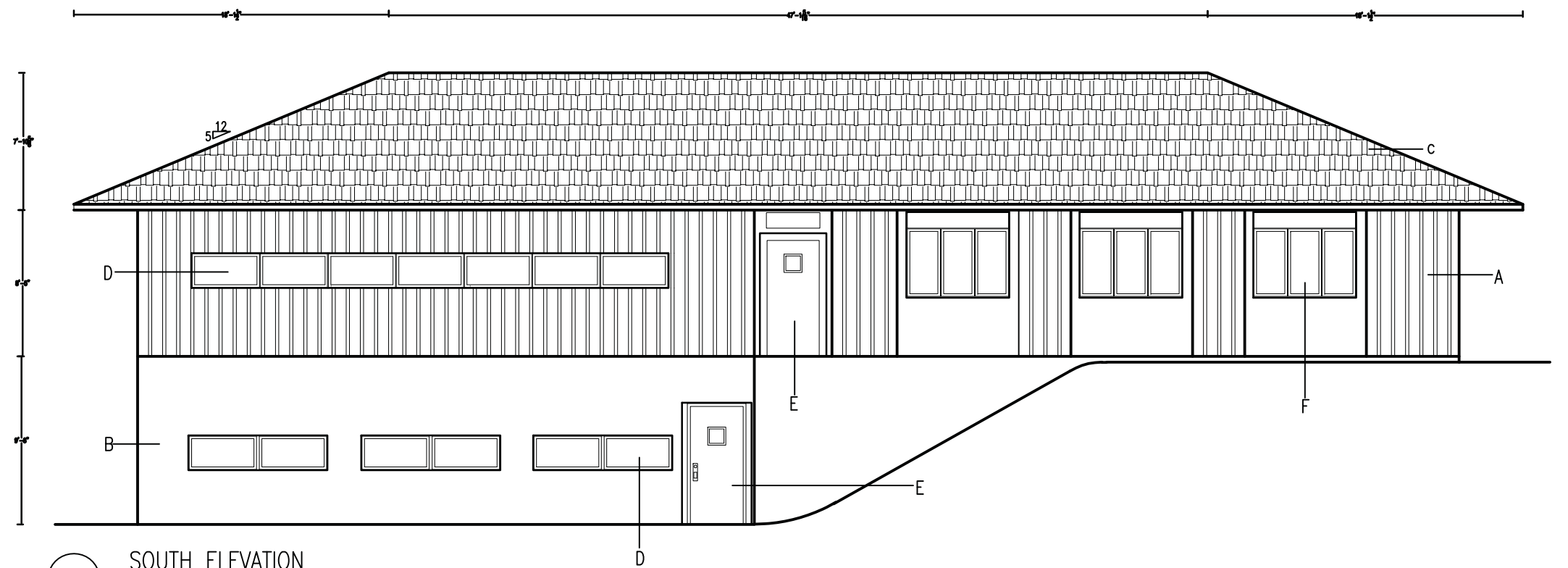


# TECHNICAL SKILLS

**BUILDING RESEARCH COUNCIL**

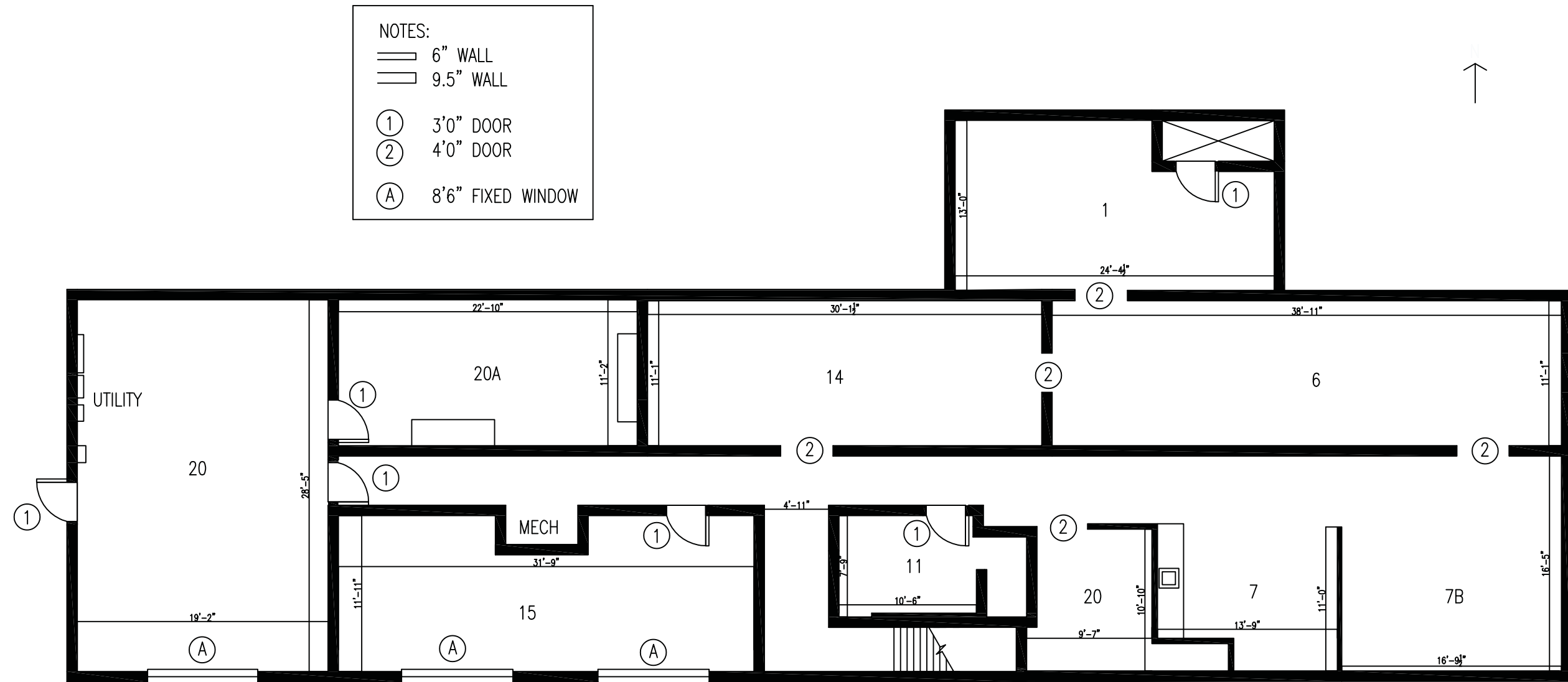
1 East St. Mary's Rd.  
Champaign, IL 61820

The elevation of the Building Research Council (BRC) was an individual completed project in the sophomore course Anatomy of Buildings. We measured the existing building on St. Mary's Rd. to produce a drawing in AutoCAD. I focused on door and



NOTES	
A.	WOOD SIDING
B.	CONCRETE
C.	SHINGLES
D.	SINGLE WINDOW SYSTEM 8' * 2'
E.	SINGLE DOOR SYSTEM 7' * 4'
F.	SINGLE WINDOW SYSTEM 6' * 4'
G.	DOUBLE DOOR SYSTEM 7' * 6'





