CAPAS

The Creative and Performing Arts School **for the d/Deaf**

Designed by: Chalice Johnson Advisor: Maria Kuttruff


CAPAS

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INTRODUCTION

The CAPAS project explores how traditional rectilinear buildings can be modified and designed to support d/Deaf students. It shines light on the flaws of the Universal Design Principles and ADA standards...both of which consider physical abilities, and neglect the "invisible senses", such as hearing.

The project research was highly driven on understanding the many perspectives of the Deaf Culture, and ways to implement Deafspace principles. These principles are architectual and design guidelines that students and faculty at the Gallaudet University formulated to help architects and interior designer create "Deafspaces".

Key design decisions were made based on their ability to simplify communication, while maintaining safety and spatial awareness. Lastly, programmatically, this educational facility is one-of-a-kind with a residential component that considers familial relationships; which is what existing schools for the d/Deaf lack.

LITERATURE REVIEW

This review is structured to discuss in depth research about the Deaf Culture, the use of technology in learning environments (specifically for the deaf), a precedent project which is a DeafSpace at the Gallaudet University, and lastly it will discuss the relationship to interiors.

Technology + Learning Enviroments for d/Deaf People

Introduction

This paper will review a range of themes revolving around innovative modern day technology in educational facilities, in combination with research-based studies on the best practices and learning environments for d/Deaf or hard of hearing people. I will begin by explaining "Deaf Culture", and I wil touch on some of the case studies provided by prominent influencers in the field. Continuing, there will be a brief introduction on technology in learning environments, and the need for balance and use in moderation. I will further elaborate on some of the leading inventions, and the positive and negative aspects of them. I am interested in improving the educational experience for d/Deaf or hard of hearing people so I will further compare practices and/or devices that are used to create a more pleasant learning experience. Key discoveries that I found on precedent design projects for d/Deaf people will be pointed out, and I will note which areas have room for further investigation. Lastly, I will conclude with how all of this relates to the interior design field.

The Deaf Culture

Over 360 million people worldwide have disabling hearing loss, and 32 million of these are children.[1] Hearing loss could be caused by many reasons, including genetics, infectious diseases, using particular drugs, exposure to excessive noise, or more commonly, from aging.
Hearing loss is not to be confused with being hard of hearing, which also differs from being Deaf. A person with hearing thresholds of 25 dB or greater in both ears is said to have mild hearing loss. If their hearing level ranges from 30 dB - 80 dB they are hard of hearing, but they can usually communicate through spoken language when utilizing technologies (such as hearing aids). If their level is

[1] "Deafness and hearing loss." World Health Organization. February 2017. Accessed October 10, 2017. http://www.who.int/mediacentre/factsheets/fs300/en/.

greater than 90 dB then they have very little to no hearing, and are known to be d/Deaf. (See Figure 1)

FIGURE 1

Throughout this literature review you may notice that "deaf" is sometimes written out as "d/Deaf". When referring to this particular group of people, "the lowercase 'deaf' refers to those for whom deafness is primarily an audiological experience. It is mainly used to describe those who lost some or all of their hearing, and who do not usually wish to have contact with signing Deaf communities. These individuals prefer to try and retain their membership of the majority society, in which they were socialised. The capitalized 'Deaf' refers to those born Deaf or deafened in childhood, for whom the sign languages, communities and cultures of the Deaf collective represents a primary experience and allegiance. Contrary to the other group, this group perceives their experience as essentially akin to other language minorities. "These terms were developed in the 1970s to give utterance to the belief that Deaf communities contained their own ways of life mediated through their sign languages."[2]

A common topic throughout many deaf culture books and articles is the importance "deafhood"; a term coined by Paddy Ladd in 2003. It is described as "a process by which Deaf individuals come to actualize their Deaf identity, positing that these individuals construct that identity to their heightened forms by various factors such as nation, era, and class"[3]. Residential schools appear to be the heart of deafhood; where students are able to interact and live with other alike individuals. The first residential school for deaf people opened on April 15, 1817, and was called The Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons, but is now known as The

[2] Ladd, Paddy. *Understanding deaf culture: in search of deafhood*. Clevedon: Multilingual Matters, 2009. Pg. XVii.
[3] Ladd, Paddy. Understanding Deaf Culture: In Search of Deafhood. Clevedon: Multilingual Matters, 2009. pg. XViii

American School for the Deaf.[4] "Because travel in early America was so costly and difficult, the Connecticut Asylum was established as a residential school."[5]

In Lads' book, "Understanding Deaf Culture: In Search of Deafhood", many interviews included quotes from d/Deaf students that explain how deaf primary relationships oftentimes replaced their birth family relationships. Students lived in residential schools Monday through Friday and only returned home on the weekends and holidays. The students expressed how they actually became sad around the times that they had to return home. This sadness or even fear of school holidays marks a significant difference between Deaf and hearing childhood experience. A further difference is that Deaf children only experienced the place in which they were 'normal' as a 'working' time. In other words, they found a home within their school, and found a community where they can sign freely, and communicate without any language barriers. This contrasts with their experiences at home, where they are looked at as "disabled", or not "normal", when in reality they feel as though they are just as much of a contribution to society as the greater population.[6]

In the book, "Understanding Deaf Culture: In Search of Deafhood", Paddy Ladd evaluates the goals of deaf studies, and finds that they are not always in tandem with disability studies."...The central issue of disability discourse is contention over forced exclusion while Deaf discourse rejects forced inclusion"[7]. There appears to be three different teaching styles approaches; which will be referred to here as the Oralists approach, the Conservative approach, and Balance approach. Ladd explains how over the last 150 years, Oralists (or instructors that practice the Oralist approach) have been trying to eliminate deaf communities (the schools, educators, and their sign languages), and have been replacing them with Hearing-LED learning systems, to encourage the use of speech, lip reading, and hearing aids. [8]

One deaf culture study involved a woman named Peggy, who left the Deaf community for 20 years, and then returned. She explained her experience to Deaf identity and culture:

"When you're out of Deaf life, no matter how much you deny it, there's something missing inside of you. The same for those I see who've come from hearing [mainstreamed] schools, when they watch us talk about residential days. It feels like a private club membership...When out of community for a long

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[4] "Education: Essay." Disability history museum--Education: Essay: Disability History Museum. Accessed December 10, 2017. http://www.disabilitymuseum.org/dhm/edu/essay.html?id=38.

[5] "Education: Essay." Disability history museum--Education: Essay: Disability History Museum. Accessed December 10, 2017. http://www.disabilitymuseum.org/dhm/edu/essay.html?id=38. pg.1

[6] Ladd, Paddy. Understanding Deaf Culture: In Search of Deafhood. Clevedon: Multilingual Matters, 2009. Pgs. 299-302

[7] Cardinale, Cara L. "Understanding Deaf Culture: In Search of Deafhood." Disability Studies Quarterly24, no. 4 (2004).

[8] Ladd, Paddy. Understanding Deaf Culture: In Search of Deafhood. Clevedon: Multilingual Matters, 2009.

time, then back, it's really hit me that I have that identity and community deep inside, and know who I am. Deaf, that's fine."[9]

In agreement with Ladd, it seems that the oralists' goals to make schools more inclusive is actually making members from this community feel like they are being stripped of their identity. Those who practice the the Oralists' approach believes that all students should attend the same traditional school with no regard to their abilities; while those who prefer a Balance approach have similar beliefs as Margaret S. Sterck, the founder of the Delaware School for the Deaf. Sterck believed in keeping the d/Deaf residence school community, but still encouraged speech reading, and the use of any auditory skills in class.[10] The final approach, referred to in this paper as the Conservative approach, represents those who do not wish to practice speech, and ONLY wish to sign to communicate.[11]

Technology in Learning Environments:

Over the last few decades, technology has evolved immensely, especially in the classrooms. In 1980, the first television series was broadcasted closed captioned.[12] Today, laws have been set by The National Bureau of Standards that require all TV's to have built-in caption decoders.[13] Since the 80's, web videos were developed (on platforms such as YouTube), and are being used in classroom settings; but unfortunately, are not required to have closed captions. This has been a problem in classrooms designed for hearing impaired students, because it restricts the amount of video lessons that teachers can use since very few have captioned content. In addition, other new technology devices such as FaceTime and Skype have been beneficial in schools. Everything from online course seminars, to group chat videos for collaborating or studying, has helped out with distance learning and partnering up with other peers. Another interesting technological advancement has been the creation of avatars.[14] Signing avatars were developed to translate speech for d/Deaf individuals.

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[9] Ladd, Paddy. Understanding Deaf Culture: In Search of Deafhood. Clevedon: Multilingual Matters, 2009.
[10] "Delaware School for the Deaf." History of Margaret S. Sterck. Accessed October 28, 2017. http://www.dsdeaf.org/apps/pages/index.jsp?uREC_ID=255513&type=d&termREC_ID=&pREC_ID=494055.
[11] Ladd, Paddy. Understanding Deaf Culture: In Search of Deafhood. Clevedon: Multilingual Matters, 2009.
[12] Ladner, Richard. "Technology for Deaf People." Spring 2010. Accessed October 4, 2017. https://courses.cs.washington.edu/courses/cse590w/10sp/deaf-tech10.pdf. - pg. 22
[13] Ladner, Richard. "Technology for Deaf People." Spring 2010. Accessed October 4, 2017. https://courses.cs.washington.edu/courses/cse590w/10sp/deaf-tech10.pdf.
[14] Clymer, William, Joe Geigel, Gary Behm, and Kelly Masters. Use of Signing Avatars to Enhance Direct Communication Support for Deaf or Hard of Hearing Users. NTIC.RIT.EDU. March 2012. Accessed

The process of conversion is shown in the flowchart developed by Rochester University (See Figure 2). While it can be a handy tool for some, others dislike how robotic and unnatural the avatars move.[15]

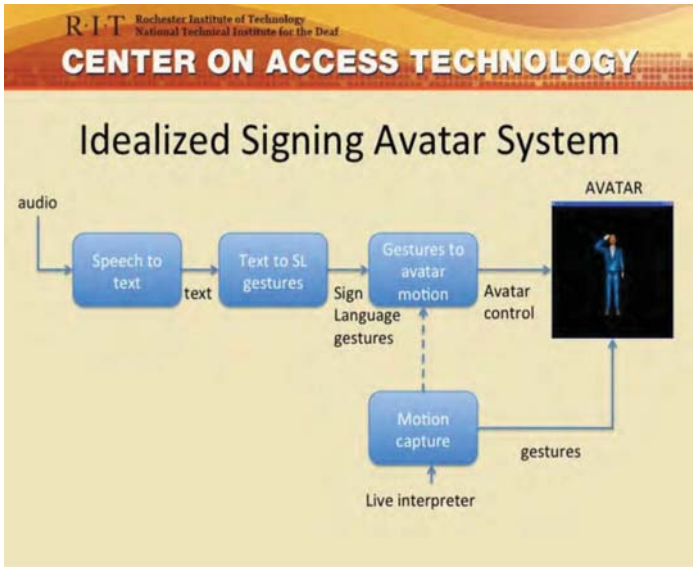


FIGURE 2

In Fabry and Higgs' article, they explain how balance needs to be achieved in order to create a successful learning environment[16]. It is interesting to think that technology may be developed to reduce the need for human labor and/or create a more self-sufficient learning experience; however, often it creates a new problem. For example, think about how self-checkout stations were integrated into grocery stores, or touch screen kiosks in movies theatres...Millennials may operate them with ease, but users who are not so tech-savvy will need to be taught how to operate the technology before being able to even perform the task that it was designed for. Even more so, this greatly affects users with disabilities, who may rely on assistance from others. Technology can be useful in many ways, but it can also cause frustration among users. Having a good balance and deciphering the good technology from the not so great will be key in creating an effective learning environment.[17]

The Precedent Project: DeafSpace

The Gallaudet University, located in Washington, D.C., has led advances in the education of deaf and hard of hearing students and deaf rights worldwide. Students, faculty, and staff of the university have developed what is known as the "DeafSpace Guidelines". It is a catalogue composed of 150 distinct

[15] Clymer, William, Joe Geigel, Gary Behm, and Kelly Masters. Use of Signing Avatars to Enhance Direct Communication Support for Deaf or Hard of Hearing Users. NTIC.RIT.EDU. March 2012. Accessed October 20, 2017. http://www.ntid.rit.edu/sites/default/files/cat/ntid-signingavatar_20mar2012_final.pdf.
[16] Fabry, Dee L.|Higgs John R. "Barriers to the Effective Use of Technology in Education: Current Status." Journal of Educational Computing Research. November 30, 1996. Accessed September 27, 2017. https://eric.ed.gov/?id=EJ574034.
[17] Savery J. R. "BE VOCAL: Characteristics of Successful Online Instructors." Journal of Interactive Online Learning, Volume 4, Number 2, Fall 2005.

architectural design elements that address the five major touch points between deaf experiences and the built environment.[18]

The key touch points include: sensory reach, space and proximity, mobility and proximity, color and light, and acoustics. Sensory reach is described as the spatial orientation and awareness of our surroundings. d/Deaf people may lack the ability to hear, but their visual and tactile senses are more intense. Things like shadows, a breeze of air, vibrations, or subtle shifts in someone's movement is noticed much faster than a hearing person. Space and proximity is important due to the need for "signing space". That is, the space needed to between two people to fully read facial expressions and hand movements when communicating. The mobility and proximity touch point relates closely with safety factors. While walking, signers tend to shift their gaze between the conversation and their surroundings to scan for nearby hazards. Without being able to hear, a group of kids running around a corner, or sirens of a passing ambulance could be examples of potential threats. Light and color are helpful design elements that can create a more pleasant signing experience. Diffused lighting minimizes glares while still facilitating visual wayfinding, while colors in the blue and green family help with creating a clear backdrop that highlights most skin tones. The last and most important touch point, acoustics, is key in regulating a space for d/Deaf people. Due to the many different hearing level abilities, all spaces should have control of sound and background noise. Reverberation can become a major distraction, which is why sound absorbing elements need to be used.

A few buildings on Gallaudet University's campus were designed using all DeafSpace principles, but more recently, in 2012, The Living and Learning Residence Hall 6 opened. Unique elements, such as a community kitchen, wider than average hallways, and collaboration areas were incorporated into their open floorplan concept layout. LTL architects designed this building with the open concept to reduce any sightline barriers in the space.[19] (See Figure 3)

[18] "DeafSpace." – Gallaudet University. Accessed October 25, 2017. http://www.gallaudet.edu/campus-design-and-planning/deafspace.

[19] "Gallaudet University Residence Hall." LTL Architects. Accessed Fall 2017. http://ltlarchitects.com/gallaudet-university-residence-hall.

FIGURE 3

Deafspace principles can be compared to Universal Design (UD) principles. In fact, UD and DeafSpace are not mutually exclusive, nor are DeafSpace principles applicable only to d/Deaf people. "Questions remain about the type of spaces DeafSpace creates, most notably whether they lead to the creation of particularist spaces of and for the d/Deaf community, or reflect a set of design principles which can be embedded across a range of different environments."[20] It seems that if the two merged together the product would be true "universal" design principles. It would cater to more than just wheelchair users, and benefit those with invisible disabilities too.

Relation to Interiors:

Designing in a way that enhances or best uses the other four senses is key in designing interiors for hearing impaired people. Since signing is the primary sense that they use to communicate, having control of sightlines is important when designing a space for them. Some successful techniques from previously designed spaces includes reduction of visual barriers with open-concept layouts, and planning face-to-face seating arrangements. Additionally, to enhance the sound quality for those who may be partially deaf, integrating technology systems can support barrier-free learning (i.e.; Assistive Listening Devices ALD, and/or Sound Masking systems).

[20] Edwards, Claire, and Gill Harold. "DeafSpace and the principles of universal design." Disability and Rehabilitation36, no. 16 (2014): 1350-359.

Sound can also be controlled through materiality of finishes, sound absorbing FFE (furniture, finishes, and equipment) will provide the acoustical control necessary to reduce reverberation. Finishes also can affect the tactile feeling of the space, and create a sense of comfort and wellbeing. Overall, by taking all these suggestions into account, and with thorough design planning, one can create the ideal interior space to best support learning for the d/Deaf.

PRECEDENT

Gallaudet University's "Living and Learning Residence Hall 6" (LLRH6)

Designed by: LTL Architects

Location: Washington, D.C.

Completed: 2012

Square Footage: 60,000

LLRH6 EXTERIOR IMAGE

The Gallaudet University is one of the leading and most innovative schools for the d/Deaf. I focused my precedent research on one of their newest dorms, The Living and Learning Residence Hall 6. This building has unique elements, such as a community kitchen, wider than average hallways, and collaboration areas. LTL Architects designed this building with an open concept to reduce any sightline barriers in the space.

The DeafSpace Project

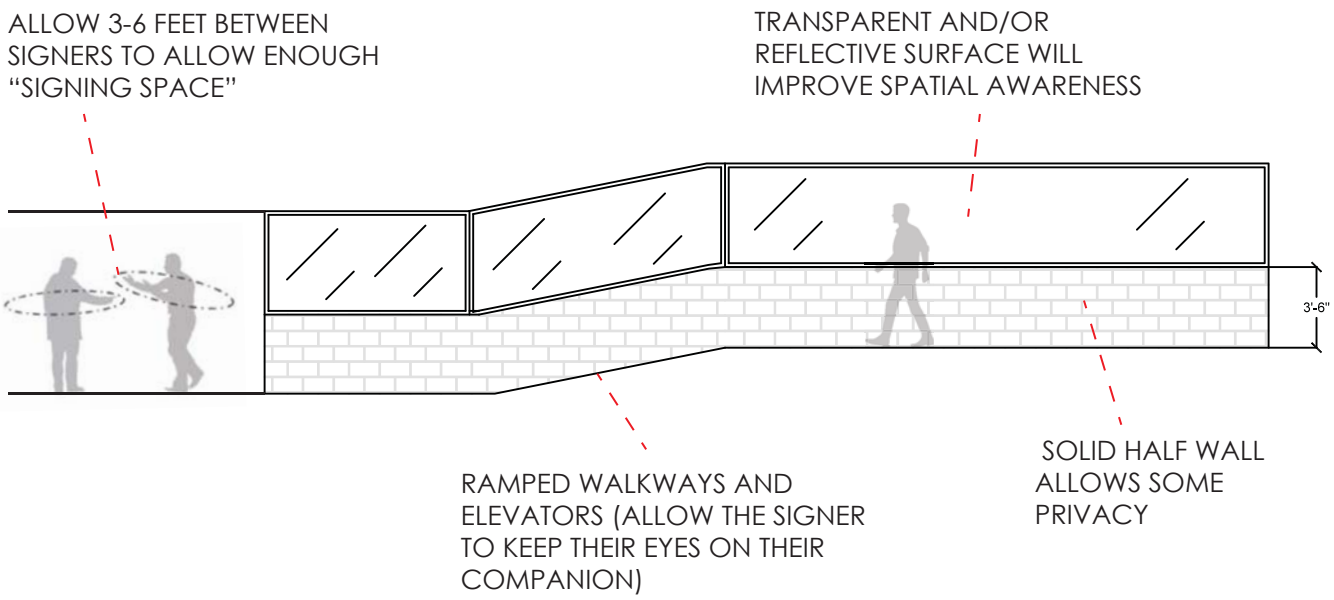
This project began on Gallaudet's campus in 2005 and involved a cross-section of students, staff, and faculty. The group developed DeafSpace Guidelines, a catalogue of more than 150 distinct architectural design elements that address the five major touch points between deaf experiences and the built environment.

