

2022

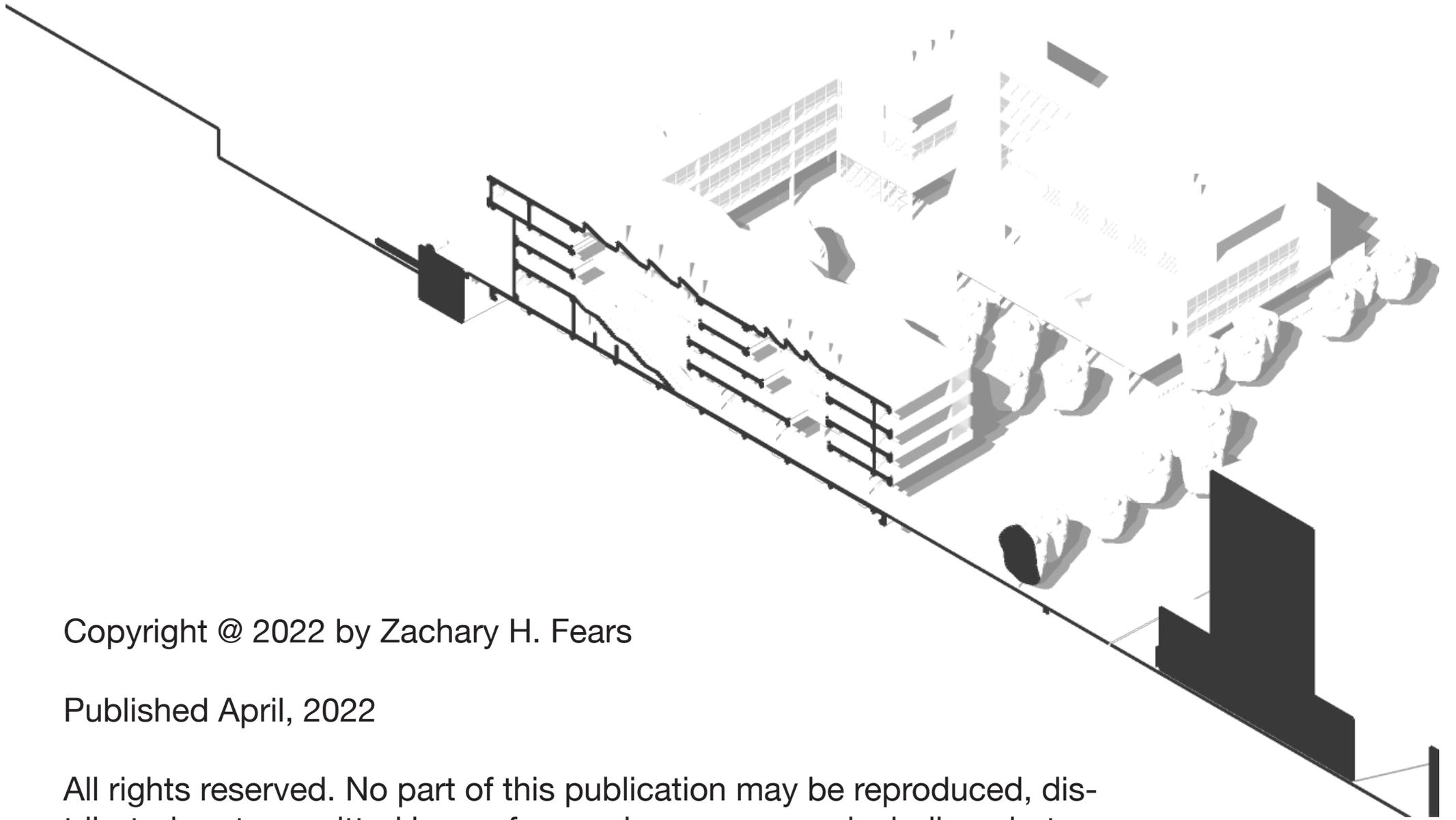
ZACHARY H. FEARS

**MINDING
THE**

connection
through
education

GAP





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Published April, 2022

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Minding the Gap

Connection Through Education

by: Zachary H. Fears



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DEDICATION

To my **colleagues, professors, and mentors** who gave me their time, patience, and attention whilst fostering conversations of empathy, growth, and curiosity.

To my **committee members**, who questioned, pushed, and demanded me at every decision to think critically and with intention.

To my **friends and family**, who told me to keep my head up and persevere through the hard times or else simply quit.

... and to **Larry**, the #1 Artist.

PREFACE

Educational facilities play a large roll in our society today, altering what was once a privilege, to now be a right and obligation to those who seek advancement. The technical two-year colleges, coined “community colleges” serve a critical role to the immediate public they serve, offering an convenient, affordable, option to community members that wish to advance their careers or expertise in a certain field. In this way, the community college can be examined and measured for the extent to which it can serve the community beyond affordability, but further to be a center for which community members may gather and share knowledge and ideas.