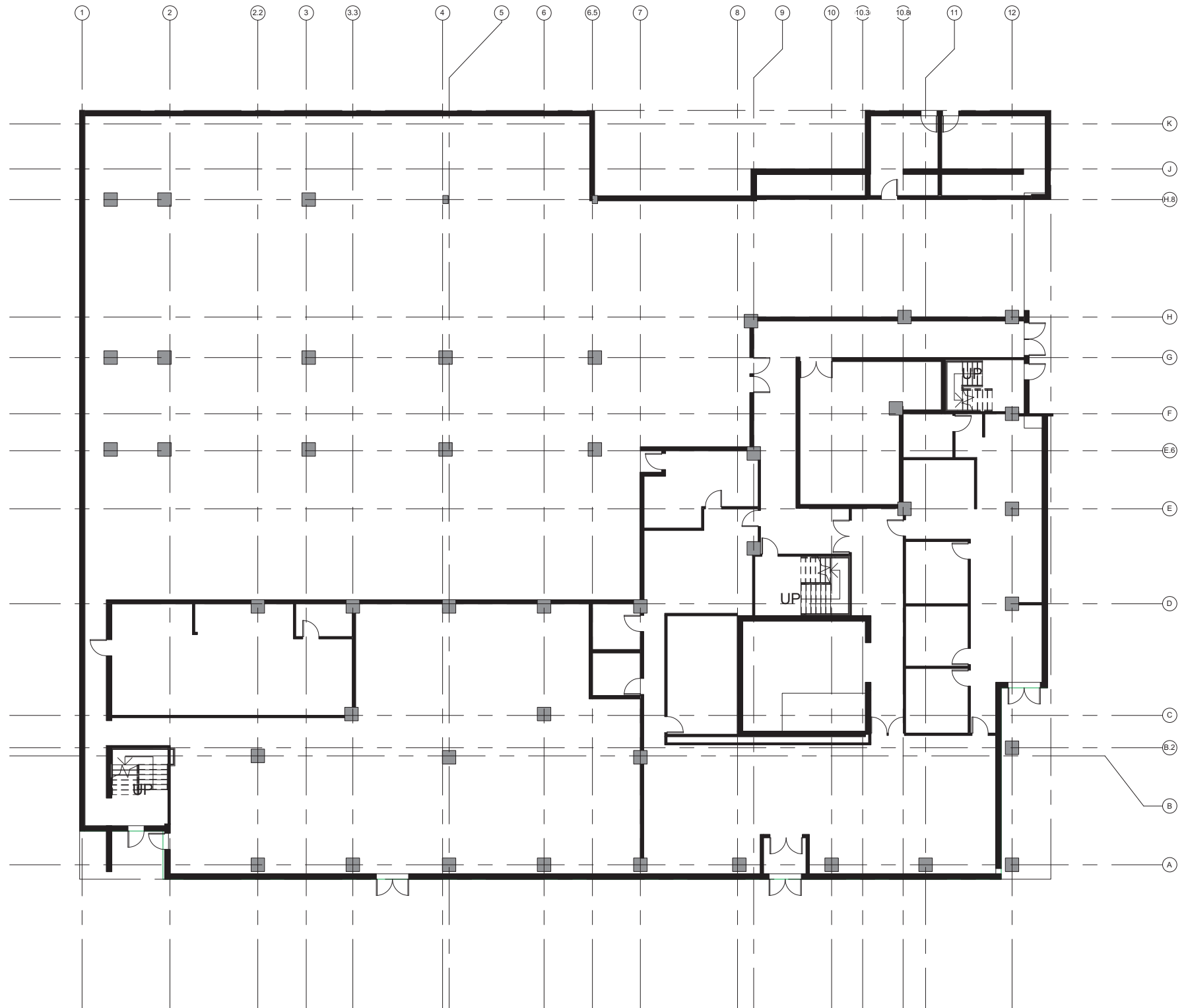
BUILDING RESEARCH COUNCIL  
 1 East St. Mary's Rd.  
 Champaign, IL 61820

The floor plan of the basement of the Building Research Council was also a production of the sophomore studio Anatomy of Buildings. We measured each room with a tape measure in order to produce and AutoCAD drawing.

# HERE APARTMENT COMPLEX

308 E. Green St.  
Champaign, IL 61820

The First Floor plan shown is the beginning of the high rise to display knowledge on heavy construction as well as practice using Revit. From the caisson foundation to the curtain wall, this apartment complex challenges the Revit beginner.



① FIRST FLOOR  
3/64" = 1'-0"



## REAL LIFE APPLICATION

# WORK CAMPS

Camp Reynoldswood, Dixon, IL :: Obion, TN :: Rochelle, IL

From painting, to roofing, to building ramps and decks, I've done it all. Every summer from 6-12th grade, I participated in the annual work camp. With the Rochelle United Methodist Church youth group, I blessed the lives of others. I even endured below freezing weather to complete a ramp needed by a Rochelle community member.