LLRH6

The Living and Learning Residence Hall 6 was the 2nd building on their campus designed completely using the DeafSpace principles. The five main touch points of the principles are:

- sensory reach
- space and proximity
- mobility and proximity
- color and light
- acoustics

CONTRASTING BACKDROPS + COLORS HELP BRING THE FIGURE TO THE FOREGROUND



LLRH6 INTERIOR IMAGE

CASE STUDY

The Delaware School for the Deaf (DSD)

Designed by: Mackey Mitchell Architects

Location: 630 E Chestnut Hill Rd, Newark, DE 19713

Completed in: 2009

Square Footage: 120,000 (school), 18,000 (dormitory)

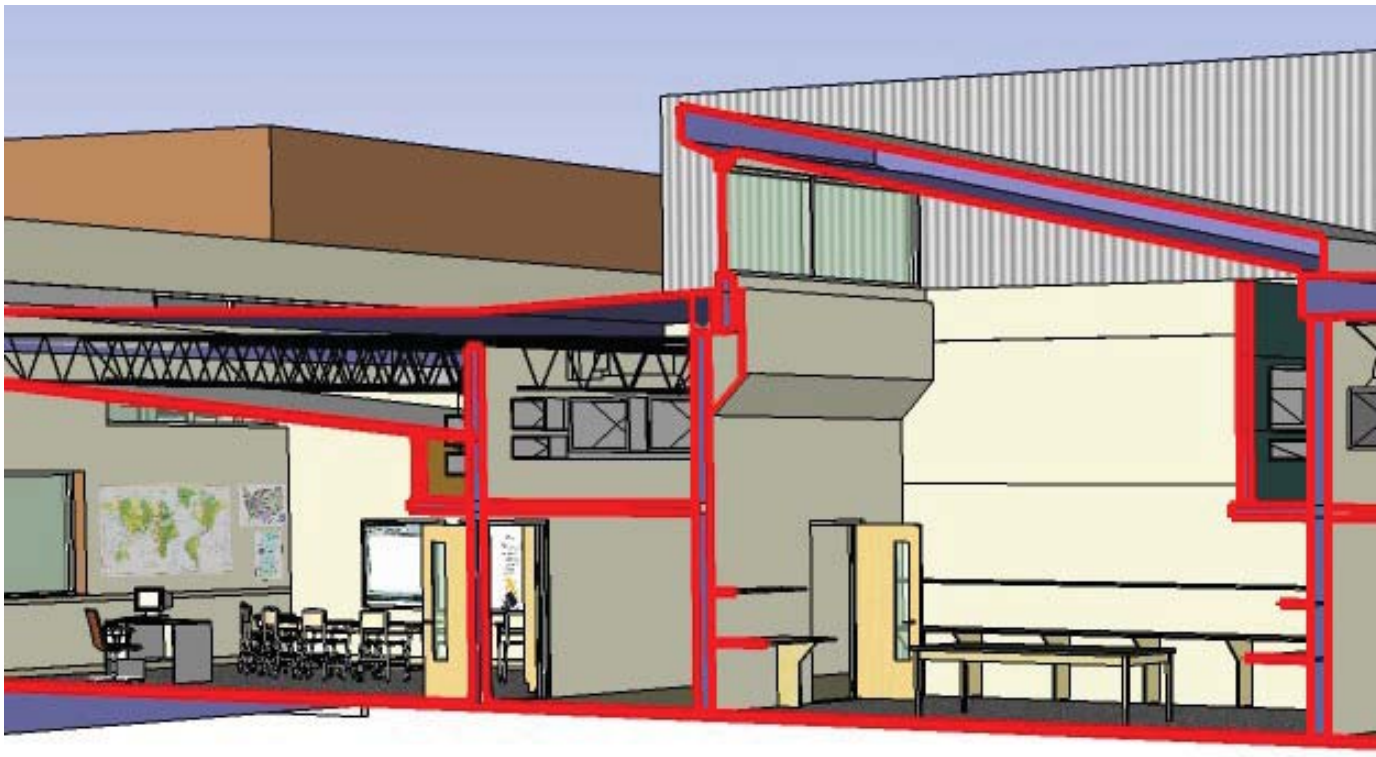
Key Informant: Mary Hicks, Bilingual Literacy Specialist,
Family/Community ASL Coordinator

DSD EXTERIOR IMAGE

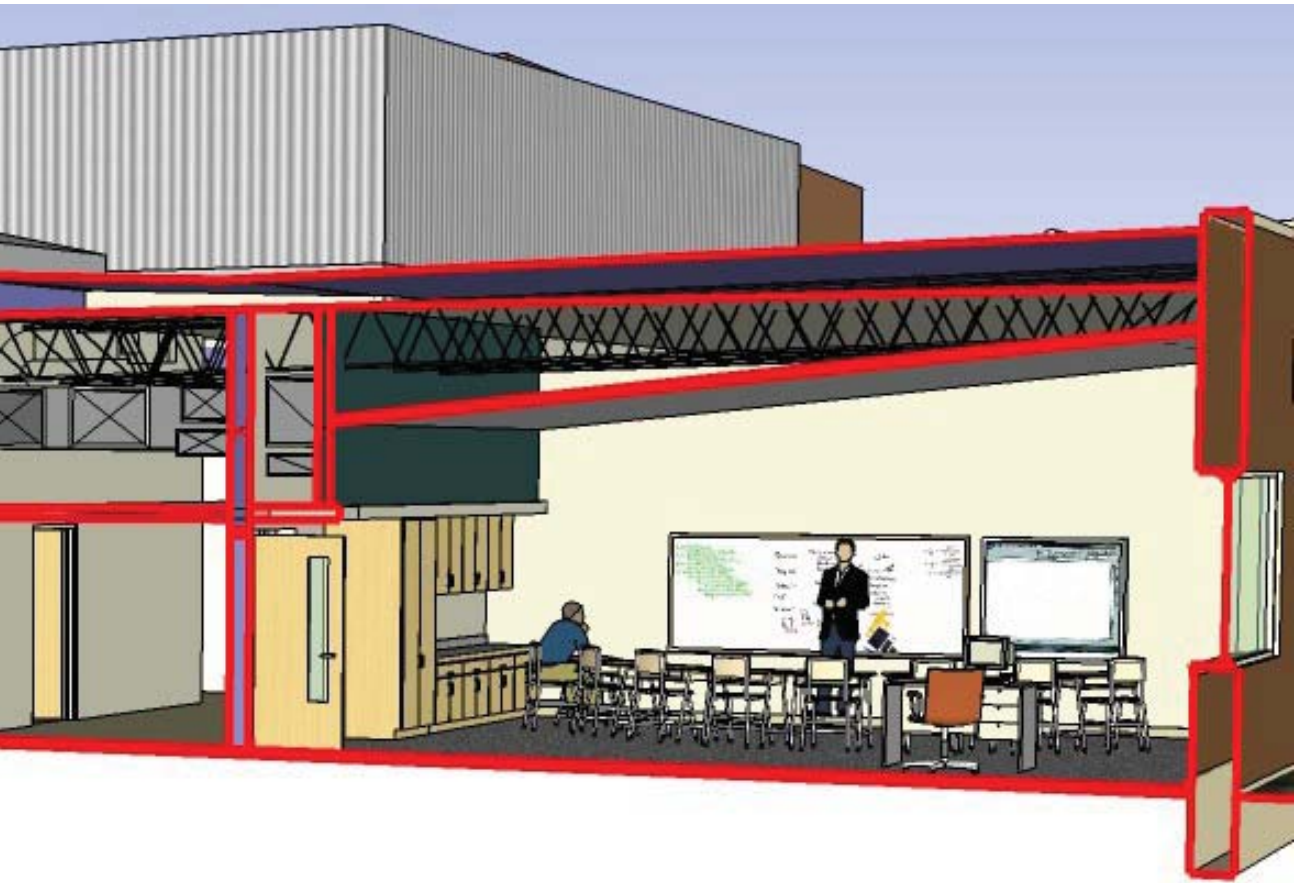
The History of DSD

The founder, Margaret S. Sterck, seeked for equal education for the deaf and wanted to open a nearby facility for the local deaf Delawareans (the closest was in Philadelphia). In 1929, she opened a school with 7 students, out of her own home in Wilmington, DE. She relocated into several larger spaces over the years, but in 2011, she opened DSD.

Sterck was taught how to educate d/Deaf people by Mary Garett, a nationally known teacher in Philadelphia, and a pioneer in the "oral method". The oral approach encourages speech reading, and the use of any auditory skills. Today, DSD uses a combination of the oral method combined with ASL to teach students.



DSD SECTION PERSPECTIVE BY MACKEY ARCHITECTS



Observational Notes

Occupancy:

- 100 students total (rough estimate from key informant)
- Average of 6 students per class
- 350 seats in auditorium

Dimensions:

- Wider hallways 120" (10')

School:

- Only ONE classroom per grade
- Divided by age groups, each is in a separate hall:
    - Preschool - Elementary School - Middle School - High School

Technology:

- PA system is on TV monitors throughout

Program/Spaces in the school building:

- Main Office
- Staff Bathrooms
- Staff Break Room (with Phone Booth)
- Auditorium
- Computer Lab
- Occupational Therapy
- Physical Therapy

Program/Spaces in the school building (continued):

- ASL
- Gym
- Weight Room
- Drama/Ballet
- Library/Green Room area
- Cafeteria
- Kitchen
- Greenhouse Room
- Multipurpose Theater
- Courtyard

Dorm:

- Suites separated by gender and age group
- NO Cafeteria, students walk over to the school for dinner
- RA's do not live here (day staff/night staff)
- Great Room with kitchenette - NO Range
- Key Fobs in each room (Night staff checks on them every 30 mins)
- 4 rooms per suite, each room has 1-2 students, depending on student needs
- Each suite has 1 standard bath, and 1 ADA bath, and 1 Laundry room (1w/1d)
- Each suite has 4 computers, and common living area with TV
- Each suite has 1 RA

Dorm (continued):

- Only 1-2 preschool, elementary kids - Younger students cry at night to go home

- 1 ceiling light, and 2 table lamps

- Table lamps are synced with alarm clock (vibrator pads optional w/boxspring)

- Rooms have 2 beds, wardrobes, nightstands, and desks

- Flashing light alerts office staff that someone is trying to get in the building

Program/Spaces in the dorm building:

- Main Office
- Suites:
    - 4 Bedrooms (1-2 people)
    - 1 Standard Bath
    - 1 ADA Bath
    - 1 Laundry Room
    - Common Area(1 TV, 4 Computers, 1 RA desk)
- Loft
- Great Room (tv, games)/Kitchenette
- Conference Room

Design Details:

- Semi-circle or circular tables

- Rearrangeable furniture

- Different colored paint and flooring for each hallway

- Locked entrances - Key fobs

- Dimmable lighting

- PA system on monitors, no speaker

- Flashing light for emergencies, non-fire related

Feedback from staff and faculty:

Lighting in dorms

"The lighting is too dim and dreary, we wish we had better lighting". (in the dorm room) - FACULTY, QUOTING STUDENTS

"We LOVE the skylights and big windows!" (in the school) -ASL COORDINATOR

Organization/Storage

"I wish we had double the classroom size, so that half of the room can be dedicated to storage". - MIDDLE SCHOOL TEACHER

"The early childhood classrooms needs much more storage than the middle and high school classrooms, due to all of the activities, toys and games we have". - PRESCHOOL TEACHER

Visibility to exterior

"When they (the architect/designer) asked for our list, we asked for the window sill to be low to the ground, so that our preschool students can see outdoors. Instead they kept the window sill higher, and built a bench for the students to stand on to see outside. It's very unsafe." - KINDERGARTEN TEACHER

"In your design make sure your office attendant can see who's at the front door, I cannot see if someone is walking up to the building, and I have to walk out of the office to go and check, before I can unlock the door. I even once had to talk through the door to find out why a person was here and who they were, before I let them enter". -OFFICE ATTENDANT, DORMITORY

Style/Finishes

"We really wanted to make the dormitory and school feel like home, and not an institution." - ASL COORDINATOR

"We like that each wing has a different accent color" - ASL COORDINATOR

"Be sure to use matte/non-reflective flooring, because it just creates a glare and makes it hard for us to sign" - MIDDLE SCHOOL TEACHER

Furniture

"All of our classrooms are arranged in circles and/or semi-circles." - ASL COORDINATOR

Function

"In the dance room, they have carpet, and we hate it! We think it may have been a mistake, or they ran out of tile" - ASL COORDINATOR

"Notice all of the walls in the classrooms have acoustic panels on them, when the door is closed, all of the sound/vibrations from the hall is blocked out". - ASL COORDINATOR.

INTERVIEW

This questionnaire was formulated to better understand some of the needs for people who are deaf. It provides opinions, observations, and real life experiences. Rhonda Wyatt is a deaf middle aged woman, who is also a relative of mine. Wyatt attended both a mainstream school and a school for the deaf (DSD).

Interview Takeaway:

From the interview I learned that she attended both mainstream school and DSD. Some interesting things to note is that her parents and brother DO NOT know sign language. Also, that when she transferred from her mainstream school to the school for the deaf, she was ahead of her deaf peers by 1 to 2 grades. Lastly, I noticed the same topic of visibility and spatial awareness was brought up throughout. From looking out of her windows often, to checking her cell phone often, she constantly has to make an effort to be aware of her surroundings. A funny note is that Rhonda enjoys her experience at the DMV which is an experience that most people dread. She believes that the signage is helpful there.

These questions will help guide me in deciding on the type of Interior Design project I will do for my Thesis project at Drexel University. It will allow me to understand the needs of Deaf students in an educational environment. Please be as detailed as possible, and thank you so much for participating!

Your Name:

Rhonda Lister

1. I became deaf:

a. When I was born
b. Early Childhood
c. Late Childhood
d. As an Adult
e. Other

2. I prefer to be called:

a. Deaf
b. Hard of Hearing
c. Neither
d. No preference
e. Other

3. I am involved in the Deaf community. If true, please explain how?

a. True
b. False
c. Not Sure?

4. The type of school I attended was:

a. Public
b. Private
c. Home School
d. School for deaf people

INTERVIEW

5. If you attended a public or private school, were you placed in a separate classroom with other deaf students?

a. Yes
b. No
c. Not applicable

6. To you, what is the difference between being physically deaf or "hard of hearing"? (For example, an elderly person who lost partial hearing).

I was born hearing. Started losing my hearing around 3 to 5 years old. Due to concussions, had nerve damage in my ears. I was still able to hear without a hearing aid but became "hard of hearing". I got a hearing aid. Started kindergarten at a regular public school without an interpreter in a normal classroom. I still had enough hearing to be able to learn along with other hearing kids but I had to sit in the front of the classroom or right next to the teacher. Got the measles at 6 or 7 years old and high fever damaged the rest of my hearing. As to not being able to hear without a hearing aid. I could still hear with a hearing aid. I attended regular public school up till 9 years old (4th grade). Due to busing, my Mom had me start attending Sterck School for the Deaf. Now DSD (DE school for the deaf). I was ahead of my deaf/hard of hearing peers by a year or two academically. Therefore I was mainstreamed to public school with an interpreter from 4th grade to graduation from HS. I still took a few classes at Sterck but by HS I was mainstreamed full time.

7. What are your favorite aspects of Deaf culture?

I do not personally have any favorite aspects of deaf culture. While I am used to being deaf, I miss many things, my family's voices, music, TV, sound of the ocean, this list goes on. However I have small advantages not being able to hear, sleep more soundly, thunder doesn't disturb me, if you call them advantages.

8. What may be the worst aspects of Deaf Culture?

Stereotyping. Ignorance. Lack of basic services.

9. Do you see being deaf as a disability, why or why not?

No I do not. Personally, I can not hear, there is nothing else "wrong" with me. I may have limits being deaf but I can do the same or better than the next person hearing or not. Other deaf people may have additional health or mental problems that make them disabled. Same as anyone else but just not being able to hear is not a disability.

10. Have you ever experienced oppression by hearing people's denial of Deaf Culture and ASL as a language?

In instances where I had to have job training, meetings, etc. Without being provided an interpreter. I did not pursue this at the times but by law all employers should already know and abide by it.

11. Which way do you prefer to communicate? You may select all that apply).

a. Signing Only
b. Verbally Only
c. Signing and verbally at the same time
d. In writing
e. Lipping words

12. What are specific characteristics in Deaf Culture? How is it different from other cultures.

This is from "Verywell.com" because I do not really know how to answer this. The deaf community can be said to have its own unique culture. Deaf and HOH (Hard of Hearing) people produce plays, books, artwork, magazines and movies targeted at deaf and HOH audiences. Deaf community engages in social and political activities exclusive to them. I would say it is different in ways that benefit those deaf/HOH people but not hearing people. For example, closed captioning on TV for deaf/HOH. It can also benefit anyone really by reading the text.

13. How has technology helped you communicate? (Please be specific)

In my case, wearing a hearing aid used to benefit me so that I could hear some. However I haven't worn one in years so I no longer "depend" on what little hearing I had left. The TTY, telephone device developed for Deaf/HOH people to be able to make telephone calls, enabled me to make phone calls I would otherwise depend on someone else making for me. Later on the cell phone with texting made it even more accessible to all friends, family, doctors, etc. Don't forget, Email.

14. Do you believe all deaf students should practice speech?

a. No, just signing is perfectly fine
b. Yes, practicing signing and speech is best
c. Yes, practice speech ONLY, to communicate like the "hearing students"
d. Other

because it depends on the individual. If it can/will benefit them then yes but if not then no.

e. Not Sure

15. What was life like growing up? Did you participate in any activities?

Life was pretty typical for me. I had a single Mom and younger brother. Neither learned sign language but that was fine. I did all the usual kid/teenager/adult stuff. I played softball. I was a cheerleader. I was in drama club, put on plays. I signed (Sang) in choir. Love to bowl, was bowling captain of HS team. I went roller skating every chance I got. Later on, it was dancing at clubs with best friends. Oh yeah, I was addicted (still am) to Ms. Pac Man.

16. What challenges do you face on a daily basis? (At work, Home, Stores, etc.) Please be specific...

As you know I'm a bit anti-social so this is not on a daily basis. At home I just try to be aware of my surroundings. Not being able to hear anything I try to keep an eye out for the unexpected but in a laid back way. Go look outside every now and again. Check my cell every so often.

Going out in public I may need to communicate for some reason and may need that person to repeat themselves and sometimes people can be rude about it. I no longer tell strangers I'm deaf because there are just too many freaks out there. Seriously, I don't have too many problems interacting in public with other people. I just choose not to mostly.

Large gatherings of hearing people are difficult for me because I can not hear and am often not included. With my deaf friends it's the opposite, I understand everything and am included without having to be "thought about including" automatically. Hearing people will never understand. I have to make twice as much effort to interact with hearing people. If I want to be included.

17. What interior design elements help you communicate and/or learn best? (for example; the lighting, seating arrangement, having a teacher/interpreter who signs, watching videos, seeing written text on a screen/the board), etc.)

I like the dark. I like having a big screen TV with good sized text for closed captioning. If I go to events always sit as close to front as possible. Events with interpreters are great, again sit as close to front as possible. Going to the DMV I like how they have the electronic signs that light up the customer's number and shows where to go. Deaf people do not have to struggle to pay attention for someone "calling" out their turn. Like at a public service office of most kinds. Every public service office and private that employs deaf people should have visual aids such as DMV. It would be a whole lot easier and less frustrating for all deaf/HOH people. We have to go to those public offices, we cannot avoid going they can at least make it less stressful and more accessible to us. Everyday, everywhere, everyone takes for granted things that are just how they are for them but have no clue how a deaf/HOH person has to struggle for the simplest thing.

18. What interior design elements have made learning/communicating difficult for you? (for example; glares when looking at the person signing, reverberation or background noises, being able to see into hallways or windows that distract you, not having enough "personal space" or room to sign, having to walk down stairs while trying to sign/communicate, etc.)

Not sure how to answer. All of the examples you have given can/have applied depending on the surroundings, etc. I have usually just made do, made the adjustment or change I needed. Like move, to see better.

19. For my thesis project, do you think I should design a school/community for deaf students ONLY……Or should I design a school/community for BOTH deaf and hearing students? Keep in mind that my goal is to educate the students in the BEST and most optimal way possible. Please answer, and explain "why"....

Personally it should be for deaf students only because of the so many different levels of learning for each individual deaf student. Also different disabilities they may have. Not only are deaf schools nowadays for deaf students but, deaf/blind, deaf/down syndrome, deaf/autistic, deaf/mental retardation, etc. School needs to be able to meet the many different needs they may have.

20. Anything else to share?

What if anything else would you like to know?

EXECUTIVE SUMMARY

CAPAS is a Creative and Performing Arts School for the d/Deaf. It will be a unique design concept that any traditional mainstream school can add to it to better support their d/Deaf students. Because communicating can be both difficult and frustrating for d/Deaf students, this school will focus on the creative and performing arts, which will help improve both their confidence and self-expression. Not only that, but this design proposal will be the first art school specialized for the deaf.

EXECUTIVE SUMMARY

CAPAS will have a hybrid program, where the students can attend mainstream courses at a neighboring middle school (for half of the day), and then attend deaf enhancement courses and their art related classes for the other half. This hybrid program will be a good segway to prepare them for the real world, as future companies they work for will most likely not be with only deaf people.

However, with this design approach, the students will not be completely stripped away from experiencing the Deaf Culture environment. Additionally, there will be short term dorm suites for both the students and their families to live in. This will help mend the student-family relationships that commonly do not exist among d/Deaf students whom are sent away to live in residential schools for the d/Deaf. The site, 2133 Arch Street in Philadelphia, PA, was selected because there are several nearby middle schools for this school to partner with. It also is in the art district with several nearby museums which will better support their learning experience. The site also has Coxe Park located across the street for the students to play at. The building has 4 levels and a basement, with an atrium running through the center of it. It also has an abundance of windows and a skylight detail at the top of the atrium. Because of the atrium, the building naturally supports spatial awareness both vertically and horizontally, which will make communicating easier.

PROGRAM

As mentioned, CAPAS will have a hybrid program where students will attend mainstream courses for half of the day, and then attend deaf enhancement courses and their art related classes for the other half. This hybrid program will be a good segway to prepare them for the real world, as future companies they work for will likely not be with only deaf people. However, with this design approach, the students will not be completely stripped away from experiencing the Deaf Culture environment.

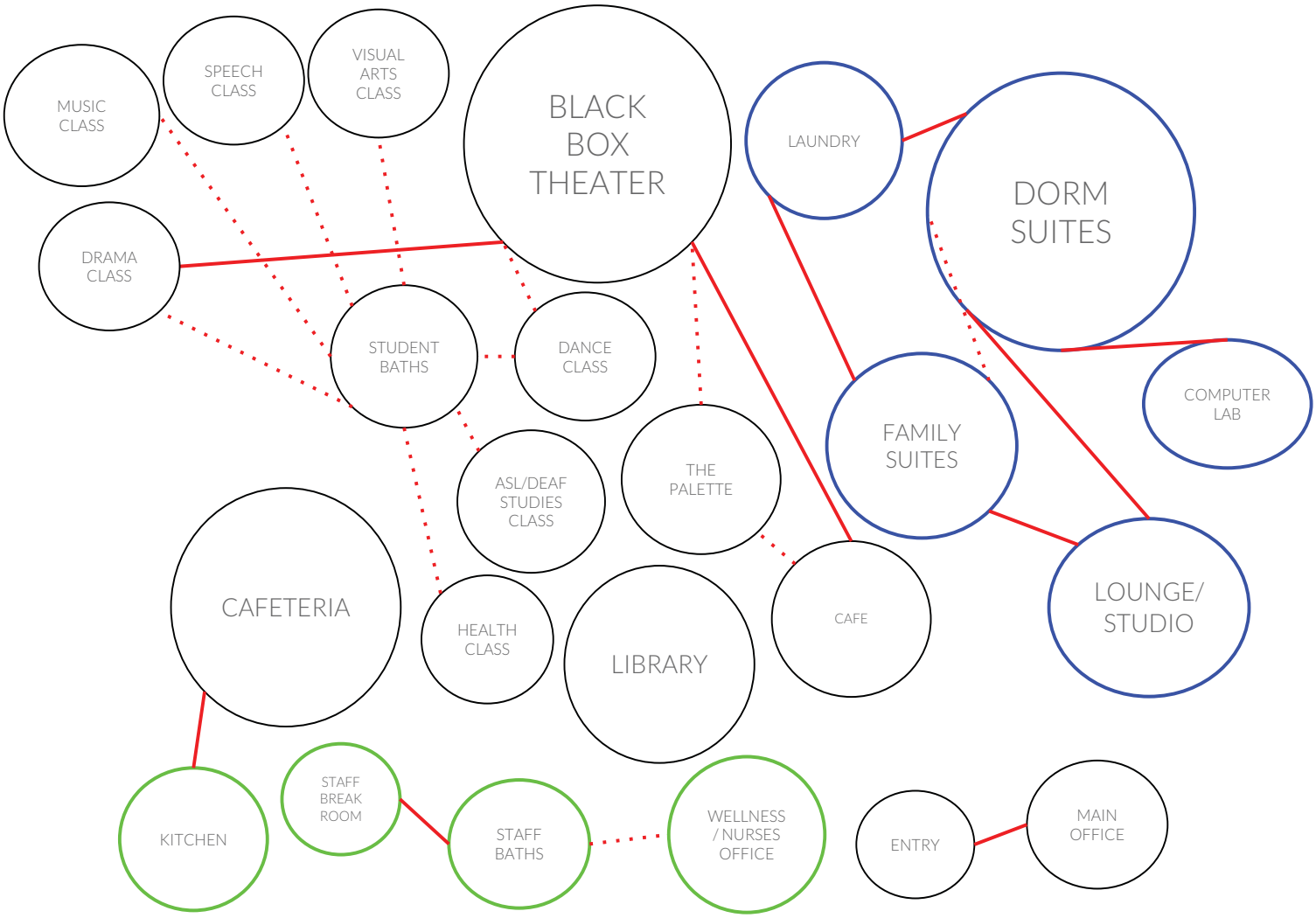
PROGRAM

A list of the spaces found at CAPAS is displayed in the bubble diagram to the right.

