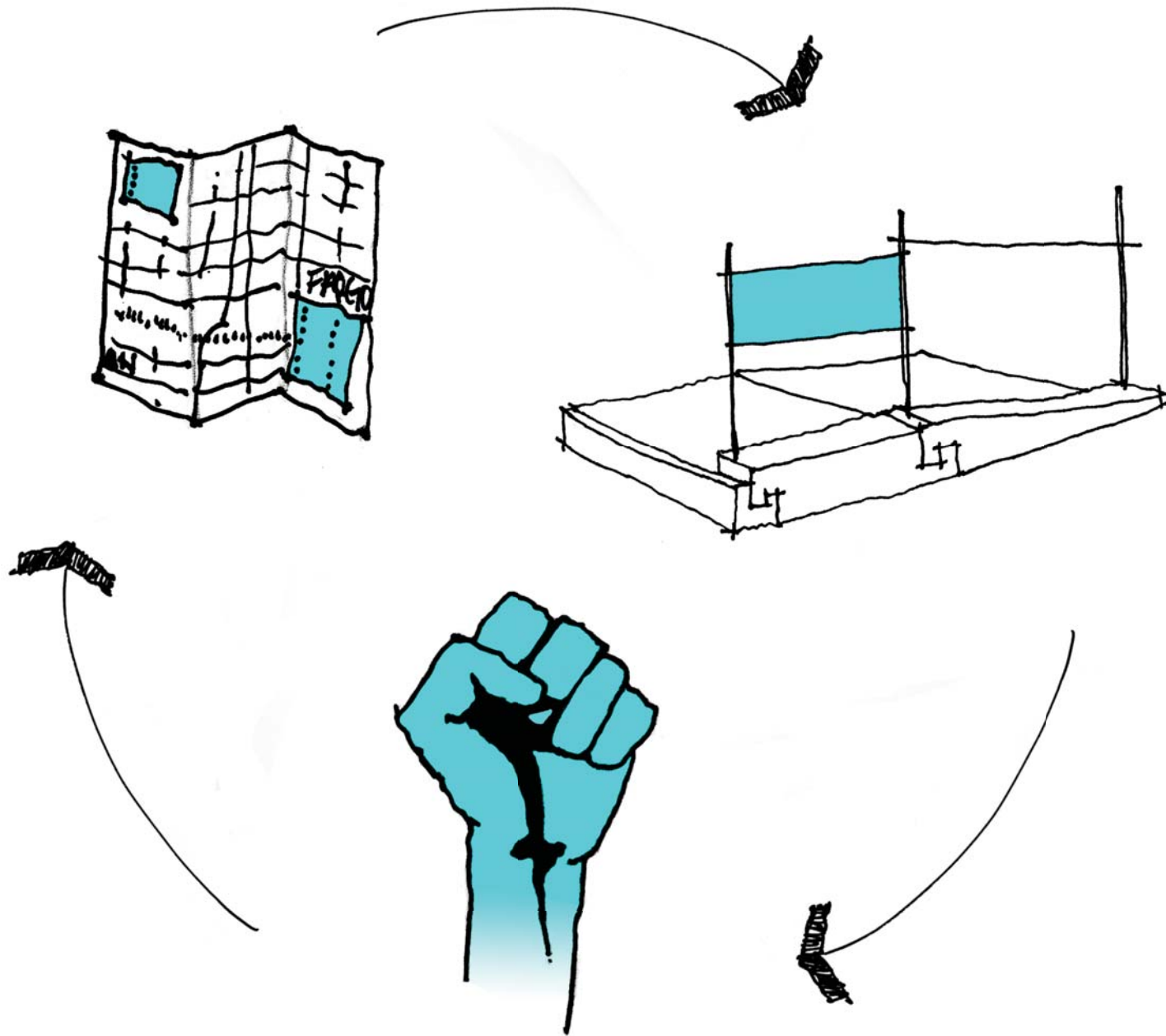


Overcoming Barriers

Creating physical, social, and economic access
through modular design as activism



Overcoming Barriers

A Design Thesis Submitted to the
Department of Architecture and Landscape Architecture
of North Dakota State University

By

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In Partial Fulfillment of the Requirements
for the Degree of
Masters of Architecture



Primary Thesis Advisor



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Thesis Abstract

10% of the population has difficulty using stairs; most due to a wheelchair, cane, crutches, or walker. That is about 24,000 people in the Fargo-Moorhead area alone.

In today's built environment there are exceptions within ADA codes allowing buildings constructed prior to the enactment of the codes to remain exempt if renovation is not "readily achievable"- easily accomplished and able to be carried out without much difficulty or expense. Everyone deserves dignity, confidence, and access to the same experience while in our built environment. Many building entrances are not accessible, if they are, it is by a secondary entrance. This 'separate but equal' mentality segregates able and non-able bodies.

How can we change current social norms about disability? I created access into existing buildings through a modular installation that is easy to assemble, afford, replicate, and made with minimal waste. This design is, by the code definition, 'readily achievable' for business owners. If we use our voices and question the status quo we will be agents for equal access. Making this problem visible to the public will incentivize the building owners that have an inaccessible entry to take a step towards inclusion. Change happens when we come together as a community and demand it.

Thesis narrative

"Universal design," as stated by Ronald L. Mace, "is the concept of designing all products and the built environment to be aesthetic and usable to the greatest extent possible by everyone, regardless of their age, ability, or status in life."¹ This is a wonderful concept, but in today's built environment there are exceptions to ADA codes. Therefore not all of our built environment is accessible to everyone. As architects, we have a duty to design for everyone. Everyone deserves an enlightened experience as well as have dignity and confidence while in our built environment.

One problem I see in our built environment is that it's mostly based off a module system of the "standard human". Le Corbusier stated, "If our spirits vary, our skeletons are alike, our muscles are in the same places and perform the same functions..." He went on to create the Modulor Man.² In a sense, Le Corbusier created the first set of universal design standards. If the Modulor Man tries to put people into a small box, then universal design puts people into a larger box. Either way its a restricting system. We do not use the Modulor system today, but we have set standards on sizes of things that

do not apply to everyone. For instance, heights of railings, door knobs, sinks, counter tops, chairs, etc. all have a relatively standard height that is too high/low for some people. Humans are not a module, we are all very physically different and have different abilities. How do I design a built environment that fits everyone not just some?

Positioning Universal Design as benefiting "other people," in addition to disabled people, contributes to the impression that valuable design requires utility for non-disabled people for its creation to be justified. (Boys 2017) This is a very telling statement and universal design may not directly benefit every single person. The point is that the people that feel excluded in turn feel included. For example, ramps don't always benefit able bodied people, but they include people in wheel chairs. Some universal design techniques actually help some able-bodied people, ramps benefit people pushing strollers, or dollies.

I've witnessed a few memorable events of someone struggling in our built environment. One in particular happened this past summer on the corner of Main ave

1 Ronald L. Mace's design philosophy challenged convention and provided a design foundation for a more usable world. He coined the term "universal design". He helped develop the country's first accessible-building code and he founded Center of Accessible Housing.

2 The Modulor man is 6 feet tall and follows the "golden section".

and 2nd street in downtown Fargo. A man in an electric wheel chair had fallen out of it and was lying in the middle of the road. Thankfully two people had pulled their cars over to help him back into his chair. That man's independence and dignity may have been ripped away that day.

Cities are mostly wonderful places for disabled people because they can get around independently and things are close enough in proximity to each other. Downtowns, for instance, have a majority of amenities needed in a central walkable location. The downside is the older downtown buildings may not be accessible or they are poorly retrofitted after the fact. Jay Dolmage (2012, p.3) states:

Retrofit is to add a component or accessory to something that has been already manufactured or built. This retrofit does not necessarily make the product function better, does not necessarily fix the faulty product, but acts as a sort of correction - it adds a modernized part in place of, or in addition to, an older part. ... [It] is a sort of cure, but half-hearted, thus leaving many people with disabilities in difficult positions.

I want to wholeheartedly "retrofit" a better built environment, that is accessible by all. Wholehearted retrofit: to add a component or accessory to something that has been already manufactured or built in a sincere, enthusiastic and heartfelt way. Everyone should have a meaningful experience and feel confident while in the spaces we create.

I want to address program elements that are important in a successful public community space throughout downtown Fargo. Once I locate these spaces I am going to wholeheartedly retrofit them to be accessible to everyone.

Typology

This thesis is focused on access to public accommodation spaces that can range from café and restaurants to yoga and art studios. These community spaces are places where people can improve themselves socially, physically, and mentally. This thesis will not create these spaces, but provide access to the ones that already exist.



Precedent Research



Figure 2

Micro-installations

Wroclaw, Poland
NO Studio

These designers focus on intervening when public spaces are neglected by using temporary architecture. The space in figure 2 & 3 is of stairs that face River Oder, this location rarely sees much foot traffic. This solution is simple, low cost, and effective.

Conclusion:

This simple element fits nicely onto existing architecture and solves the problem of a neglected urban space. I'm unsure on why they picked the color they did or if there was even a reason why.



Figure 3



Figure 4

Rucksack House

Stefan Eberstadt

Rucksack House is similar to the principle of the backpack, which hangs with steel ropes on its "landlord" and creates its own closed space for personal things. The backpack house is addressing the question of mobility and flexibility in current architecture. It is also situated in-between form and function, and art and architecture. This extension of the home is 97 sq ft of space and can be used for a variety of activities like an extra bedroom, studio, or living space. It has built in furniture that folds out to make the space more usable.

Conclusion:

The adaptability of this space allows the user to have control of it, control of the activities preformed in and if the user is moving, they can take the structure with them.

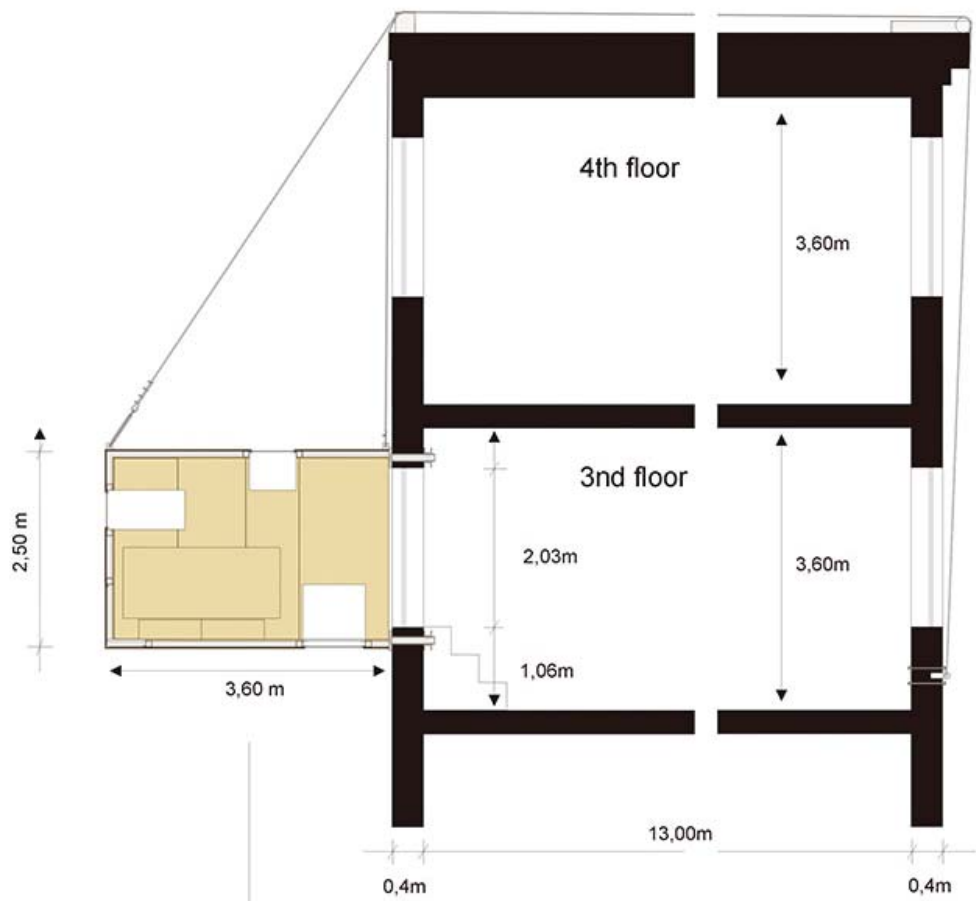


Figure 5
11,0 m above ground level



Figure 6



Figure 7



Figure 8

Mary Free Bed YMCA

Grand Rapids, MI

Progressive AE

2015

120,000 square feet

LEED Certified

Global Universal Design Certification

"A unique family friendly resource for fitness, rehabilitation, social, and health movements. The new MARY FREE BED YMCA is practical and visionary as it emphasizes how use of Universal Design can promote diversity, inclusivity, increased performance and participation for the aging population, people with disabilities, psychosocial, and cultural issues, while mitigating the stigma and segregation traditionally characterized by most standard fitness and rehabilitation facilities"



Figure 9

“Seven Principles of Universal Design” and examples of how they were address in this building.

1. Equitable Use: The design is useful and marketable to people with diverse abilities.
• Ramp and stairs are celebrated as part of wellness | rehabilitation program. Use of elevator is de-emphasized. (Figure 9)

2. Flexibility in Use: The design accommodates a wide range of individual preferences and abilities
• Variety of self-operated ADA pool lifts and other assisted access devices at each pool (Figure 10)



Figure 10

3. Simple, Intuitive Use: Use of the design is easy to understand, regardless of user's experience, knowledge, language skills, or current concentration level.
• Intuitive architecture, signage, and color cues to identify program elements and signal way finding. (Figure 11)

4. Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
• Signage and other environmental branding to be clear, contrasting, as well as tactile to accommodate a variety of users. (Figure 12)



Figure 11



Figure 12

5. Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions.

- Grab bars | railings and other devices to be used frequently throughout space - including surrounding the track and wet corridors. (Figure 13)

6. Low Physical Effort: The design can be used efficiently and comfortably and with a minimum of fatigue.

- Wherever possible employ zero- to - zero transitions between materials of different thicknesses - to maintain | minimize potential tripping hazards. (Figure 14)

7. Size and Space for Approach and Use: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

- All mill-work counter tops to meet ADA requirements of 34" a.f.f. (Figure 15)



Figure 13

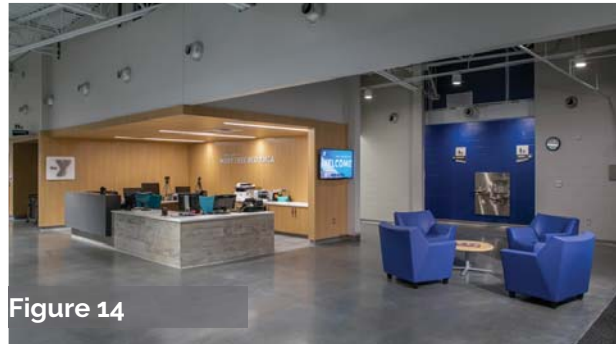


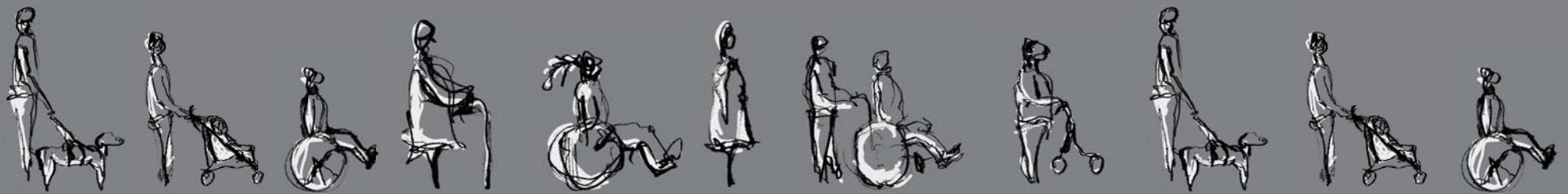
Figure 14



Figure 15

Conclusion:

All of the things this design applied to make the space accessible seem obvious and could be applied everywhere. I will use the same UD guidelines in my own design.



User/ Client Description

My goal with the project is for it to be used by everybody. Disability is a broad term. Physical, sensory and mental abilities vary from person to person as well as very within the same person over time. A person's ability may change over time with age, illness, and injury. I am specifically focusing on physically disabled bodies.

Physical: walking, balance, pulling, pushing, lifting, reaching, stamina, strength

Site

Downtown Fargo is growing so fast and is becoming a really great place to be, but the older buildings limit who can access downtown. The older buildings downtown tend to have step(s) to get inside, no ramp or elevator, and over all poor access. The first step in breaking down barriers into spaces is creating access. I want to whole heartedly retrofit a range of downtown spaces.

I'm going to be investigating downtown Fargo from roughly 6th ave N to 1st ave S and from Broadway to Roberts St.



Figure 16



Major Project Elements

I'm going to locate these types of spaces in existing buildings in downtown Fargo

- Meeting/ Event space
- Educational space
- Art
- Coffee shops and café
- Bars
- Restaurants
- Wellness space & services
- Retail
- Outdoor seating

Project Emphasis

My emphasis is going to be on transforming the built environment into something that is fully accessible. I want to create heartfelt retrofit installations in the built environment so everyone can have access to it easily, comfortably, and confidently.

Accessibility is not just how you physically get into a space. A space could be considered unaccessible for a number of reasons:

Access:

permission, liberty, or ability to enter, approach, or pass to and from a place (Merriam-Webster)

How I define access:

Permission, liberty, or ability to enter, approach, interact, utilize, or pass to and from a place confidently and easily

The Goals of the Thesis Project

1.Academic Goals: Educate myself and others on disability as well as design a project that is realistic.

2.Professional Goals: Take this new knowledge into my future architecture career and design architecture that is accessible for everyone.

3.Personal Goal: This project will be very rewarding and fulfilling for me. I have a very caring nature and genuinely want to help people. The more I research, the more passionately I feel about universal design and designing for everyone.

A Plan for Proceeding

Program: I must research what program elements are considered public community space. Then i must figure out where these places are in my site boundaries.

Site analysis: After I figure out where the program elements are located, I will need to go to them and document the level of accessibility there. I'll need to take picture and potentially measurements of the sites. I also will make a level of accessibility rubric to decide which sites i will choose to address. I will also gather information qualitatively by observation and possibly surveys and interviews.

I will take all of this data and make a graphical map to analysis it and decide how to proceed.

Once i have gathered enough data and narrowed my search to about 10 locations/problems, I will propose design installations to make the space more accessible. Potentially, solutions i have for one space may work for others. My end goal would be to physically make once of these pieces and put it in the space.

I will document my design process by initially photographing and analyzing the spaces. Along the way I will preserve all models and sketches in my process.

	JANUARY	FEBRUARY	MARCH	APRIL	MAY
PROJECT DOCUMENTATION	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	
CONCEPT ANALYSIS	■ ■				
SITE DEVELOPMENT		■ ■ ■ ■			
DESIGN DEVELOPMENT		■ ■ ■ ■			
MATERIAL DEVELOPMENT		■ ■ ■ ■			
MIDTERM PREP			■		
MIDTERM REVIEW			■ 3.5-3.9		
PROJECT REVISIONS			■ ■ ■ ■		
BUILD MODEL				■ ■ ■ ■	
RENDERINGS				■ ■	
BOARD LAYOUT				■ ■	
DIGITAL COPY OF THESIS				■ 4.20	
PHYSICAL EXHIBIT				■ 4.23	
THESIS EXHIBITION				■ 4.23-4.25	
THESIS REVIEWS				■ 4.30 & 5.3	
THESIS BOOK				■ 5.7	

Designing a standard

"A man, a constant, the fixed point".

Le Corbusier simplified people into a specific set of proportions in a single system. The proportions he used were pleasing and created beautiful architecture, but they were limiting to people that did not fit the standard size. He believed there was a scientific, universal basis for everything.¹ This claim is great in theory but not in practice. It would be easy to say that all people are the same and we can design for all using a specific scheme. That isn't realistic, every person has a different upbringing, morals, personalities, emotions, abilities, etc. that designing for all is seemingly impossible. Le Corbusier focused on pure and mechanical architecture, he claims "On the day when contemporary society, at present so sick, has become properly aware that only architecture and city planning can provide the exact prescription for its ills, then the time will have come for the great machine to be put in motion and begin its functions". With this belief system, he would seem to be a believer in eugenics². His ideological trajectory shows him to be willfully eager to implicate architecture in the "perfecting" and "whitening" of the human race. Lamarackian³ eugenics was at the epicenter of his ideology. (Lopez-Duran,145)

Le Corbusier tried to put people into boxes and simplify out needs in a space. I believe all people will interact with a space differently.

1 As stated in Teresa Almeida's academic paper - the same design scheme would be applicable all around. He "proclaimed democracy and equality through the built environment" and believed that "good or enlightened buildings would elicit similar attitudes or behaviors in individuals interacting with those buildings"

2 Eugenics is a set of beliefs and practices that aims at improving the genetic quality of a human population.

3 The idea that an organism can pass on characteristics that it has acquired during its lifetime to its offspring. This idea was used in evolutionary theories.

Universal Design (UD) aims to design the built environment to be as accessible as possible to as many people as possible (Boys 79). Universal design has a similar aim as Le Corbusier, in the sense that they are trying to create a standard for design that applies to most people.

UD just creates a larger 'box' to categorize people into.

Going into thesis, UD seemed like this revolutionary thing and after realizing that it's just another 'box', I felt very disappointed. Creating a standard for designing only limits who can access the space, what if spaces could adapt to each user?

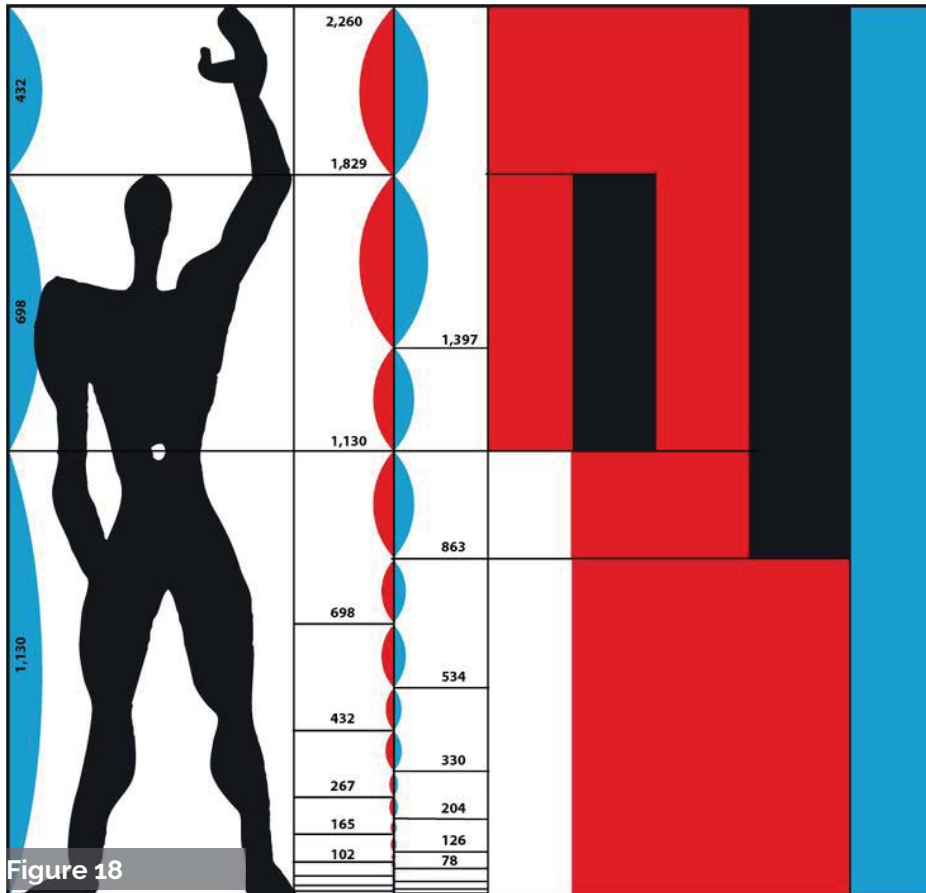


Figure 18

How we view disability

"I think the distinguishing mark of disabled people's special position is that they tend to 'challenge' in their relations with ordinary society. This challenge takes five main forms: as unfortunate, useless, different, oppressed, and sick" as stated by Paul Hunt (Boys 34). Disabled people aren't 'normal' and make us able bodied people uncomfortable in a sense and we view them in a negative way. Throughout this section i am going to first define the term as Hunt would and then go into my interpretation of it.

Unfortunate: unlucky, to be deprived and poor, to lead cramped lives.

- If a person is perceived as 'unfortunate' happens to succeed or achieve something it becomes such a large act of courage. It's almost as though we as able-bodied people don't want them to be more successful then use, because they are suppose to be less then.

Useless: unable to contribute to the economic good of the community

- This terms can relate to homeless or unemployed people as well. There is a huge weight on contributing to society or being visibly productive, if not you are perceived as expendable.

Different: abnormal, marked out as members of a minority group

- Society sets up rigid standards on what is or isn't 'normal' and who is the minority.

Oppressed: disabled people often meet prejudice, which is expresses itself in discrimination and even oppression.

- 'Poor thing' attitude towards disabled people creates an assumption of superiority for the able bodied people. Taking away privileges from disabled people like what clothes they wear or what they watch on TV may seem minor but it is some of the only choices they have.

Sick: suffering, diseased, in pain.

- Talking about death and disease makes people uncomfortable and affirms that life is tragic. In a sense, society is sick if it cannot face our sickness, if it does not overcome its natural fear and dislike of unpleasantness as manifested by disability. (Boys, 40) As a society we can't just sweep these people under the rug because we feel uncomfortable.

These 5 forms that disability challenges society in, are eye opening for me. These 5 things describe how society view disability and how disability make society uncomfortable. How to I create beauty around the unfortunate? How can architecture create inclusion where there is oppression and sickness?