# SKETCHES

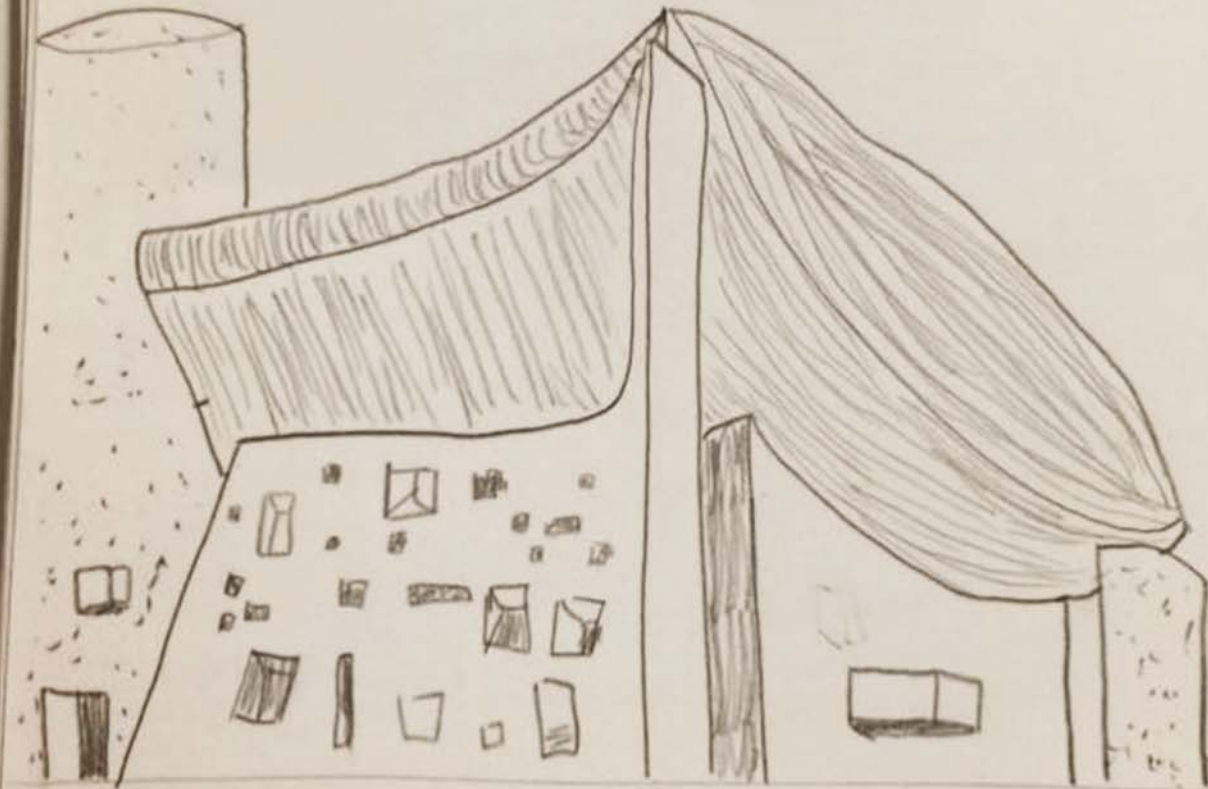
## SKETCHBOOK

The following pages are from my sketchbook for Construction of Buildings. I am quite the note taker and have also embedded drawings within the text to give a visual on what the text means. I have also sketched some building systems, and on the other side of the sketch is the corresponding information labeled by numbers and letters.

I am able to sketch fairly well when taking the time to convey the information nicely. The Chapel of Notre Dame du Haut was done quickly, and still gets the main point across of the concrete structure. I try to practice sketching as much as I can to better my skills.