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Research

Precedent

Site-Context

Solution

Conclusion

The following chapter discusses research guided by initial interest in education centers and the production and distribution of knowledge. Through critical readings, mapping, and an examination of current events, this research looks to examine the validity of the shape and scope of 2-year school design.

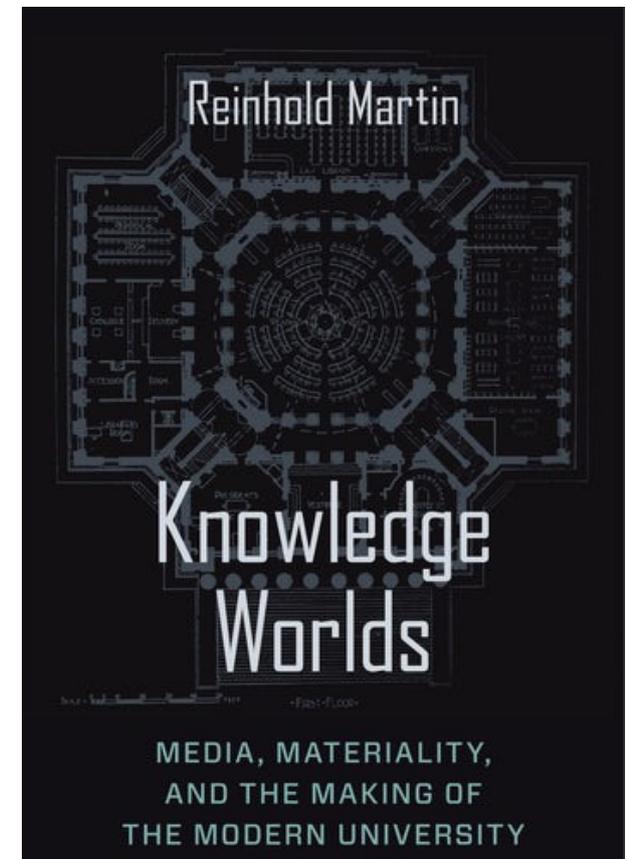
RESEARCH

With the introduction of open-air schools in early nineteenth-century Amsterdam, there stood an example for a simple and elegant resolution to a common problem. As part of a series of schools designed to open its class space to the outdoors for sick children with the intent being to optimize sunlight and air availability to students, this program acted as a way for schools to shape learning spaces based on the needs and demands of the community during that time. This idea acted as a catalyst towards the notion to examine how two-year technical colleges, also known as “community colleges” serve the public spaces they inhabit.

Educational facilities at all levels serve their users as needed, however at the intersection of lower education and higher education levels in America, stood an apparent gap. Equally in the economics of higher education, so too does the availability stand as a common obstacle for students wishing to further their careers or expertise in a certain subject. This idea brought forth the concept of two-year colleges as the natural connection to the two systems. In the examination of two-year colleges and their continuance, stemmed three questions:

1. How can a school become a space for the community to connect beyond instruction with the education system?
2. How are spaces treated differently based on curriculum or use and can community involvement be built into the program?
3. In what ways can a two-year college within the urban context become a civic center to assist local residents and their transition from lower education to higher education?

From these questions, stemmed research fixated in finding the ways in which educational spaces are created and how these spaces interact with the communities they serve. This initial concept led first to the assessment of how knowledge and ideas are transferred and their initial creation of the modern university as we know it today. In Reinhold Martin’s “Knowledge Worlds Media, Materiality, and the Making of the Modern University”, this concept is examined and dissected into four parts: Figures, Temporalities, Voices, Symbols. In his text, Martin highlights the evident division of knowledge by typology, separating spaces based on intellectual labor and how this information is distributed and at times, suppressed (Martin, 2021).