Framing disability as a problem in need of a solution. This framing take many forms, for instance, if living a life of disability is to be achieved, this body should try to looks and act as normal as possible. This can be achieved through medicine, rehab, and education. (Boys 68) Trying to achieve normalcy seems to be the goal, but why? Another framing of disabled people is saying they are 'like everyone else' but only *like* not *as* everyone else. This framework suggests that disabled people may try and participate in normalcy but they will never be normal.

Figure 19 below was a poster used to show how people donations to charity could 'fix' crippled children. Medical treatments turned this kid back to 'normal'.



Figure 19

Place of public accommodation

Americans with Disabilities Act Title III Regulations

Place of public accommodation means a facility operated by a private entity whose operations affect commerce and fall within at least one of the following categories –

- 1) Place of lodging
- 2) A restaurant
- 3) Theater
- 4) Auditorium
- 5) Retail store
- 6) Service establishment
- 7) Station for public transportation
- 8) Gallery/ Museum
- 9) Place of recreation
- 10) Place of education
- 11) Social service establishment
- 12) Place of exercise or recreation

Places of public accommodation should be accessible to ALL of the public. If a building was build before January 26, 1992, they may not be fully accessible because codes weren't up to the standards they are now.

A public accommodation shall remove architectural barriers in existing facilities where such removal is readily achievable¹. (Title III)

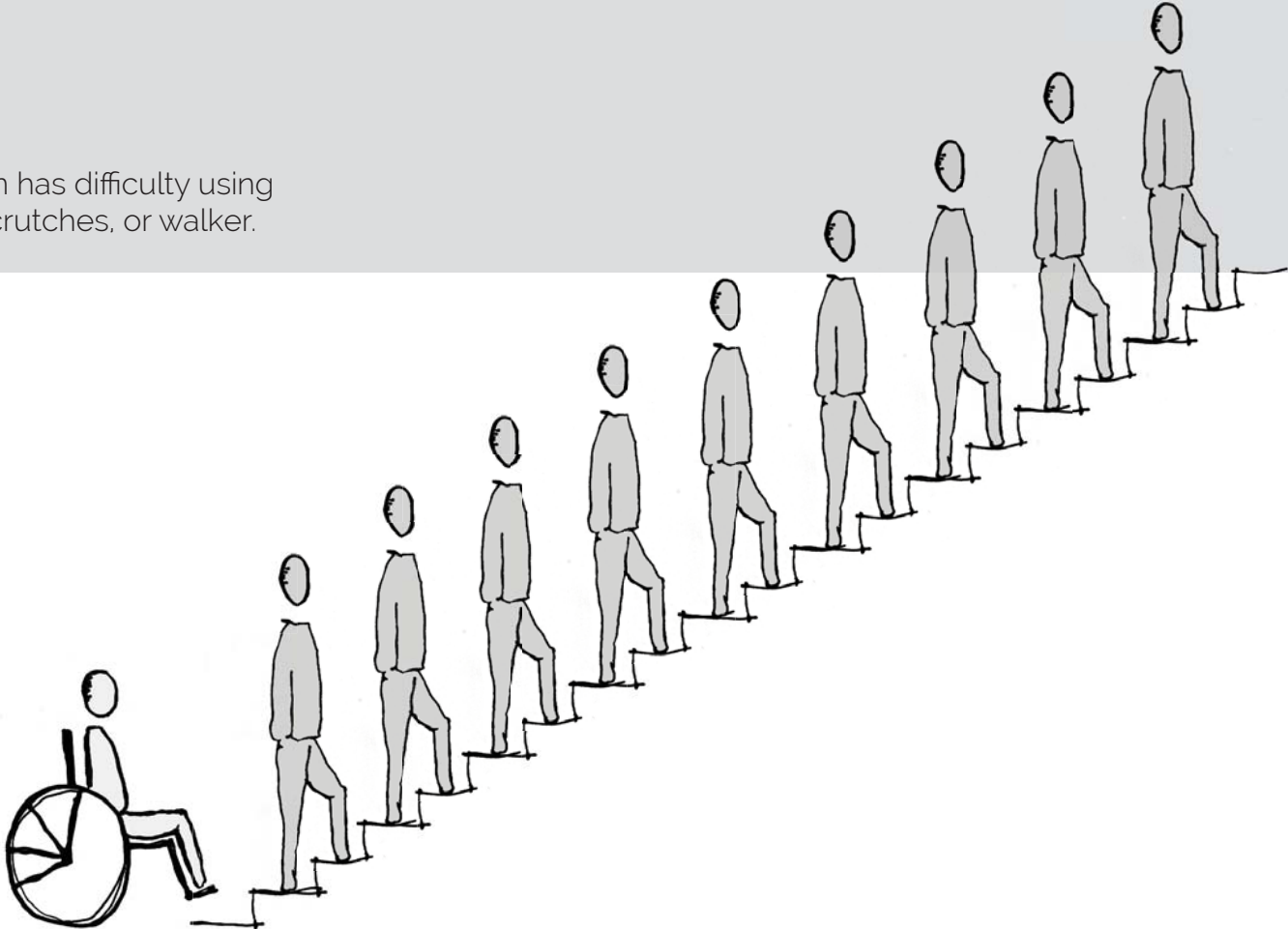
If a building that is currently inaccessible decides to update their building and do some renovations work, they don't have to make their building accessible if its not 'readily achievable'.

Alterations made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds 20% of the cost of the alteration to the primary function area. (Title III)

Therefore if you don't spend a lot of money on the renovation work, then you can get by with not providing accessibility.

1 Readily achievable means easily accomplishable and able to be carried out without much difficulty or expense... Essentially, cheap and easy.

2010 U.S. Census - 10% of the population has difficulty using stairs, most due to a wheelchair, cane, crutches, or walker.



Project justification

This project is based around the social issue of how we see and treat people that don't fit the 'normative template'. The justification behind it seems obvious to me, all people deserve to interact with our environment comfortably. As architects and architecture students designing for the public Health Safety and Welfare (HSW) has been something drilled into us. Health and safety are easy ones to meet because codes require buildings to be built in a safe and healthy way. Welfare¹ on the other hand seems to be forgotten about or not fully addressed. We seem to design for most but not all peoples in mind. It's frustrating that this type of project is necessary in today's society. It's common sense that all would should be able to access our built environment. To some this project may seem like a humanitarian or activist project, but I feel as though it is a mindset that all designers should have. Disability rights seem to have taken a long time to become talked about because some disabled people cannot communicate effectively, and if they could they most likely were gaslighted² on the subject. The articulate person with a severe disability – can speak for those that cannot. The non-disabled person speaking out when they see the corruption may help other non-disabled people see the issue more clearly. Similarly, when a white person recognizes racism happening and they speak out, it somewhat becomes more apparent to other white people.

1 AIA defines welfare as aspects of architecture that engender demonstrable positive emotional responses from, or enable equal access by, users of buildings or sites

2 The experience of being made to feel that one's perception of a situation is inaccurate - that ones is remembering events wrong, or blowing things out of proportion, or interpreting events incorrectly (Boys, 169). Disabled people that are trying to speak up about their rights may be written off because of their disability.

One argument against my project that I often hear is that - "no one will want to pay for it" or "that's just how buildings were made back then" or "we did the best we could". The view of misfits as "justifiably excusable" is not merely an act of omission, but rather, is also a material-discursive act that solidifies normative¹ privilege (Boys, 82). Able bodied people justify their thoughts and lack of action because it doesn't affect them or they think they can't do anything about it.

1 Garland Thomson coined the term "the normate" as: the composite identity position held by those unmarked by stigmatized identifiers of disability (or race or gender for that matter). The disabled figure—the cripple, the invalid, the idiot—comes to represent everything that the normate is not. (Lucchesi)

History of Disability and Disability Activism

Old Testament gives mixed messages about disability. It talks about opening your arms to the poor, deaf, and blind but in contrast it warns that if you do not follow His commands, the Lord will afflict you with madness, blindness, and confusion of mind.

Renaissance Era: Change of belief to medical solutions for mental illness verses religious / supernatural solutions. The treatments were barbaric but a step toward science.

1800: First medical classification of mental disorders. Phillipe Pinel developed a four-part medical classification: melancholy, dementia, mania without delirium, and mania with delirium.

1860: First steps to cerebral palsy (CP)

BC

AD

1400

1714

1800

1840

1860

Middle Ages: Mental illness was believed to be caused by the supernatural or the devil, therefore cured through religious elements.

1714: England parliaments enacted a law authorizing confinement, but not treatment for the "furiously mad", which exempted them from routine whippings.

1840: Dorothea Dix traveled around the country inspecting the living conditions of people with mental illness and advocating for them to be better. She wrote memorials of her findings to lobby state legislatures.

1861-1865: The American Civil War results in 30,000 disabled soldiers, the Union Army allocated disability into the public

ward identifying

Late 1800s: Institutions become overcrowded and the moral treatment of the patients faded. The hope that patients were able to be rehabilitated and sent home had been replaced with the pessimism there was no cure and lifelong custody was needed.

1911: The Eugenics Record Office (ERO) was founded. Their beliefs varied, but they essentially believed that unfit people should not reproduce.

1920s: Shock therapies were developed, including the use of insulin, metrazol, malaria, and electricity to induce shock. Not long after, psychosurgery was modernized and nearly 20,000 patients were lobotomized by the 1950s.

1861

1870

1907

1911

1918

1920

1927

American Civil War amputations in one. This brings public mind.

1907-1949: Over 47,000 recorded sterilizations of people with mental disabilities.

1918: As a result of the large number of W/WI veterans returning with disabilities, congress passes the first major rehabilitation program for soldiers.

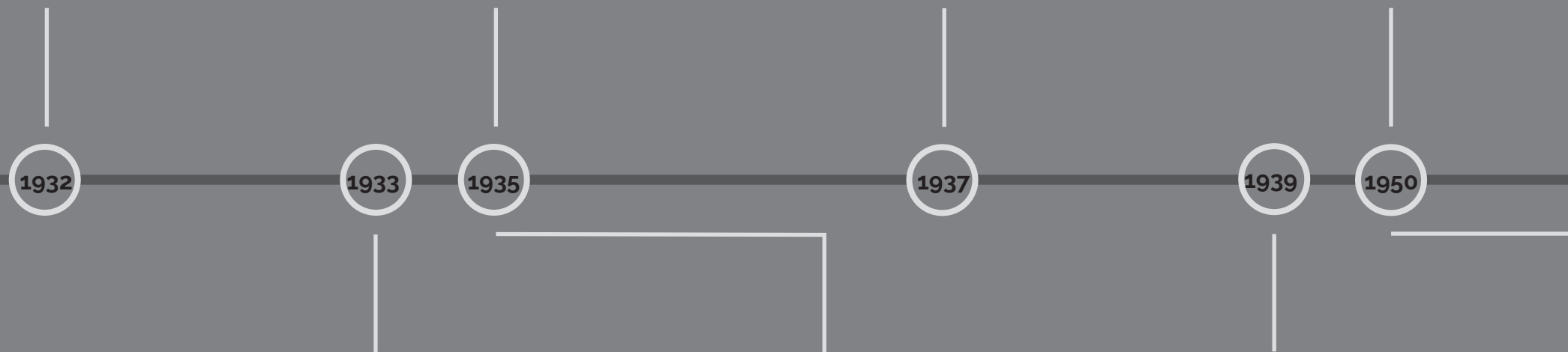
1927: Iron lung is developed to combat polio.

1932: Franklin D. Roosevelt elected president. He was believed to have polio and was paralyzed from the waist down. He helped fund the organization that is now known as the March of Dimes.

1935: 300 members of the League for the Physically Handicapped staged a nine-day sit in at the Home Relief Bureau of New York City, to protest that their request for employment with the Works Progress Administration (WPA) had been stamped 'PH' (physically handicapped)

1937-1955: Peak of the polio epidemic. People effected with this disease had to create their own forms of access through tools they made. Wheel chairs did not fit into homes or the public environment well.

1950: Beginning of Barrier-Free movement standards for buildings



1933: Nazi Germany enacted its own sterilization law, between 300,000 and 400,000 feebleminded persons were sterilized.

1935: President Franklin D. Roosevelt signs the Social Security Act, this program established permanent assistance to disabled adults.

1939: During WWII, Adolph Hitler ordered widespread 'mercy killing' of the sick and disabled. Between 75,000 to 250,000 were deemed to be a "life unworthy of life" and were systematically killed.

1950s: Introduction of drugs combined with treatment approach of deinstitutionalization. Patients came out of the hospitals and homelessness was a result of this movement.

of the National
ment to create
ngs.

1960: Election of John F. Kennedy, he
pushed the need for a national plan
in the field of mental retardation.

1964: Civil rights act is passed, the
act helps end discrimination towards
African Americans and women in the
work place. It does not make any
provision for people with disabilities.

1970: Judy Haumann sues New York
City Board of Education when they
deny her teaching license application.
The reason they stated is that her
wheel chair is a fire hazard.

1960

1961

1964

1968

1970

of anti-psychotic
with community
ch led to the
n movement.
and went from
ften. Increased
a consequence

1961: The American Standards
Association (ANSI) published the first
accessibility standards titled, Making
Buildings Accessible to and Usable
by the Physically Handicapped.

1968: Architectural Barriers Act
of 1968 requires the removal of
significant obstacles for employment
of people with disabilities.

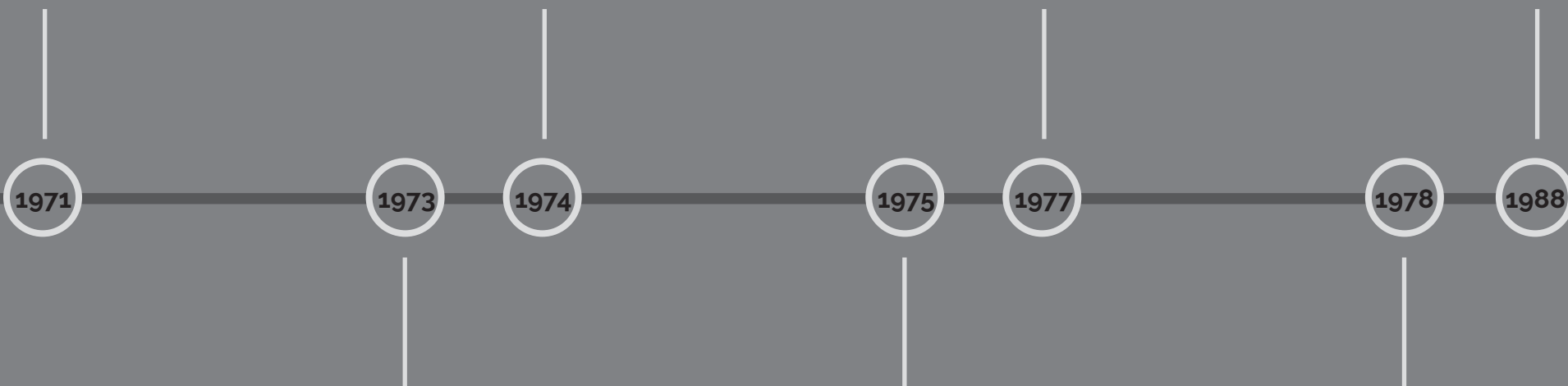
1970s: The Independent living
movement embraced the notion that
barriers that confront people with
disabilities are related to social attitudes,
interpretations, architecture, legal and
educational barriers. Independent living
centers offered an array of services that
promoted independent living.

1971: ICF/MR law. States can obtain federal funding if the care in institutions met the minimum requirements. This pushed deinstitutionalization because the minimum space requirements were way beyond with overcrowding.

1974: Chicago repealed the last "Ugly Law". These laws were against looking "unsightly" in public, they targeted poor and disabled people.

1977: Demonstrators take over the Health Education and Welfare (HEW) offices in San Francisco, CA, in protest of the Secretary Califano of HEW refusing to complete the regulations to complete Section 504. After 25 days, Califano finally signs.

1988: Justin Dart to collect stories support for passage an opportunity to disclose and exp



1973: Section 504 of the Rehabilitation Act makes it illegal for institutions that receive federal funds to discriminate on the basis of disability.

1975: Law passed to guarantee a free, appropriate, public education for all children with disabilities. This was passed through the Education for Handicapped Children Act.

1978: Demonstrators block buses with their wheel chairs in Denver, Colorado. They chant "We will ride!".

1990: Capital crash 8 years old, participated up the stairs a demonstration is final act that led to Americans with D

held 62 public forums in 50 states, Washington, D.C., and Guam of discrimination. His intent was to create a network of national of the American with Disabilities Act. The forums provided for people with disabilities and other advocates to publicly express their frustrations and outrage at discriminatory practices.

2008: The ADA amendments Act (ADAAA) was signed into law by President George W. Bush to counteract the Supreme Court's narrow interpretation of disability and provide broad protection from discrimination.

2010: Affordable Care Act prohibits discrimination based on disabilities in health insurance.

1990

2008

2010

l. Jennifer Keelan, participated in the crawl at the capital. Her s considered the o the passing of the isabilities Act.

1990: Americans with Disabilities Act Becomes Law The Americans with Disabilities Act (ADA) is signed into law by President George H. W. Bush (R) alongside its "founding father," Justin Dart.

2010: Revised regulations for Title II and Title III of the Americans with Disabilities Act (ADA) were issued by Department of Justice. One thing the revisions expanded on was accessibility requirements for recreational facilities.

2010: The CVAA updates federal communications law to increase the access of persons with disabilities to modern communications.

Testimonies



Figure 20

2009: Aimee Mullins on redefining disability - "I think that the only true disability is a crushed spirit, a spirit that's been crushed doesn't have hope, it doesn't see beauty, it no longer has our natural, childlike curiosity and our innate ability to imagine."



Figure 21

2010: Laura Hershey on the MDA telethon - "It helps to perpetuate negative stereotypes about people with disabilities. We don't need pity, we don't need people to give to charity in order to feel like they've done something to 'help the disabled.' What we need is equality, justice, and civil rights."



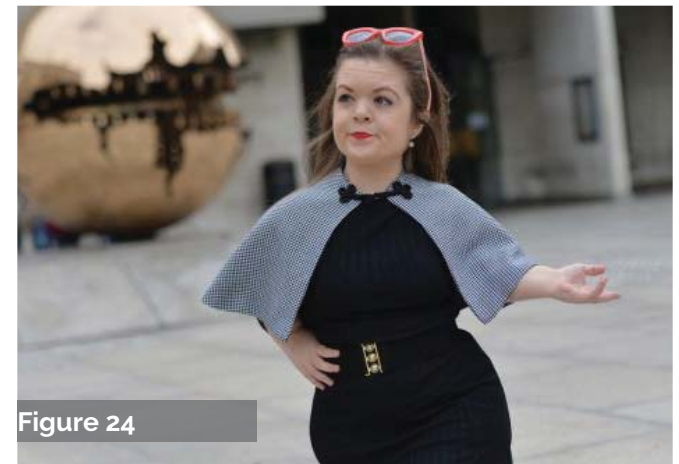
Figure 22

2012: Eleanor Smith interviews with It's Our Story. She talks about the lack of access into homes and all she missed out on because of it. When she was 13 she wasn't invited to her friends birthday party because her friends mom said she wouldn't be able to get into the house and it'd be best if she didn't invite her.

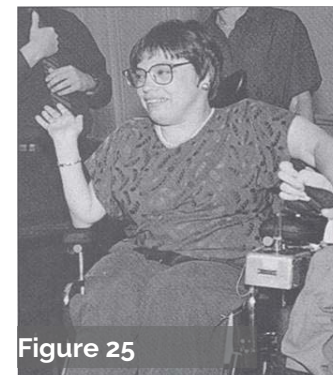
2017: Defiant Lives documentary quote -"I'm tired of the well meaning non cripples determining what I can and cannot do to form my life and my future. Get out of our way!"



2017: Sinead Burke " I often forget that I'm a little person. It's the physical environment and society that remind me. Using a public bathroom is an excruciating experience. I walk into the cubicle but I can't reach the lock on the door. I'm creative and resilient. I look around and see if there's a bin that I can turn upside down. Is it safe? Not really. Is it hygienic and sanitary? Definitely not... If that doesn't work, I use my phone. It gives me an additional four- to six-inch reach, and I try to jam the lock closed with my iPhone... The alternative is that I approach a stranger. I apologize profusely and I ask them to stand guard outside my cubicle door. They do and I emerge grateful but absolutely mortified, and hope that they didn't notice that I left the bathroom without washing my hands. I carry hand sanitizer with me every single day because the sink, soap dispenser, hand dryer and mirror are all out of my reach."



2018 : Judith Haumann "Together we can make a difference. Together we can speak up for justice. Together we can help change the world."



Site Analysis

All of the dots on this map are of my program elements or public accommodation space. I will investigate these spaces further to test if they are accessible or not.

Place of public accommodation means a facility operated by a private entity whose operations affect commerce and fall within at least one of the following categories

-
- 1) Place of lodging
- 2) A restaurant
- 3) Theater
- 4) Auditorium
- 5) Retail store
- 6) Service establishment
- 7) Station for public transportation
- 8) Gallery/ Museum
- 9) Place of recreation
- 10) Place of education
- 11) Social service establishment
- 12) Place of exercise or recreation