There will be dorm suites for both the students and their families to live in.

This will help mend the student-family relationships that commonly do not exist among d/Deaf students whom are sent away to live in residential schools for the d/Deaf. The art related courses that will be taught here are dance, drama, visual arts, music and creative writing.

Additionally, a few deaf specific courses will be taught to enhance their experience in the real world. This includes Speech Therapy/English, Health (which caters to their specific audiological circumstance), and ASL/Deaf Studies course (which their parents can also attend).



KEY:

- PRIVATE + RESIDENTIAL SPACES
- PRIVATE + FACULTY SPACES
- SEMI-PUBLIC + LEARNING SPACES
- DIRECT ADJACENY
- INDIRECT ADJACENY
- NO ADJACENY

PROGRAM

Room	Functions	# of rooms needed
Visual Arts Classroom	Rearrangeable Desks, Instructor Station, Pin-Up, Storage	1
Dance Classroom	Instructor Station, Storage, Mats, Mirrors	1
Creative Writing Classroom	Rearrangeable Desks, Instructor Station, Storage	1
Music Room	Chairs, Piano, Stands, Instructor Station, Storage	1
Speech Therapy/English Classrom	Rearrangeable Desks, Instructor Station, Storage	1
Drama	Instructor Station, Storage, Mats, Mirrors	1
ASL and Deaf Studies Classroom	Rearrangeable Desks, Instructor Station, Storage	1
Health Classroom	Rearrangeable Desks, Instructor Station, Storage	1
Library	Bookshelves, Lounge/Nooks, Meeting SpaceS, Book Return/Checkout Desk,Storage	1
Studio	Student Workstations, Storage	2
Cafeteria	Cafe Tables, Booths, Storage	1
Kitchen	Serving Station, Appliances, Prep Area, Storage	1
Courtyard/Circulation	Lounge Furniture	1
Media Room/Black Box Theatre	Presentation Style Seating, Projector, Screen, Presenter Station, Storage	1
Wellness Center	Patient Bed, Nurses Desk, Storage, Waiting Area	1
Student Restrooms	ADA stalls, Standard Stalls, Urinals	6
Faculty Restrooms	ADA Unisex Restroom	1
Faculty Breakroom	Kitchenette, Cafe Table and Seating	1
Main Office	Desk, Storage	1
Dorm Room	Suite with 2 Rooms: 2 Beds, 2 Desks, 2 Closets, A Single Shared Bath	10
RA Room	Single Bed, Bath, Kitchenette	2
Family Suite	Double Bedroom, Bath, Kitchenette	4
Storage	Desk, Storage	1
Laundry	5 washers, 5 dryers per floor	2
Lounge/Game Room	Pool Table, TV's, Video Games, Board Games	1
Group Collab Area	Collaborative Furniture, Monitor	4

# of occupants per room	sqft per room	total sqft needed	total occupants
10	700	700	10
10	800	800	10
10	700	700	10
10	800	800	10
10	700	700	10
10	700	700	10
10	700	700	10
10	700	700	10
30	900	900	30
20	700	1,400	40
50	1,200	1,200	50
4	300	300	4
20	1100	1,100	20
20	900	900	20
3	500	500	3
1	50	300	6
1	45	45	1
5	100	100	5
1	500	500	1
2	300	3,000	20
1	200	400	2
1	500	2,000	4
2	700	700	2
5	400	800	10
40	1000	1,000	40
10	500	2,000	40
	TOTAL SQFT	22,945	

RESEARCH NOTES:

Average SQFT for a classroom ranges from 660sqft-900sqft

Average SQFT for a school cafeteria ranges from 20sqft per person

Average SQFT for a double dorm room is 192sqft

To calculate a rough estimate for the SQFT needed for a middle school, multiply the # of students by 165sqft

SITE DOCUMENTATION

2133 Arch Street Philadelphia, PA 19103

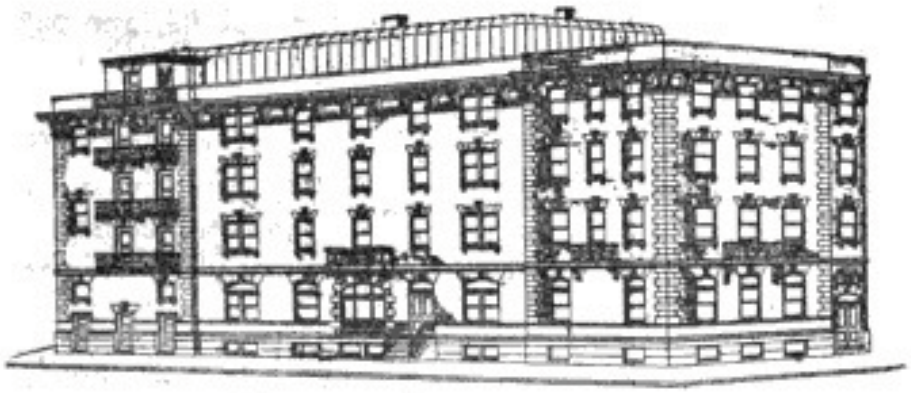
The Mulberry Atrium Building

Opened in: 1908

Square Footage: 52,780

Ironically enough, the site and building selected was formerly a juvenile court and house of detention center that opened in 1908.

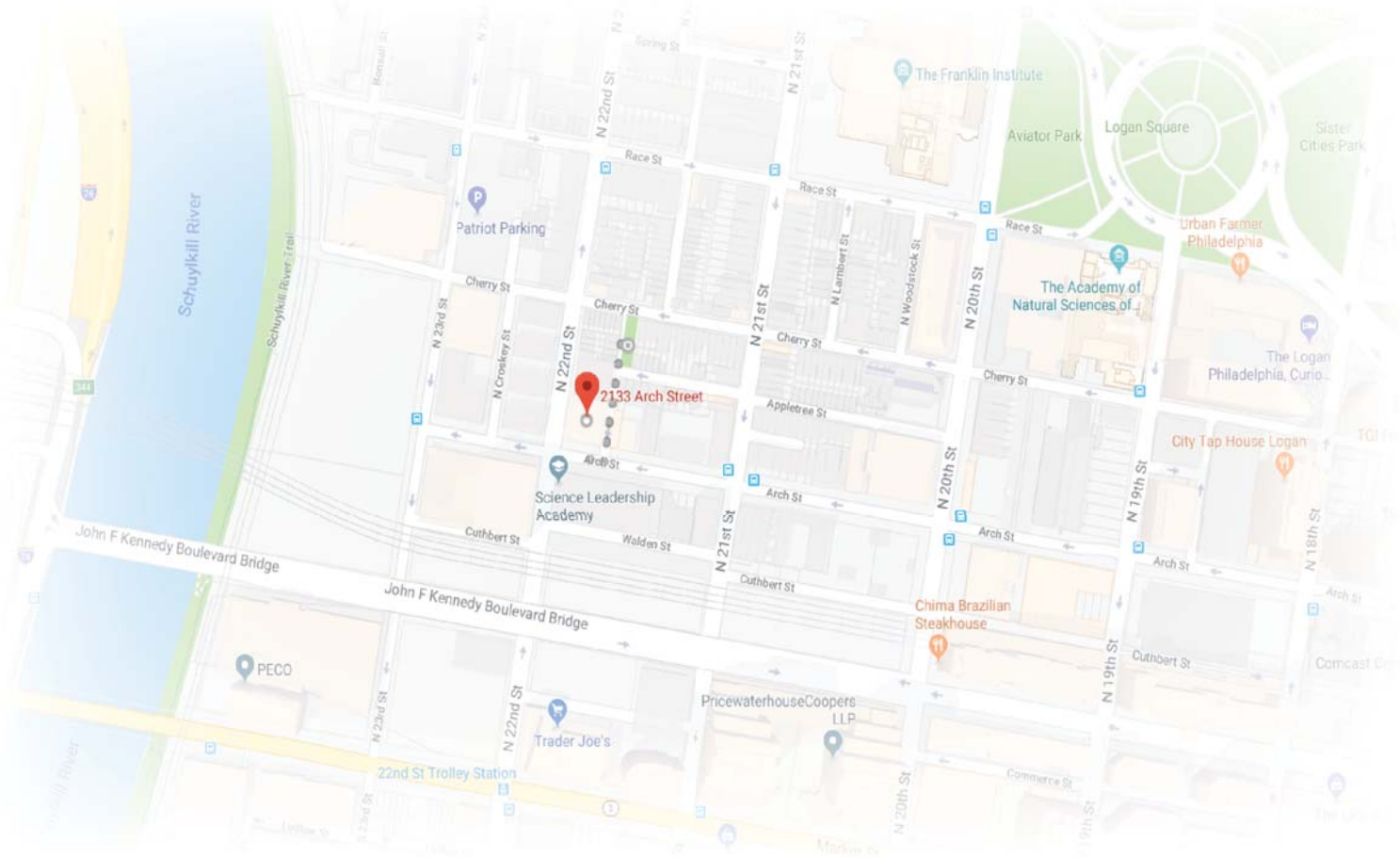
It is known today as The Mulberry Atrium building, and is currently a multi-tenant building that houses a a broad range of spaces. These tenants include a french communication institute, a childcare center, a furniture dealer, architecture firm, counseling office, and a pediatrics office.



Proposed House of Detention.

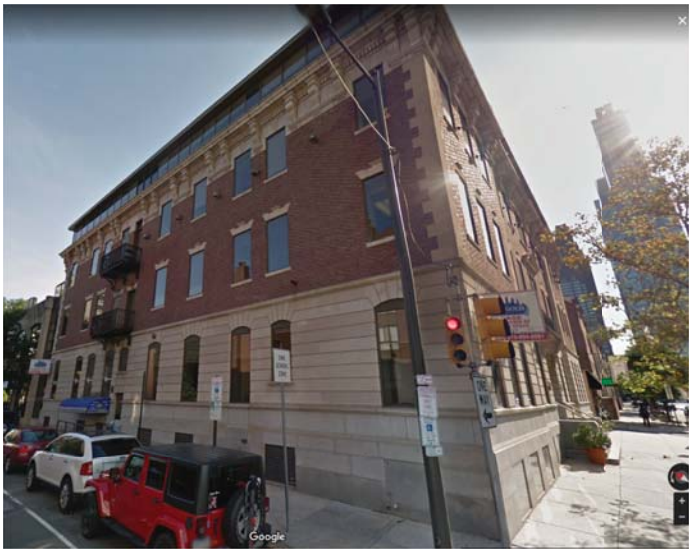
Inmates studying in 1918. SOURCE: Citizens in Philadelphia

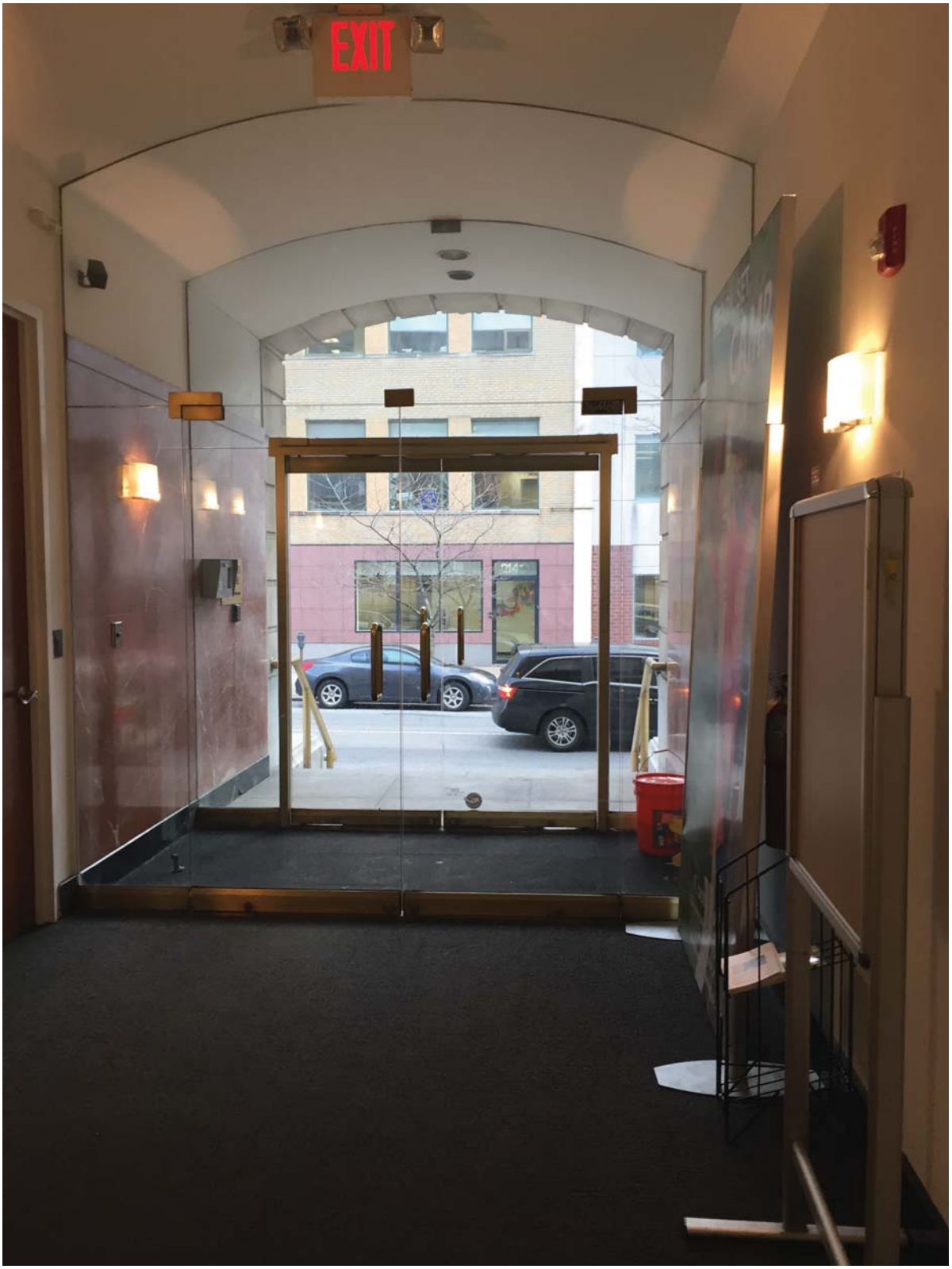
SITE DOCUMENTATION



This building was chosen due to many factors, such as it's great location. It is located right on the corner of Arch Street and North 22nd Street in Philadelphia. This site is near several mainstream middle schools (to partner with), and also fine musuems for students to learn from and visit. Also, there is a park, Coxe Park, directly behind the building which can be traveled to via the grey dashed path (shown in the map, pictured above). This building was also perfect due to its abundance of natural light from the window-covered facades, along with the open atrium that runs through the building.

Exterior Images





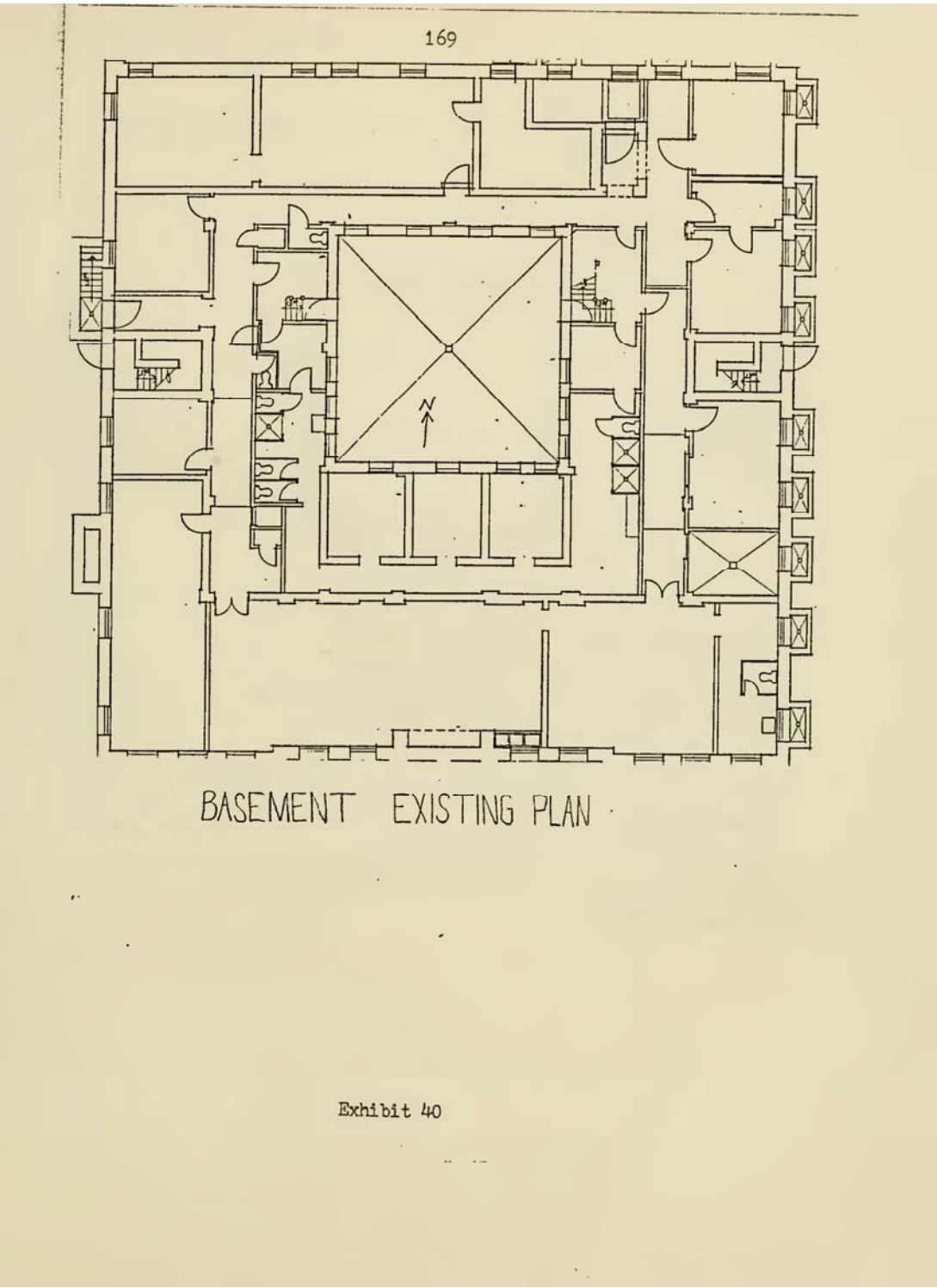
Front entrance view from interior.

Hallway around atrium.

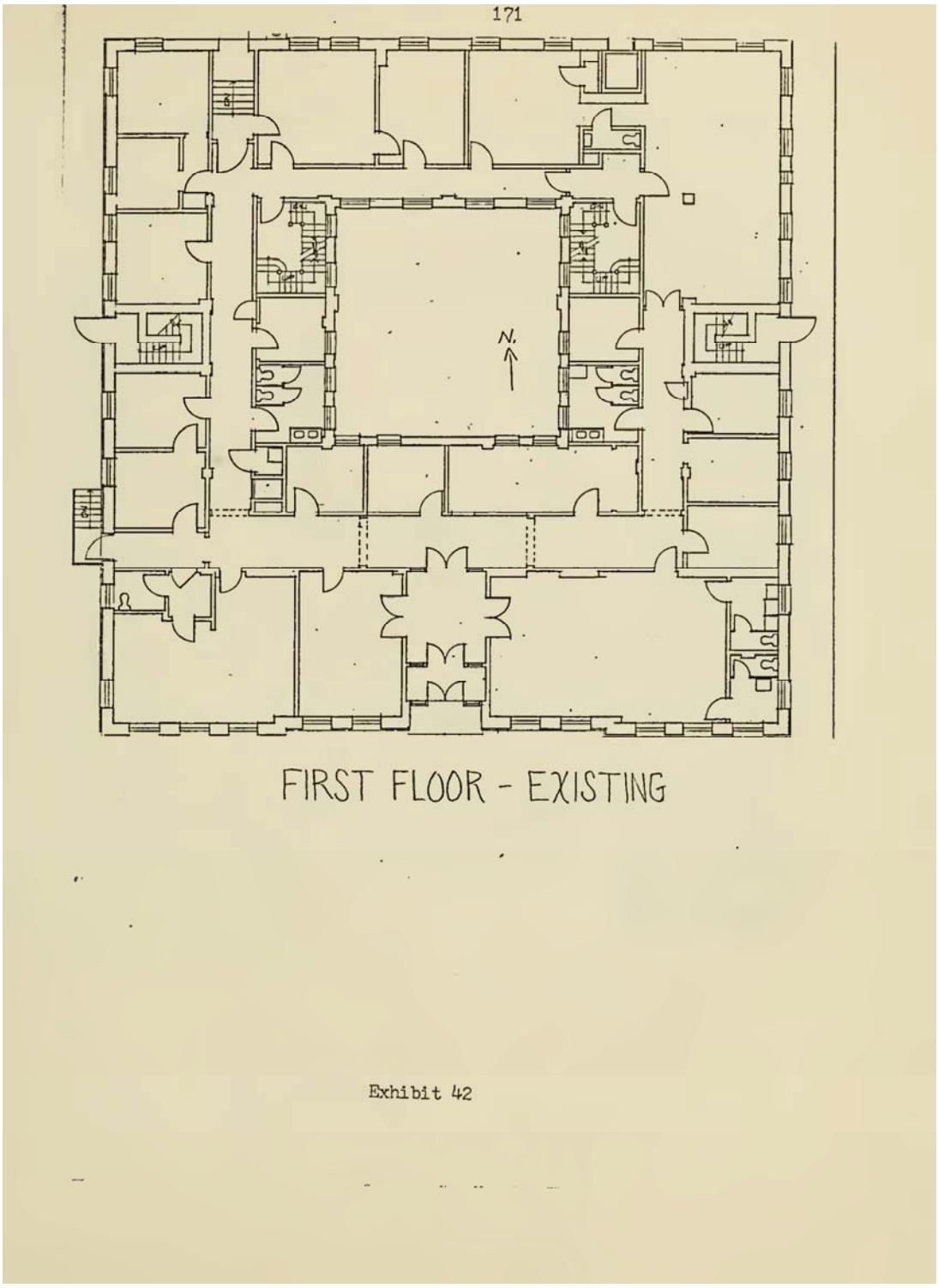
View into open atrium - from elevator. (Pictured in left and right image)

Image of the bottom of the atrium - from elevator.