CHAPEL OF NOTRE DAME DU HAUT

Ronchamp by LE Corbusier



**COST SAVING**



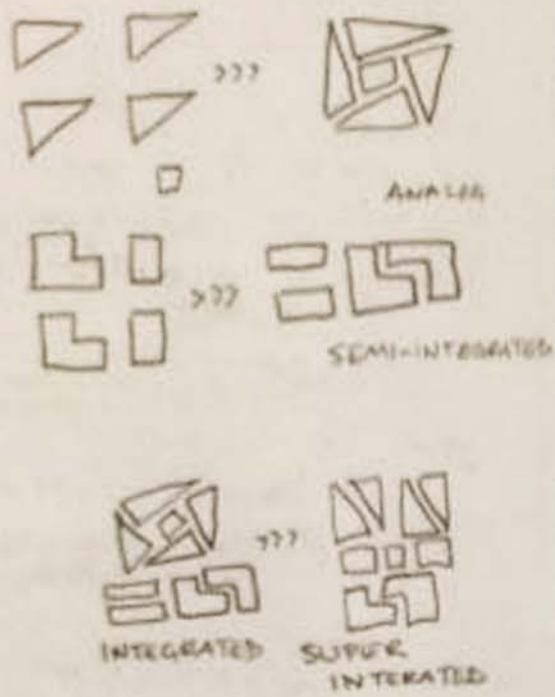
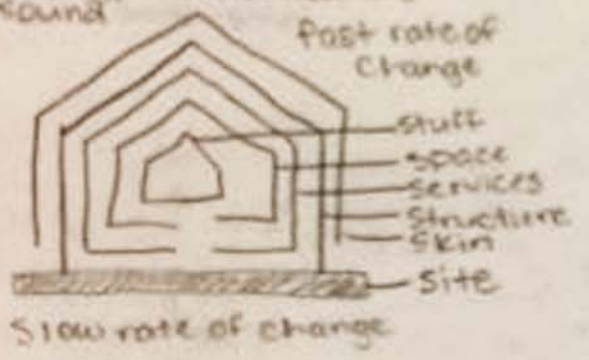
— level of design effort  
 - - opportunities to implement change

Pre-design + construction

**IPD: integrated project delivery**

Systems basis for architecture: flows

- people functions
- structural function
- water, moisture, drainage
- heat, air, light
- energy, communications
- sound