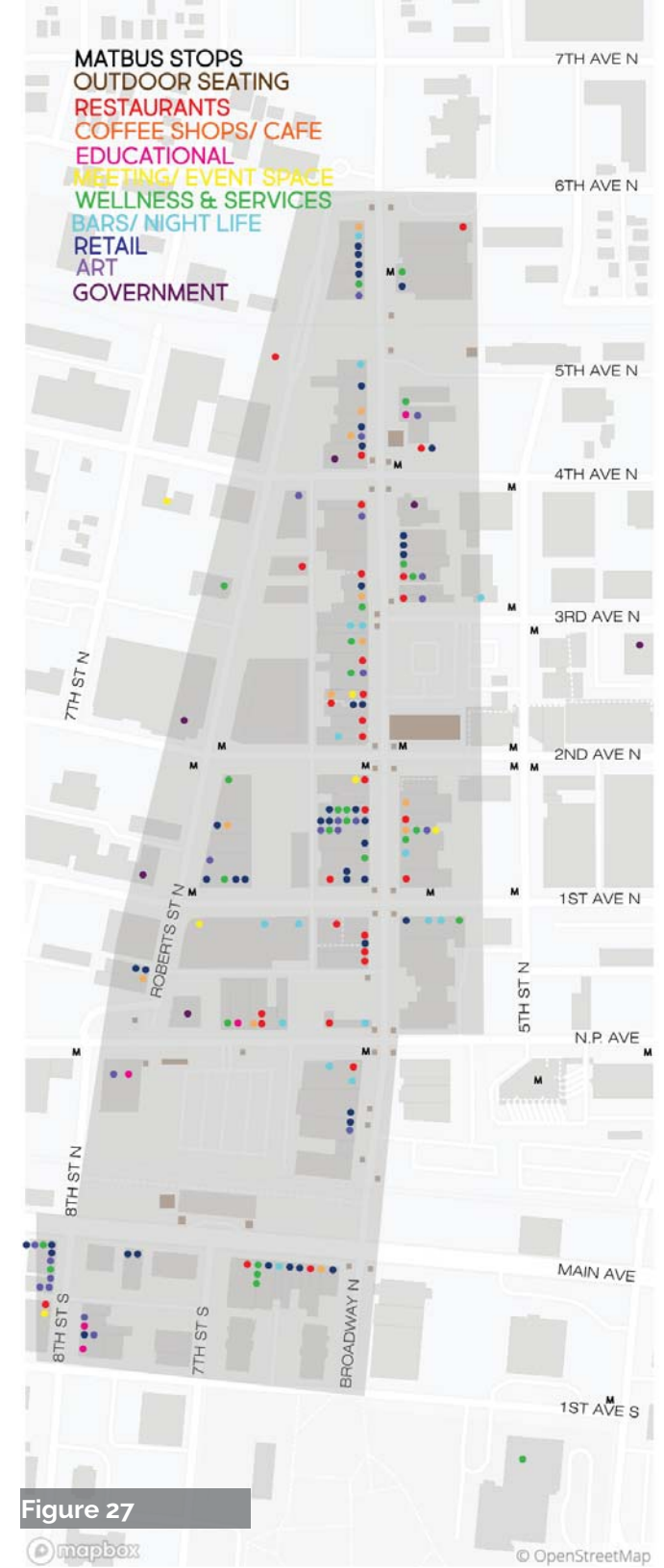


Figure 27



Figure 28

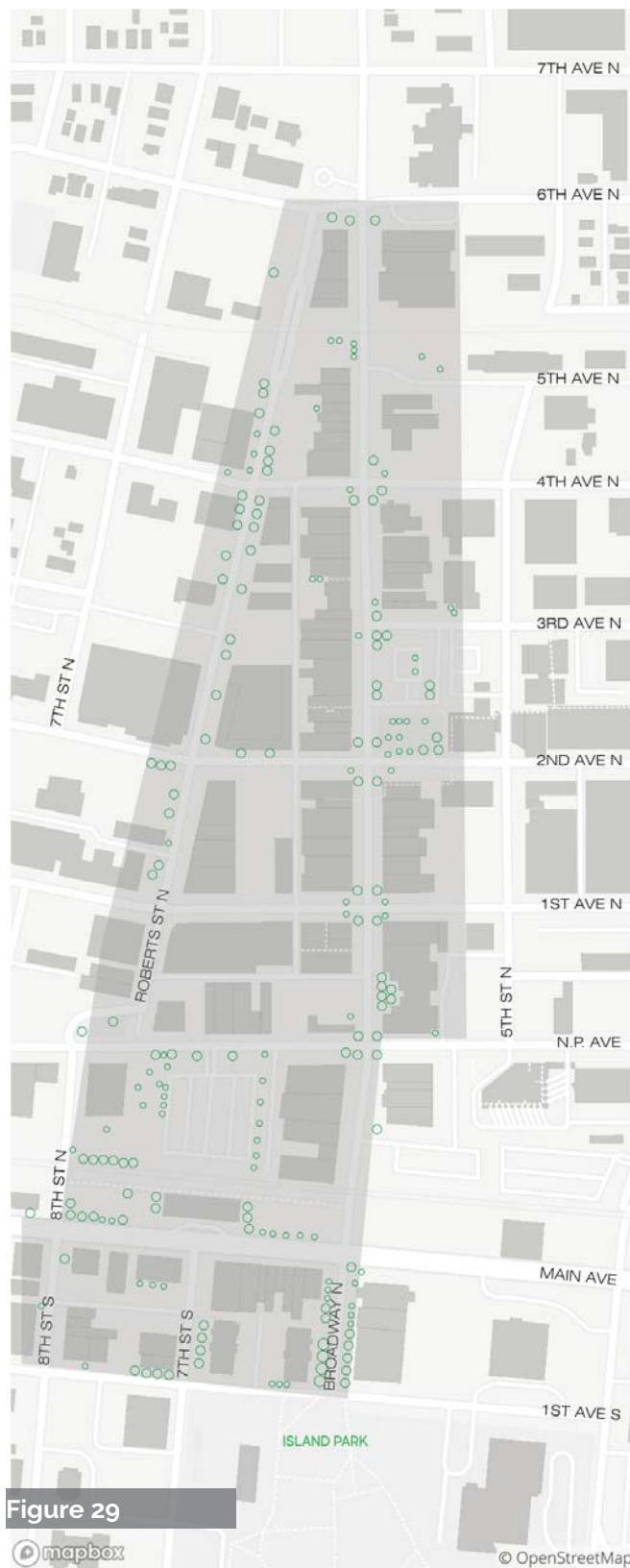
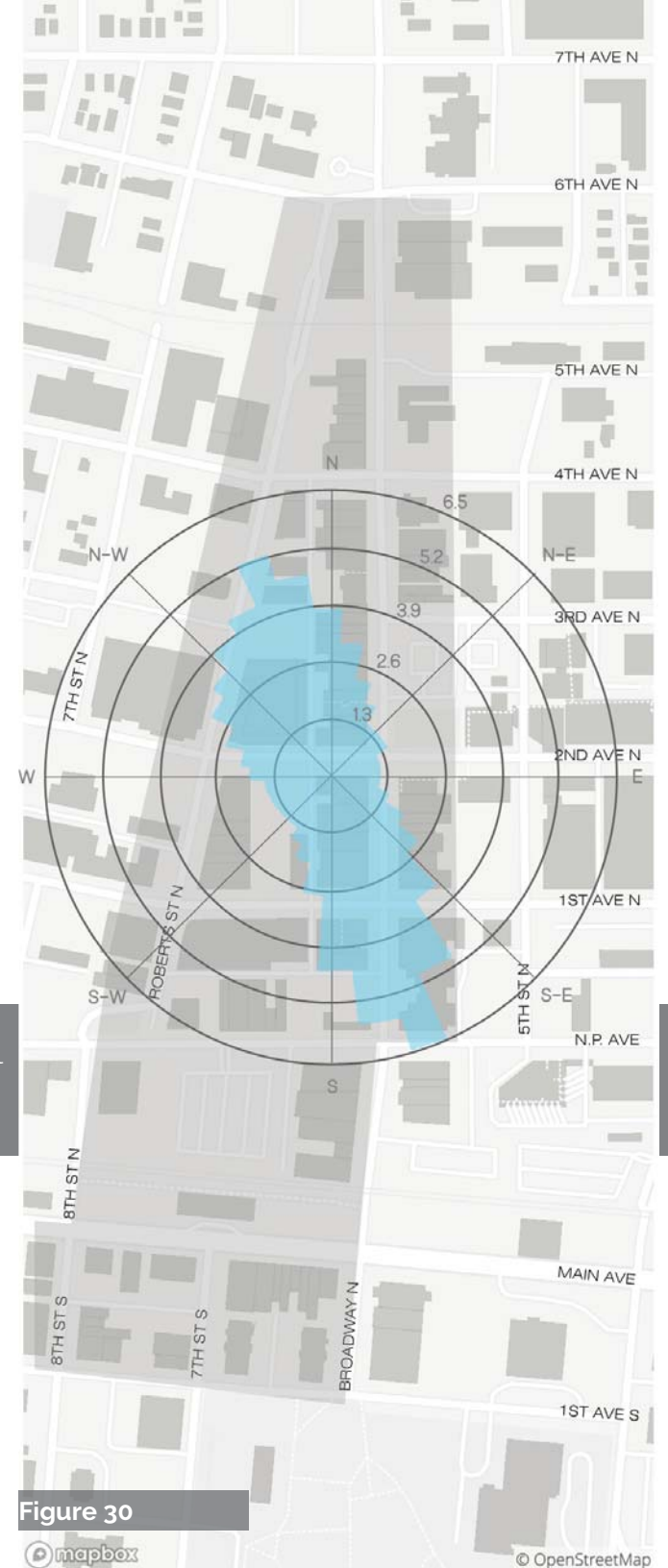


Figure 29

There is an okay amount of trees in my general site boundary, they tend to be located on the street corners and occasionally lining a road or parking lot. They are also used to create a sound/visual barrier by the railroad.

The wind in Fargo, ND is strongest in the NNW and the SSE. Neighboring building will have an effect on this and create micro-climates.



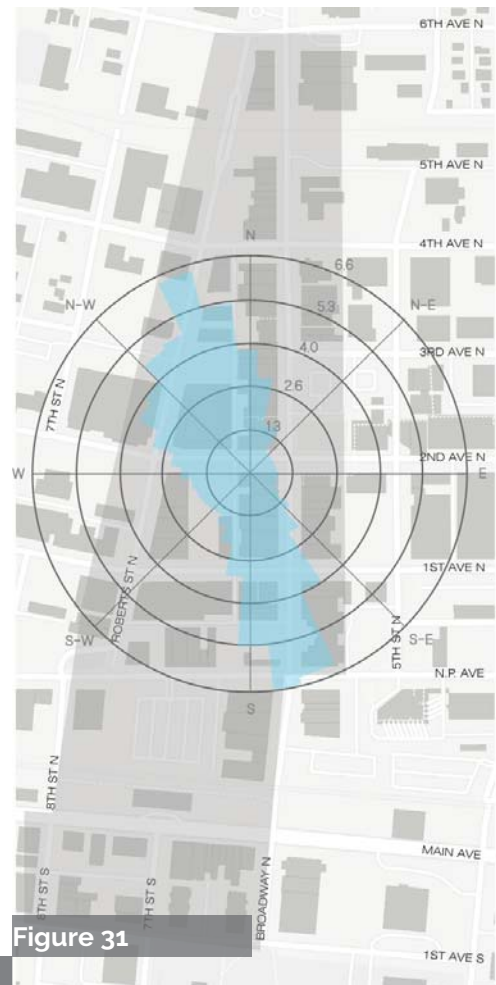


Figure 31

December

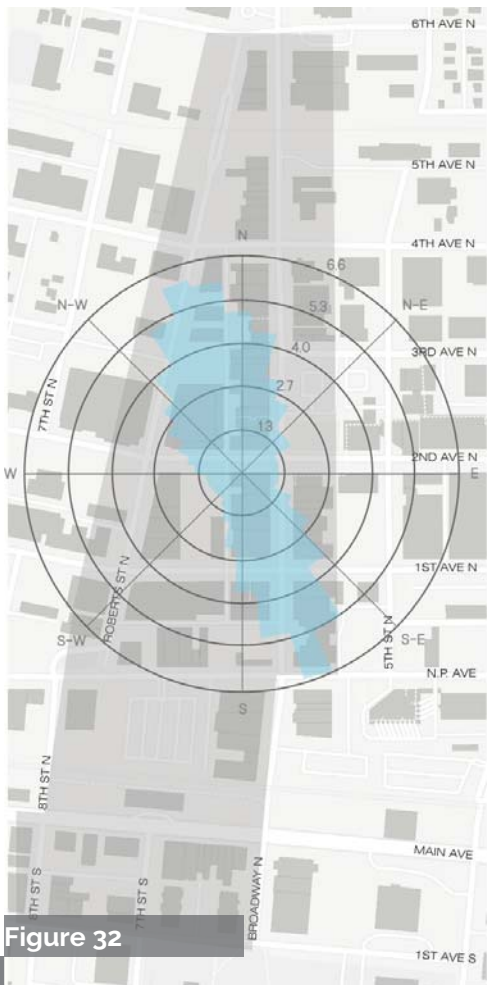


Figure 32

March

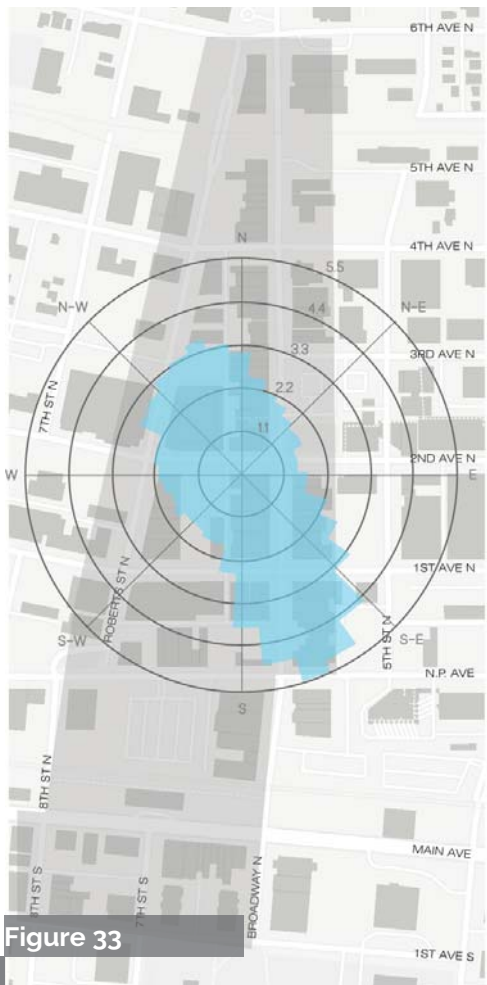


Figure 33

June

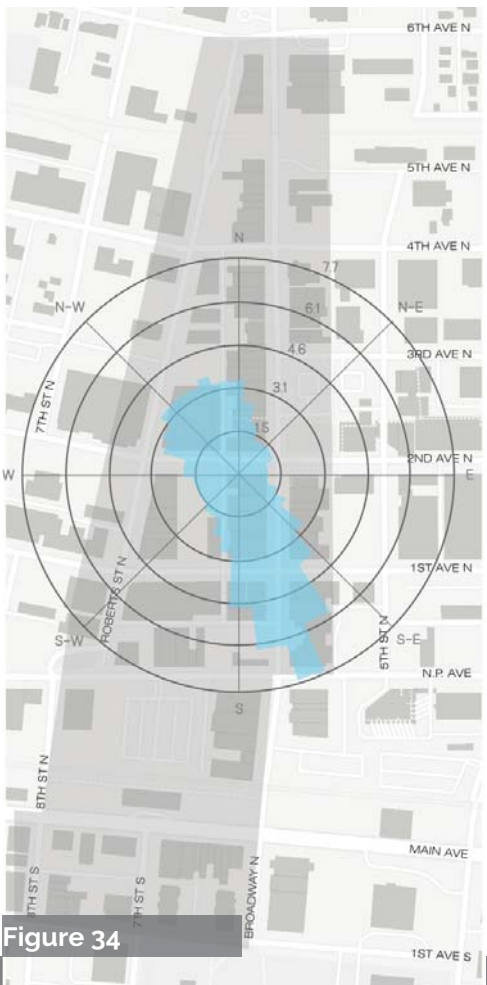


Figure 34

September

Vehicle traffic is the heaviest along Main ave, this makes a lot of sense because it is 4 lanes wide total and it connects West Fargo to Moorhead. Broadway, 1st ave, and 7th ave are the secondary roads and are still heavy in traffic. Broadway is the heart of downtown and has a significant amount of retail and restaurants on it. 1st ave is another main connection to Moorhead and is a 3-4 lane road, there is also some restaurants along it between Roberts St and 5th St. 7th ave connects to West Fargo and mostly has industrial and residential lining it. Two railroads also pass through my site, the bottom track seems to run more often.



Figure 35

This map lists the years the buildings were built and some renovation years. I am going to use this to compare to disability rights at the time of its development to see potential differences.



Figure 37

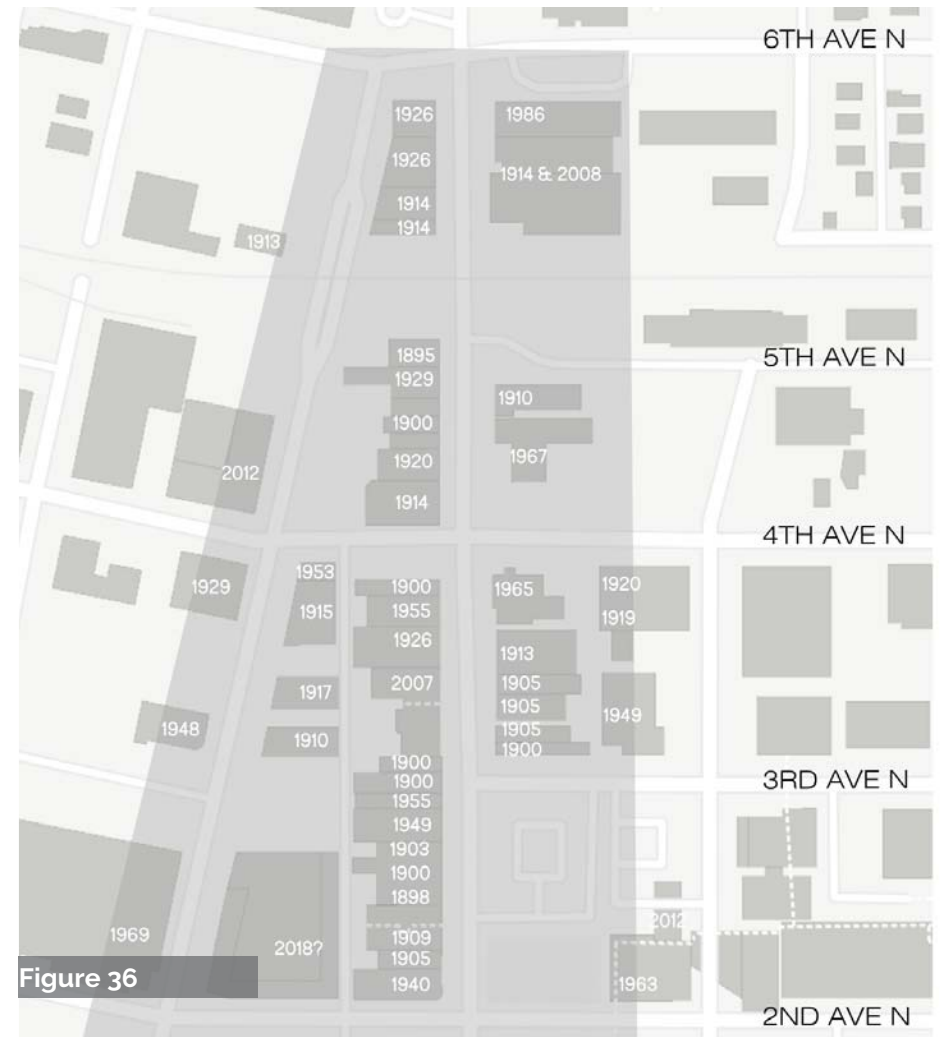


Figure 36

Site Evaluations

Investigated 50+ sites to determine what the specific problem is in downtown Fargo.

location: *lopp-tha entrance*

exterior main	sidewalk	uneven / even				
	door	knob/lever	nothing	flat/ small lip/ step	room to open (distance?)	Swing in/ out
	path to door	clear/ no				
	locating entry	signage	no			
	curb cut	SH/ 10 ft/ 20 ft	no			
	rest area	Bench/ chair/ ledge	smooth/ rough	yellow bumps/ no		
entry interior	door	knob/ lever	nothing	flat/ small lip/ step	room to open (distance?)	
main	wayfinding	clear/ no				
	path	uneven/ even	does it change?			
	floor condition	yes/ no				
	vestibule	width	w/ RVPS			
	size of space	small/ large	sq?			
	rest area	Bench/ chair/ ledge	how close?	grab bar/ no		

automatic
stair sft
rolling sft.

location: *trashed frog*

exterior main	sidewalk	uneven / even				
	door	knob/ lever	nothing	flat/ small lip/ step	room to open (distance?)	Swing in/ out
	path to door	clear/ no				
	locating entry	signage	no			
	curb cut	SH/ 10 ft/ 20 ft	no			
	rest area	Bench/ chair/ ledge	smooth/ rough	yellow bumps/ no		
entry interior	door	knob/ lever	nothing	flat/ small lip/ step	room to open (distance?)	
main	wayfinding	clear/ no				
	path	uneven/ even	does it change?			
	floor condition	yes/ no				
	vestibule	width	sq?			
	size of space	small/ large	sq?			
	rest area	Bench/ chair/ ledge	how close?	grab bar/ no		

4
sft

location: *helo - Vest doors*

exterior main	sidewalk	uneven / even				
	door	knob/ lever	nothing	flat/ small lip/ step	room to open (distance?)	Swing in/ out
	path to door	clear/ no				
	locating entry	signage	no			
	curb cut	SH/ 10 ft/ 20 ft	no			
	rest area	Bench/ chair/ ledge	smooth/ rough	yellow bumps/ no		
entry interior	door	knob/ lever	nothing	flat/ small lip/ step	room to open (distance?)	
main	wayfinding	clear/ no				
	path	uneven/ even	does it change?			
	floor condition	yes/ no				
	vestibule	width	sq?			
	size of space	small/ large	sq?			
	rest area	Bench/ chair/ ledge	how close?	grab bar/ no		

stair
stair
restaurant



Figure 38

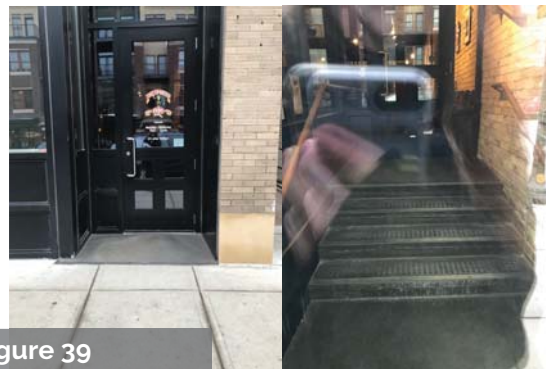


Figure 39



Figure 40

location: **20 yellow entrance.**

exterior main	sidewalk	smooth / even	
	door	knobs/ lever / no / nothing	flat/ small lip/ step room to open (distance?) ✓ Swing in/ out ✓
	path to door	clear path/ no	
	locating entry	curb cut	smooth/ rough / not
	rest area	Stu/ chair/ ledge	smooth/ rough yellow bumper/ how close? STP
entry interior	door	knobs/ lever / no / nothing	flat/ small lip/ step room to open (distance?) ✓
	wayfinding	clear/ no	
	path	smooth/ even	does it change? STP
	floor condition	smooth/ even	does it change? tile
	vestibule	smooth/ even	does it change? tile
	size of space	large/ small	sq? STP
	rest area	Stu/ chair/ ledge	how close? grab bar/ no Lim Shops STP.

location: **NOBULL**

exterior main	sidewalk	smooth / even	
	door	knobs/ lever / no / nothing	flat/ small lip/ step room to open (distance?) ✓ Swing in/ out ✓
	path to door	clear path/ no	
	locating entry	curb cut	smooth/ rough / not
	rest area	Stu/ chair/ ledge	smooth/ rough yellow bumper/ how close? STP
entry interior	door	knobs/ lever / no / nothing	flat/ small lip/ step room to open (distance?) ✓
	wayfinding	clear/ no	
	path	smooth/ even	does it change? tile
	floor condition	smooth/ even	does it change? tile
	vestibule	smooth/ even	does it change? tile
	size of space	large/ small	sq? STP
	rest area	Stu/ chair/ ledge	how close? grab bar/ no STP

rest area / Stritty ramp

driveaway



location: **king horse**

exterior main	sidewalk	smooth / even	
	door	knobs/ lever / no / nothing	flat/ small lip/ step room to open (distance?) ✓ Swing in/ out ✓
	path to door	clear path/ no	
	locating entry	curb cut	smooth/ rough / not
	rest area	Stu/ chair/ ledge	smooth/ rough yellow bumper/ how close? STP
entry interior	door	knobs/ lever / no / nothing	flat/ small lip/ step room to open (distance?) ✓
	wayfinding	clear/ no	
	path	smooth/ even	does it change? tile to carpet
	floor condition	smooth/ even	does it change? tile to carpet
	vestibule	smooth/ even	does it change? tile to carpet
	size of space	large/ small	sq? STP
	rest area	Stu/ chair/ ledge	how close? grab bar/ no STP

slope

STP



Figure 41

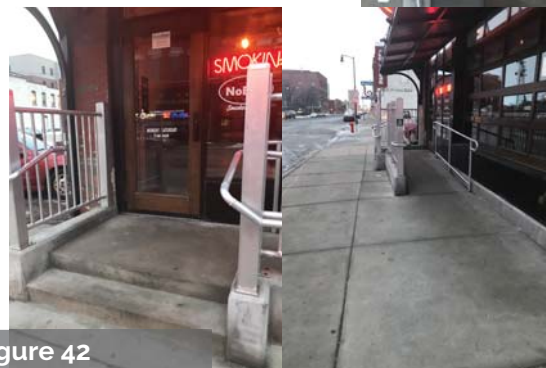


Figure 42



Figure 43

Good



Automatic Door

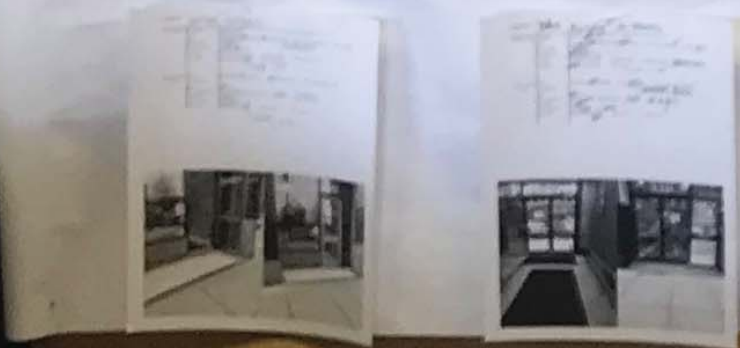


Figure 44

Stepped



Sloped



Vestibule



After gathering all the evaluations, I organized them by characteristics of the entries : stepped, sloped/ cracked, vestibule, good/other, and automatic door. Then I ranked them on quality from left to right. I connected string from the site to the year it was built to it's evaluation sheet.

Conclusion:

- Most of downtown was built from 1895 to 1910 because there was a fire that burned down most of the city in 1893.
- I cannot solve a cracked or sloped entry - they need someone to come and refinish the ground.
- Focus on stepped entries.
- Problem: Existing buildings are inaccessible due to poor entry conditions.

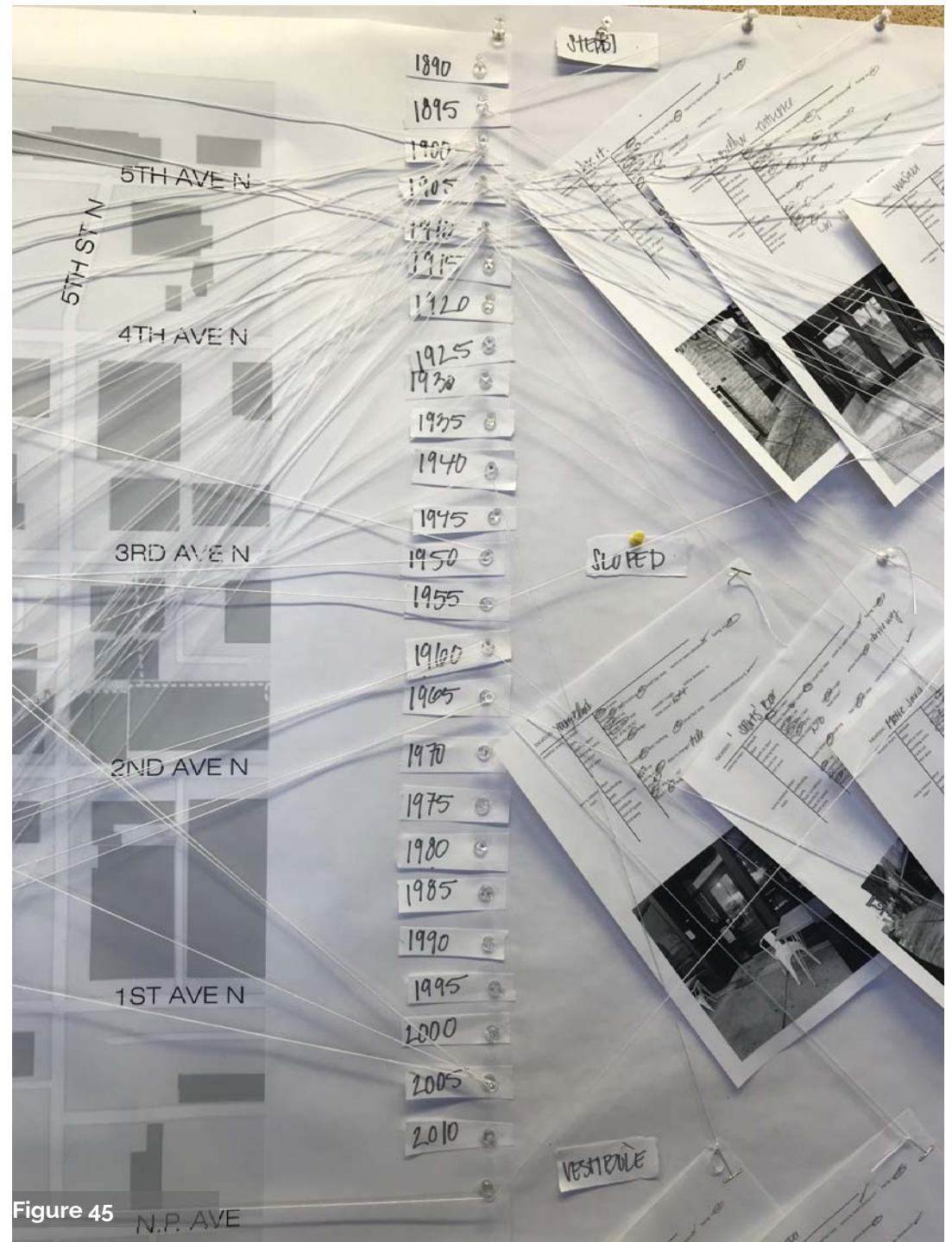


Figure 45



Figure 46

Why is this a problem?