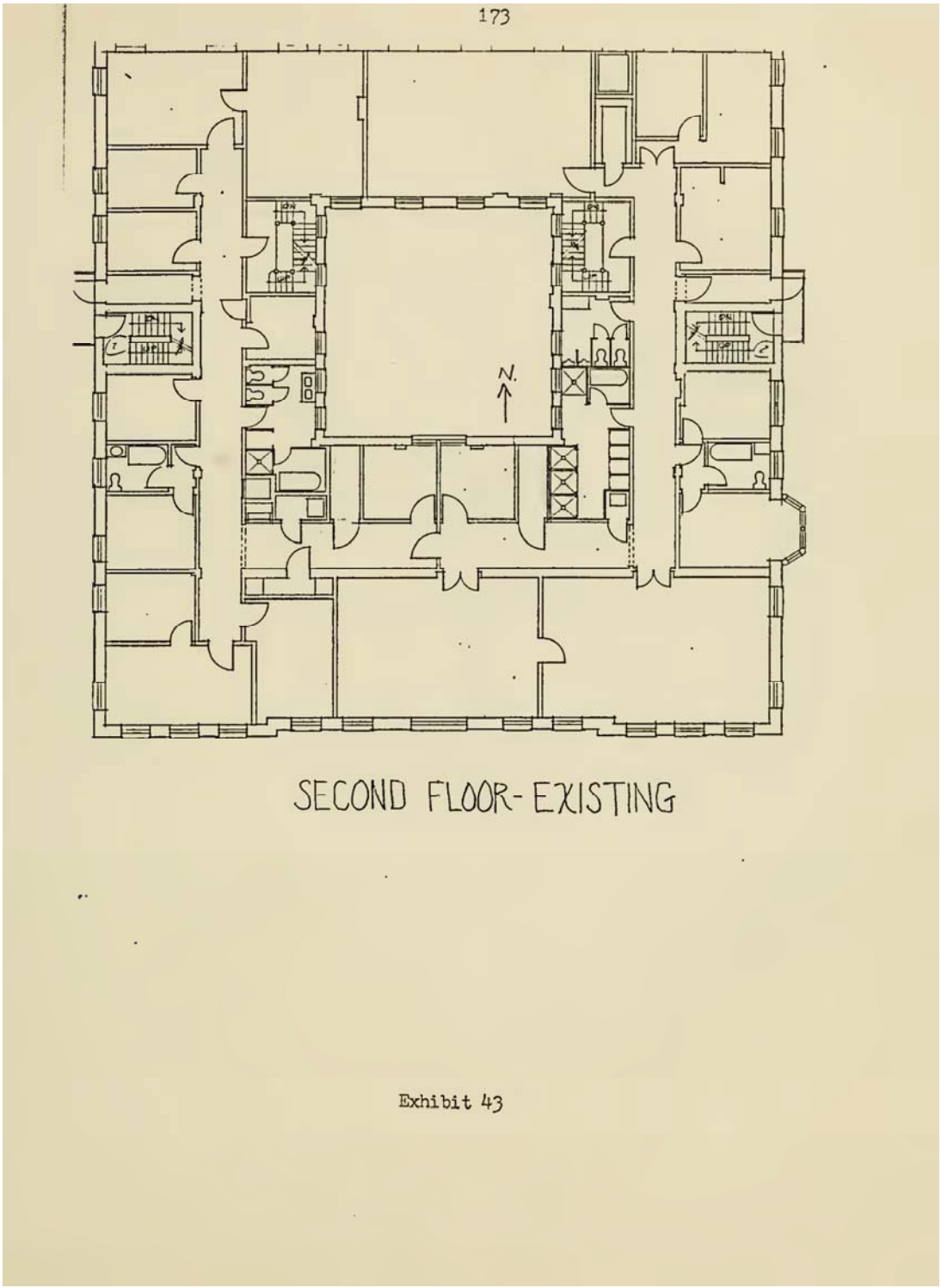
Image of the top of the atrium - from elevator.



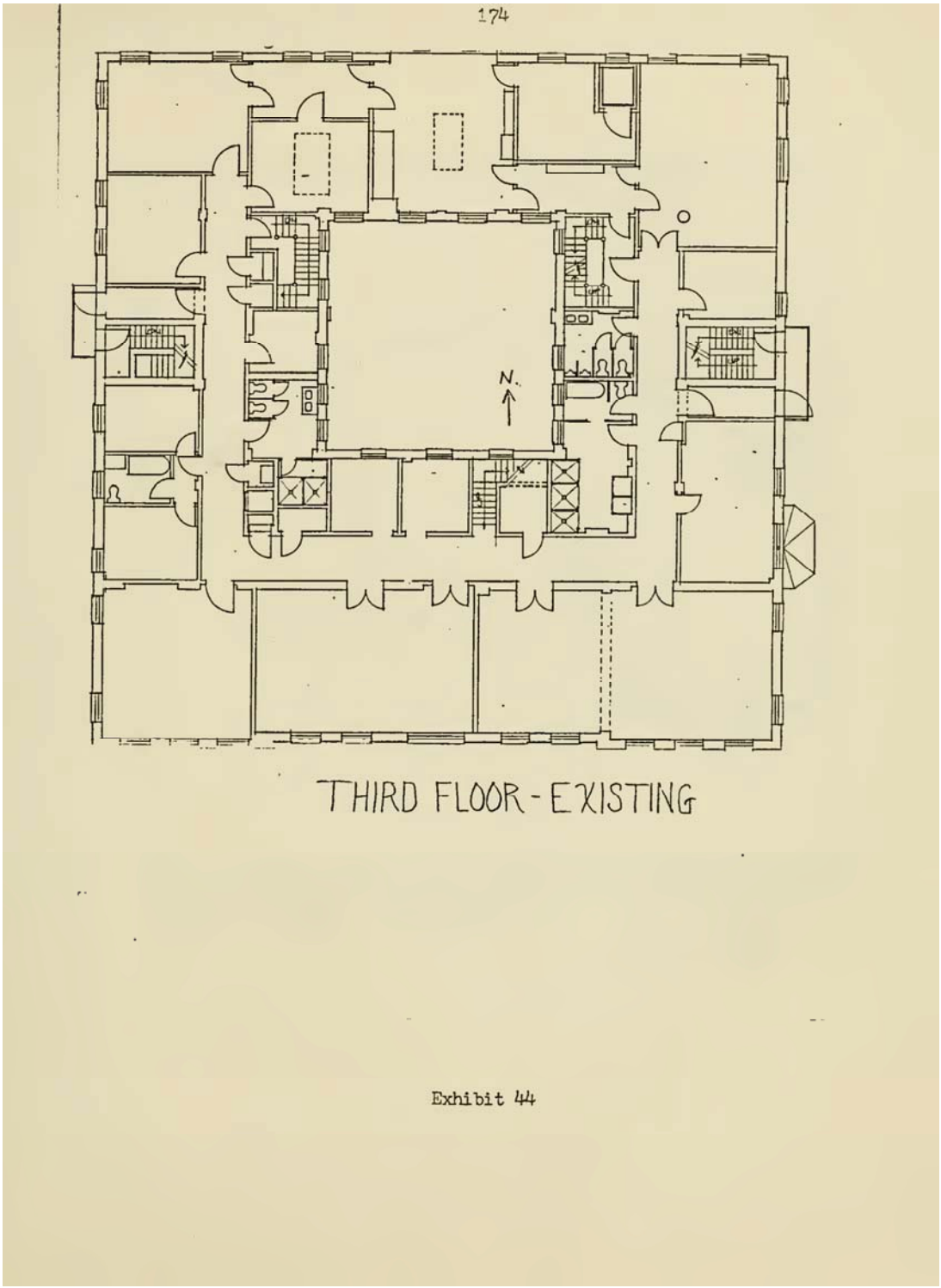
Original existing basement plan (not to scale).



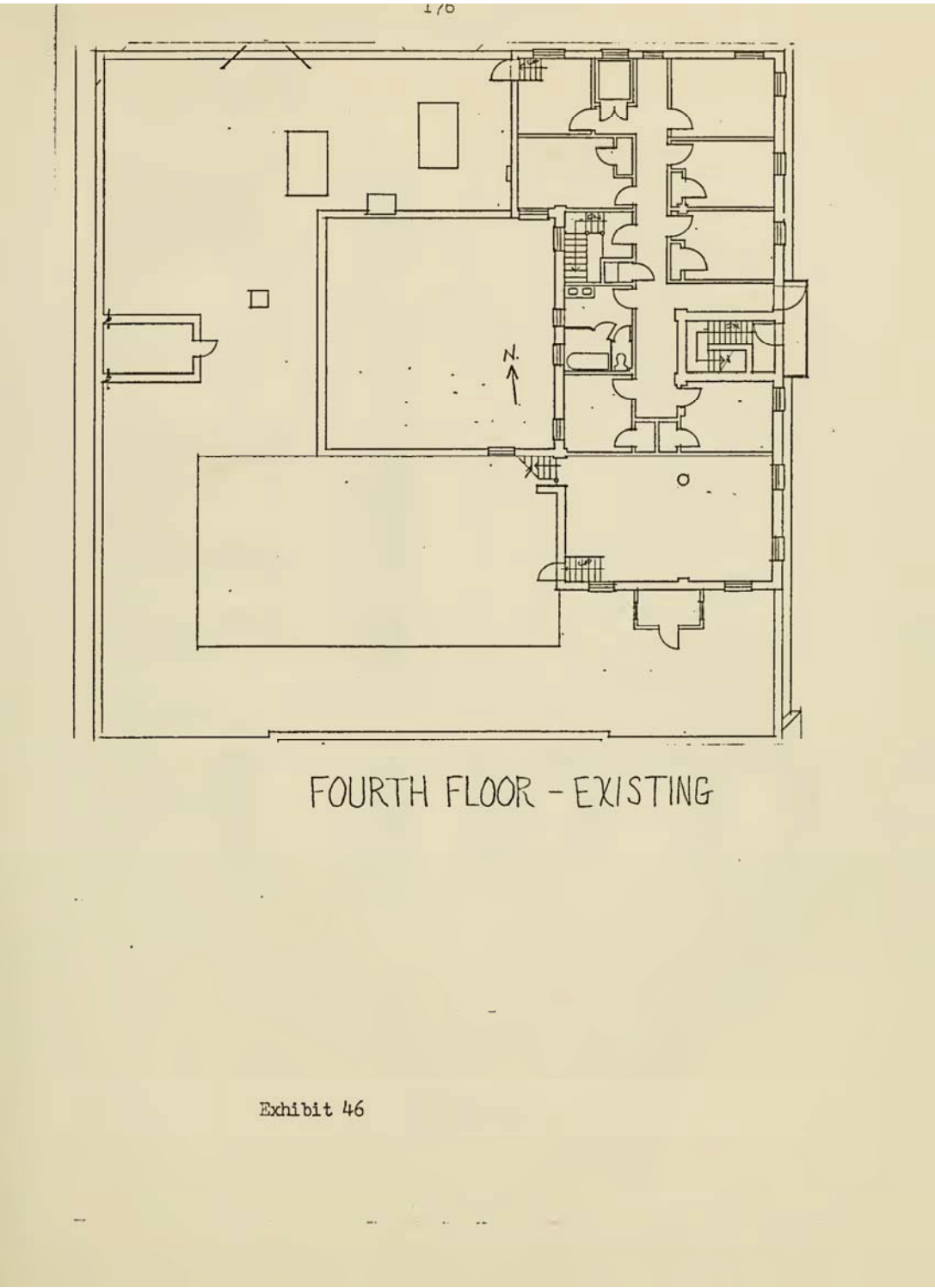
Original existing first floor plan (not to scale). *GROUND LEVEL*



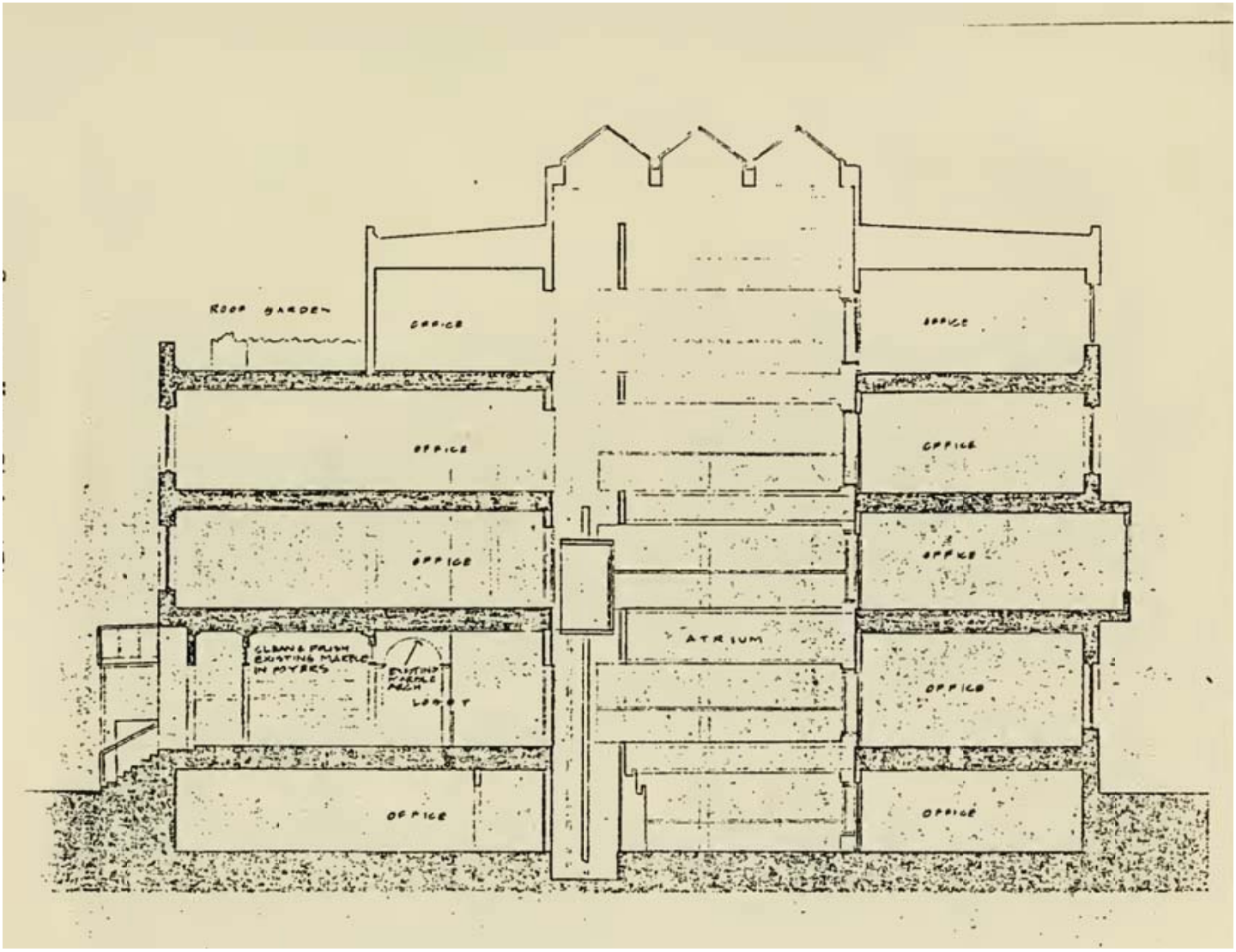
Original existing second floor plan (not to scale).



Original existing third floor plan (not to scale).



Original existing fourth floor plan (not to scale).

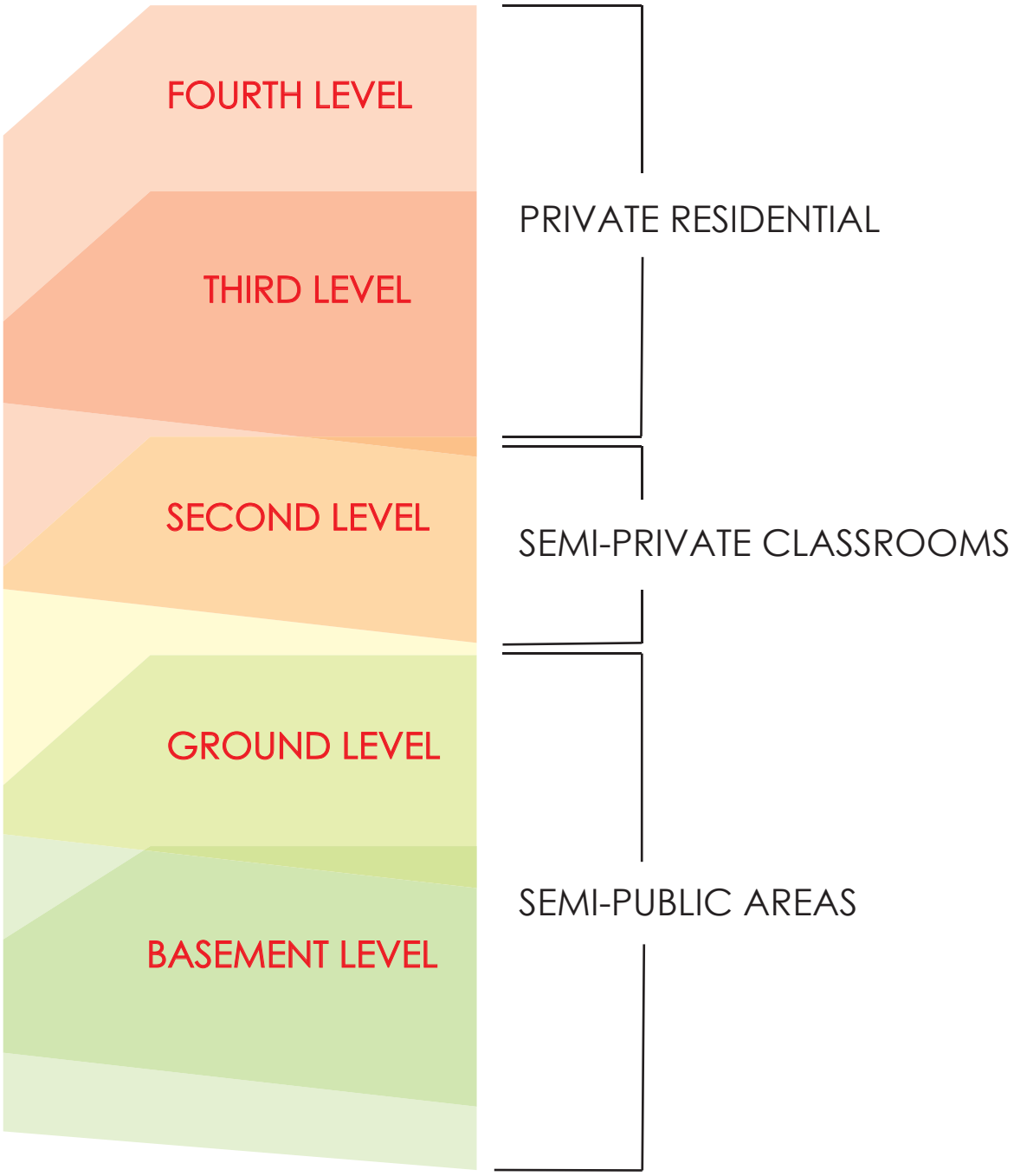


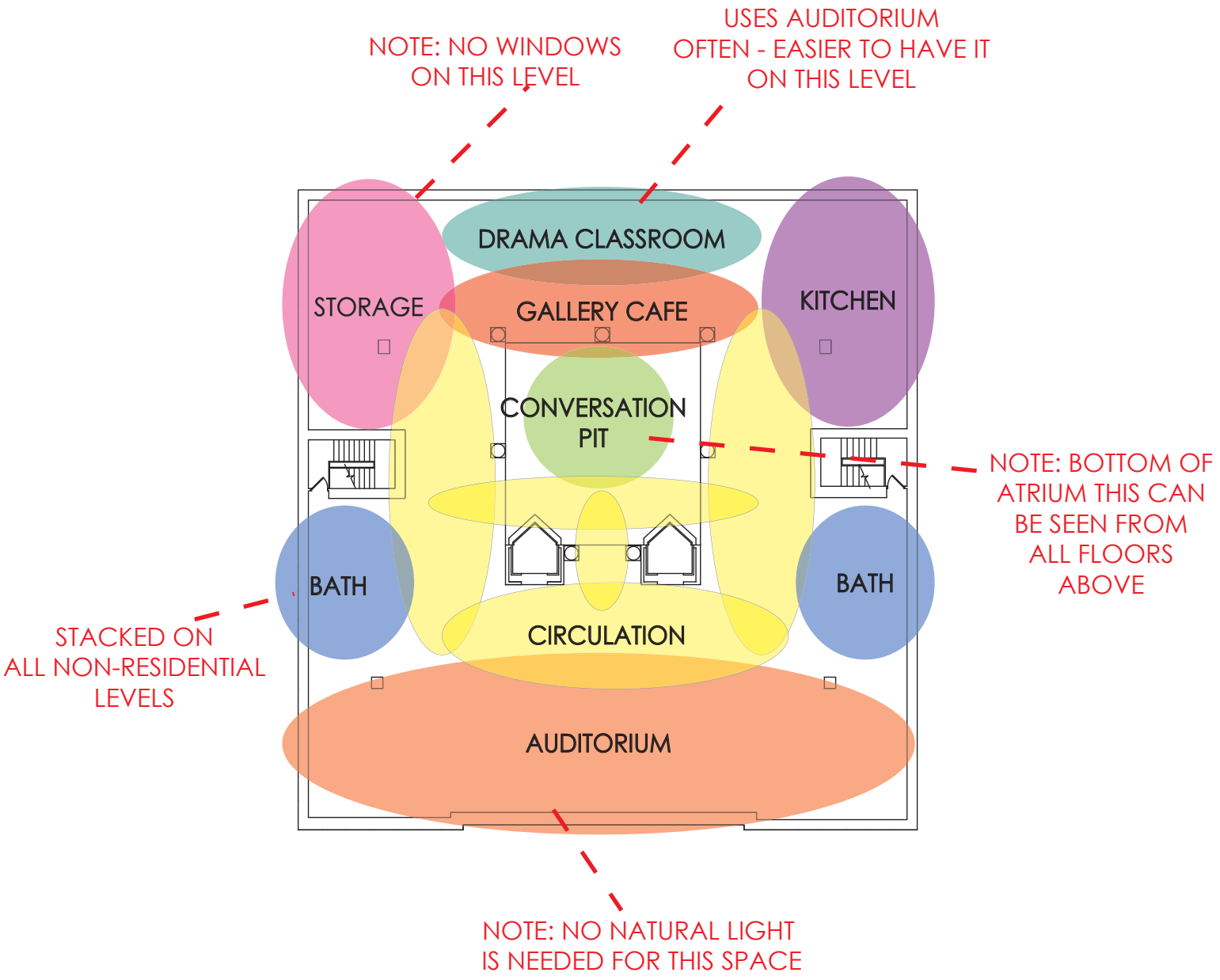
Original existing building section - facing west.