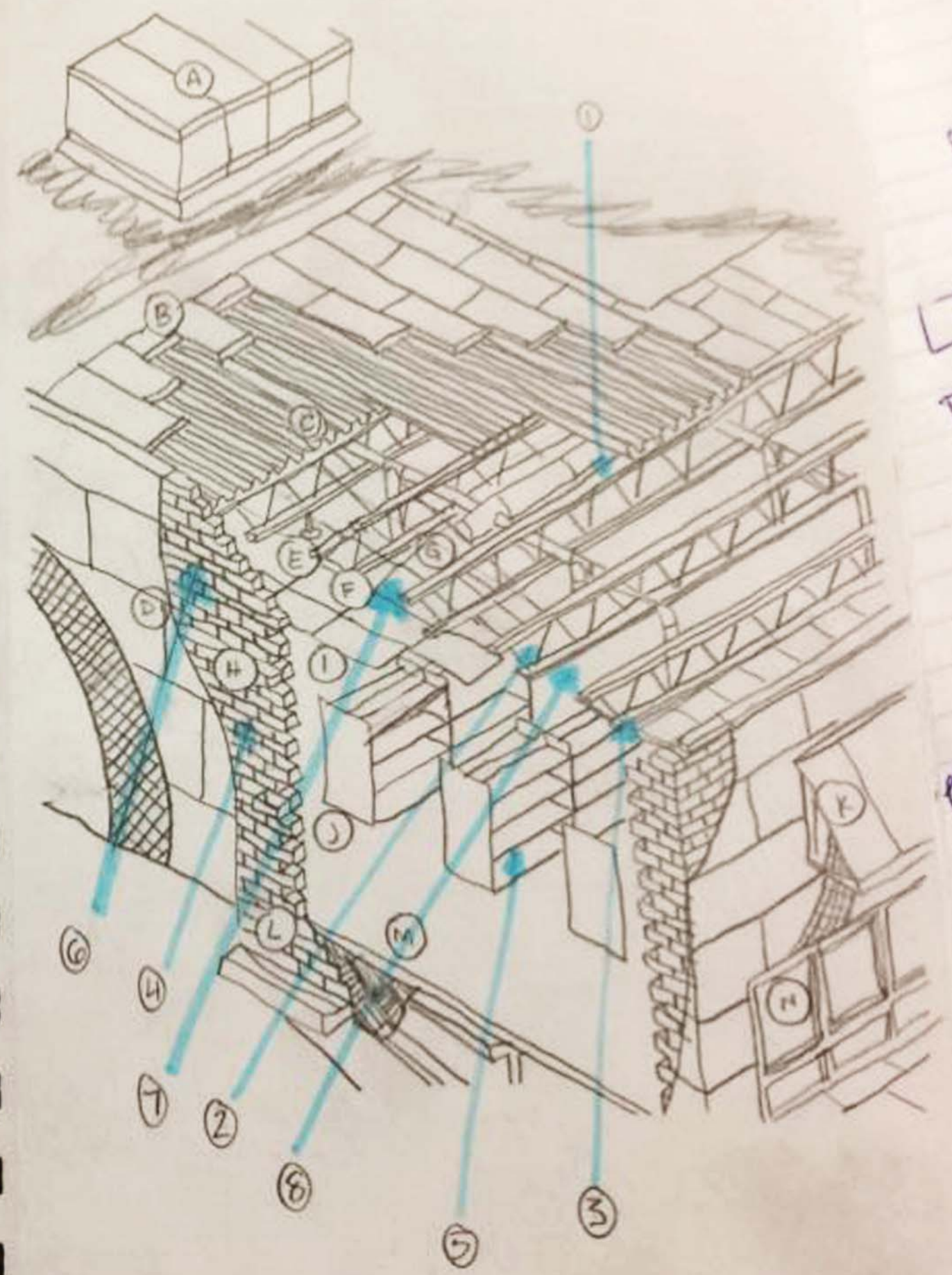


MAKE IT. BREAK IT. FIX IT.



**INTRO TO BUILDING'S SYSTEMS**

- reflect basic approaches to design, construction and use of materials in response to variety of occupant requirements
- key integration issues arise when components and subsystems merge to produce complete building
- each system example: summary of unique system features, description of system's most appropriate or particularly advantageous uses; discussion of main opportunities & challenges for systems integration
- drawings: stress essential interconnectedness among design decisions; illustrate design process as fusion of knowledge of many disciplines; each with an understanding of value & importance of others' contributions
- examples encompass structural, envelope, mechanical, and interior systems
- one system (usually structural) or pair of systems tends to dominate integration potentials and priorities
- represent common and reasonable combinations and variables, but they are **10** definitely not the only possibilities within given building vocabulary



1  
2  
3  
4  
5  
6  
7  
8  
9  
10

Final

etch

STEEL I-BEAM JOISTS WITH BEARING WALL

- 1 Steel open web joist and bearing wall construction yields buildings that have relatively large interior clear spans and flexible interior layouts
- 2 Open webbing of joists provides lightweight structure that easily penetrated by mechanical systems
- 3 bottom chords of joists used for suspension of interior finishes, lighting fixtures, and air diffusers in finished areas, although they may be left uncovered
- 4 masonry bearing walls and metal joist roofs among simplest and easiest to design and build
- 5 relatively low cost of system makes it attractive for speculative projects as does fact that contractors find this construction method familiar and easy to erect
- 6 retail commercial facilities require flexibility in lighting, partitioning, and mechanical systems and large expanses of column and wall-free space; envelope and structural
- 7 height to which masonry bearing walls can be built without resorting to lateral bracing limited, so used most frequently in one-story structures
- 8 roof spans up to 60 feet can generally be accommodated
- 9 spacing and depth of joists related to spanning capability of roof decking material and requirements for loads on roof structure

STRUCTURAL

- roof: steel decking and open web steel joists (c)
- floor: slab on grade (m)
- walls: concrete masonry bearing wall and concrete footing (h)