- A public accommodation shall remove architectural barriers in existing facilities where such removal is readily achievable.

Readily achievable : easily accomplishable and able to be carried out without much difficulty or expense...
Essentially, cheap and easy.

Performance Criteria

The criteria I use to pick my specific site I will also use to evaluate the site after it is designed and completed. I am also going to build and implement my design into the space, then observe it over a period of time.

My performance categories will be code compliance, affordability, ease of use, and social impact.

Code compliance: Follow ADA, IBC and city codes

Affordable: \$500 price point. This number was based off the micro-grant i received through the NDSU innovation challenge.

Ease of use: Solo assembly without power tools

Social impact: Bring the problem into the publics eye

	Product	Price	Vendor	Quantity	Total
Rough prototype model	2"x4"	\$2.93	Home Depot	9	\$26.37
	OSB Panel 2'x4'	\$6.47	Home Depot	2	\$12.94
Final base	1 x 4 x 8' Ground Contact AC2® CedarTone Premium Pressure Treated Board	\$5.49	Menards	24	\$131.76
	Roseburg 5/8 x 4 x 8 AB Marine 7-Ply Plywood	\$61.99	Menards	2	\$123.98
Final structure for shelter	PVC pipe 1 1/4" x 10'	\$3.77	Menards	11	\$41.47
	PVC 90 degree elbow	\$0.68	Menards	1	\$0.68
	PVC side outlet elbow	\$1.68	pvc fittings	3	\$5.04
	PVC 90 degree 3 socket	\$0.79	Menards	2	\$1.58
	PVC single socket t	\$0.79	Menards	2	\$1.58
	PVC side outlet t	\$1.79	pvc fittings	2	\$3.58
	PVC flange	\$4.69	Menards	5	23.45
	Metal Shop 14-Gauge 50' Steel Galvanized Wire	\$2.99	Menards	1	\$2.99
	Oatey® Handy Pack™ PVC Cement and Primer	\$6.49	Menards	1	\$6.49
	Rust-oleum spray paint	\$3.85	Menards	1	\$3.85
					\$421.22
				Sales tax	8%
				tax	\$31.59
				shipping for pvc fittings online	\$5.35
					\$458.16

Figure 47

I chose PVC because of its affordability, metal would have cost me my whole budget. I end up not using PVC because it is not good for the environment and lack of strength. I could not use the Cedar-tone pressure treated boards because treated wood is not allowed in the wood shop.

Parameters for the Solution

- No more than 1/4" grade change allowed
- Railing needed for a rise greater than 6"
- 36" minimum width for path of travel (ADA)
- 44" unobstructed pathway on sidewalk (City of Fargo)
- Edge protection on slope - 4" ball may not pass under

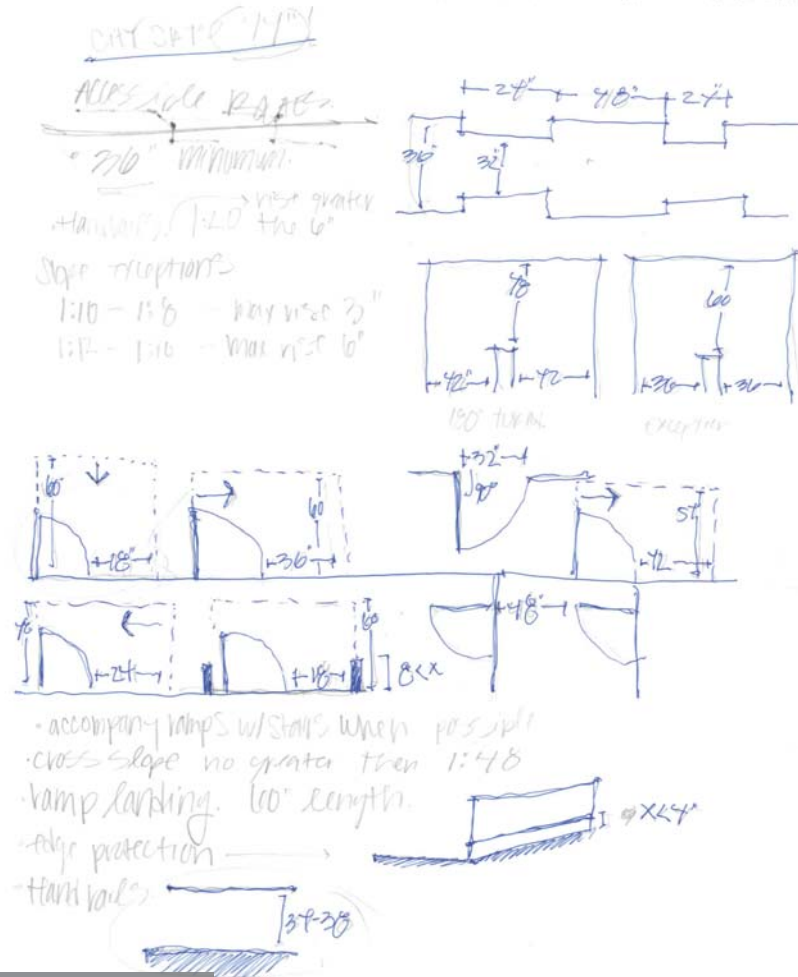


Figure 48

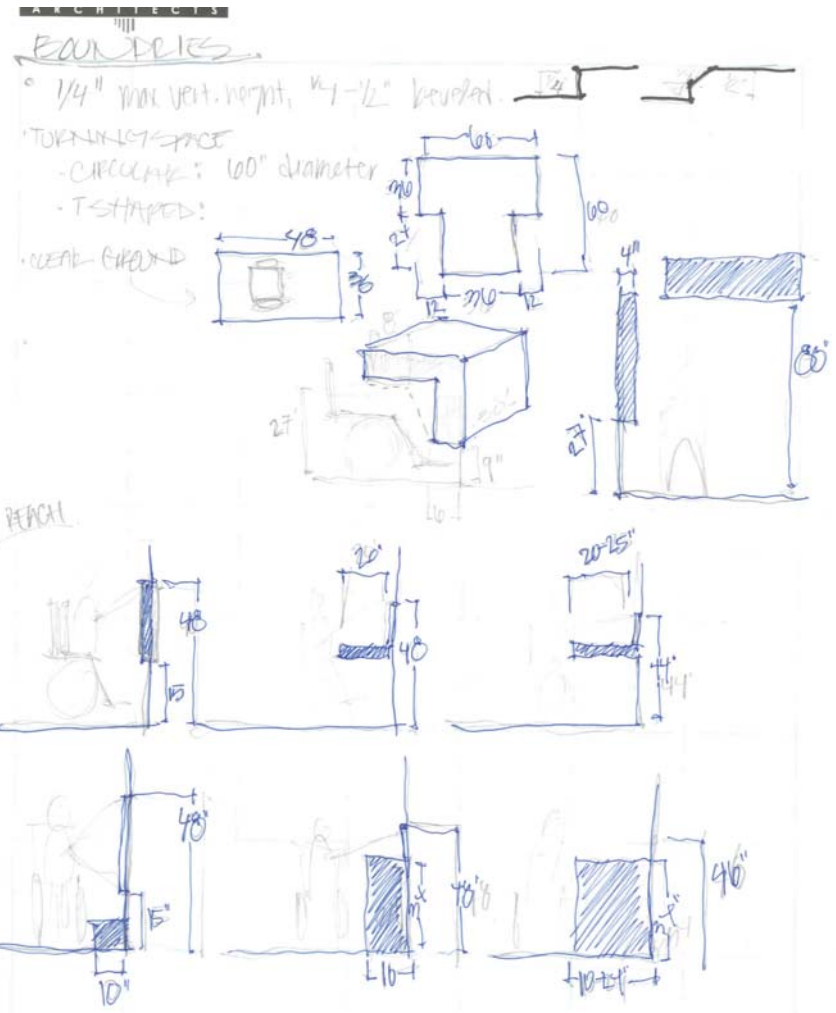


Figure 49

Besides code, what makes a person feel confident in a space?

- ability to navigate the space
- ease of use
- ability to make the space your own - adaptable to your needs
- welcoming
- warmth
- equal access
- familiarity

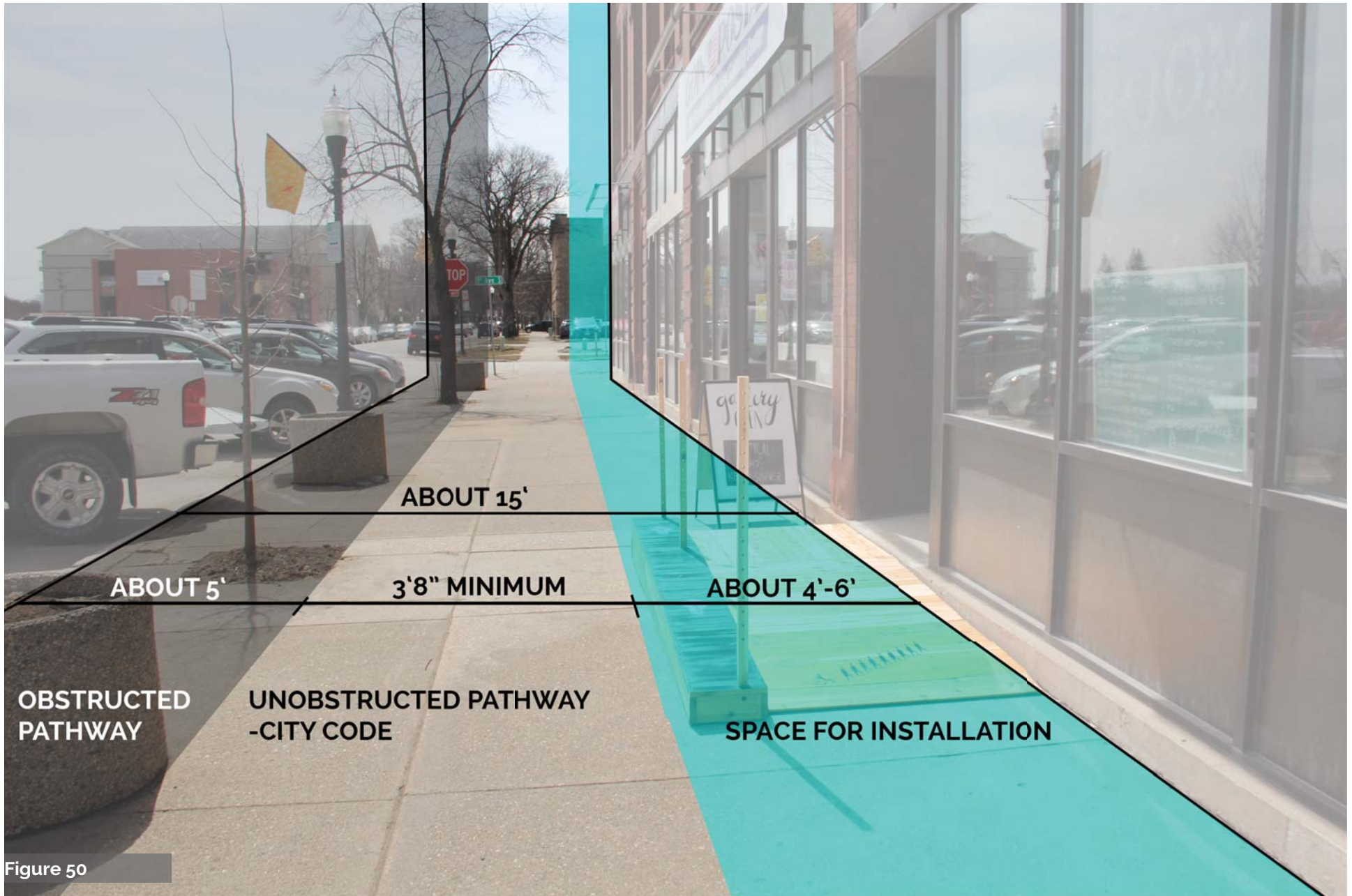
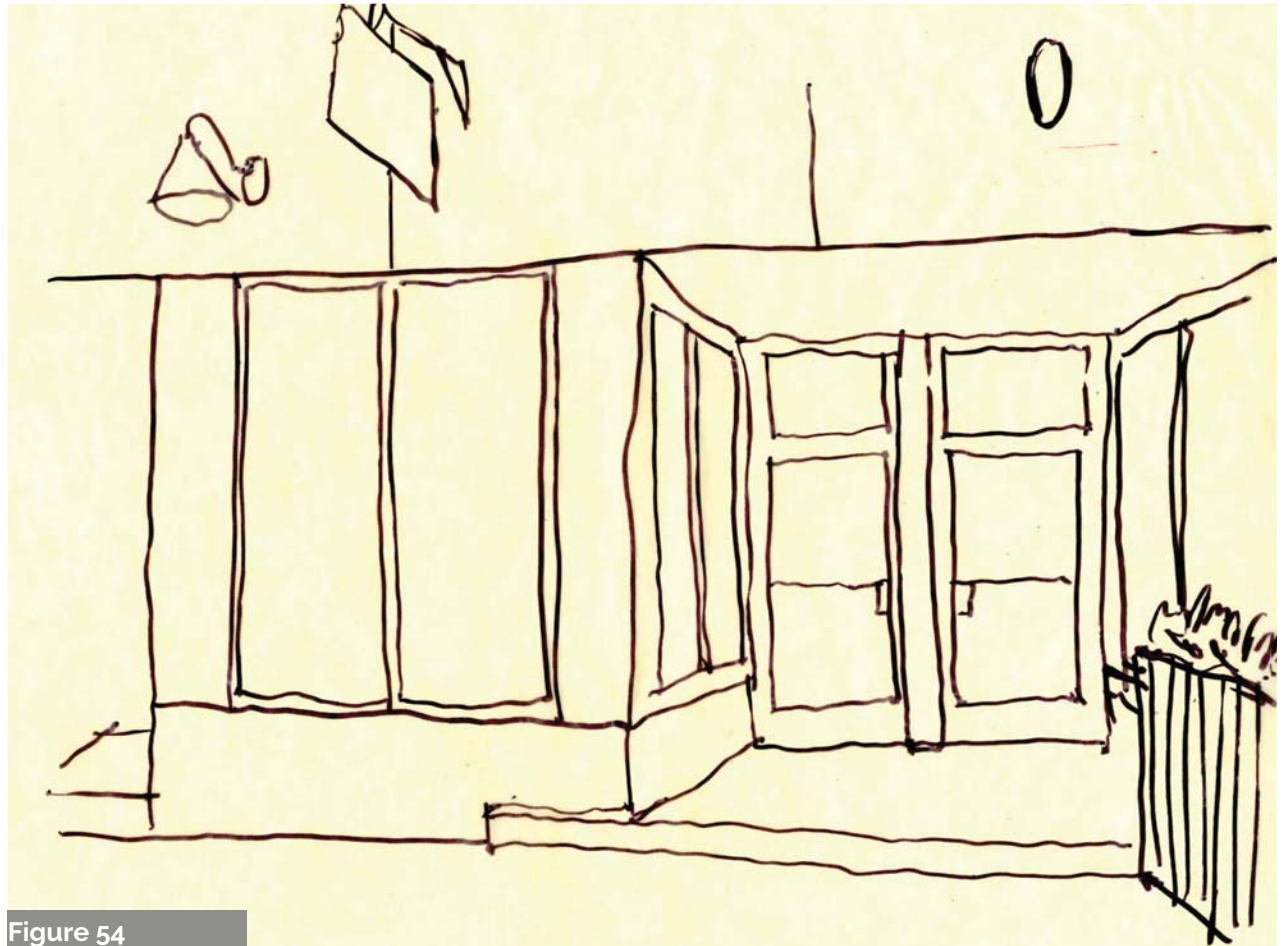


Figure 50

Entry Study

- Entry to multiple shops
- In and to the left : 20 Below Coffee Co.
- In and to the right: White House Co. and Always Floral
- One step - 6"
- Railing on the right hand side
- Windows into spaces
- Bike rack out front



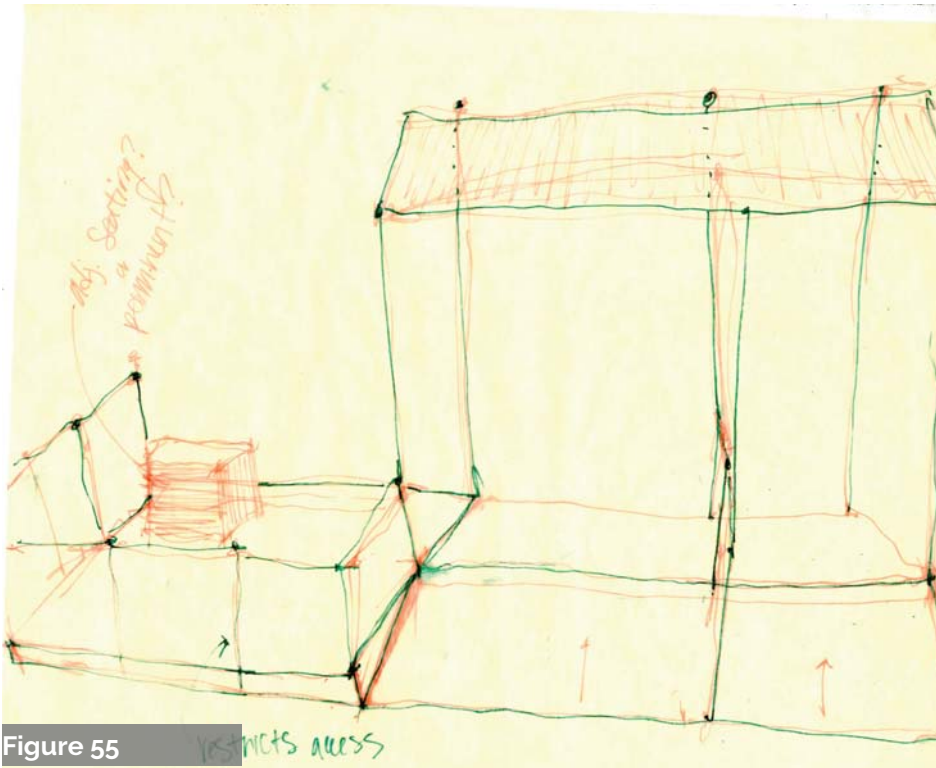


Figure 55

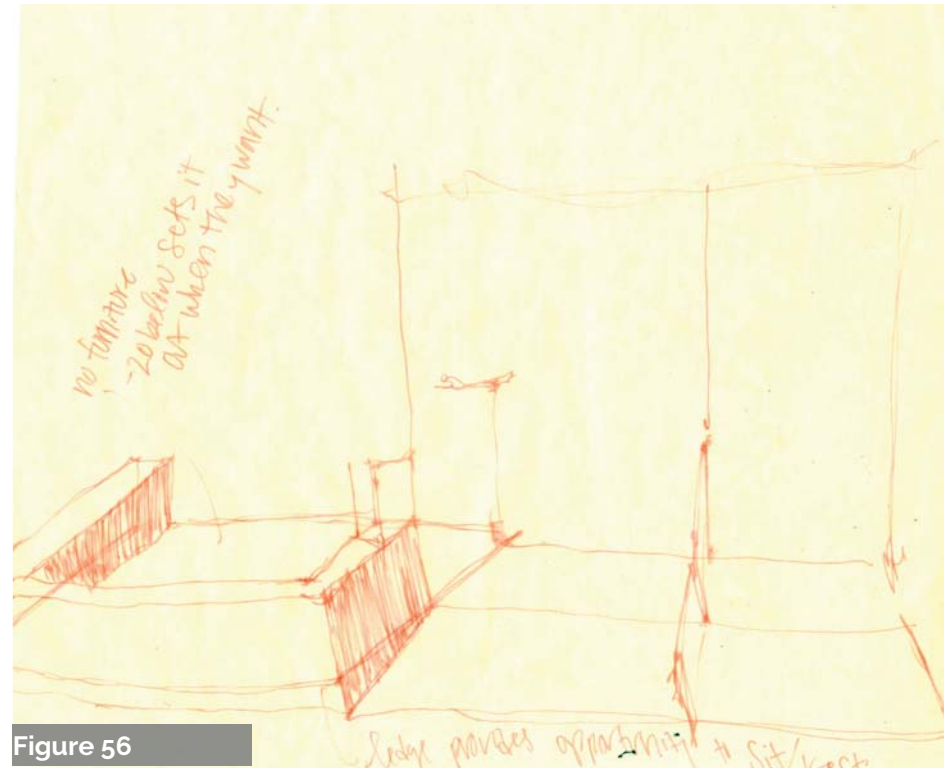


Figure 56

Negative for both ideas above: implies restricted access and create a barrier

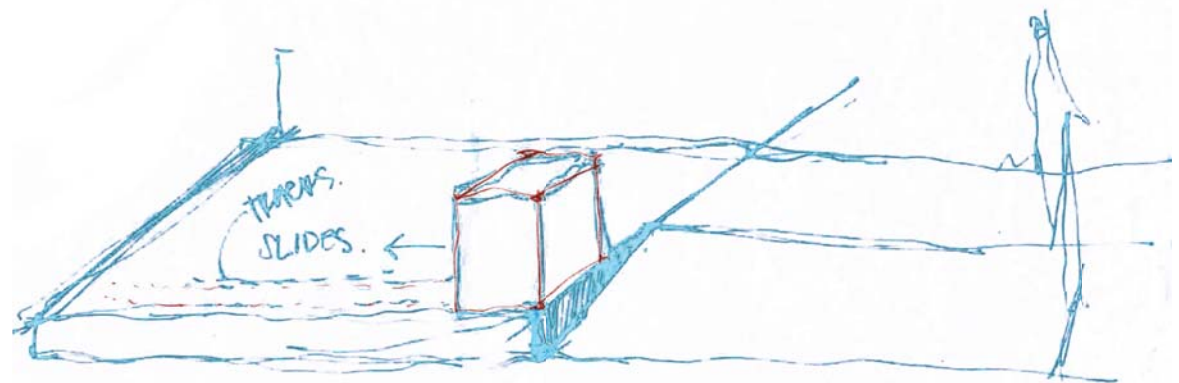


Figure 57

Positive: Adaptable within use
 Negative: Not very practical - how does it slide? Too many moving parts risk failure and breaking

Modular Block Study

Played with 3D printed blocks on different store fronts

- How do the blocks connect?
- How to adapt to different entry heights?
- Angle of approach?