PROGRAM-IN-SITE

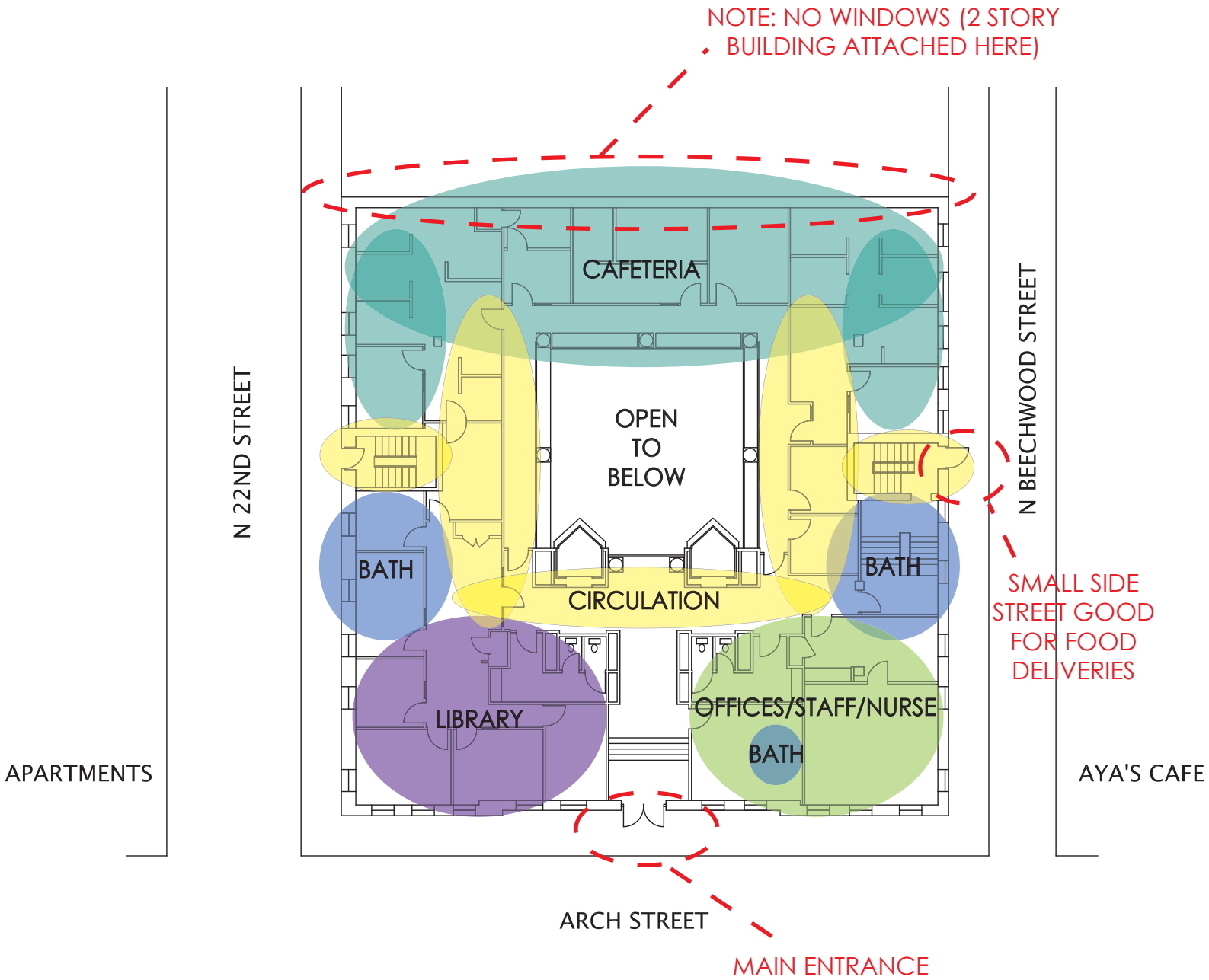
The following diagrams and images display the ideas and the function adjacency considerations made in relation to the site plan. These decisions were based off of the privacy needs for the spaces, along with natural light requirements, square-footage needs, and most importantly...safety needs.

LEVELS OF PRIVACY

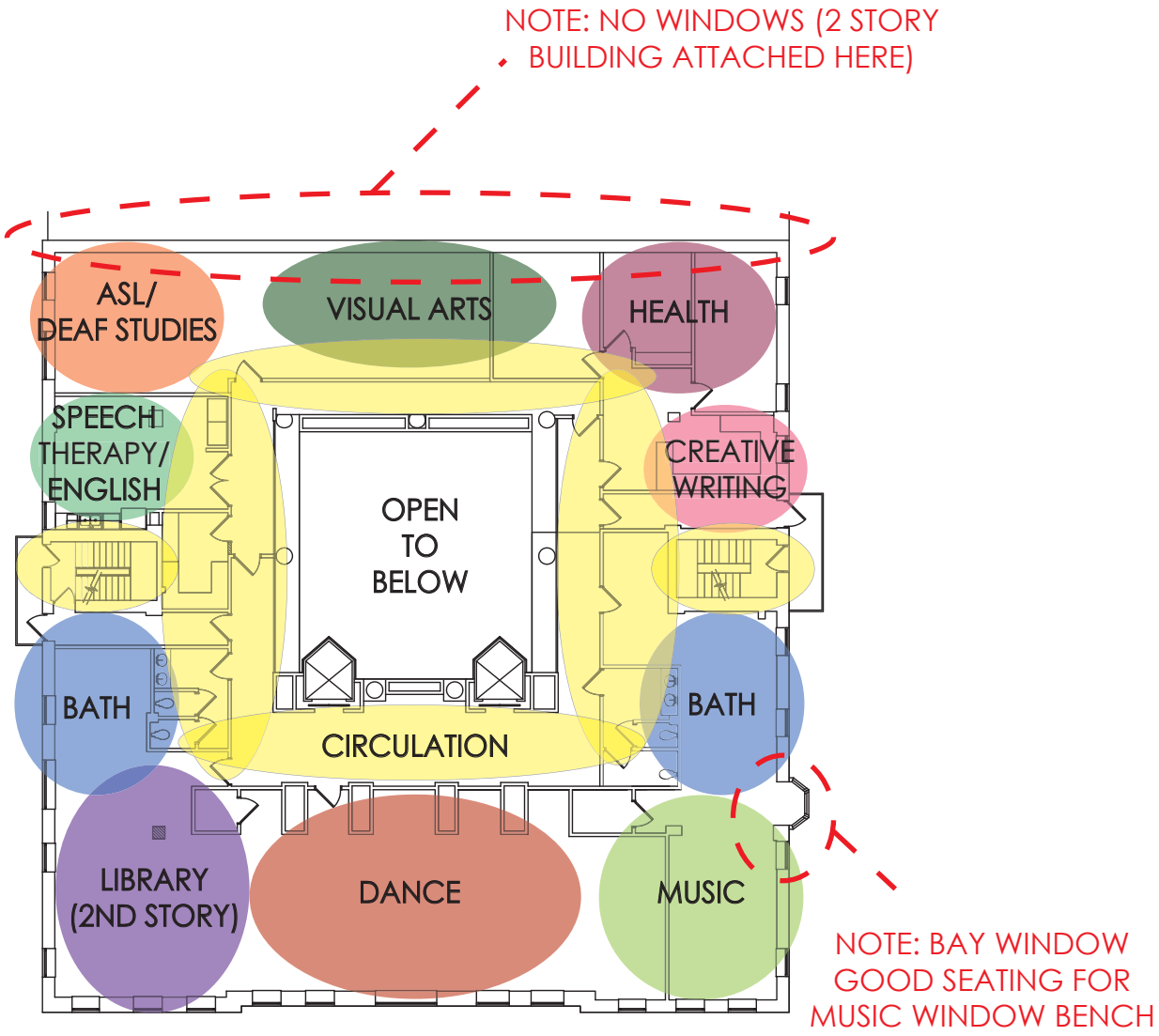




CURRENT existing basement floor plan (not to scale).

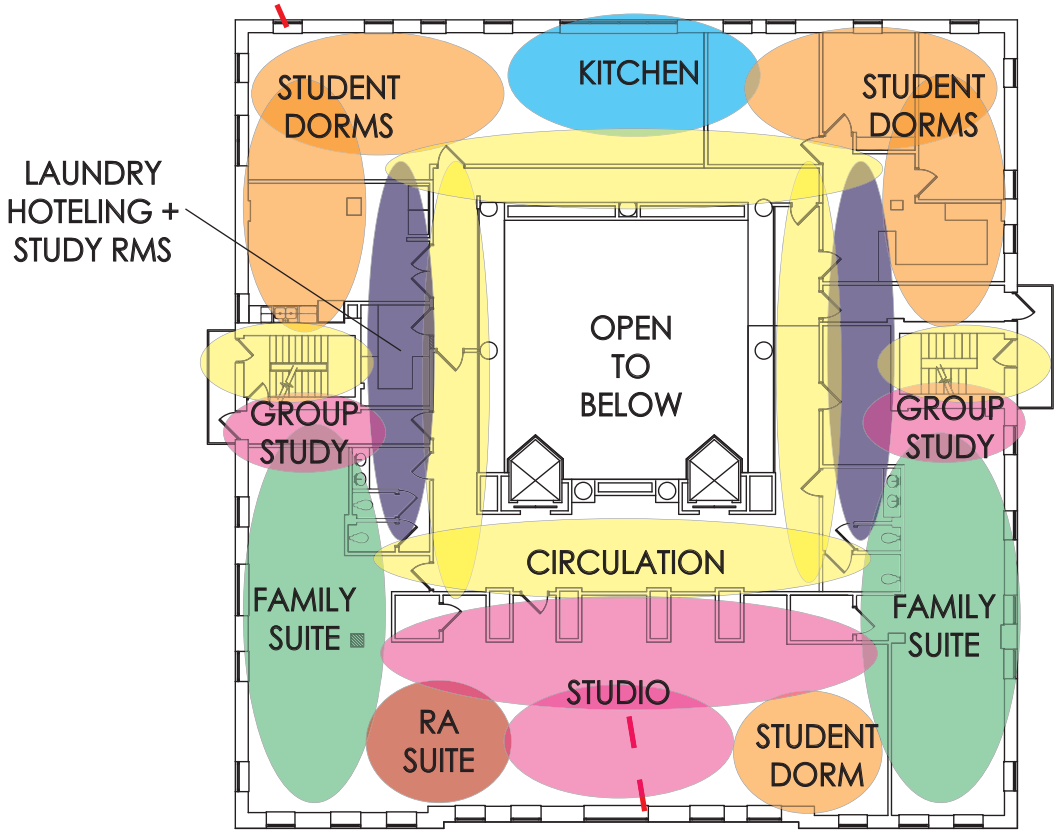


CURRENT existing first floor plan (not to scale), with bubble digrams overlayed.



CURRENT existing second floor plan (not to scale), with bubble digrams overlayed.

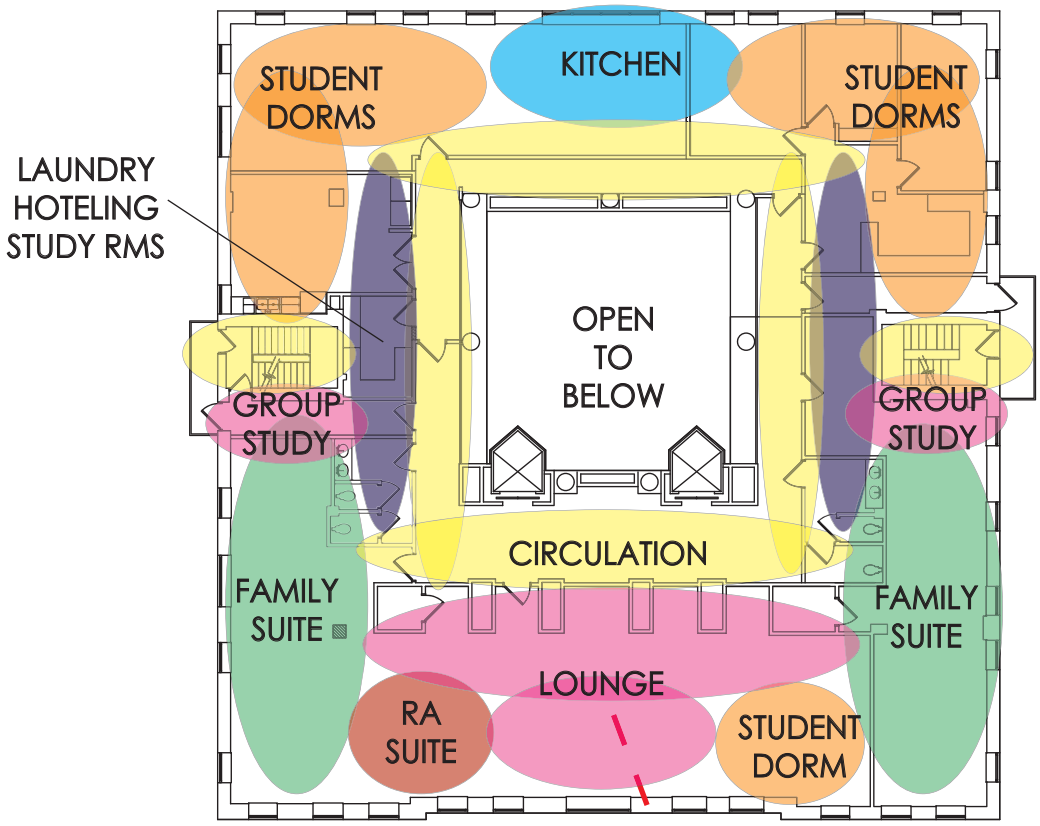
NOTE: WINDOWS ARE ON ALL FOUR SIDES - EACH DORM ROOM WILL NEED A WINDOW TO MEET CODE



NOTE: THE STUDIO WILL BE USED BY STUDENTS FROM BOTH RESIDENTIAL FLOORS

CURRENT existing third floor plan (not to scale), with bubble digrams overlayed.

NOTE: THE ONLY DIFFERENCE BETWEEN
THE 3RD FLOOR PROPOSED LAYOUT
VERSUS THE 4TH FLOOR PROPOSED
LAYOUT IS THE STUDIO/LOUNGE AREA



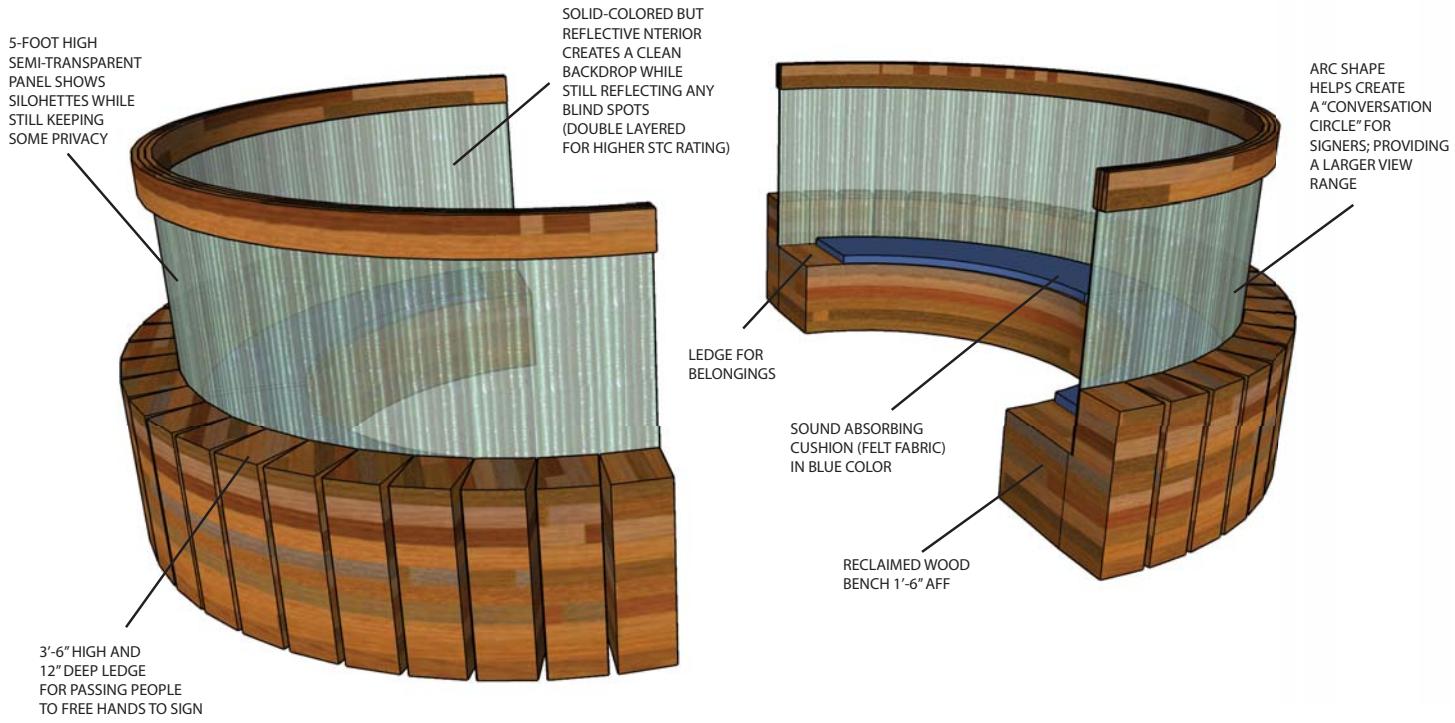
NOTE: THIS WILL
BE USED BY STUDENTS + FAMILIES
FROM BOTH RESIDENTIAL FLOORS

CURRENT existing fourth floor plan (not to scale), with bubble digrams overlayed.

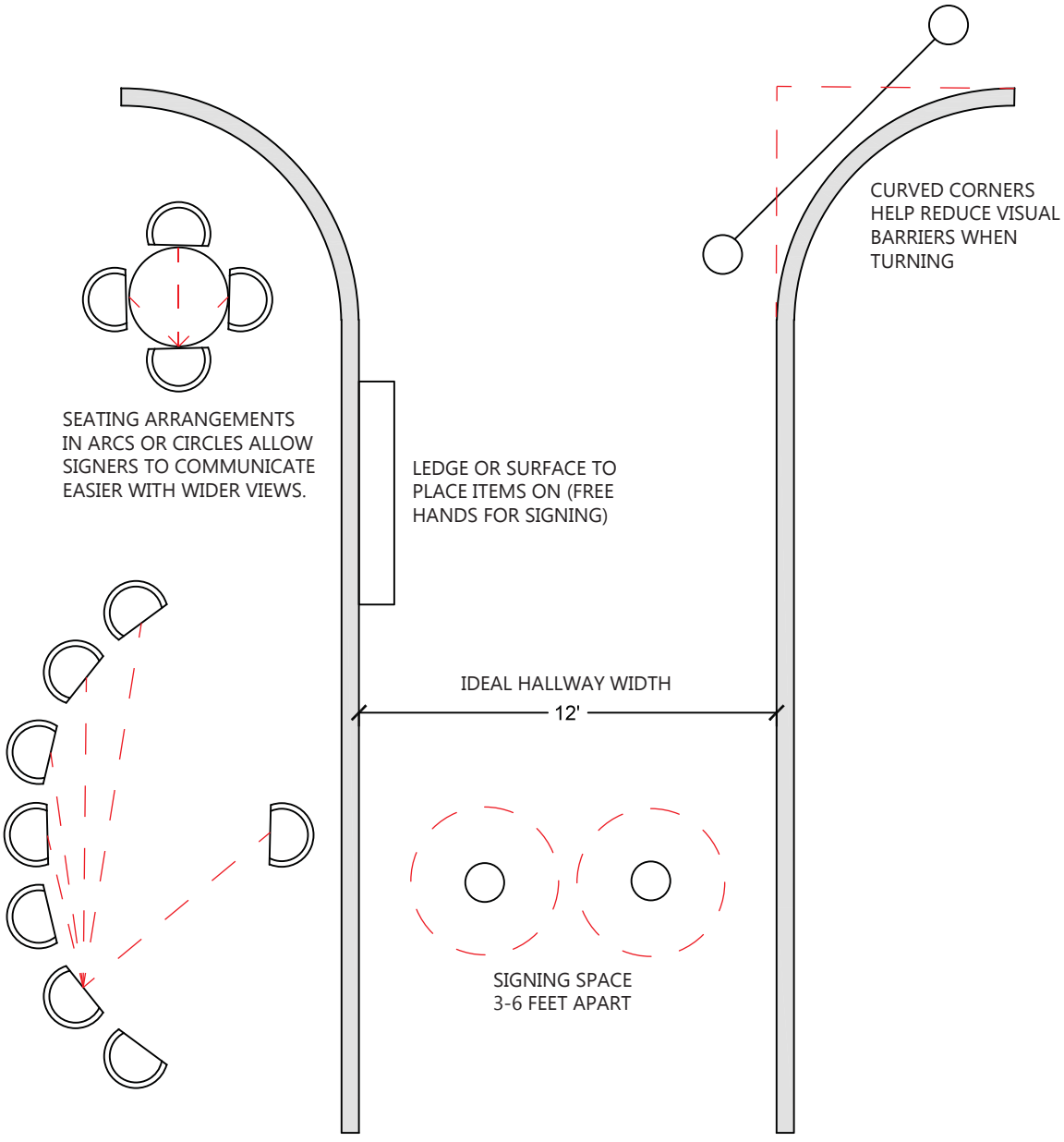
DESIGN STRATEGY

The following diagrams and information are thought starters/design probes used to begin designing a space for the d/Deaf. They do not relate to the site, or CAPAS specifically, but were intial thoughts and considerations. The design probes deal with scale, mapping, and the experience of d/Deaf .