ENVELOPE

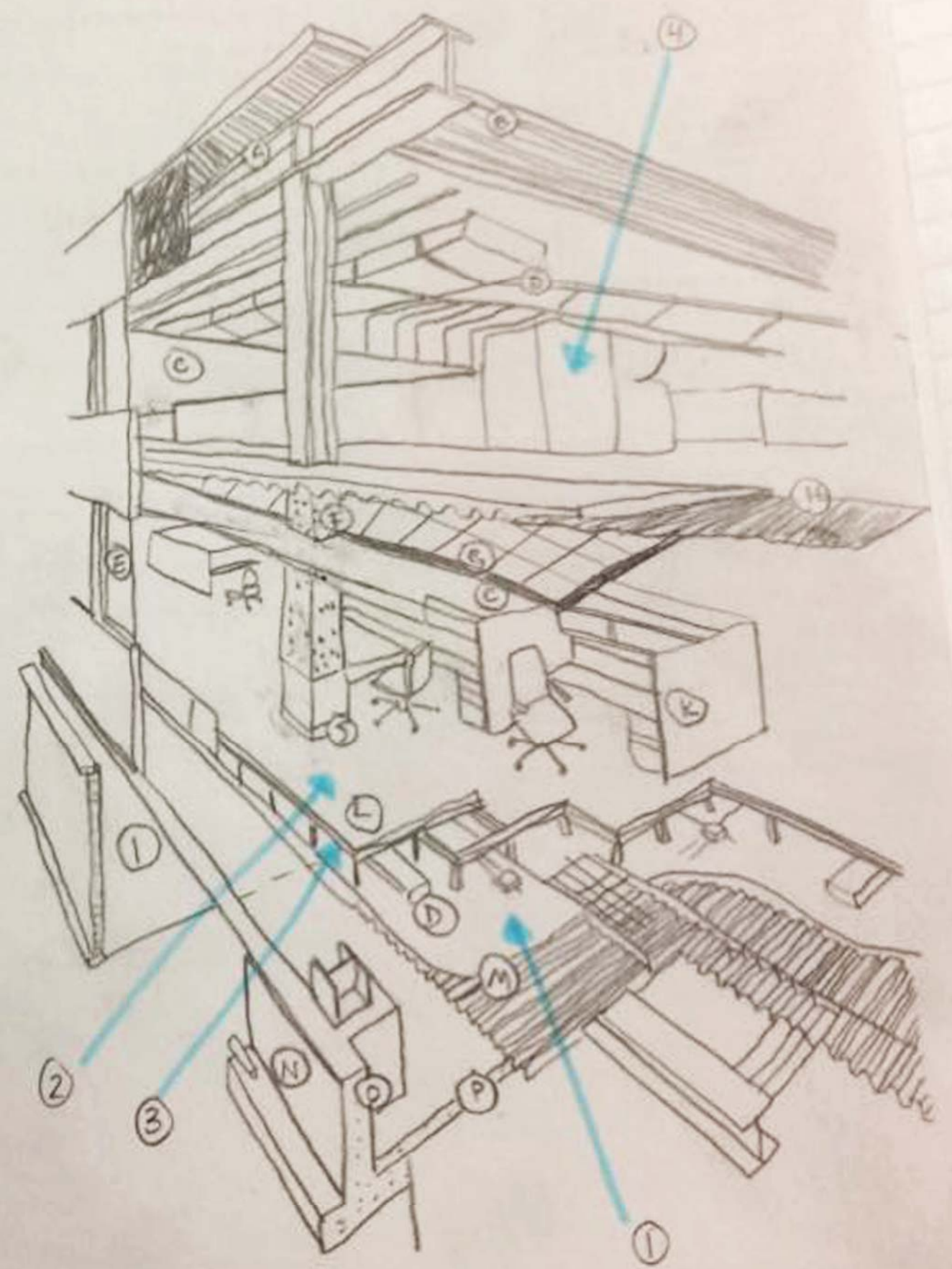
- roof: built-up roofing and rigid insulation (b)
- walls: window assembly (n), exterior insulation and finish system (EIFS) (d), and canopy assembly (k)
- floor: vapor barrier and damp proofing (l)

MECHANICAL

- HVAC: rooftop unit (a) and ductwork (g)
- electrical: surface-mounted conduit or behind furred-out walls
- plumbing: in partition walls, then through roof
- fire safety: sprinkler system suspended from structure in ceiling plenum (e)

INTERIOR

- ceilings: suspended acoustical tile (f)
- floors: resilient tile (s)
- walls: glazed interior face on CMU (i)
- lighting: fluorescent light fixture in ceiling (f) and natural light (n)
- furnishings: movable displays





OTHER

NUGENT 3212  
207 E. Gregory Dr.  
Champaign, IL 61820

Before moving into the dorms for the Fall 2017 semester, I created a 3D model using the app FormIt on my iPad of the room I was to live in. I wanted to configure how to set up the furniture before moving in. It was a fast and efficient way to communicate with my roommate about my ideas.