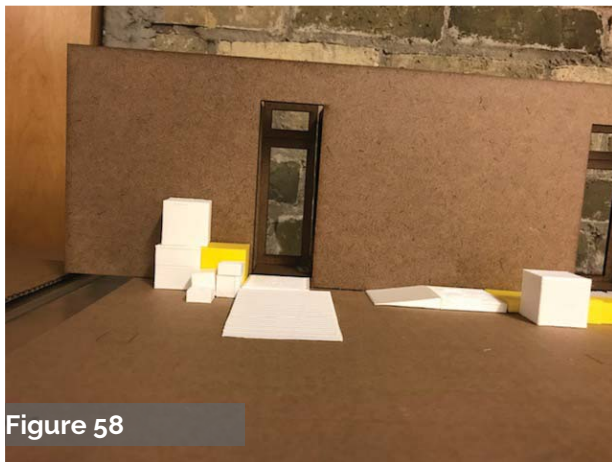


Figure 58



Figure 59

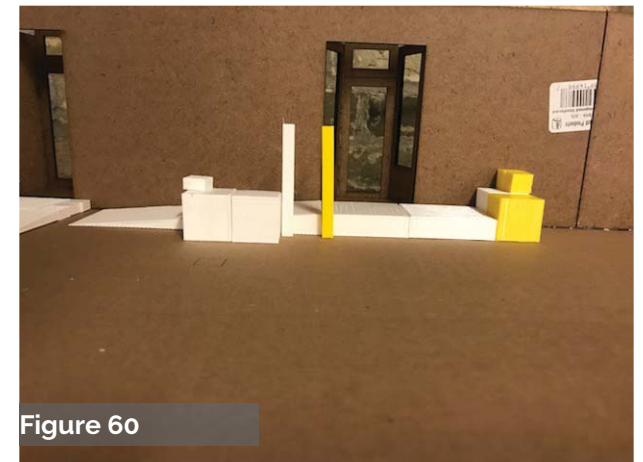


Figure 60

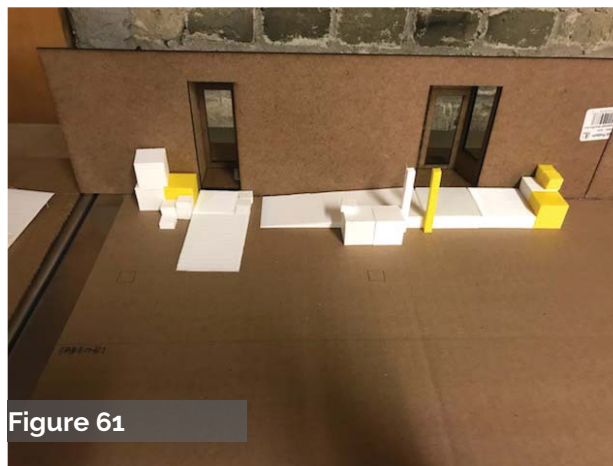


Figure 61



Figure 62

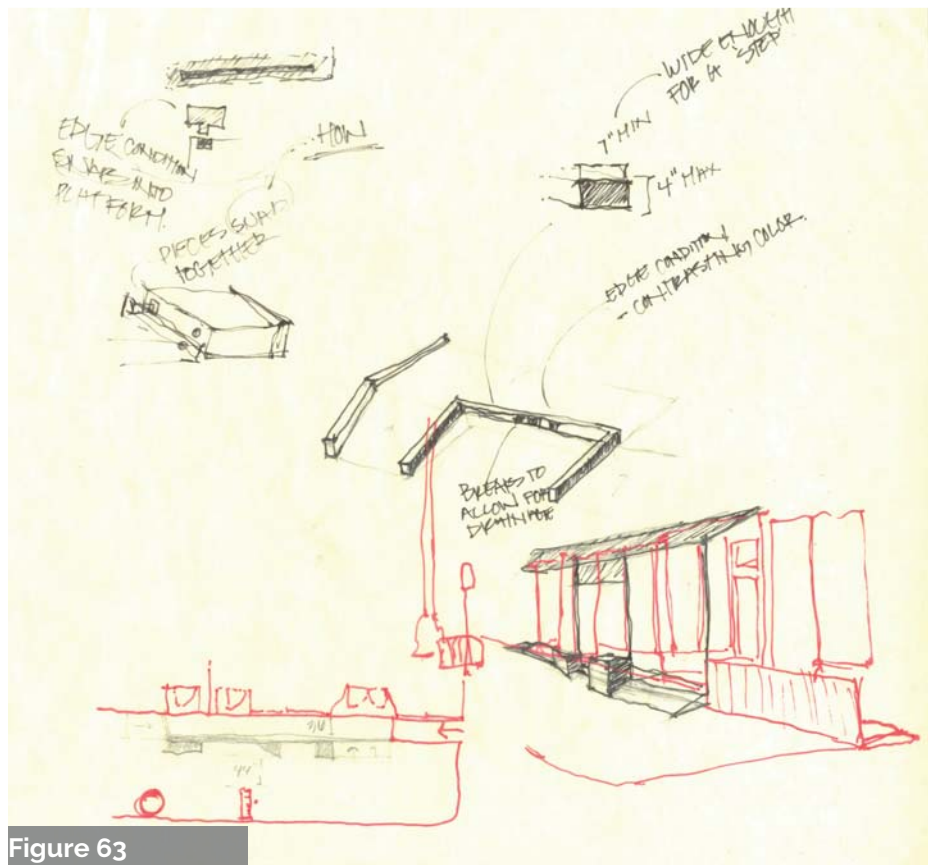


Figure 63

Design exploration in-front of 20 below entry
 -edge condition if too thin could be a tripping hazard
 -decided to make the edge a full step width - 11"

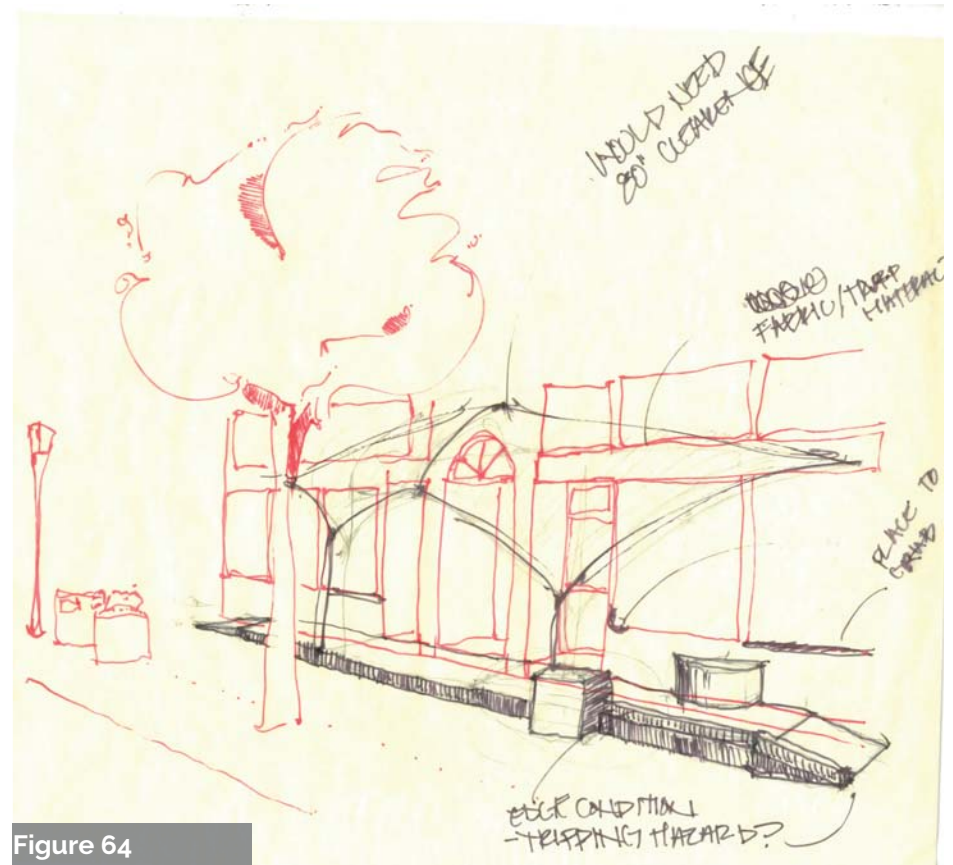


Figure 64

Entry study in-front of Onyx + Pearl

Connection Piece

Idea: The edge condition step piece could double as the connection piece to the sliding box.

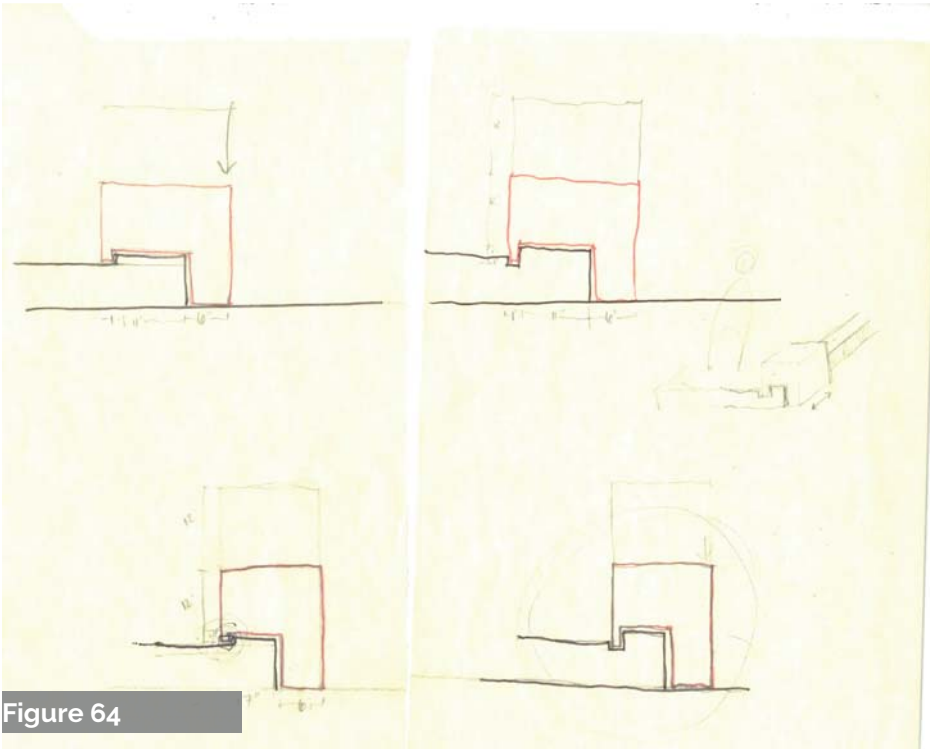


Figure 64

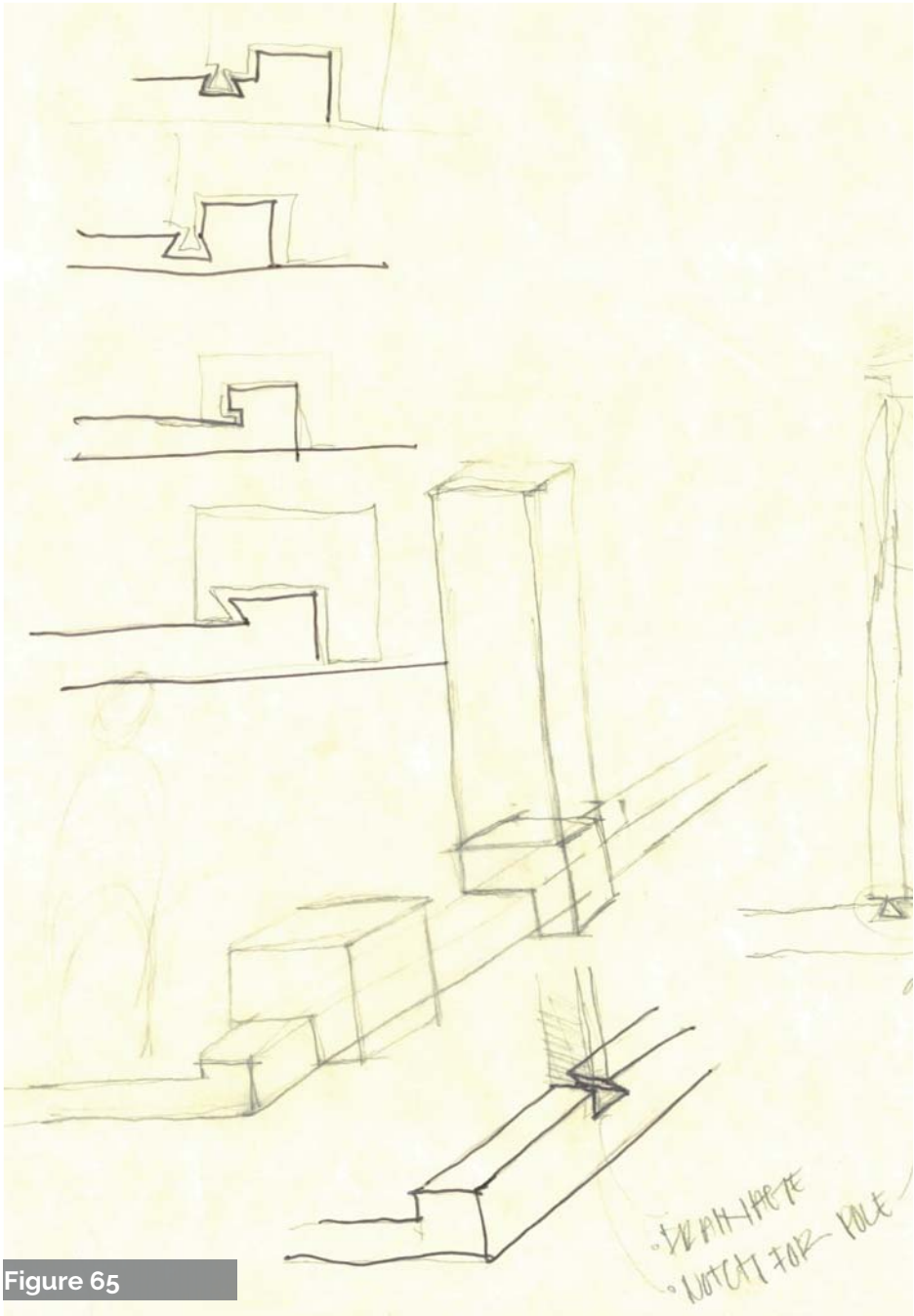


Figure 65

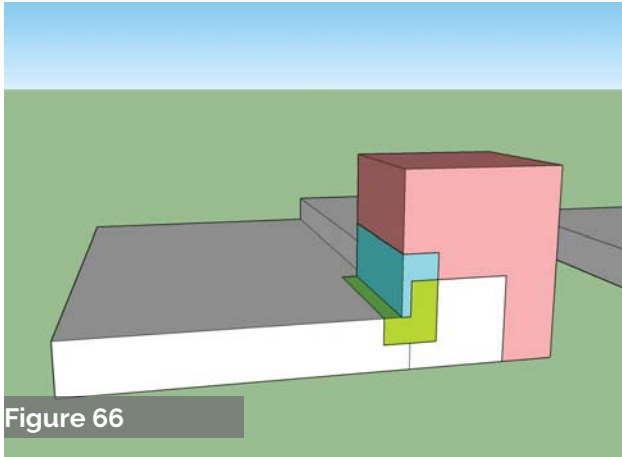


Figure 66

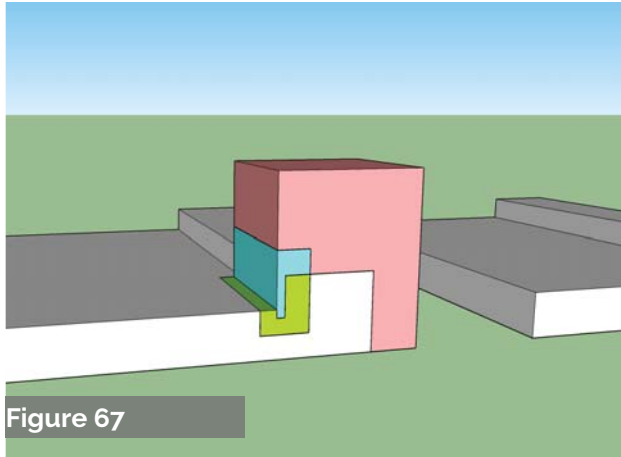


Figure 67

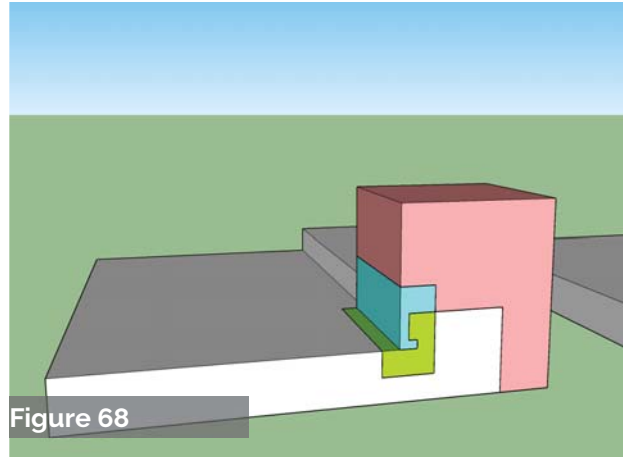


Figure 68

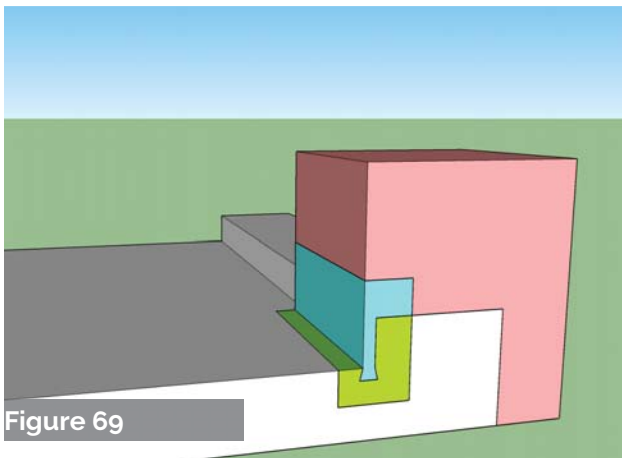


Figure 69

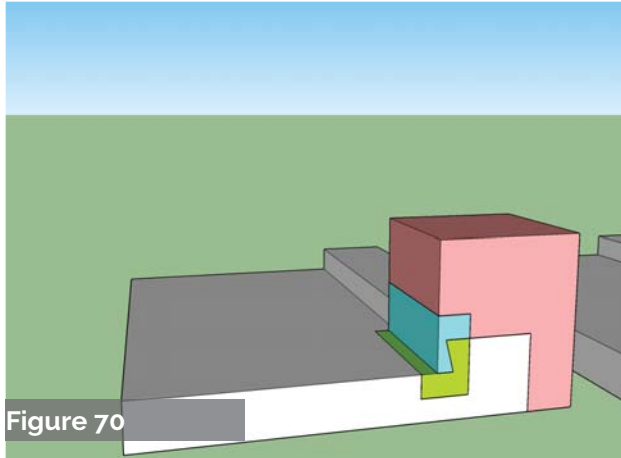


Figure 70

Decided to go with angled piece (Left) then i went on to test different angles.

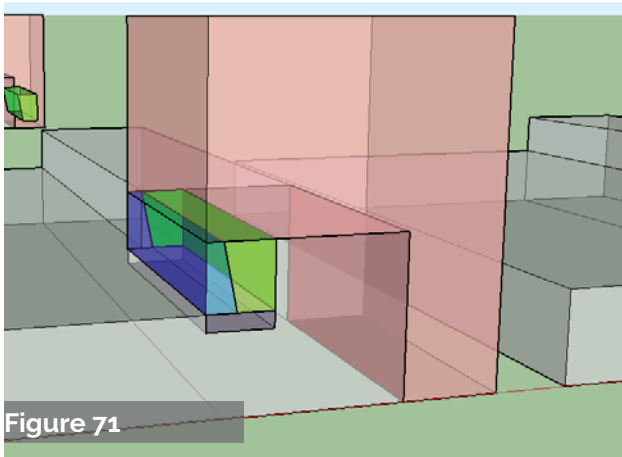


Figure 71

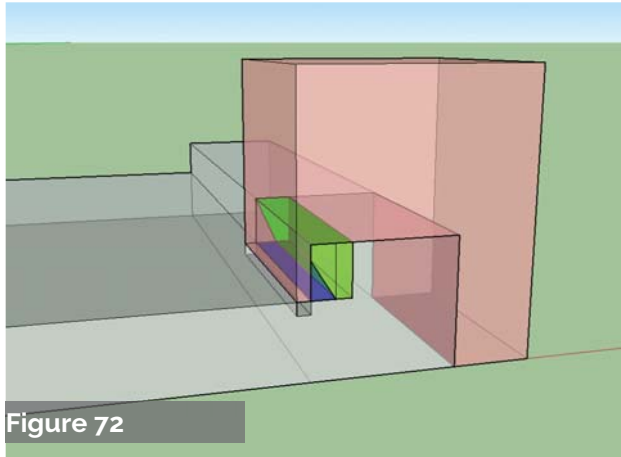


Figure 72

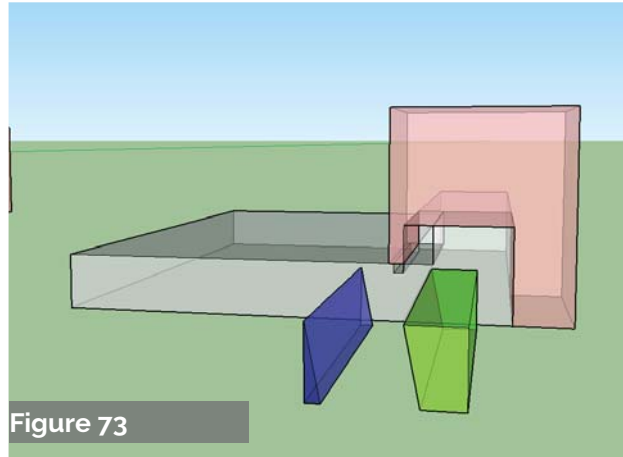


Figure 73

Rough Prototype

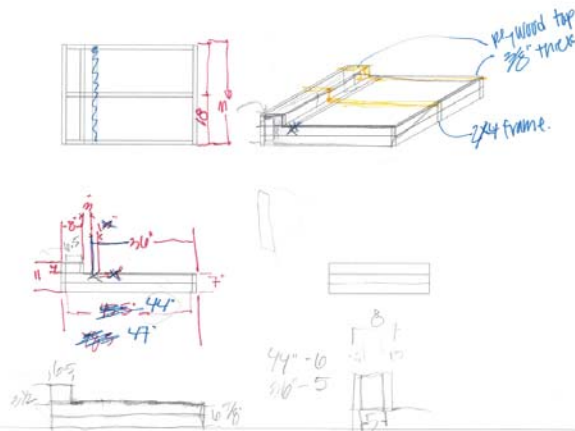


Figure 74

What I learned from building this:

- How to properly frame and scab
- Positioning screws at corners so they don't hit each other
- It's too heavy
- Exposed end grain may be destroyed faster
- To be mindful of tolerances
- Designs change once you start building them - and that's okay

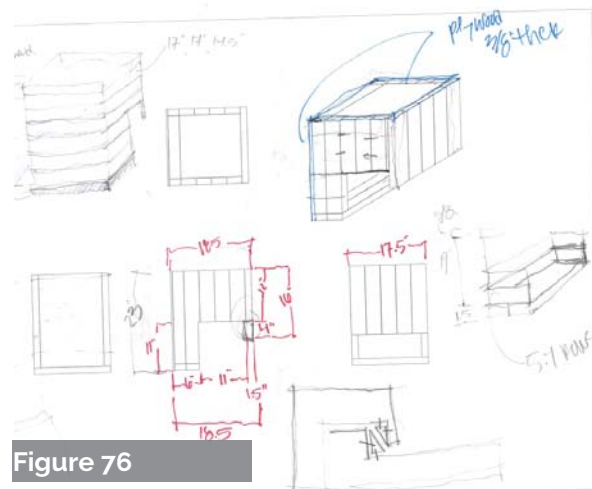


Figure 76



Figure 75



Figure 77



Figure 78

Testing different angled connection pieces



Figure 79



Figure 80



Figure 81

Full Installation Sketch

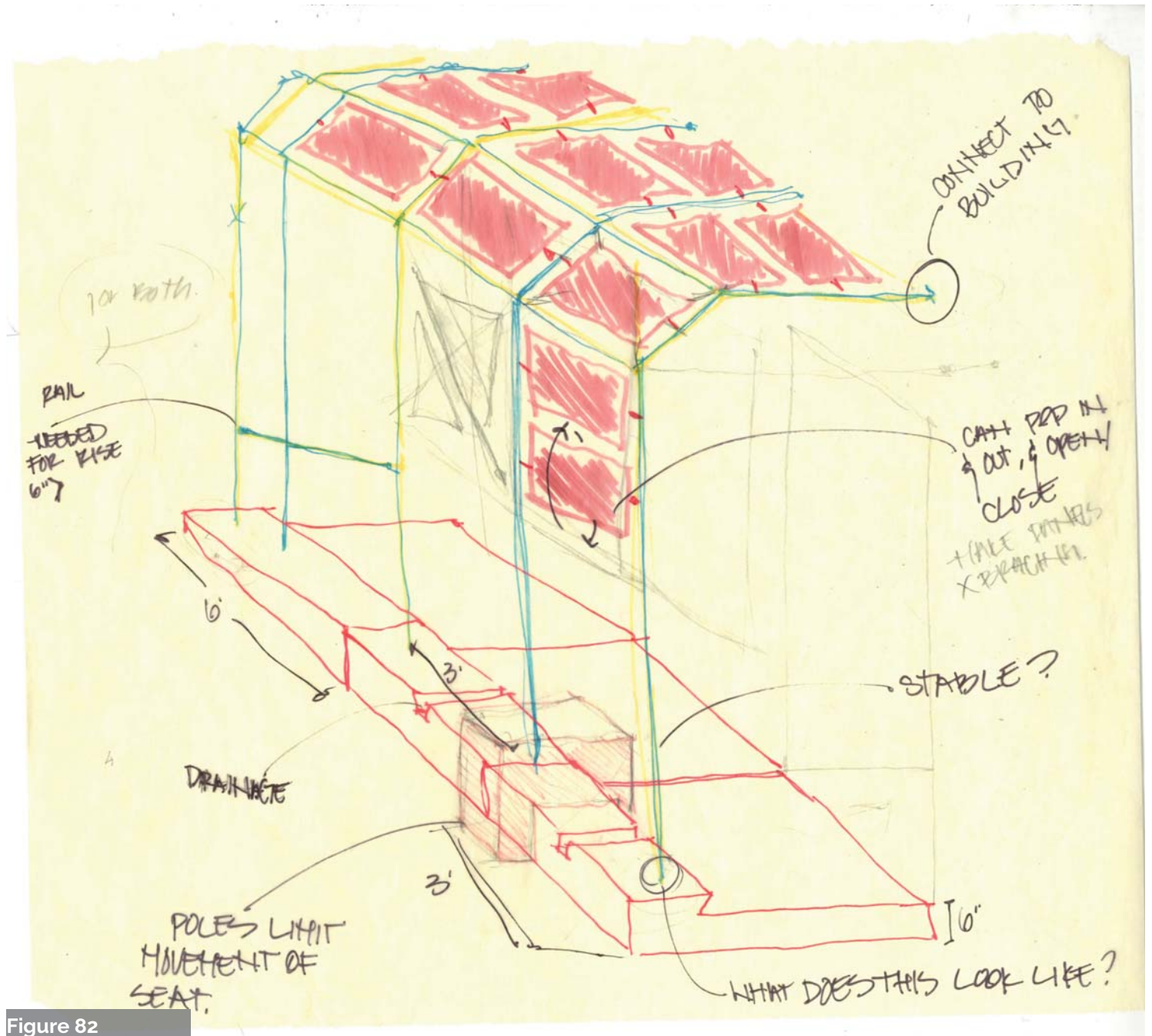


Figure 82

'Base Kit'

• If business/ building owner purchase this it would include these parts as a minimum. They would be able to add additional platforms or seats or any 'accessories'.