DESIGN STRATEGY



This design probe considers scale. Specifically, it considers how d/Deaf individuals may interact with this cafeteria booth/bench. Also, the materials that could be used to help with sound and visibility.



This design probe considered mapping. That is, considering space and proximity - along with visibility and sightlines.

Who is impacted in CAPAS?

-d/Deaf students
-Educators
-Staff/Faculty
-Families

The Department of Motor Vehicles, Colorado

Design an experience:

After going through the interview questionnaire I was able to discover a common design issue that is lacking in most public spaces, and more specifically, most schools. It is the lack of visual accessibility and signage. This oftentimes creates a negative experience for deaf people.

In the questionnaire, Mrs. Rhonda Wyatt explained how she wished that all places were designed like the DMV. This was an interesting perspective, because from my under standing most people dread and hate going to their local DMV.

Mrs. Wyatt described her experience as such:

"Going to the DMV I like how they have the electronic signs that light up the customer's number and shows where to go. Deaf people do not have to struggle to pay attention for someone "calling" out their turn."

Whole Foods , New York City

EASY UNIVERSAL WAY TO COMMUNICATE WITH SIGNAGE USING COLORS.

Whole Foods, Unknown Location

Similar to the DMV, her experience reminded me of the food market, "Whole Foods". This store successfully uses digital signage, which includes both colors (a different one for each line) along with numbers (for the cashier station #). This is a clear way/solution to communicate "where to go".

I believe that although schools may have some signage to indicate room numbers and which direction a student should go to find their classes, it still lacks (what I like to call "live signage"...or signage that communicate changing information). For example live signage could be used in a cafeteria setting to communicate which table's turn it is to line up in the lunch line. I can imagine deaf students distracted by conversations with their peers, while a teacher is trying to get everyone's attention. With light up signs or signals, this could be translated much easier.

Additionally, the same concept could be translated with restrooms, to inform whether or not a stall is being used. Or even a common space, such as a study room.

CAPAS

DESIGN STRATEGY

NEUTRALS HELP WITH EYE FATIGUE BY GIVING THE OCCUPANTS A CALM PLACE TO REST THEIR EYES IN A SPACE

TRANSLUCENT MATERIALS INCREASES VISIBILITY BETWEEN SPACES, YET THEY STILL SERVE AS PARTITIONS

GREEN VERTICAL SURFACES ARE NICE COLORS TO CONTRAST WITH THE HUMAN FIGURE WHILE SIGNING

FELT HAS GREAT SOUND ABSORBING PROPERTIES TO REDUCE REVERBERATION WHICH CAN BE DISTRACTING FOR d/DEAF PEOPLE

SHINY SURFACES CAN CAUSE EYE STRAIN, HOWEVER SURFACES WITH A SLIGHT SHEEN ARE NOT AS HARSH, AND CAN HELP WITH SPATIAL AWARENESS BY REFLECTING FIGURES.

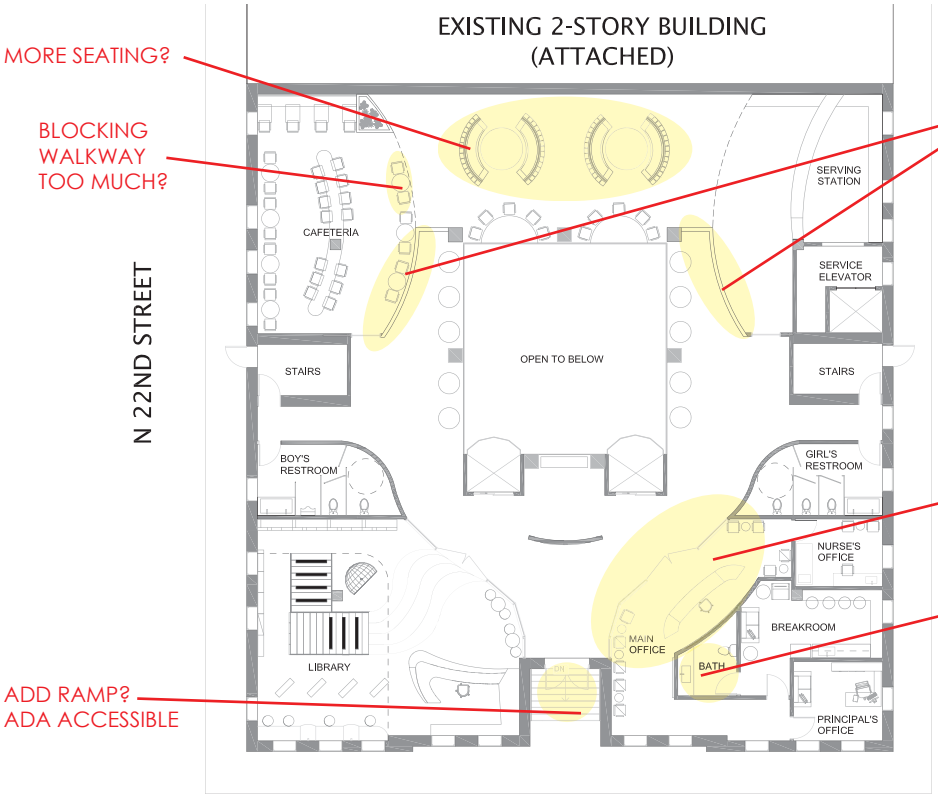
PATTERNS CAN BE USED ON HORIZONTAL LOWER SURFACES, BUT AVOID USING THEM ON VERTICAL SURFACES TO ELIMINATE DISTRACTIONS BEHIND SIGNERS.

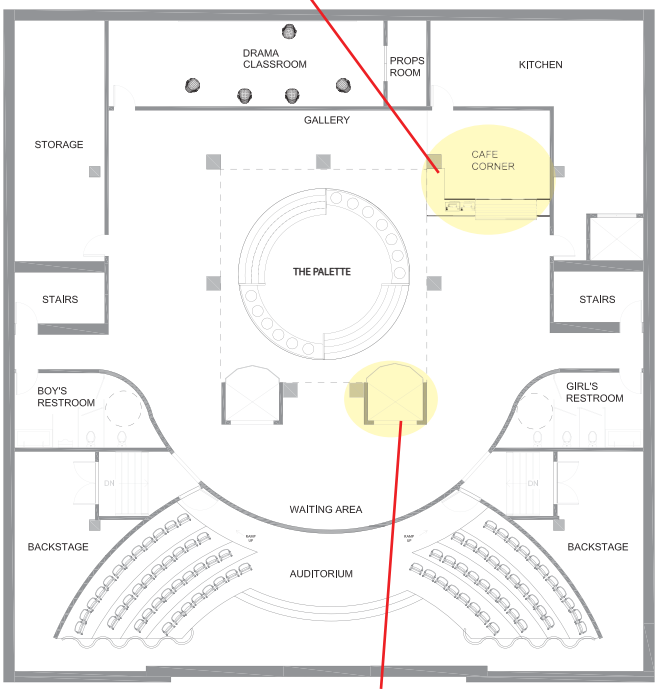
This design probe considers materiality. Everything from their acoustical properties, to the color, level of opacity, and reflective characteristics need to be selected with the DeafSpace principles in mind.

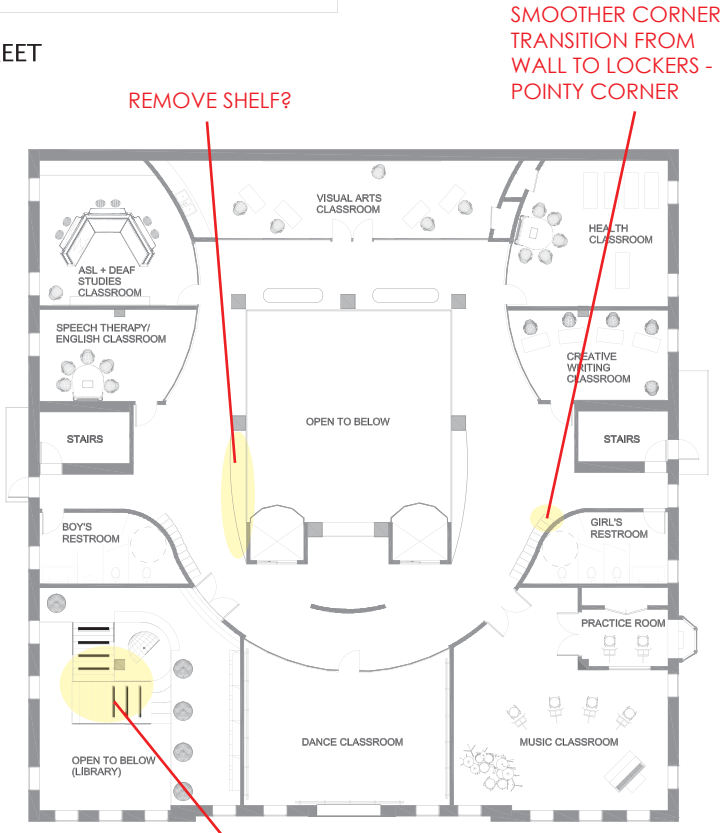
DESIGN DEVELOPMENT

While staying true to the building's open core/atrium, I plan to use the "conversation circle"concept as the driver for my design. Also, controlling and manipulating sightlines will be key. Additionally, I will be designing primarily in the round, and using transparent architectural finishes throughout. The spaces/rooms will be organized by their privacy needs, and program differences. Inspiring colors with matte, glare-proof finishes will be chosen, and the window fenestration will be important to allow maximum control the natural light. This residential school will be designed to have a hospitality feel, to make the students feel more at home, rather than in an institution.

DESIGN DEVELOPMENT



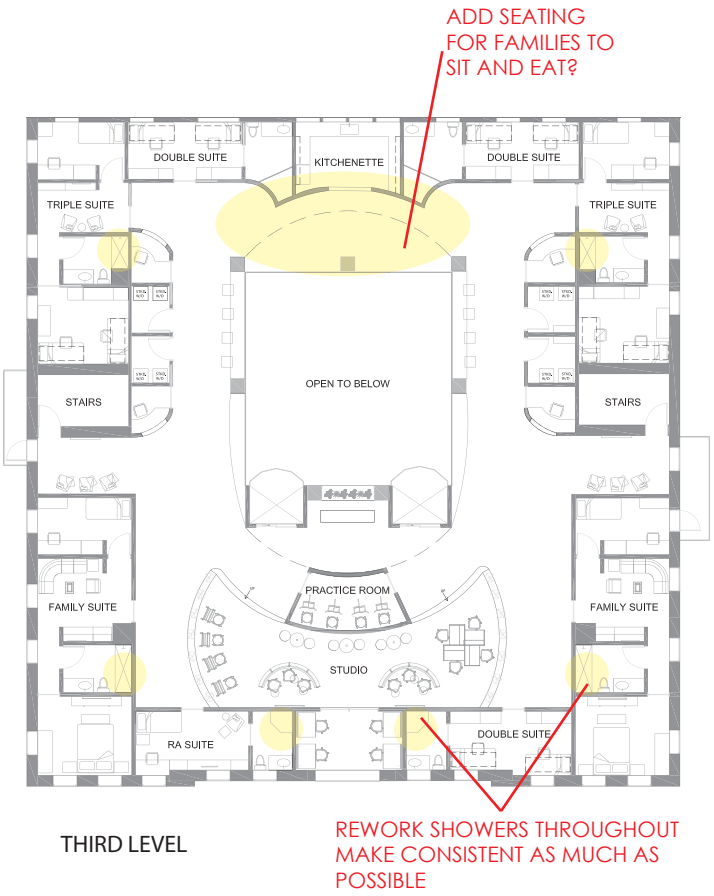




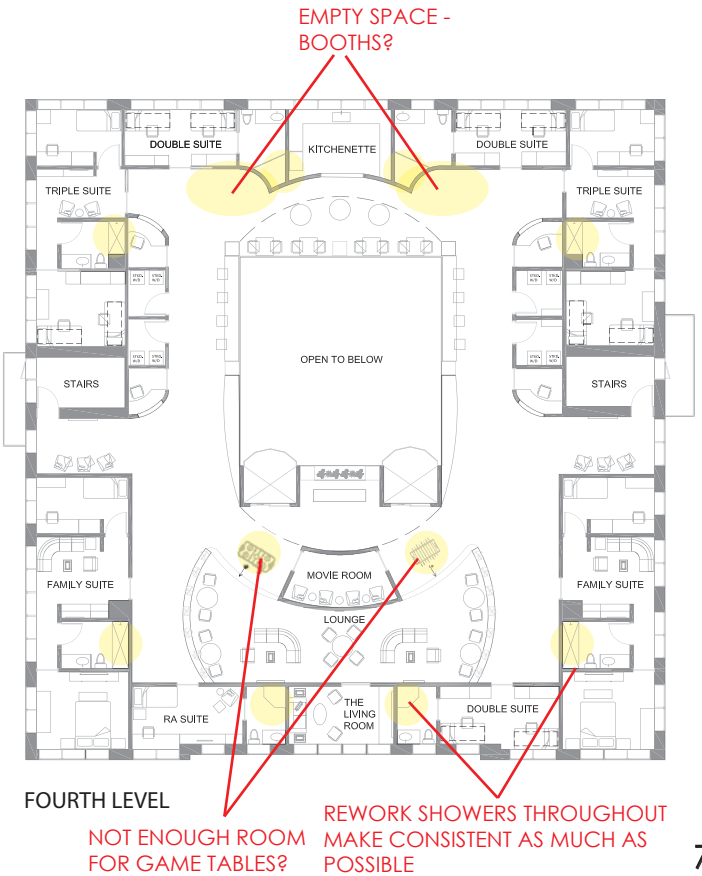
While alot of the space planning + design development worked out well early in the design process, the highlighted areas were the areas that needed revisions. These revisions were suggestions made by the interior architecture + design faculty at Drexel University, along with things that I, the designer, noticed after looking over the plans.

N

Please note: These plans are NOT to scale.



THIRD LEVEL



FOURTH LEVEL

DESIGN DEVELOPMENT

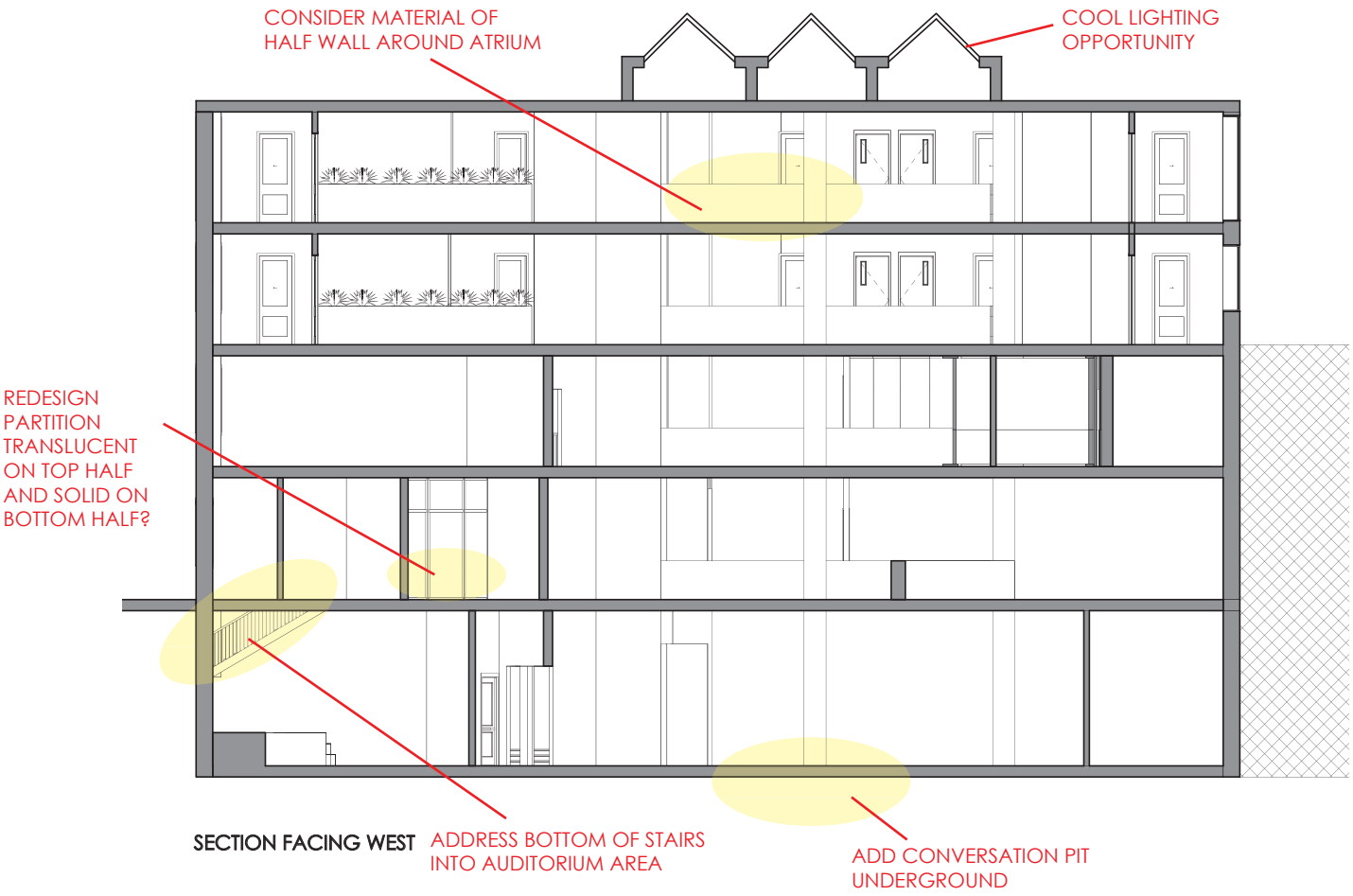
CUT SECTION THROUGH ATRIUM
INSTEAD - TO SHOW RELATIONSHIP
BETWEEN THE SKYLIGHTS AND
OPEN ATRIUM?

SECTION FACING WEST

OPPORTUNITY FOR CUSTOM
UNIQUE STAIR - FOCAL POINT?

ADD CONVERSATION PIT
UNDERGROUND

ADDRESS LIGHTING THROUGHOUT



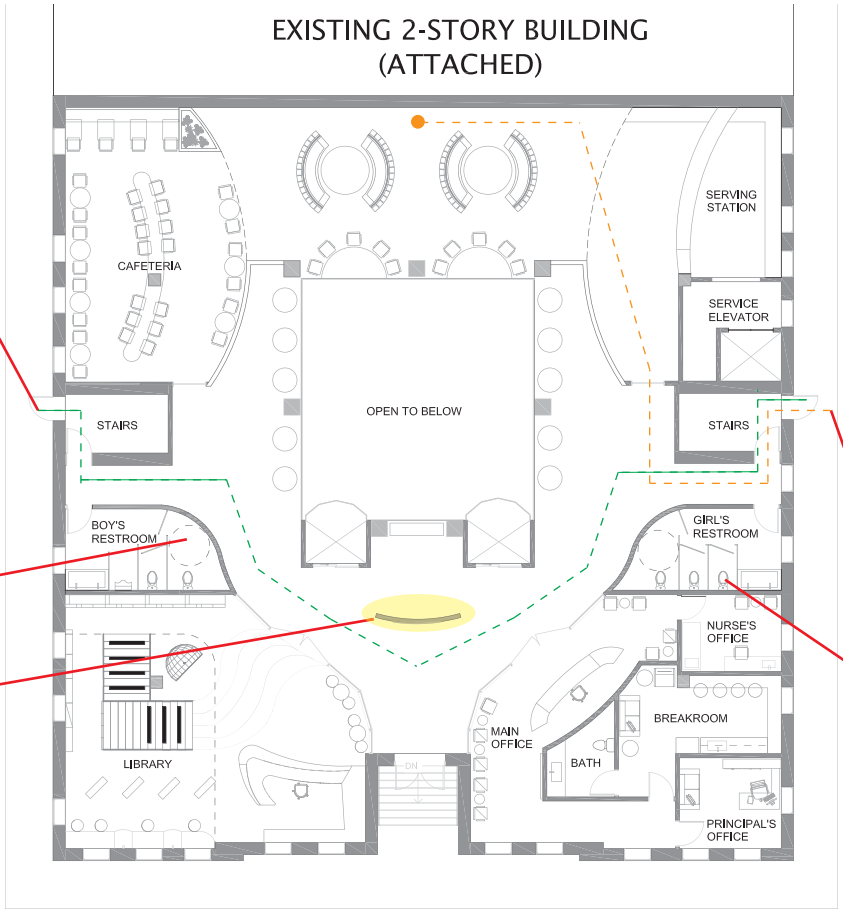
SECTION FACING WEST

ADDRESS LIGHTING THROUGHOUT

DESIGN DEVELOPMENT

Code compliance was important to keep in mind throughout the design process. The following diagrams and information describe the codes considered and show how they were executed.

Please note: The plan is NOT to scale.