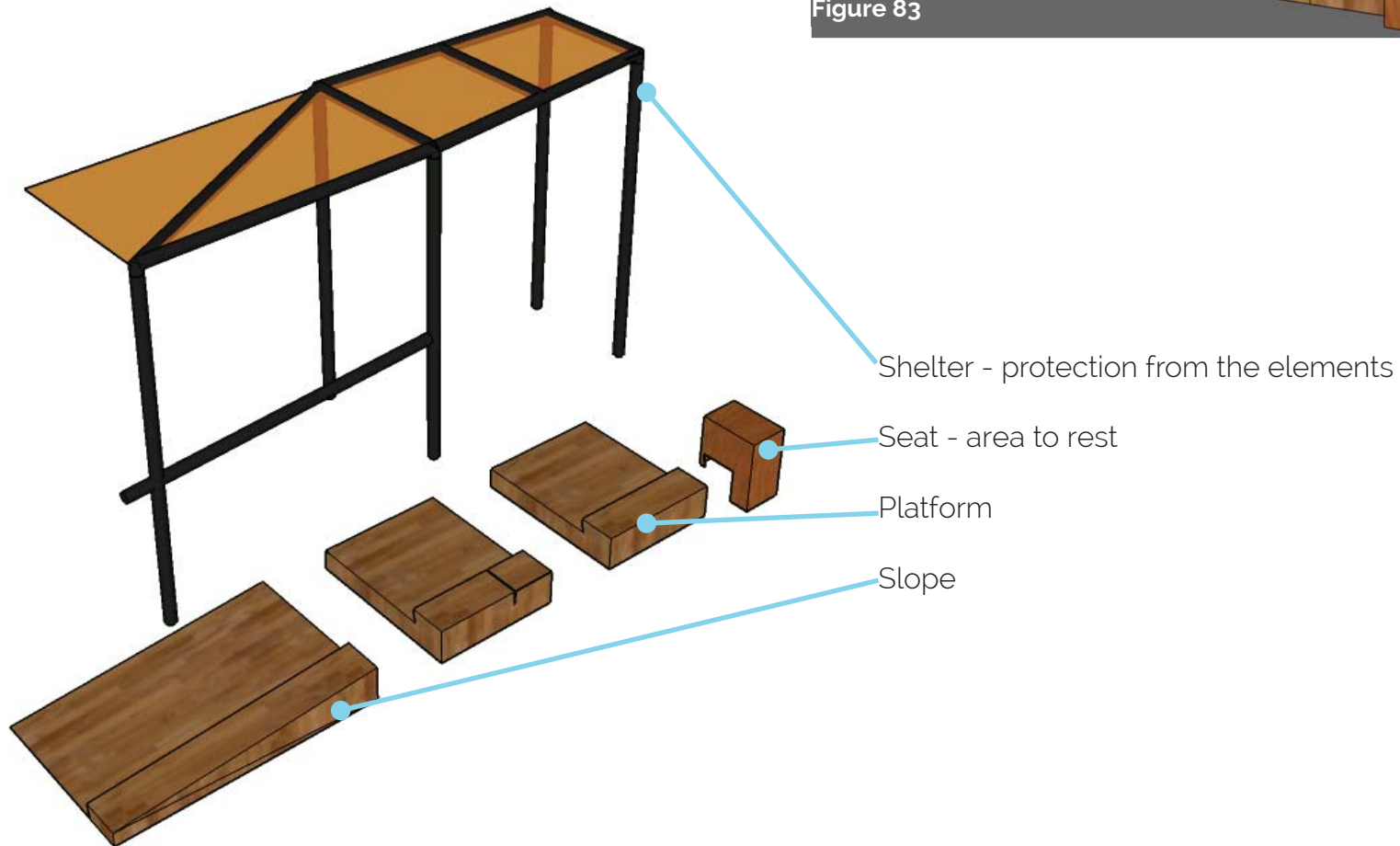


Figure 84



Figure 83

Accessories

- Signage
- Planters
- Hooks
- Lights
- Benches
- Decorations
- Shelter - some building entries already have a shelter so they would not need one
- Other - anything the owner dreams up

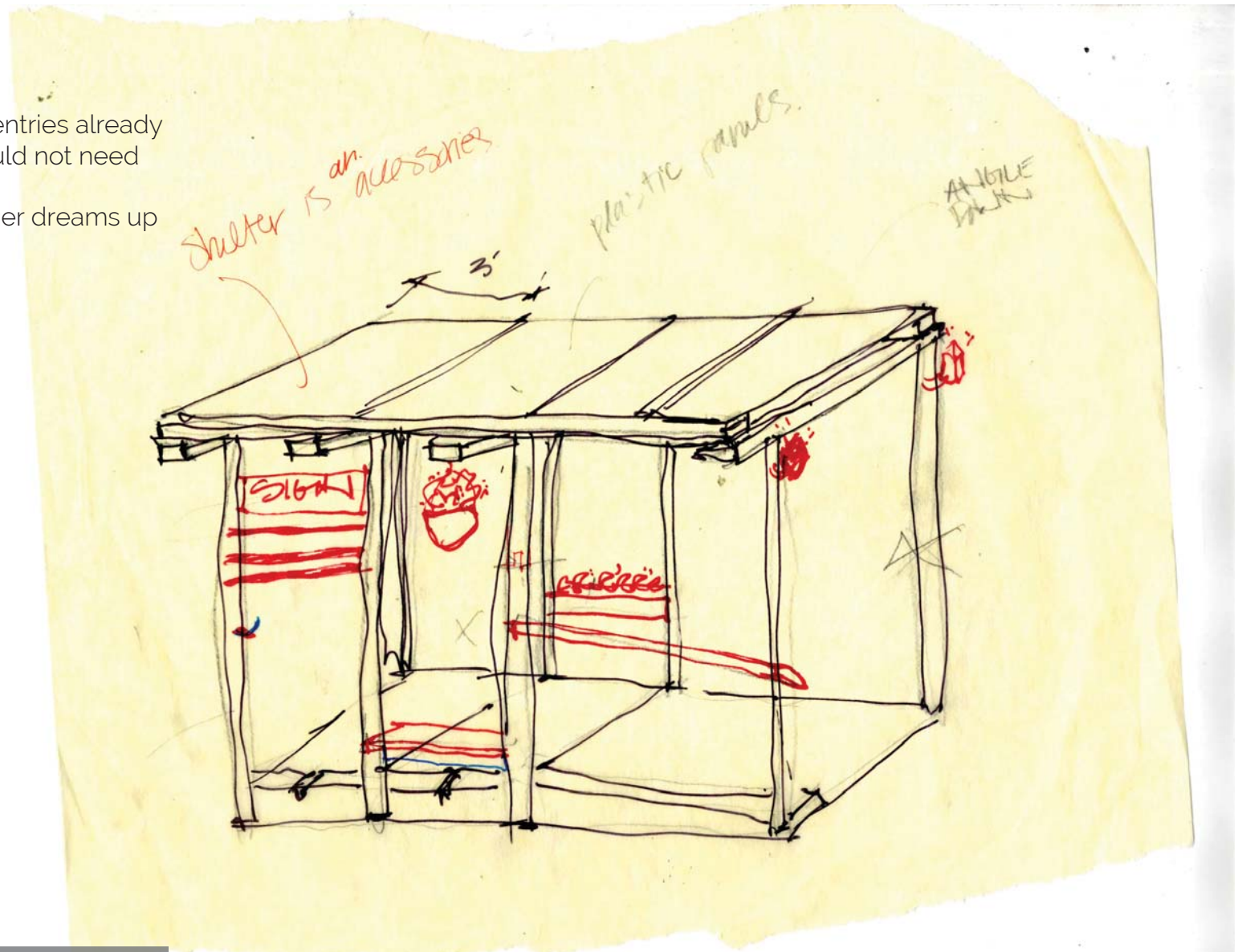


Figure 85

Metal Shelter

Product	Price	Vendor	Quantity	Total
1 1/4 pipe - 10'	29.43	lowes	9	264.87
90 degree elbow	\$6.10		1	\$6.10
90 degree 3 socket	\$12.25		2	\$24.50
single socket t	\$7.10		2	\$14.20
side outlet t	\$14.25		2	\$28.50
				\$417.67

Figure 86

Metal is recyclable and strong, but it is not affordable. The shelter frame along was close to my whole budget.

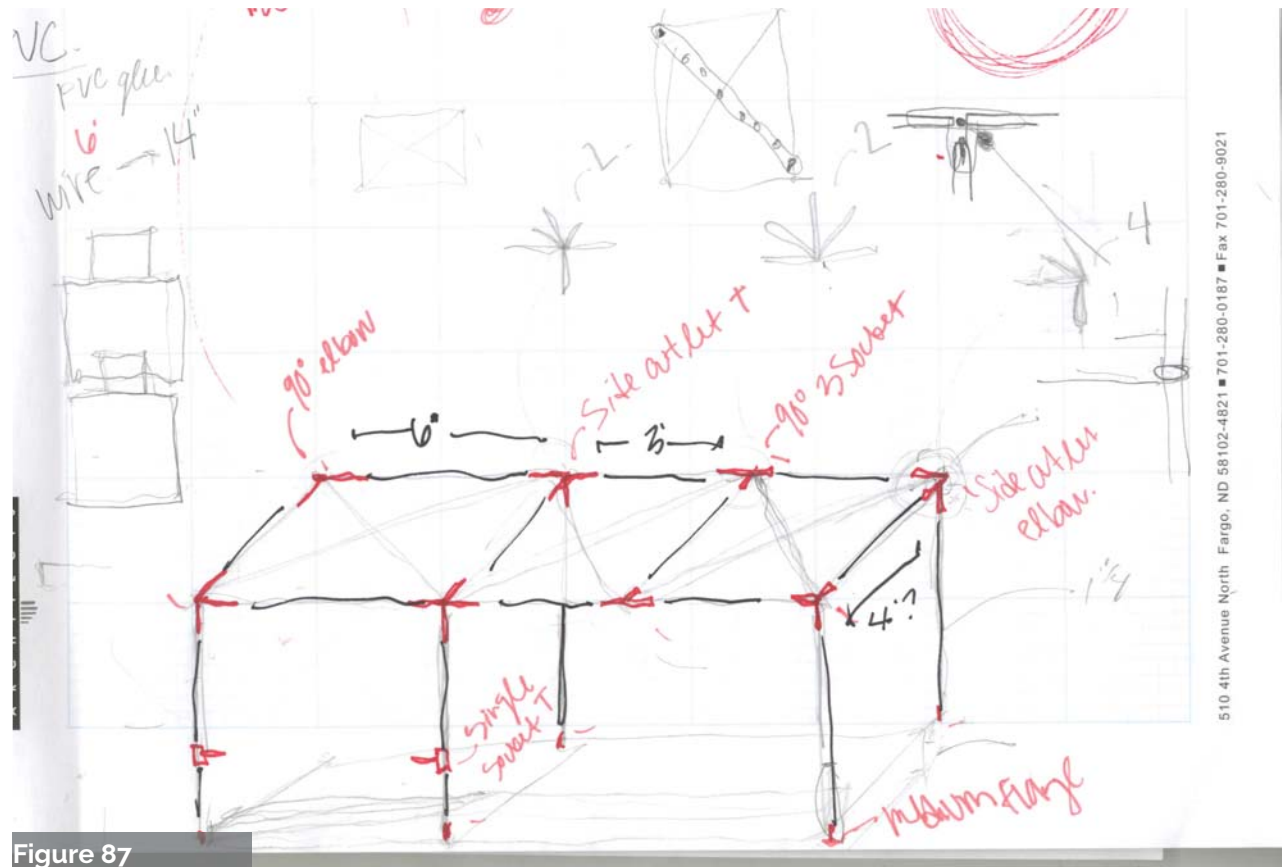


Figure 87

510 4th Avenue North Fargo, ND 58102-4821 ■ 701-280-0187 ■ Fax 701-280-9021

Wood

Product:	weight (lb/ft ³)	Price (per linear foot)	Easy access to material	Workability
IPE	66-75	\$2.50	no	Hard
Mahogany	31-53	\$8.00	no	Easy
Compositites	60	\$2.25	yes	Hard
accoya	32	\$3.50	no	Easy
black locust	49	\$2.50	no	Mixed
red mulberry	44	\$4.00	no	Easy
osage orange	57	\$4.00	no	Hard
pacific yew	44	\$7.00	no	Easy
Cedar	22-33	\$1.25	yes	Easy

Figure 88

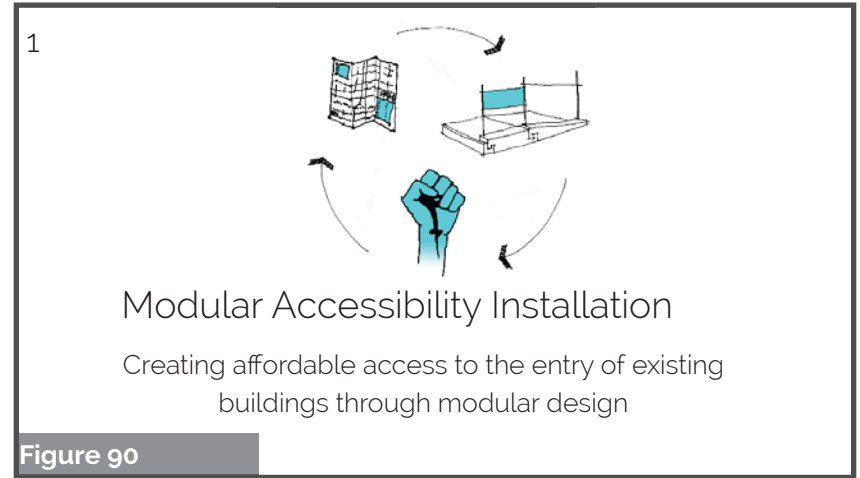
I chose wood because i have access to a wood shop and it is affordable. I needed wood that was rot resistant, light, affordable, able to be bought in town, and easy to work with. I ended up choosing cedar.



Figure 89

Innovation Challenge - 8 Step Product Pitch

1. Who are you?
2. What's the problem you are solving?
 - Existing buildings are not accessible
3. How does this overt benefit solve a customer challenge?
 - Creates access to the business for the people that cannot access it
 - Business gains customers and a good PR stand point
4. Can it fill a market gap?
 - Business haven't made their entrances accessible due to the cost and effort it entails
5. How does it compare to the competition?






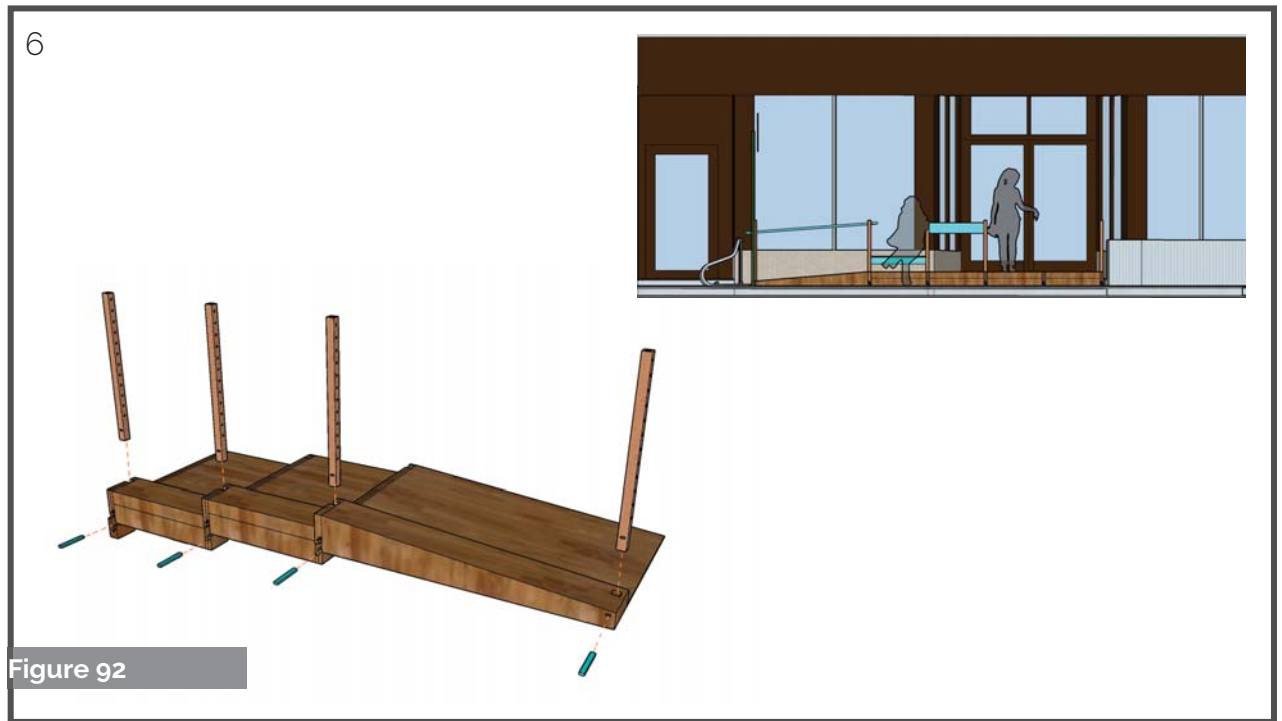
	To Code	Affordable	Aesthetics
<ul style="list-style-type: none"> • Professionally built and installed • Permanent 	✓	✗ \$10,000-12,000	✓
<ul style="list-style-type: none"> • Online ordered • Moveable 	✗ Could be, but not guaranteed	✓ \$200	✗
<ul style="list-style-type: none"> • Quick assembly • Able to personalize 	✓	✓ \$500-1,000	✓

Figure 91



6. What's your reason to believe that this can produce the benefit promise?

-Modular design, customizable, affordable

7. Ask the judges for something

-I asked them to be activists in the community and talk to the business owners of unaccessible spaces

8. Define how these resources will perform in the market place

- This is the only solution that is addressing this problem in an affordable easy way



In today's built environment there are exceptions within ADA codes allowing buildings constructed prior to the enactment of the codes to remain exempt if renovation is not "readily achievable"- easily accomplished and able to be carried out without much difficulty or expense. Everyone deserves dignity, confidence, and access to the same experience while in our built environment. Many building entrances are not accessible, if they are, it is by a secondary entrance.

This 'separate but equal' mentality segregates able and non-able bodies.

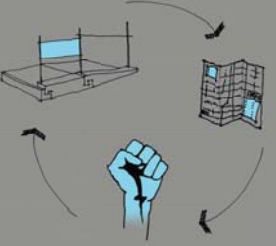
Map only includes a portion of the entrances in downtown Fargo. The map was created to the best of my knowledge.
- Sarah Blesterveld



CHANGE HAPPENS WHEN WE COME TOGETHER AS A COMMUNITY AND DEMAND IT.



2018 DOWNTOWN FARGO ACCESSIBILITY MAP



2018: Eleanor Smith interviews with It's Our Story. She talks about the lack of access into homes and all the she missed out on because of it. When she was 13 she wasn't invited to her friends birthday party because her friends mom said she wouldn't be able to get into the house and it'd be best if she didn't invite her.

2017: Defiant Lives documentary quote - "I'm tired of the well meaning non criples determining what I can and cannot do to form my life and my future. Get out of our way!"

2018: A modular design which is "readily achievable" is proposed to account for buildings that are currently inaccessible.

2012: Laura Hershey on the MDA Act - "It helps to perpetuate negative stereotypes about people with disabilities. We don't need pity, we don't need people to give to charity in order to feel like they've done something to "help the disabled" what we need is equality, justice, and civil rights."

2010: According to the U.S. Census Bureau, 20 percent of people struggle with a disability.

2009: Aimee Mullins on redefining disability. "I think that the only true disability is a crushed spirit, a spirit that's been crushed doesn't have hope, it doesn't see beauty, it no longer has our natural childlike curiosity and out innate ability to imagine."

1990: Capital crawl. Jennifer Keelan, 8 years old, participated in the crawl up the stairs at the capital. This demonstration is considered the final act that led to the passing of the Americans with Disabilities Act. The act was signed into law later that year.

1977: Judy Haumann sues New York City Board of Education when they denied her teaching license five-day sit in at the Home Relief Bureau of New York City, to protest with the Works Progress Administration (WPA) had been stamped

1970: Demonstrators take over the Health Education and Welfare (HEW) offices in San Francisco. CA, in protest of the Secretary Callano of HEW refusing to complete the regulations to complete Section 504. After 26 days, Callano finally signs.

1977: Judy Haumann sues New York City Board of Education when they denied her teaching license five-day sit in at the Home Relief Bureau of New York City, to protest with the Works Progress Administration (WPA) had been stamped

1935: 300 members of the League for the Physically Handicapped staged a nine-day sit in at the Home Relief Bureau of New York City, to protest with the Works Progress Administration (WPA) had been stamped

1937-1955: Peak of the polio epidemic. People effected with this disease had to create their own forms of access through tools they made. Wheel chairs did not fit into homes or the public environment well.

Figure 93

Map

First part of my 3 step solution

- Brings awareness to the problem
- Educates user on disability history and statistics
- Shows which business are not accessible and why, and if they have a secondary entry (RED)
- Shows cracked or sloped entries (YELLOW)
- Shows good entries (GREEN)
- Shows entries with automatic doors (BLUE)

This map helps people that struggle with stairs know where they can and cannot go. It also acts as an intensive for the businesses to want to be a green or blue dot on the map.

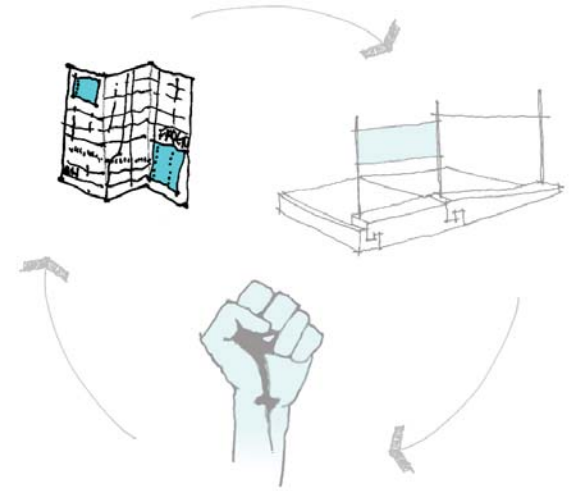




Figure 94

UNACCESSIBLE ENTRIES

- 1 20 Below Coffee Co., White House Co., Always Floral - C7 - 14 Roberts Street N 1 step
- 2 8th Street Barber Service - B8 - 3 South 8th Street 1 step
- 3 8th Street Art Gallery - B8 - 11 South 8th Street, Ste. 204 3 steps
- 4 Affairs by Brittany - E3 - 303 Broadway N 2 steps
- 5 The Aquarium - D3 - 226 Broadway N 5+ steps
- 6 The Boiler Room - D4 - 210 Broadway N, Ste. 90 5+ steps - has a secondary entry
- 7 Command Center - D3 - 305 Roberts St. N 1 step
- 8 Dempsey's Public House - D3 - 226 Broadway N 5+ steps
- 9 Ecce Yoga - D3 - 216 Broadway, Ste. 204 5+ steps
- 10 Escape House Fargo - C6 - 14 Roberts Street N 5+ steps
- 11 Fort Noks Bar of Gold - D6 - 52 Broadway N 5+ steps - has a secondary entry (steep ramp)
- 12 GoIn Postal - B8 - 19 South 8th Street 1 step
- 13 iCare Electronic Repair - B8 - 23 South 8th Street 1 step
- 14 Juice It Smoothie & Juice Bar - D6 - 64 Broadway N 1 step
- 15 Klai Hall - B3 - 711 2nd Avenue N 5+ steps - has a secondary entry
- 16 Make Room - B8 - 17 8th Street S 1 step
- 17 No Bull Smokehouse - D6 - 609 NP Avenue 2 steps - has a secondary entry
- 18 ONYX + PEARL - B8 - 21 8th Street S 1 step
- 19 Others - B8 - 18 South 8th Street 5+ steps
- 20 Paradox Comics-N-Cards - C5 - 26 Roberts Street N 5+ steps
- 21 The Salvation Army - C3 - 304 Roberts Street N 5+ steps - has a secondary entry
- 22 The Spirit Room - E4 - 111 Broadway N 5+ steps
- 23 Stumbeano's Coffee Bar - D3 - 210 Broadway N, Ste. 92 5+ steps - has a secondary entry
- 24 Toasted Frog - E3 - 305 Broadway N 4 steps - has a secondary entry
- 25 US Bankruptcy Court Clerk - B5 - 655 1st Avenue N 5+ steps - has a secondary entry
- 26 Wasabi Sushi and Asian Grill - C6 - 623 NP Avenue N 1 step - has a secondary entry

UNEVEN, CRACKED, OR SLOPED ENTRIES

- 1 Hodo Restaurant & Lounge (west entry) - E5 - 101 Broadway N
- 2 King House Buffet - D4 - 122 Broadway N
- 3 Mezzaluna (west door) - D3 - 309 Roberts Street N
- 4 Nicole's Fine Pastry - B8 - 13 South 8th Street
- 5 Rooters Bar - E5 - 107 Broadway N
- 6 Sammy's Pizza & Restaurant - E3 - 301 Broadway N
- 7 N
- 8 Subway - E4 - 115 Broadway N
- 9 Twist - D3 - 220 Broadway N

ACCESSIBLE ENTRIES

- 1 Atomic Coffee - D3 - 222 Broadway N
- 2 Babb's Coffee House - D8 - 604 Main Avenue
- 3 Black Building (main entry) - D4 - 118 Broadway N
- 4 Blackbird Woodfire - D4 - 206 Broadway N
- 5 Clizzy's - D4 - 410 Broadway N
- 6 Coschedule - C5 - 630 1st Avenue N
- 7 Drekker Brewing Company - C5 - 630 1st Avenue N, Ste. 6
- 8 Drunkin Noodle - C6 - 623 NP Avenue N
- 9 Erbert and Gerberts - D3 - 300 Broadway N, Ste. 104
- 10 Everette's Barbershop - D3 - 230 Broadway N
- 11 Fargo Theater - D2 - 314 Broadway N
- 12 Fowlers, Pinch & Pour - D4 - 210 Broadway N
- 13 Front Street Taproom - D8 - 614 Main Avenue
- 14 Halberstadt's on Broadway - D5 - 102 Broadway N
- 15 Hodo (south entry) - E5 - 101 Broadway N
- 16 Hotdog! Pet Salon - C5 - 635 1st Avenue N
- 17 Infinite Vapor Fargo, Green House Café - D5 - 68 Broadway N
- 18 Insomnia Cookies - D2 - 412 Broadway N
- 19 Kindred People - D3 - 300 Broadway N
- 20 Kittsona - D8 - 610 Main Avenue
- 21 Lot 2029 - D8 - 612 Main Avenue
- 22 Mint + Basil - C8 - 714 Main Avenue
- 23 Moxie Java - E5 - 111 Broadway N
- 24 O'Day Cache - E2 - 317 Broadway N
- 25 The Old Broadway - D6 - 22 Broadway N
- 26 Orange Records - C5 - 641 1st Avenue N
- 27 Pink Luxe Boutique - D2 - 72 Broadway N
- 28 Polished Nail Spa - D5 - 102 Broadway N, Ste. 102
- 29 Pop - up Shop - D3 - 216 Broadway N
- 30 Pounds - D5 - 612 1st Avenue N
- 31 Proper - E2 - 315 Broadway N
- 32 Rhombus Guys Pizza - D8 - 606 Main Avenue
- 33 Rosey's Bistro - D3 - 212 Broadway N
- 34 Sandy's Donuts & Coffee Shop - D3 - 300 Broadway N
- 35 Scan Design - D5 - 110 Broadway N
- 36 Shannalee - E2 - 313 Broadway N
- 37 Spicy Pie - D2 - 322 Broadway N
- 38 Sports Bar - D6 - 619 NP Avenue
- 39 Swanson Health Products - E5 - 109 Broadway N
- 40 Teaberry - E4 - 119 Broadway N
- 41 THIS Skate & Snow - C5 - 625 1st Avenue N
- 42 Toscana - D4 - 202 Broadway N
- 43 Unglued - D2 - 408 Broadway N
- 44 Worst Bier Hall - D4 - 630 1st Avenue N
- 45 Young Blood Coffee Company - C6 - 623 NP Avenue