EXIT TO EXIT DISTANCE IS LESS THAN 200 FEET AWAY

5-FOOT DIAMETER TURNING CLEARANCE FOR WHEELCHAIR USERS

NOTICE THIS PARTITION ON EVERY LEVEL IN CAPAS - THIS IS SIGNAGE TO HELP WITH WAYFINDING AND THEY ARE ALSO INTERACTIVE WITH TOUCH SCREENS

FLOOR PATTERN CHANGES WERE A TACTILE + VISUAL APPROACH TO HELP WITH WAYFINDING

ALSO THE OPEN ATRIUM + PLAN PAIRED WITH TRANSPARENT FINISHES HELPS WITH VISUAL WAYFINDING - BY ALLOWING OCCUPANTS TO SEE VERTICALLY AND HORIZONTALLLY THROUGHOUT THE BUILDING

FURTHEST POINT TO AN EXIT IS LESS THAN 150 FEET

1 WATER CLOSET + LAVATORY PER 50 STUDENTS ON THE SCHOOL LEVELS IS REQUIRED

AND

1 WATER CLOSET + LAVATORY PER 10 STUDENTS IN THE DORMITORY IS REQUIRED

CAPAS WILL ONLY HAVE ROUGHLY 50 STUDENTS PLUS 4 FAMILIES - SO THERE ARE WELL OVER THE REQUIRED NUMBER OF FIXTURES

PHILADELPHIA CODES:

§ 50.1. Occupancy groups:

> **Group B—Educational**. Buildings primarily used or designed for the purpose of education or instruction shall be classified as Group B.
>
> **Group C—Group habitation.** Buildings primarily used or designed for the purpose of habitation by four or more persons shall be classified as Group C—Group Habitation.
> Division C-2. This division applies to a building, or a part thereof, where the occupants are in group habitation and are not included under Division C-1, C-3, C-4 or C-5. Hotels, apartment buildings, multiple dwellings, dormitories, lodging houses, orphanages, children's residential institutions, large personal care homes, group homes, group foster homes, and the like, shall be in this classification. See Chapter 55 (relating to Division C-2).

§ 50.2. Occupancy separations and mixed occupancies.

> When a structure contains two or more occupancy classes, the occupancy classes shall be governed in one of the following manners:
> (1) Separation. When each occupancy class is separated from all other occupancy classes by 2-hour fire walls, each portion thus separated shall be considered a separate building, and limitations for separate buildings shall govern.
> (2) Mixed occupancy. Structures with more than one occupancy class which are not separated shall be considered mixed occupancies and shall be governed by the most restrictive of the various limitations of the occupancies.

§ 50.22. Exit accessibility standards

§ 50.25. Stair towers

§ 50.29. Escalators

§ 50.24. Exit doors and exit access doors

§ 50.83. Restroom requirements

§ 50.94. Fixed seating

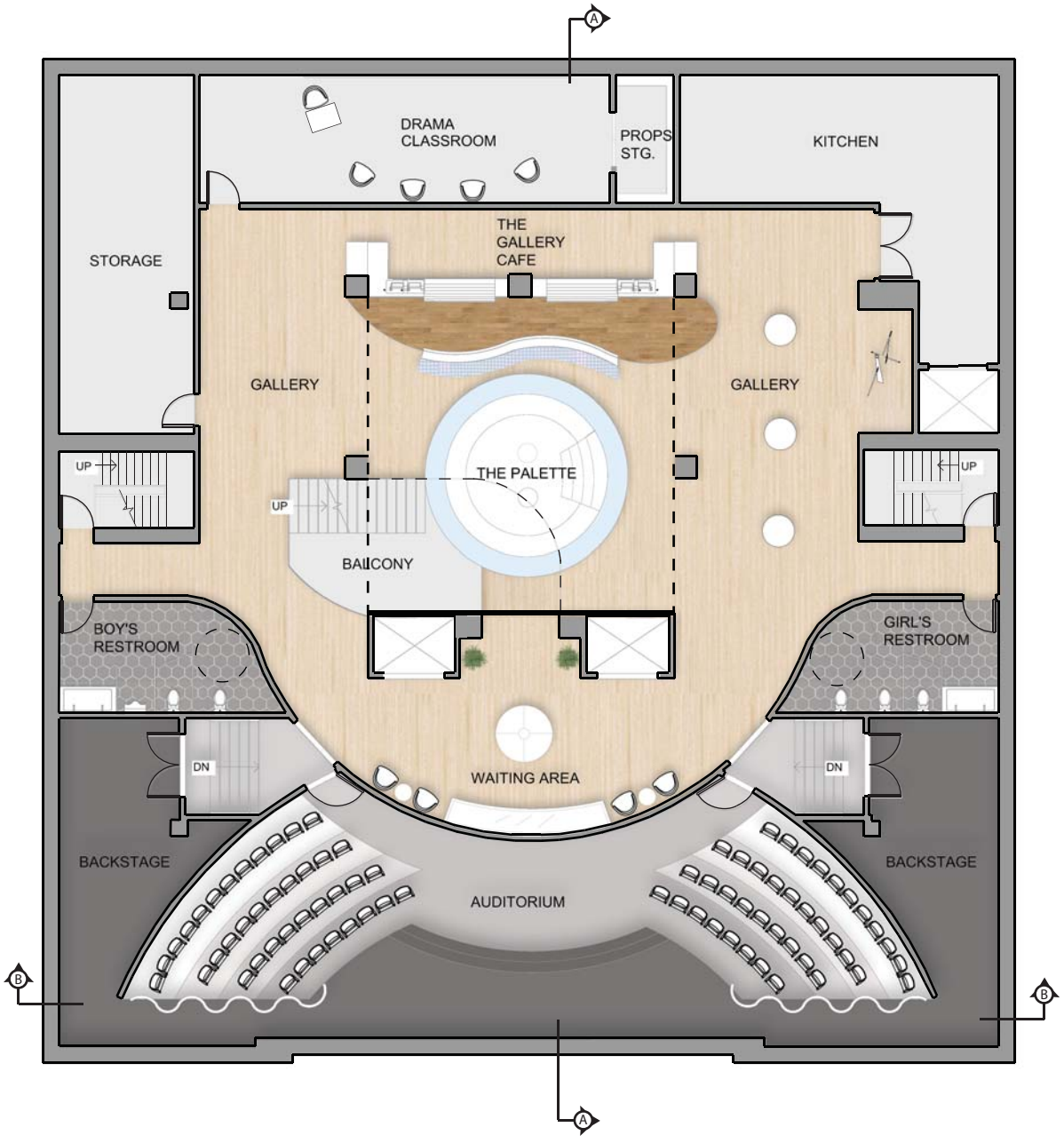
§ 51.24 Egress door

BUILDING OCCUPANCY LOAD =
BUILDING SQFT 52,780 ÷ 20 SQFT PER PERSON
2,639 PEOPLE

FINAL DESIGN

The following pages display the final design of CAPAS, including the floorplans, reflected ceiling plans (for 2 levels), sections, and perspectives. There also are images of some of the furniture + fixture selections.

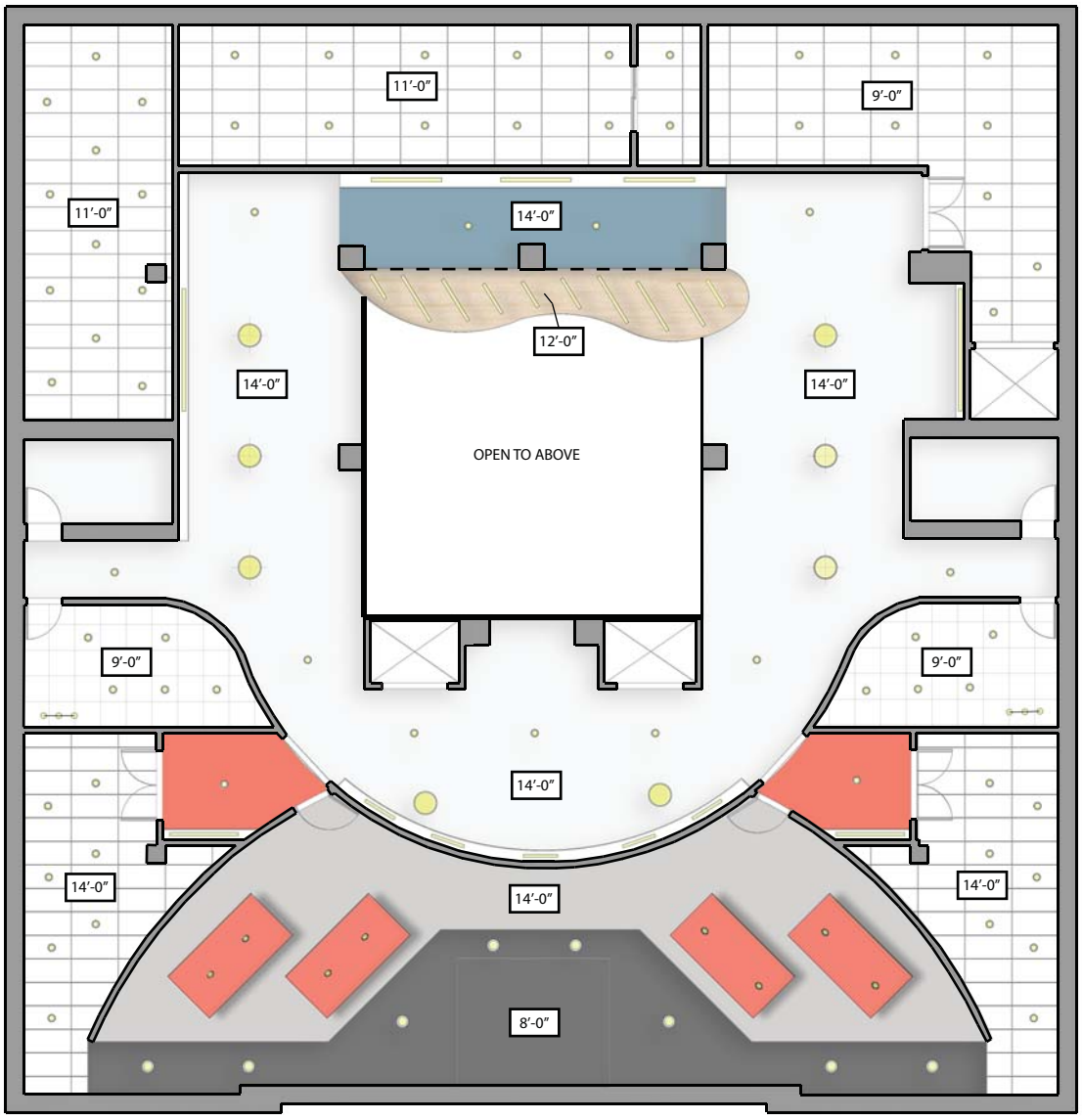
This perspective shows the library. The library features a "piano key" inspired stair design. Also shelves were kept low to increase visibility. Upstairs is a balcony level where more introverted students can go to since there is more privacy. The seating upstairs are comfy bean bags.



N

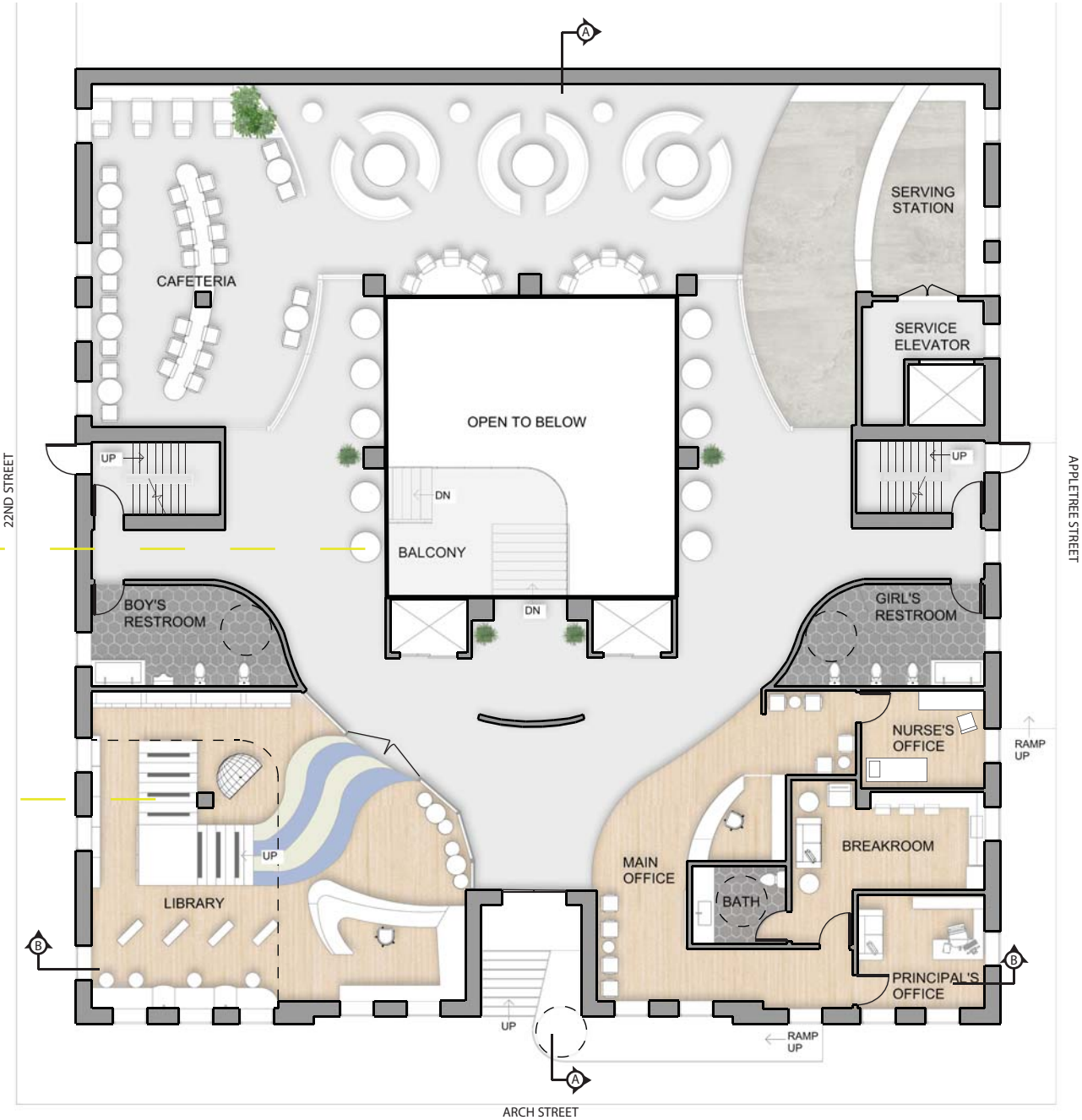
BASEMENT LEVEL FLOORPLAN

1/16″=1′-0″



BASEMENT LEVEL REFLECTED CEILING PLAN

1/16"=1'-0"



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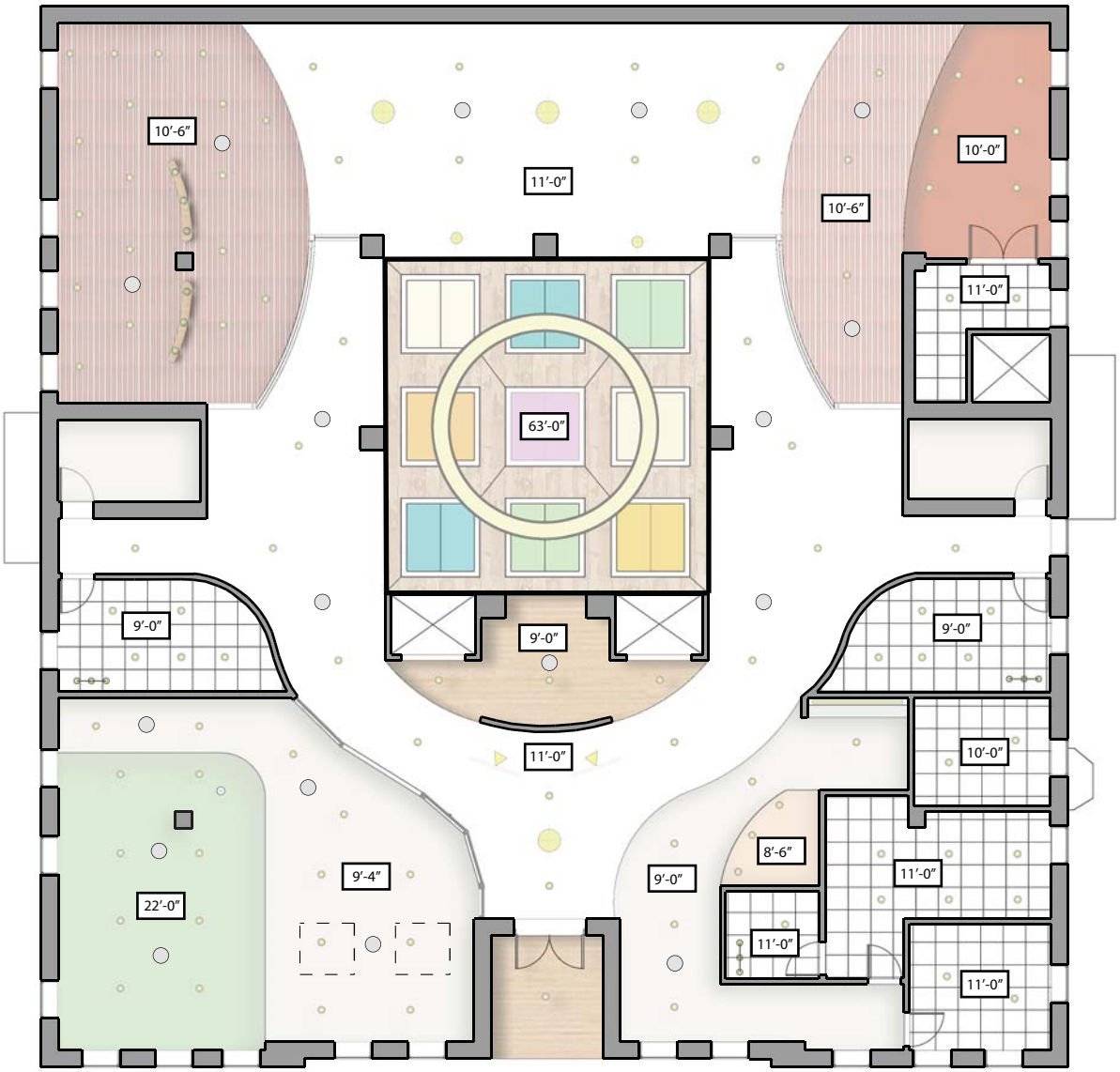
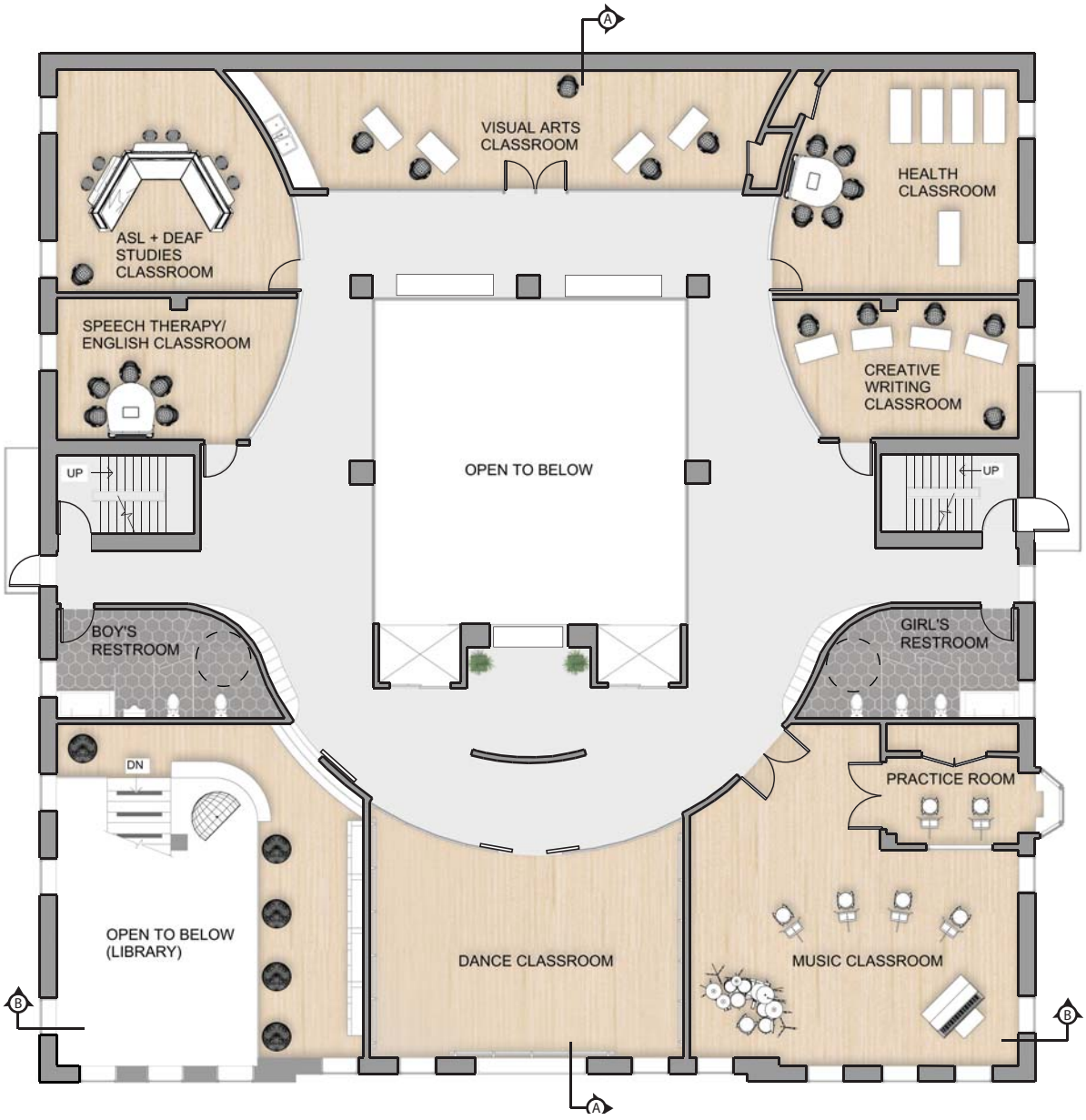
GROUND LEVEL FLOORPLAN