ACCESSIBLE ENTRIES WITH AUTOMATIC DOOR

- 1 Black Building (north entry) - D4 - 118 Broadway N
- 2 Loretta Entrance - D4 - 210 Broadway N
- 3 Renaissance Hall - C6 - 650 NP Avenue

Map

UNACCESSIBLE ENTRIES

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- 14 Juice It Smoothie & Juice Bar - D6 - 64 Broadway N 1 step
- 15 Klai Hall - B3 - 711 2nd Avenue N 5+ steps - has a secondary entry
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- 18 ONYX + PEARL - B8 - 21 8th Street S 1 step
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- 6 Sammy's Pizza & Restaurant - E3 - 301 Broadway
- 7 N
- 8 Subway - E4 - 115 Broadway N
Twist - D3 - 220 Broadway N

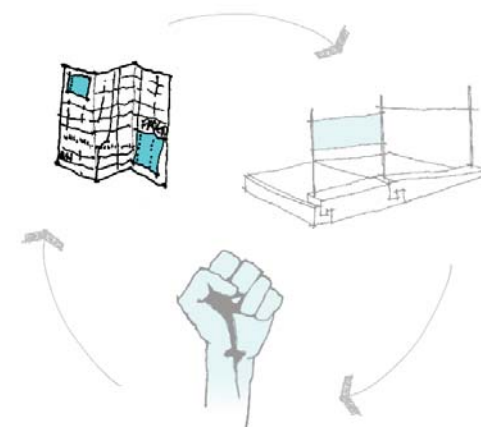


Figure 95

Final Budget

	Product	Price	Vendor	Date Purchased	Quantity	Total
Rough prototype model	2x4-92 5/8" Prime Whitewood Stud	\$2.93	Home Depot	2/19/2018	9	\$26.37
	2x4-92 5/8" Prime Whitewood Stud	\$2.93	Home Depot	3/20/2018	1	\$2.93
	7/16 2x4 OSB	\$6.47	Home Depot	2/19/2018	2	\$12.94
Final cedar base	8' Red Cedar Decking	\$13.17	Menards	3/29/2018	13	\$171.21
	2x2-8' S4S Cedar	\$6.79	Menards	3/29/2018	2	\$13.58
	1x4-8' Cedar S1S2E 3+BTR	\$5.79	Menards	3/29/2018	15	\$86.85
	1x4-8' Cedar S1S2E 3+BTR	\$6.76	Menards	4/11/2018	4	\$27.04
	2x spray paint SA Seaside	\$2.95	Menards	4/12/2018	1	\$2.95
	TWS Clear Wood Protector	\$14.22	Menards	4/12/2018	1	\$14.22
	Foam Brush 3pk	\$1.09	Menards	4/12/2018	1	\$1.09
						\$398.49
					Sales tax	7.5%
					tax	\$29.89
						\$428.38

Figure 96

Designing with Materials in Mind

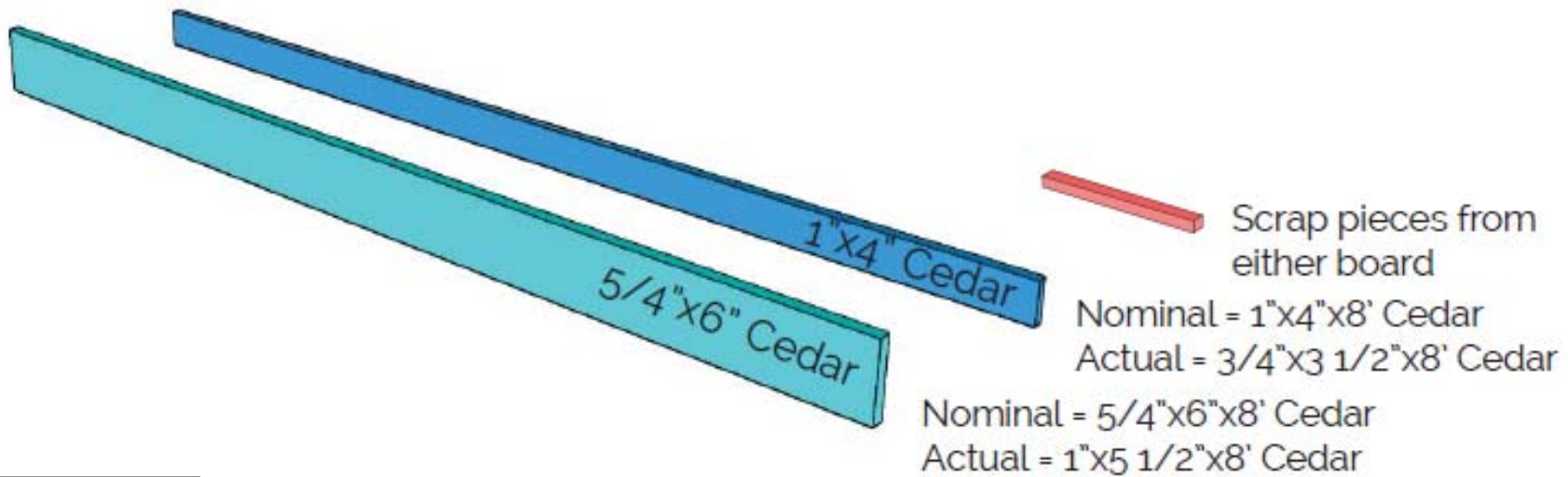
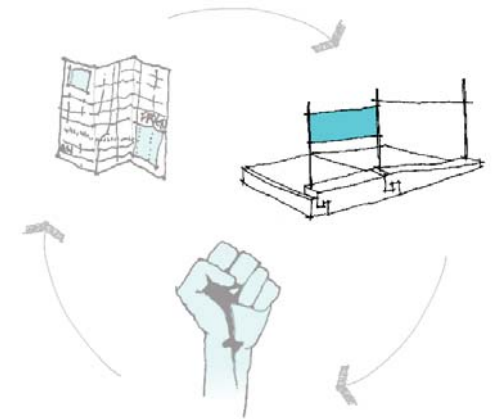


Figure 97

Platform Assembly

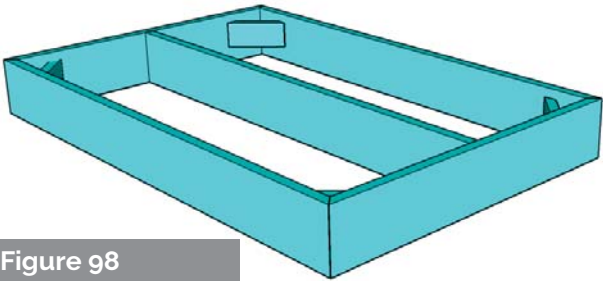
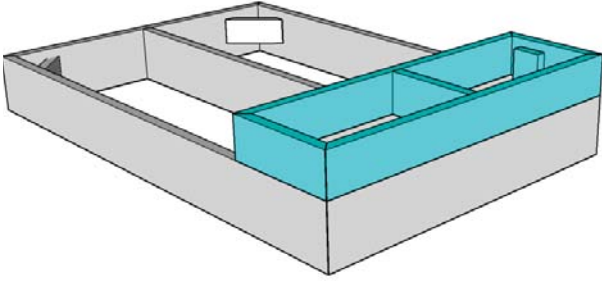
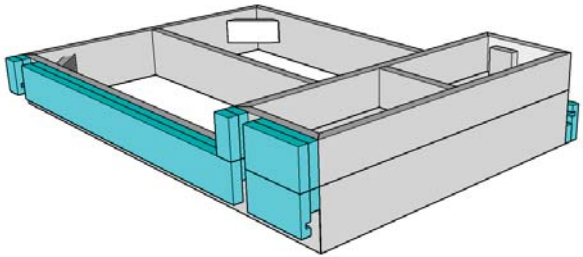


Figure 98

Frame



Edge condition frame



Connection piece



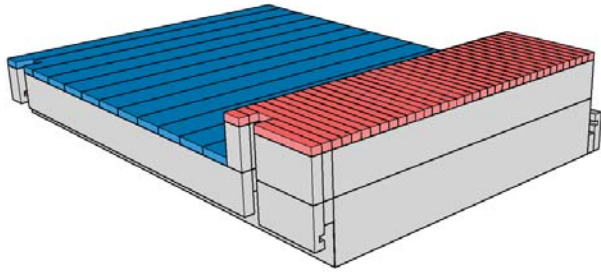
Figure 99



Figure 100



Figure 101



Decking



Final



Figure 102



Figure 103

Slope Assembly

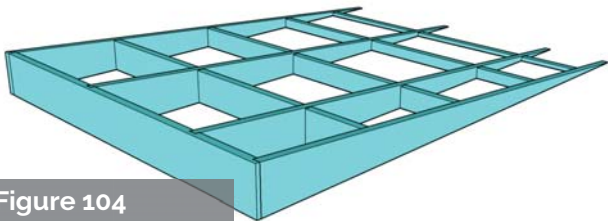
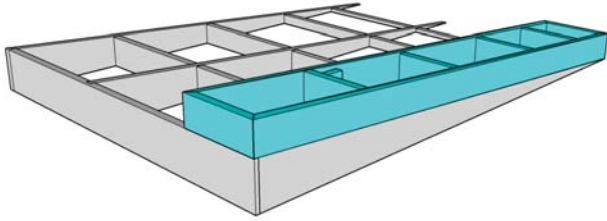
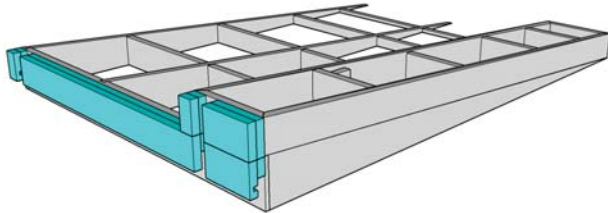


Figure 104

Frame



Edge condition frame



Connection piece



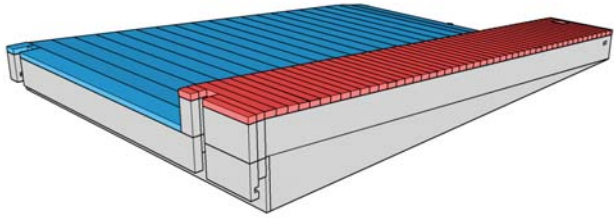
Figure 105



Figure 106



Figure 107



Decking



Final



Figure 108



Figure 109

Connection Piece Assembly

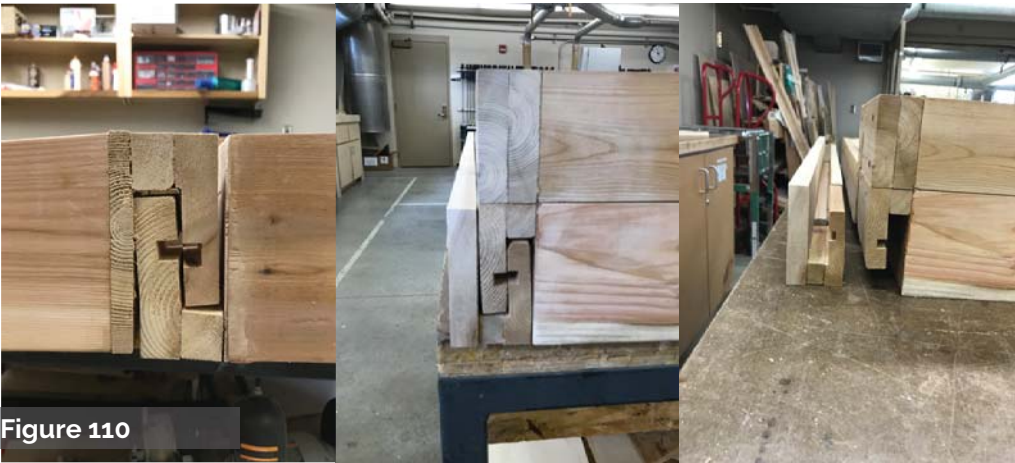


Figure 110



Figure 111

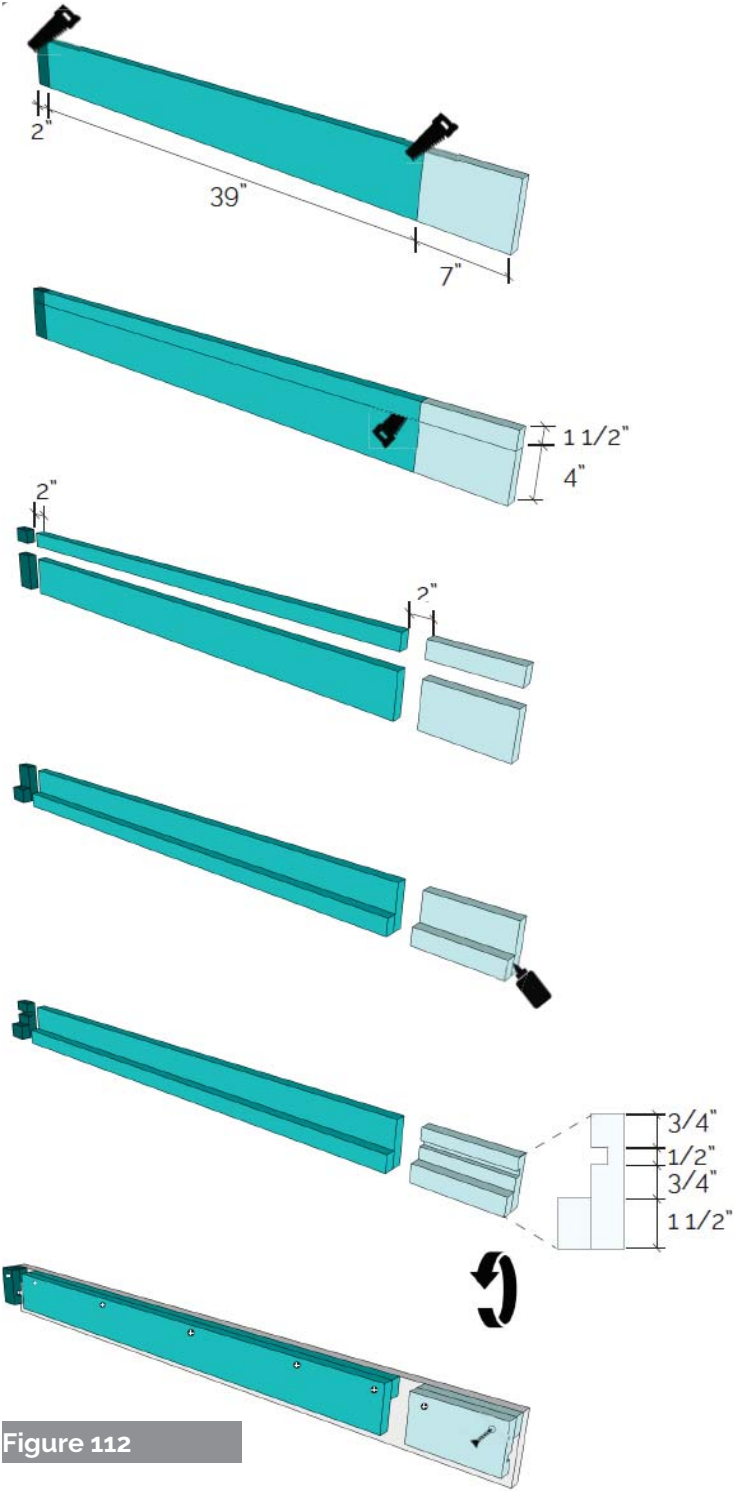


Figure 112

Process Pictures



Figure 113



Figure 114



Figure 115

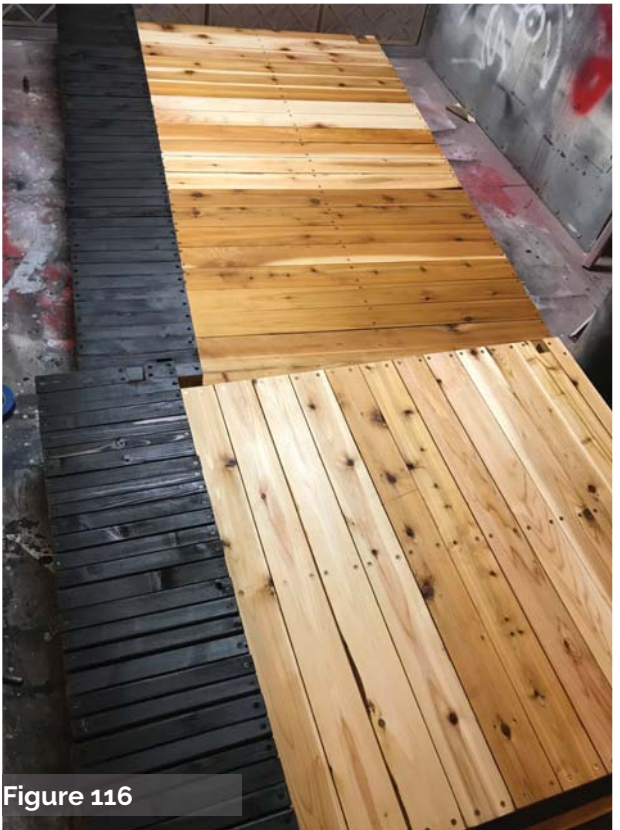


Figure 116

Ease of Assembly

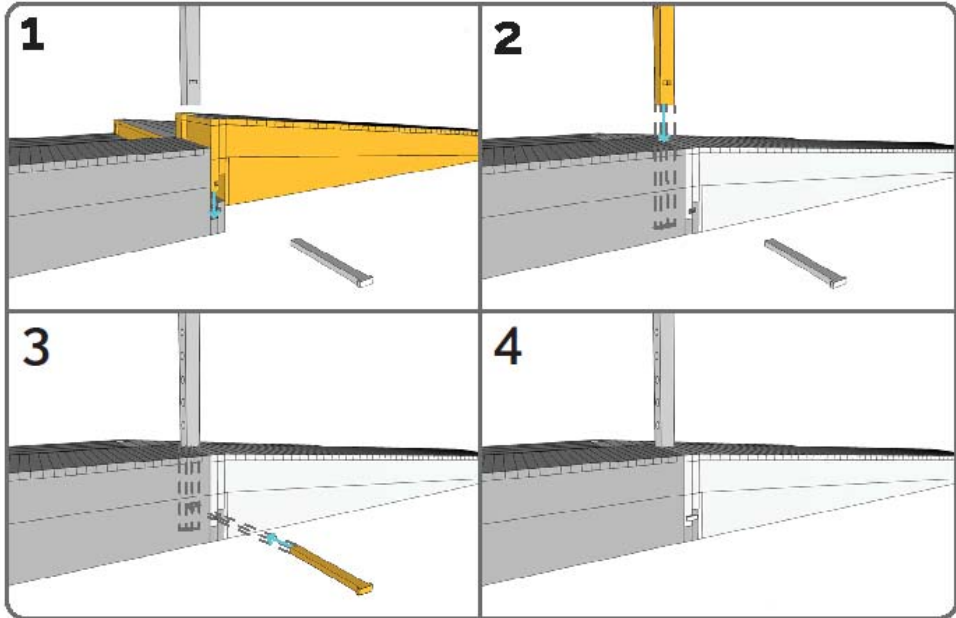
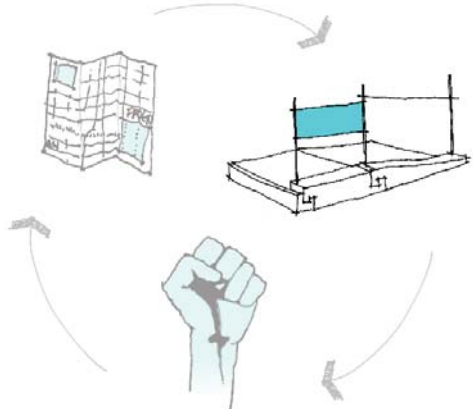


Figure 117

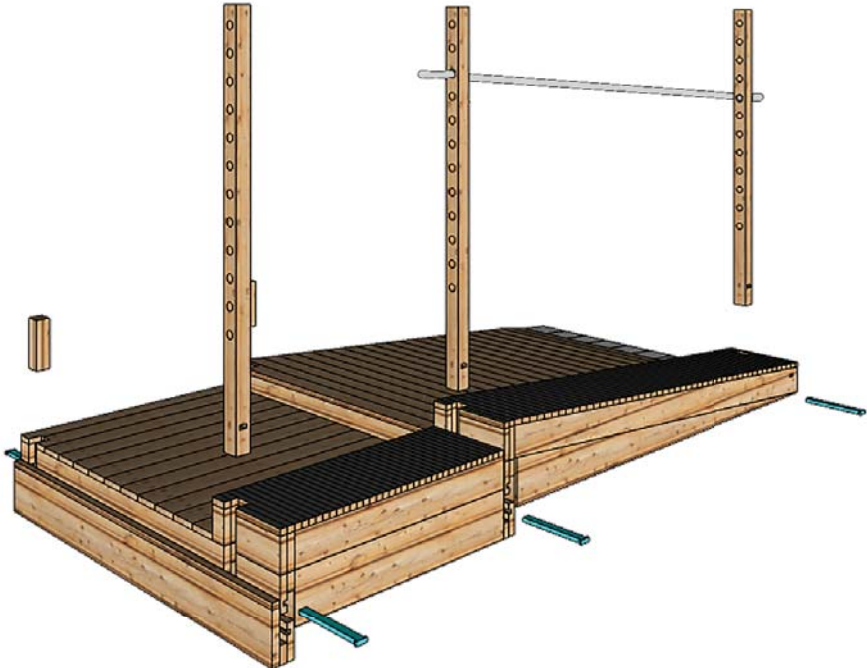
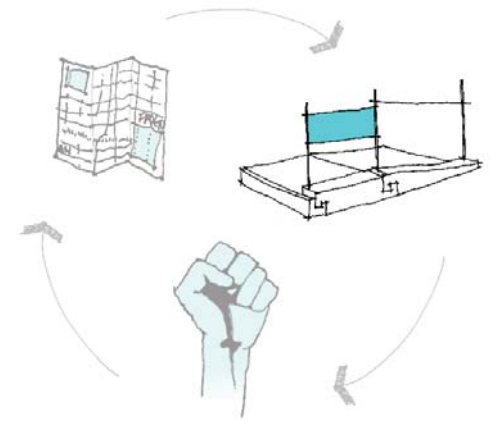


Figure 118

Affordability



GOAL \$500
ACTUAL \$365

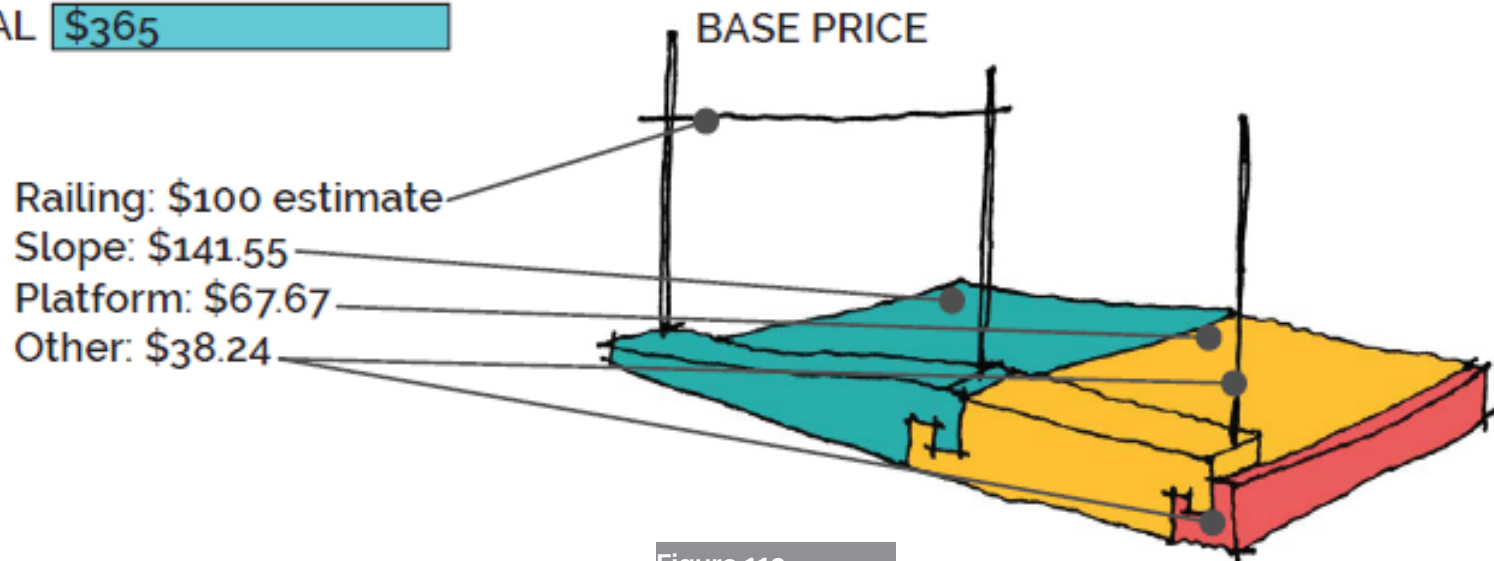


Figure 119

Customizable

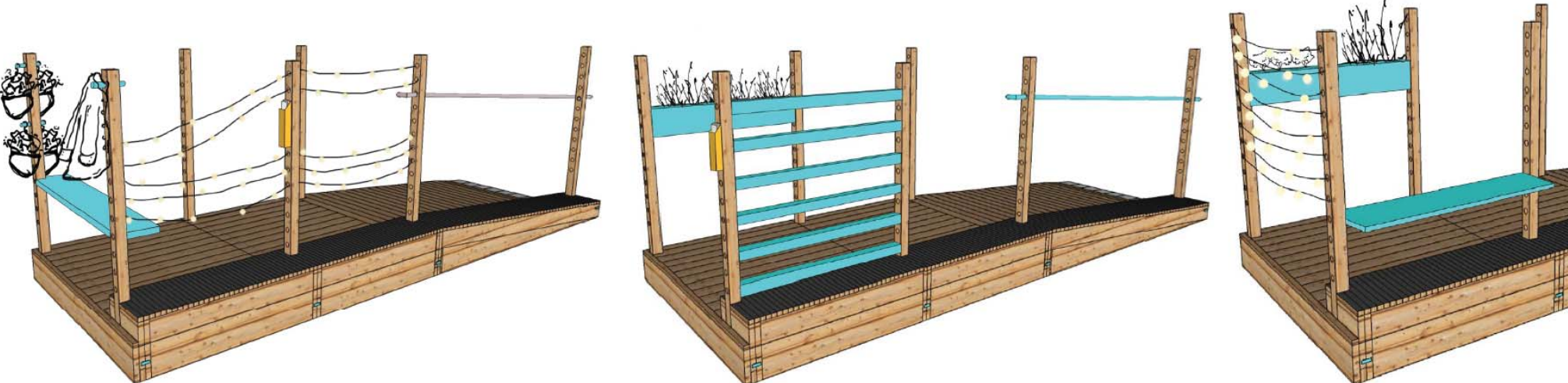
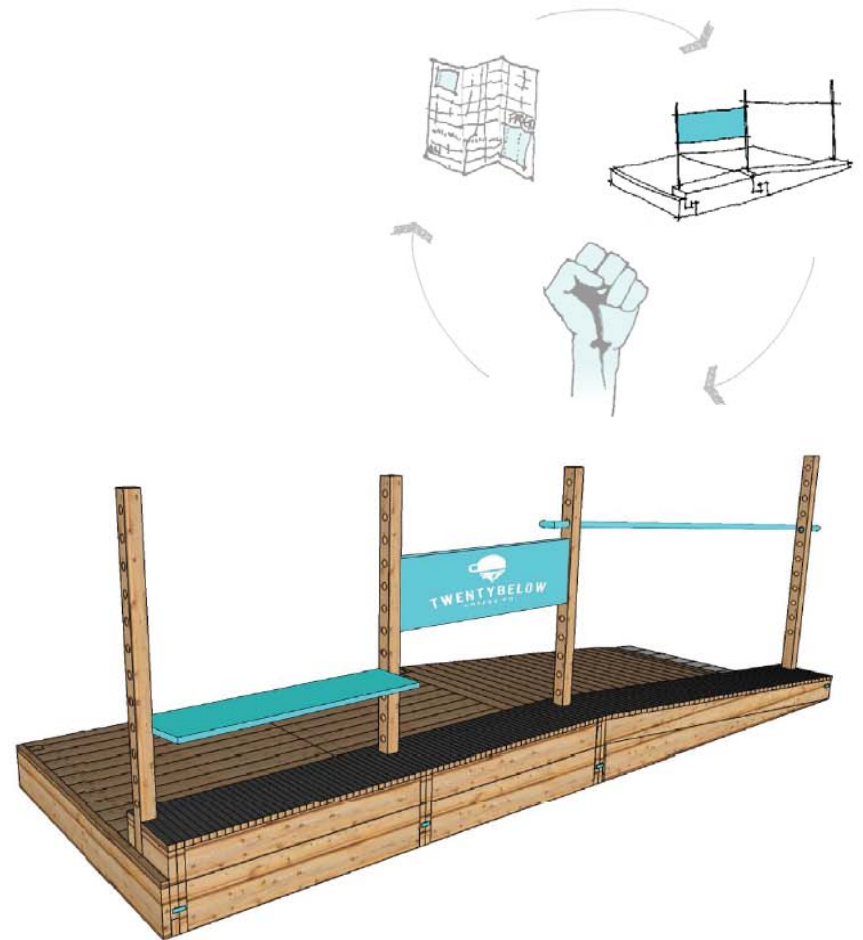
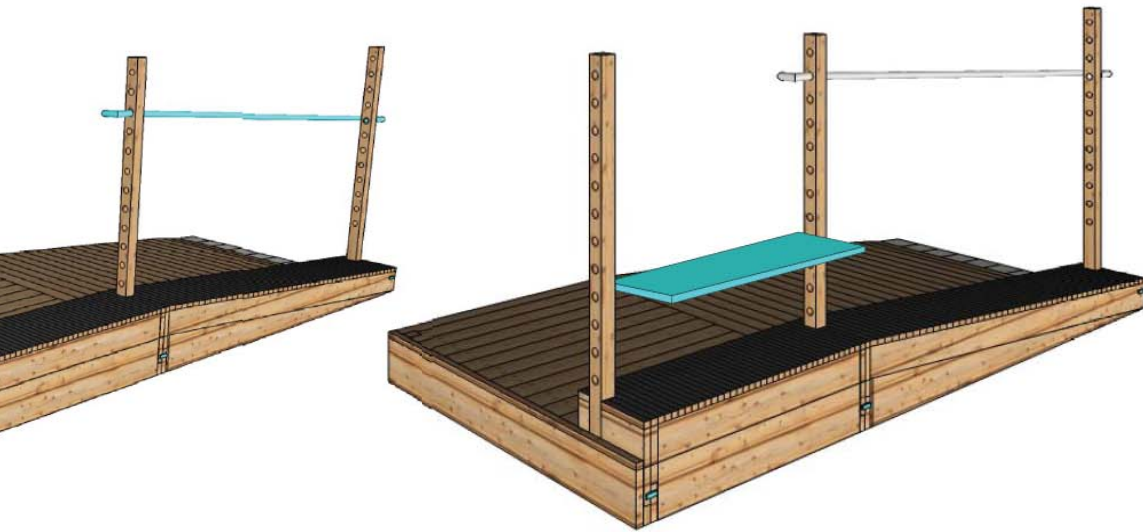
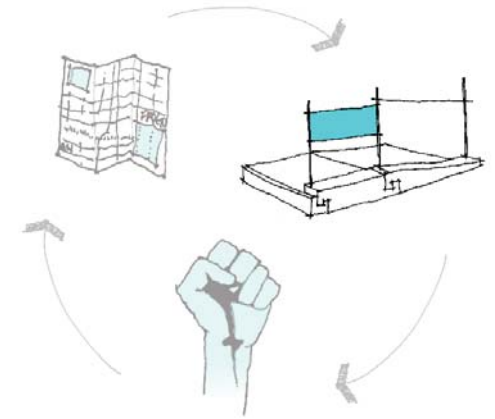


Figure 120



Final Design



- posts have holes every 2 inches for accessories
- wood deck run laterally on slope to add some grip
- edge condition is black for visual contrast - easier to see the difference in elevation
- edge condition is made of thinner wood pieces to imply a slowing of space - able to sit or stand on it
- fist graphic - represents activism and shows the user that there is a problem and this is the solution
- wood deck runs longitudinally on platform to imply movement
- end piece

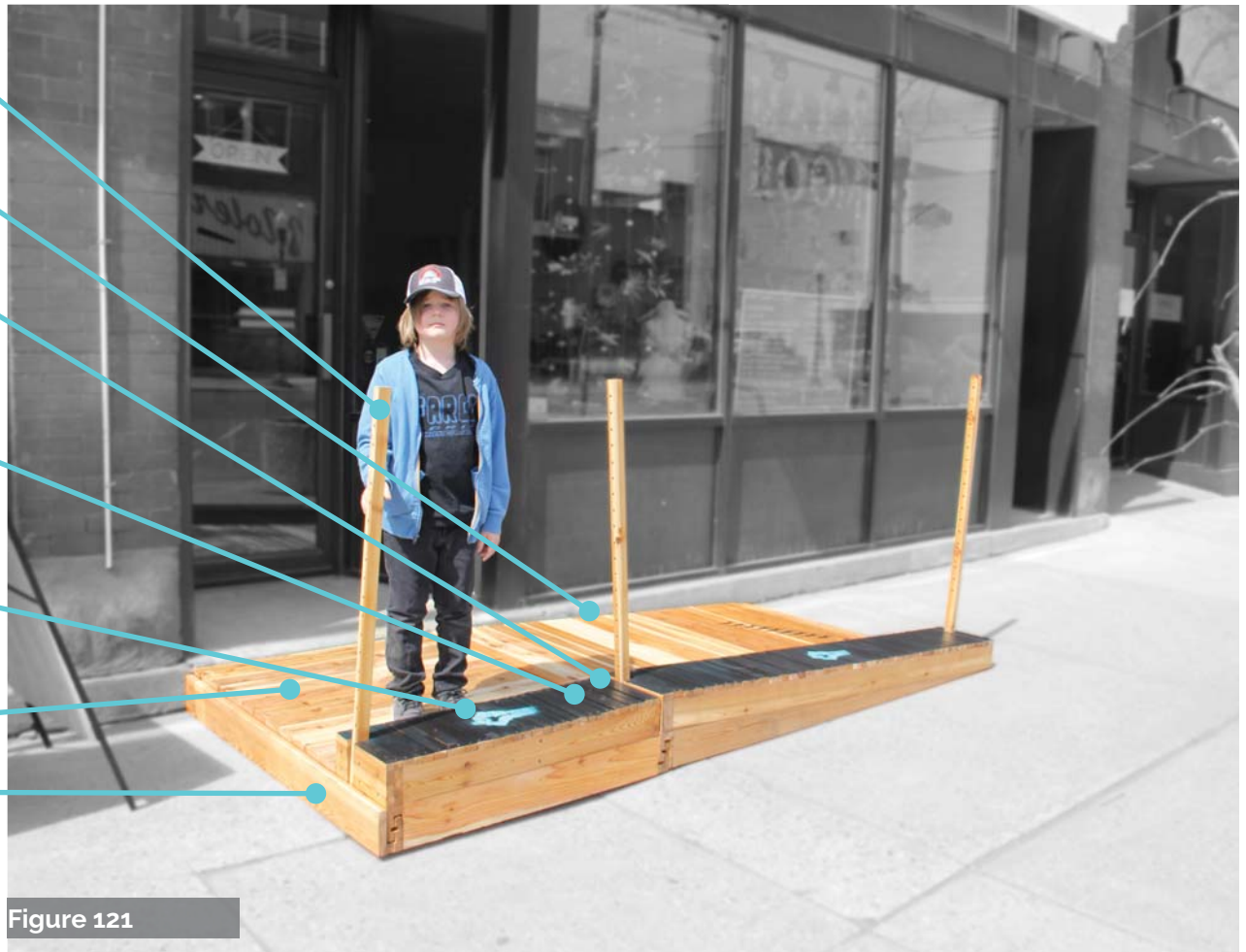


Figure 121

Shipping

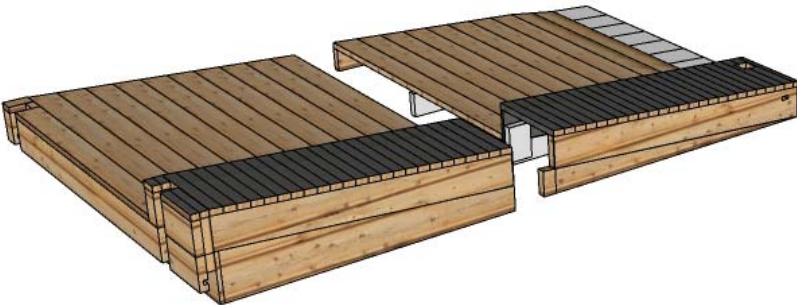


Figure 122
Split ramp into 3ft modulars

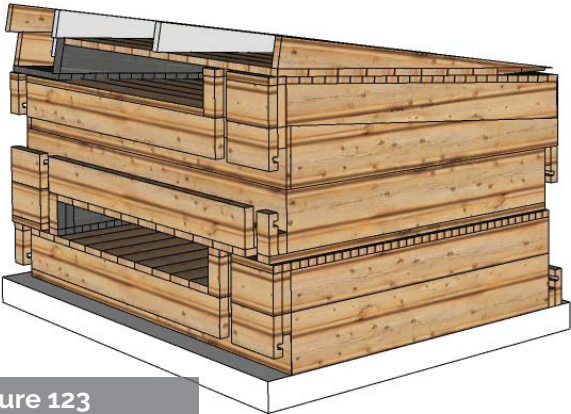


Figure 123



Figure 125

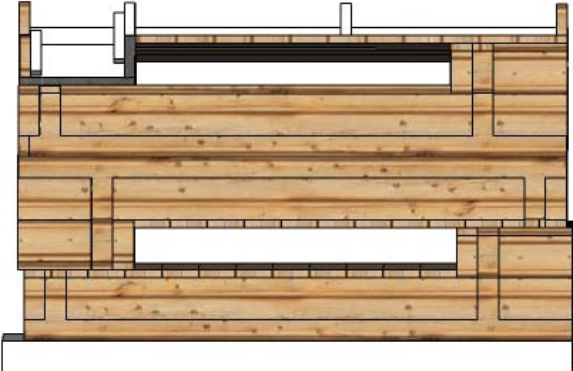
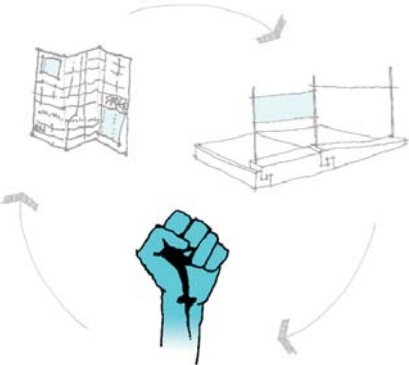


Figure 124
48"x40" Standard pallet

Activism

Bringing awareness to the public eye



10% of the population struggles with stairs
- graphic shows this information without words



Figure 126



Figure 127

Engaging the Community



Figure 128



Figure 129



Figure 130

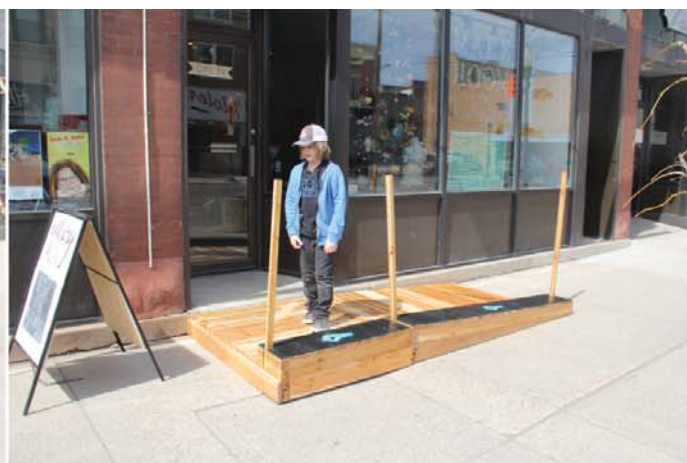
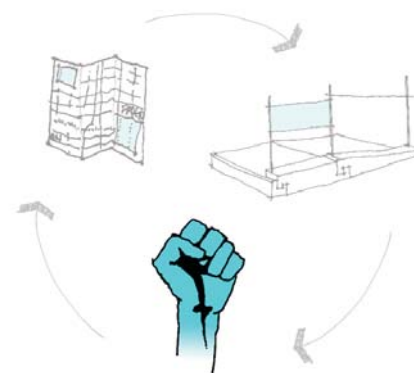
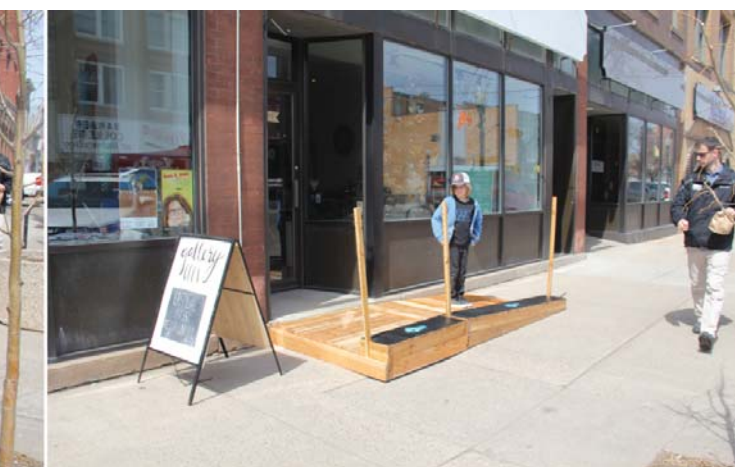
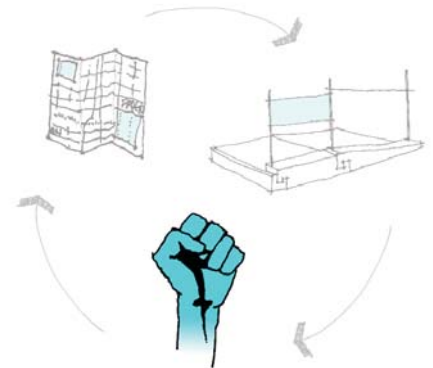
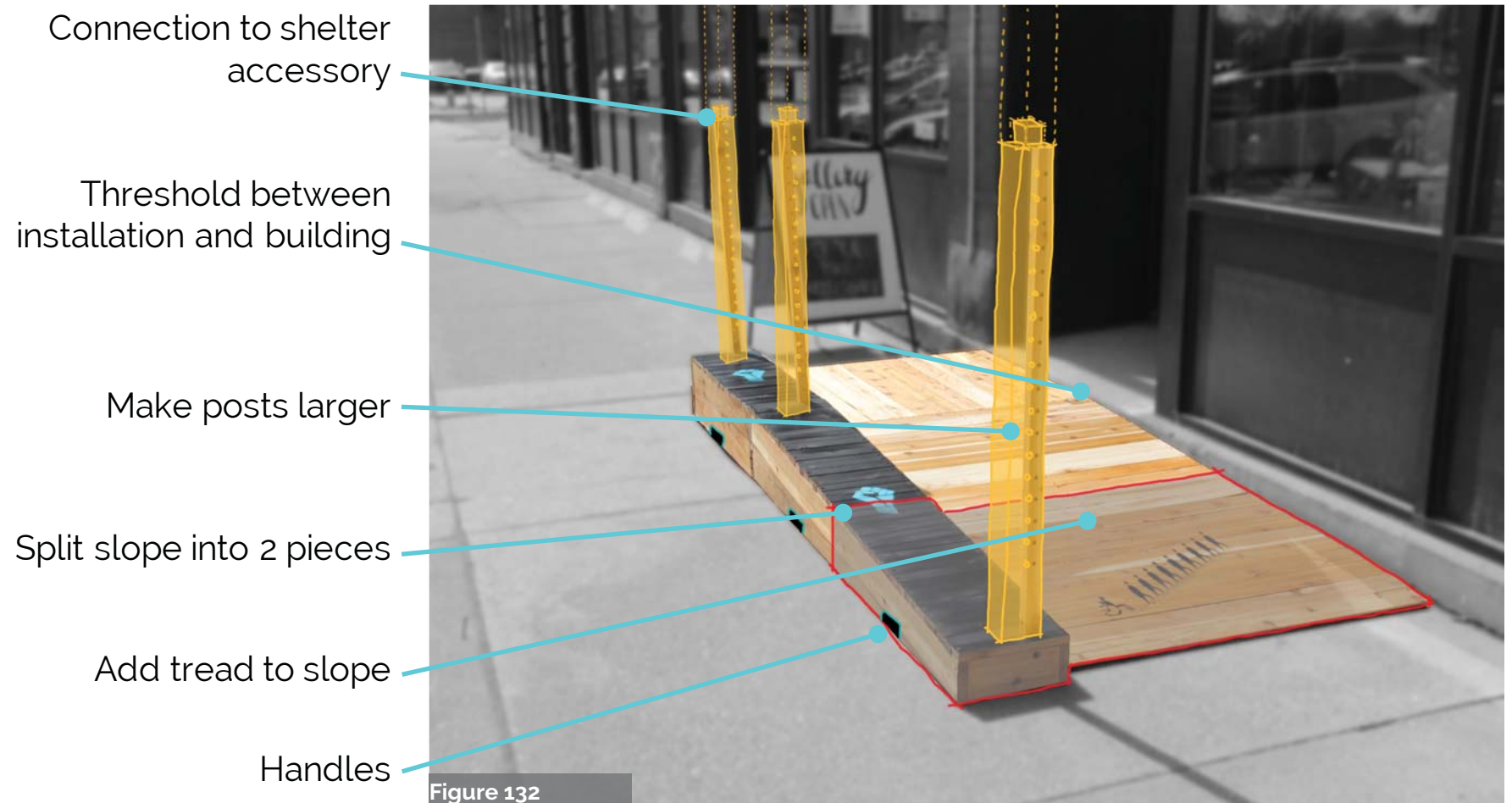




Figure 131



Next Prototype



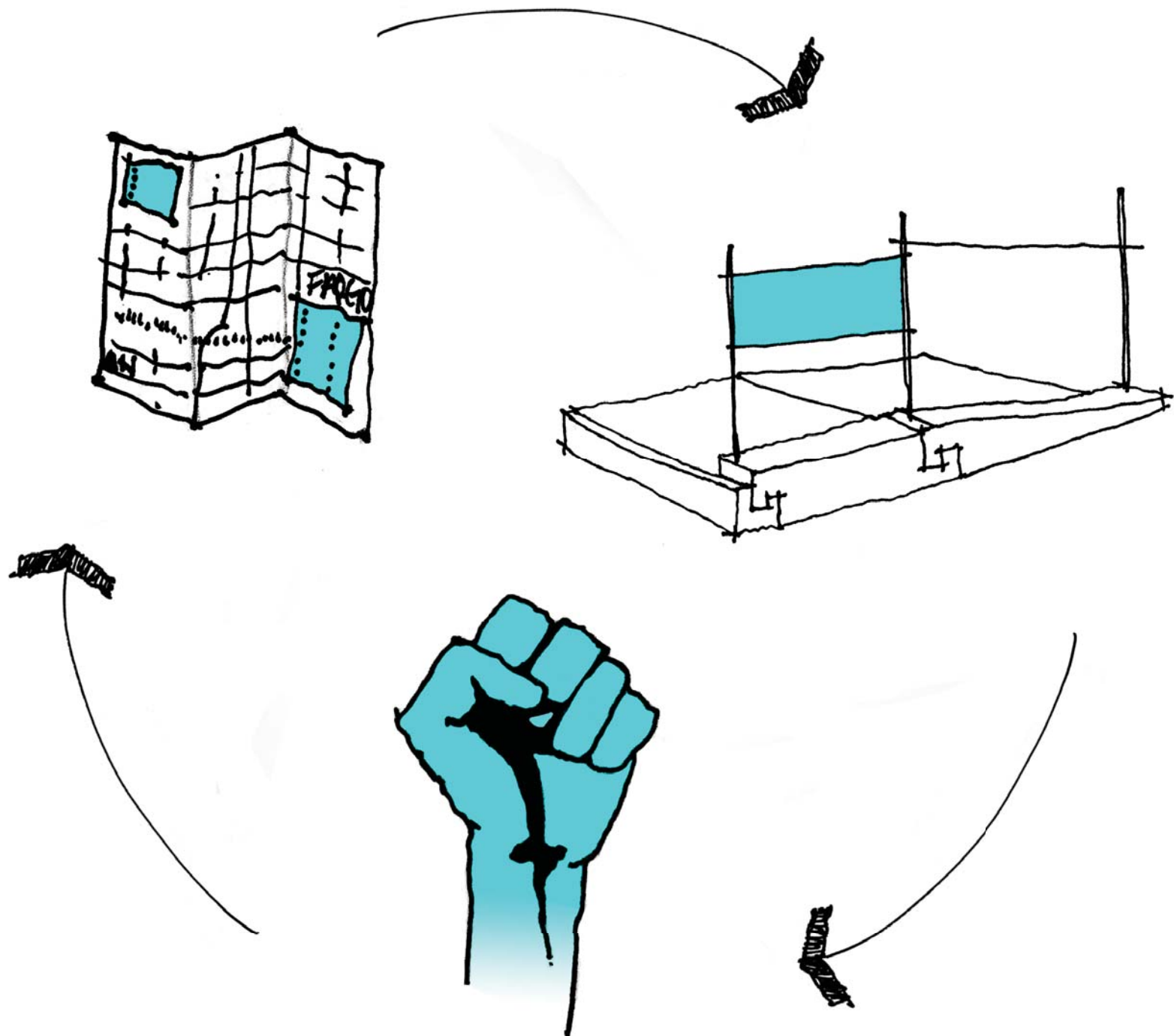


Figure 133

Appendix: reference list

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Previous studio experience

2nd year Fall 2014

Cindy Urness
Tea House - Fargo, ND
Boathouse - Minneapolis, MN

2nd year spring 2015

Darryl Booker
Montessori School - Fargo, ND
Dwelling - Marfa, TX

3rd year fall 2015

Ronald Ramsay
Shaker Barn - New Labanon, NY
Synagogue - Fargo, ND

3rd year spring 2016

Bakr Aly Ahmed
Culinary Arts College - Fargo, ND
Bakr Aly Ahmed and Regin Schwaen
Steel group project - Health Retreat Center -
Swiss Alps near Berchtesgaden

4th year Fall 2016

Don Faulkner
Integrated Highrise - San Francisco, CA

4th year spring 2017

Ronald Ramsay
Empowered Women cup project - Fargo, ND

5th year Fall 2017

Elizabeth Medd
Wall - Fargo, ND

5th year spring 2018

Malini Srivastava
Design Thesis - Fargo, ND

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