1/16″=1′-0″



GROUND LEVEL REFLECTED CEILING PLAN

1/16″=1′-0″

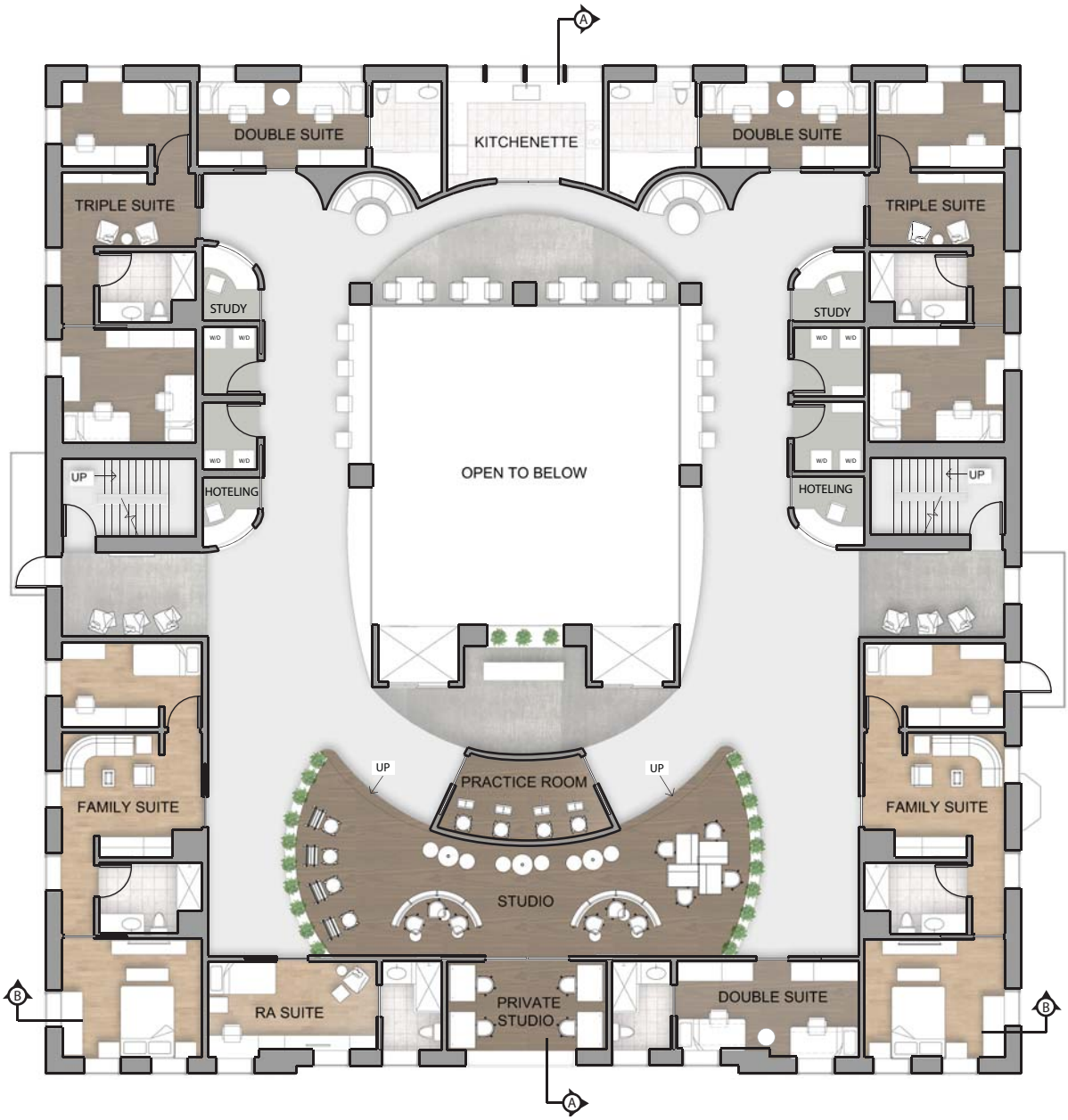


N

SECOND LEVEL FLOORPLAN

1/16″=1′-0″

This perspective shows the ASL + d/Deaf Studies classroom. While this class was lecture-based, the Steelcase Media:scape unit was selected to create two tiers of seating. The Media:scape is also arc-shaped which is perfect for sightlines when practicing ASL and comminicating. Lastly, the walls are covered with acoustical panels to help reduce reverberation + absorb the sound from outside of the classroom.



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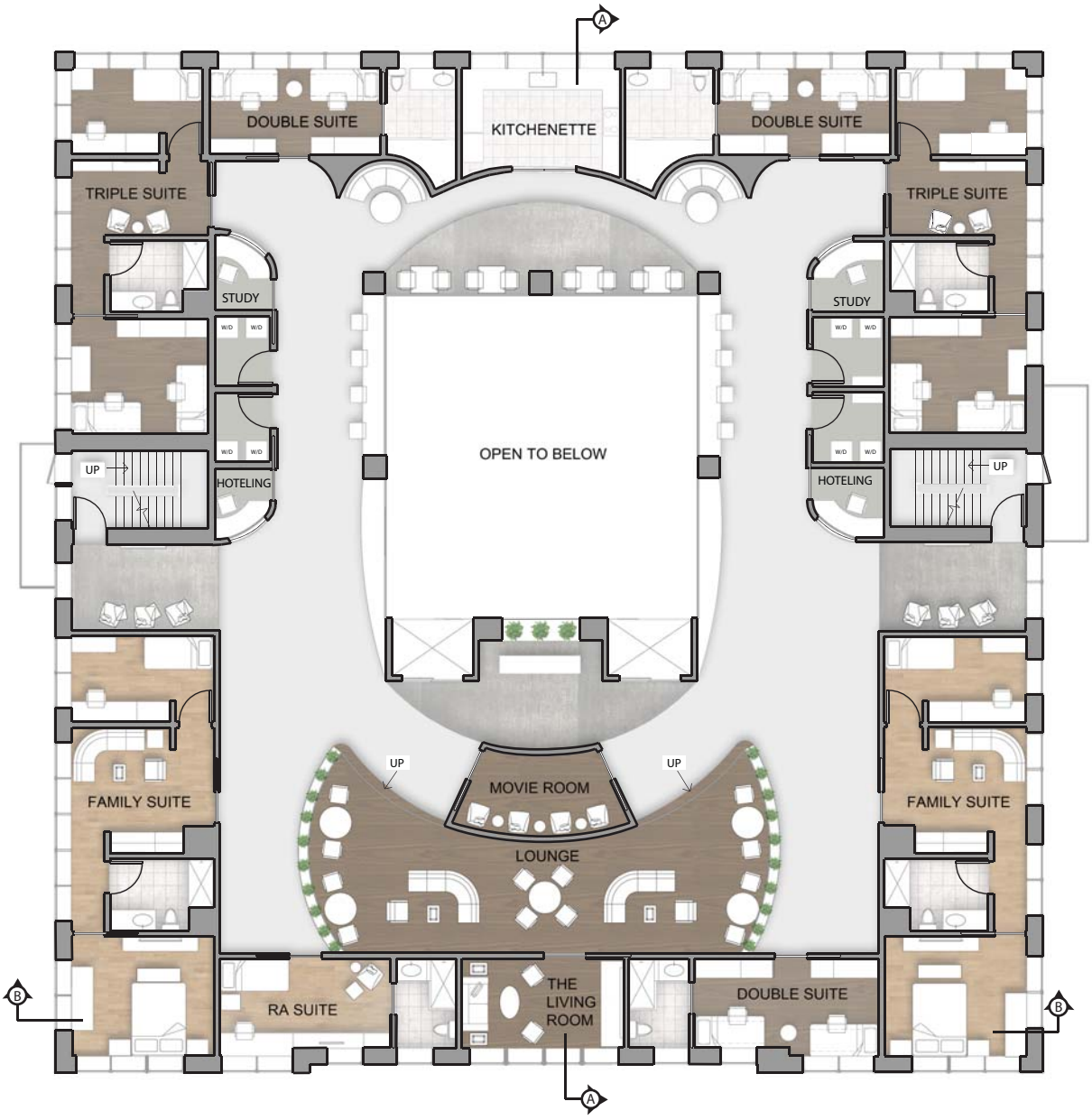
THIRD LEVEL FLOORPLAN

1/16″=1′-0″



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FOURTH LEVEL FLOORPLAN

1/16″=1′-0″

SECTION A-A

1/16″=1′-0″

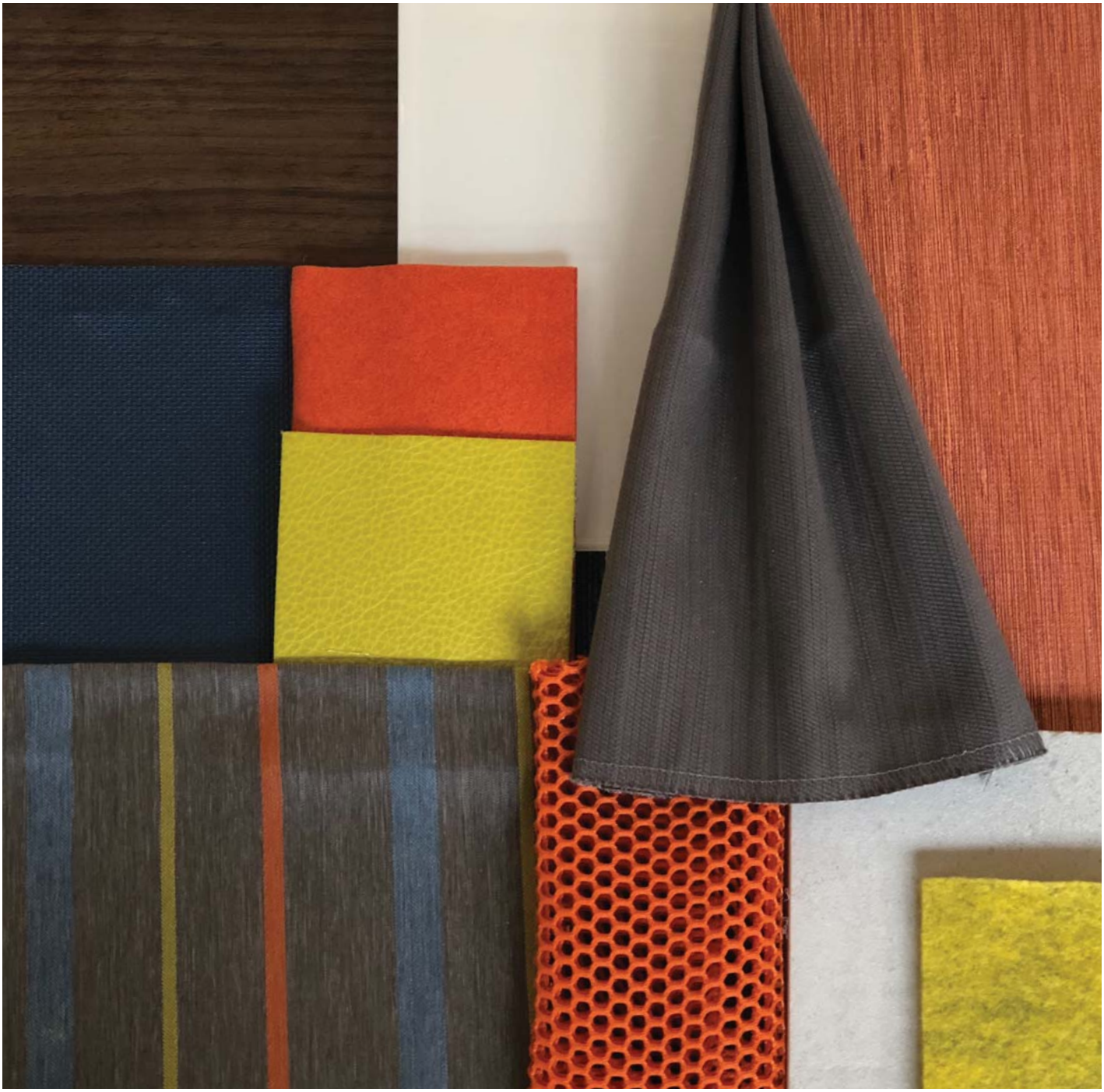
SECTION B-B

1/16″=1′-0″

DOUBLE SUITE BEDROOM

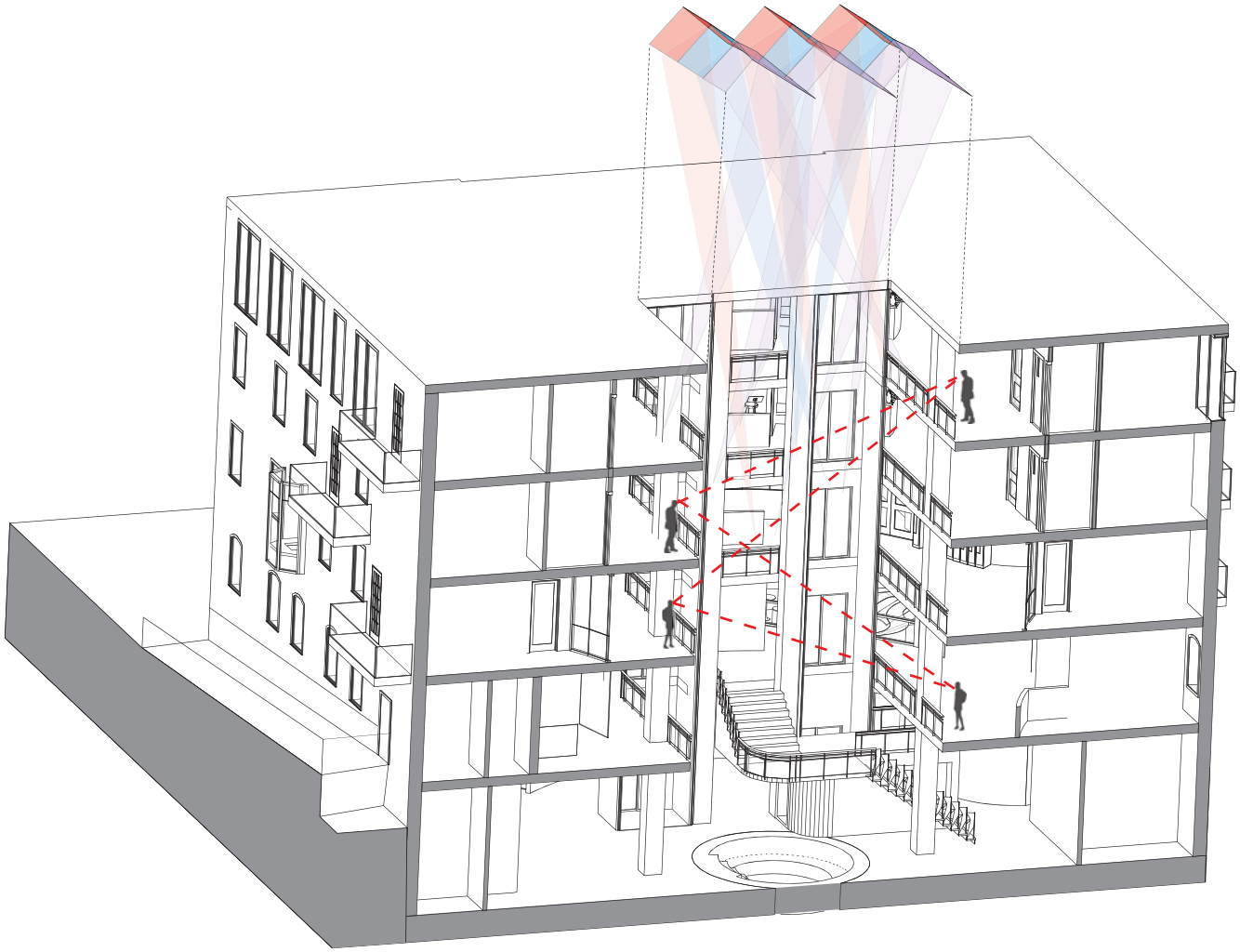
DOUBLE SUITE BEDROOM FINISHES

FAMILY SUITE FINISHES



RESIDENTIAL LEVEL COMMON SPACE FINISHES

ARCHITECTUAL + RESTROOM FINISHES



SECTION-PERSPECTIVE FACING SOUTH

PENDANTS

SCONCES
WALL-MOUNTED FIXTURES

RECESSED LED FIXTURES

TRACK LIGHT FIXTURE

CEILING-MOUNTED FIXTURES

SOUNDMASKING EMITTER

ACOUSTICAL CEILING TILE (ACT)

FINAL DESIGN

SEATING

RESTROOM SINK BASE

TABLE

STEELCASE MEDIA:SCAPE

MUSIC STAND

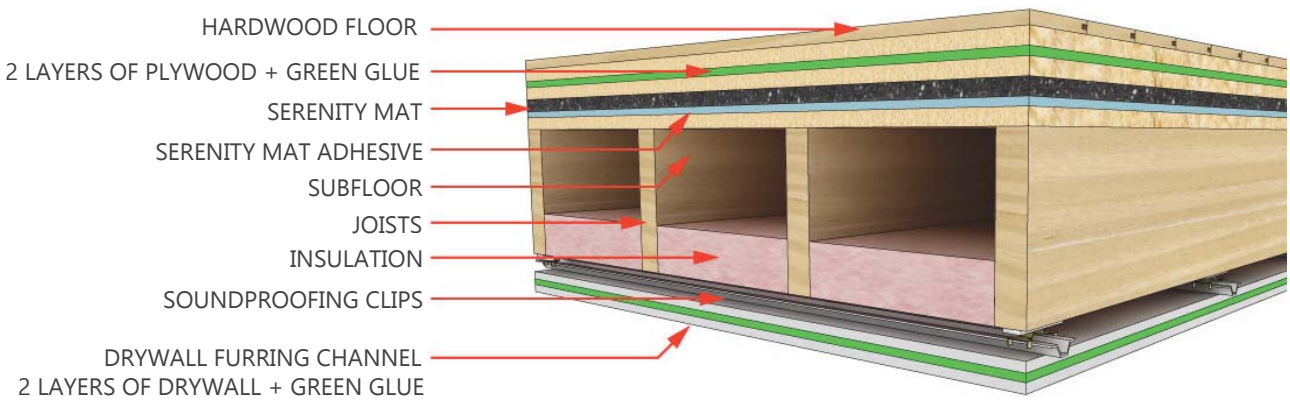
FINAL DESIGN

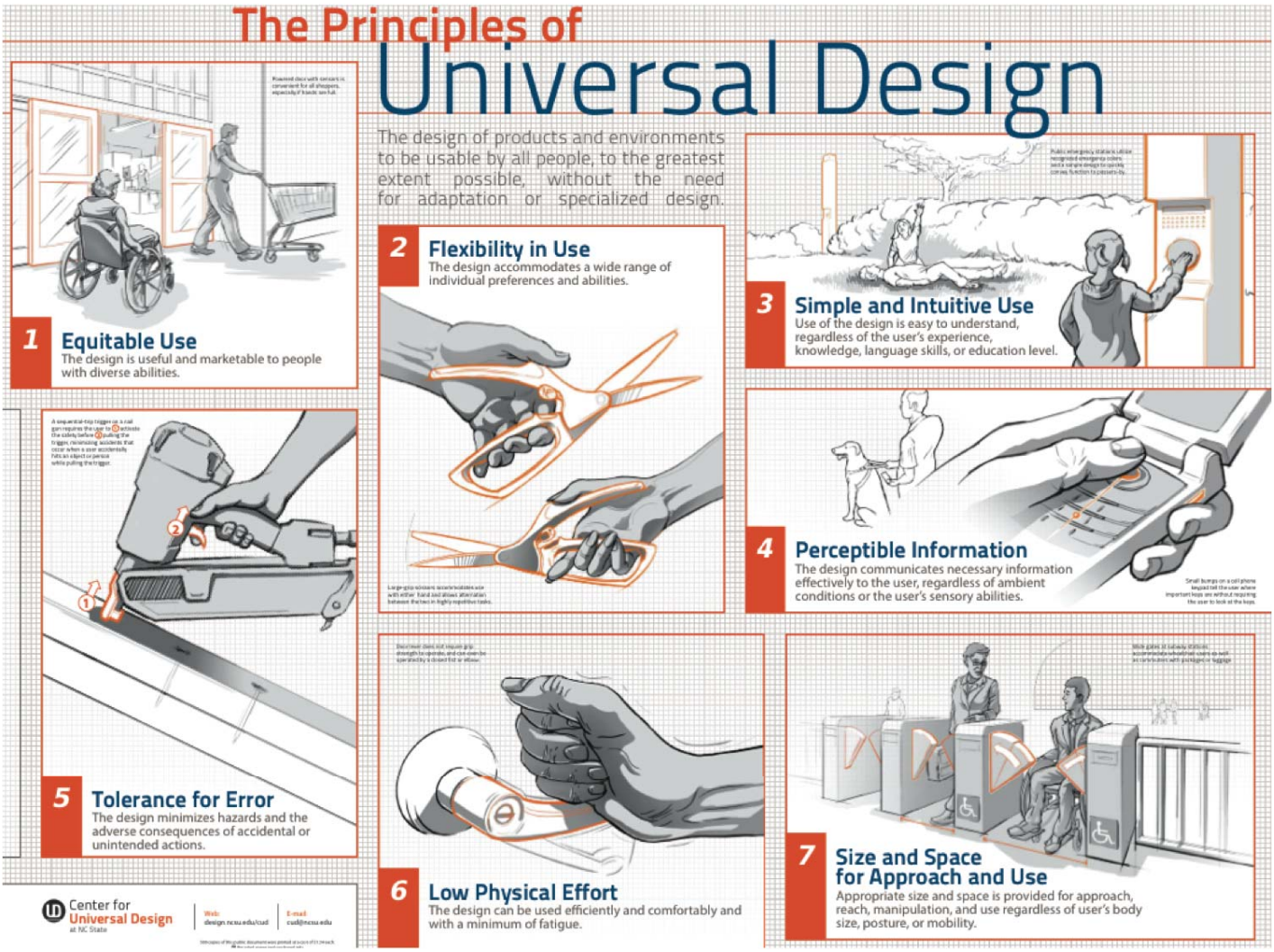
Custom cafeteria booth model - wood base with translucent glass above.

APPENDICES

Included are documents and information that were referenced while researching + designing. Also, a chart with the Universal Design Principles is included as a reference to compare for my argument (that they are NOT in fact universal).

SOUNDPROOF FLOORING DETAIL





Critical thinking exercise:
Is this a good model for **universal design** - or are some principles missing?

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I learned so much along the way + I hope that you were able to learn something new too!

Thanks,

An interior architecture + design project that explores designing a residential middle school for d/Deaf students. The entire design process is enclosed - everything from the research + interviews, to the design delvelopment + final project. Learn how to design a DeafSpace, and how it's benefits can create a more safe + functional enviroment for both d/Deaf and hearing people.

CAPAS

Drexel University - Antoinette Westphal College of Media Arts & Design

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