Designing Schools

Space, Place and Pedagogy

Edited by Kate Darian-Smith and Julie Willis



ROUTLEDGE

Mar 31, 2021, 09:40am EDT | 2,981 views

Biden Infrastructure Plan Includes \$12 Billion For Community Colleges



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Education

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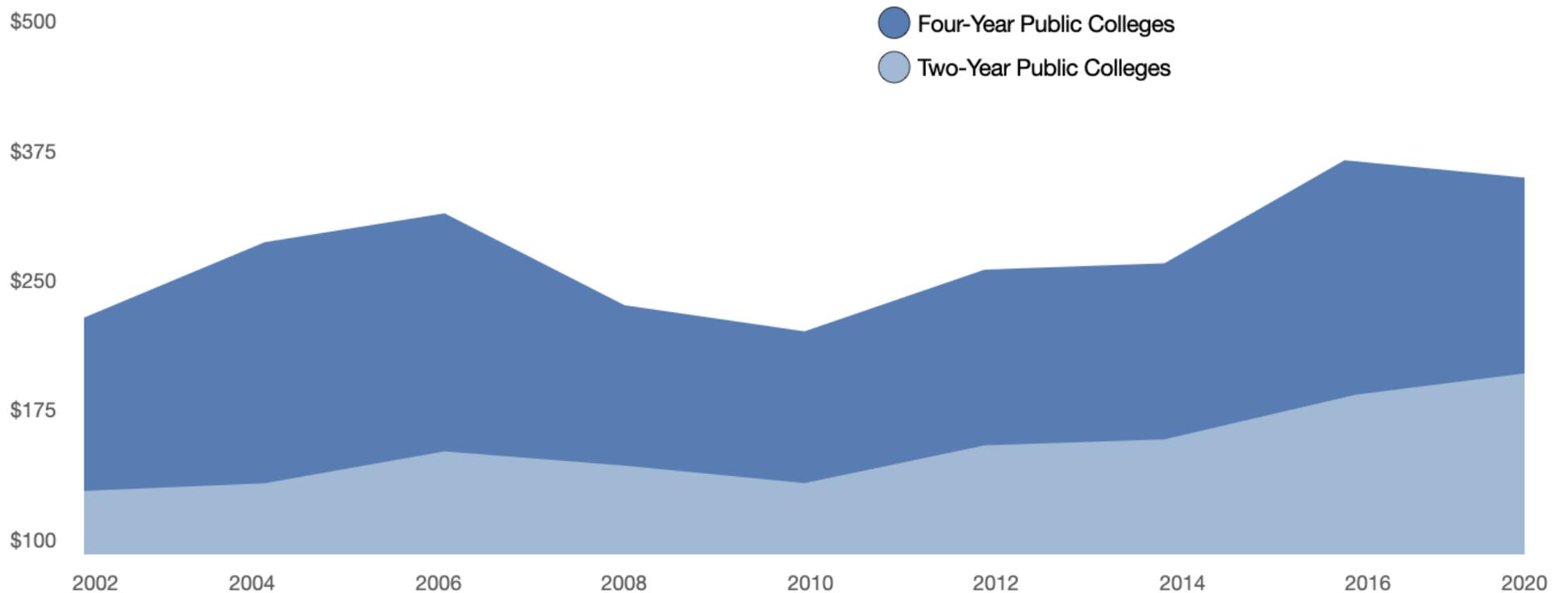
Education in Current Relevance

President Joe Biden is calling for \$12 billion in community college infrastructure investment. The ... [+] PA IMAGES VIA GETTY IMAGES

President Joe Biden [released his \\$2 trillion infrastructure plan](#) today and is scheduled to lay it out in Pittsburgh later today. While much of the focus is likely to be on the investments in building roads and bridges and other clean energy projects, it includes critical investments in community colleges.

Biden’s plan calls for \$12 billion to invest in community college infrastructure. The fact sheet says that states will be responsible for using the money to address physical and technological infrastructure needs at community colleges in their states. Additionally, states should identify strategies to address access issues, particularly in [education deserts](#).

The plan says that, “investing in community college facilities and technology helps protect the health and safety of students and faculty, address education deserts (particularly for rural communities), grow local economies, improve energy efficiency and resilience, and narrow funding inequities in the short-term.” A third of college students today attend community colleges and those colleges are often systemically underfunded. Worse, they are the schools doing the heavy lifting when it comes to educating low-income students.



Cost of Tuition

RESEARCH

After initial research into the subjugation of knowledge, the inquiry into public school systems became a tangible precedent to then examine through case studies. In reading Erkin Özay’s “Urban Renewal and School Reform in Baltimore: Rethinking the 21st Century Public School”, the evaluation of broader systems of schools and their effect on the specific community became a cornerstone for research into location and application of educational spaces. Özay focuses on both the space a school takes in a community and the smaller spaces within that complex, emphasizing the need for smaller, community run institutions. “By relying on larger academies and magnet schools, and due to the absence of policy guidelines to locate and integrate charter startups, many neighborhoods remain devoid of access to quality schools. Charter schools tend to locate in central locations, close to midtown and downtown areas, deemed safer and preferable to teachers...” (Özay, 2020).

Özay goes on to dissect this notion of public schools, contrasting the name “public” from its definition, stating that it “differ(s) from “commons” and “shared space,” by virtue of their “institutional formation” because of their ability to incorporate potentially incongruous interests.” (Özay, 2020) This concept of public is corrupted as it lends itself to appropriation by systems of control that which to “concealing class and other group conflicts through false universality and inclusiveness.” (Özay, 2020)

Within Özay’s critique of “public” schools as a device to be used to control, there are underlying tones of grassroots organizational implementations to be explored. Paralleled with this idea are concepts introduced in *Designing Schools: Space, Place and Pedagogy*. In this text the authors again investigate smaller organizations of public schools and how those systems effected the communities they inhabited, now matched with more control from the immediate communities who populate these spaces. In their observations, they found that communities in general wish for more control over the spaced and institutions in which they learn. The authors go on to say that “the public is made of monitorial citizens who conceive their social and political participation... and who react from this individualized point of view or interest. (Willis et al, 2017)

Also highlighted in this text are the specific practices of space creation and their intersectionality with ideas of public and private. One model uses space as “steps” or “tiers” throughout which introverted small-group meeting places are arranged (Willis et al, 2017).

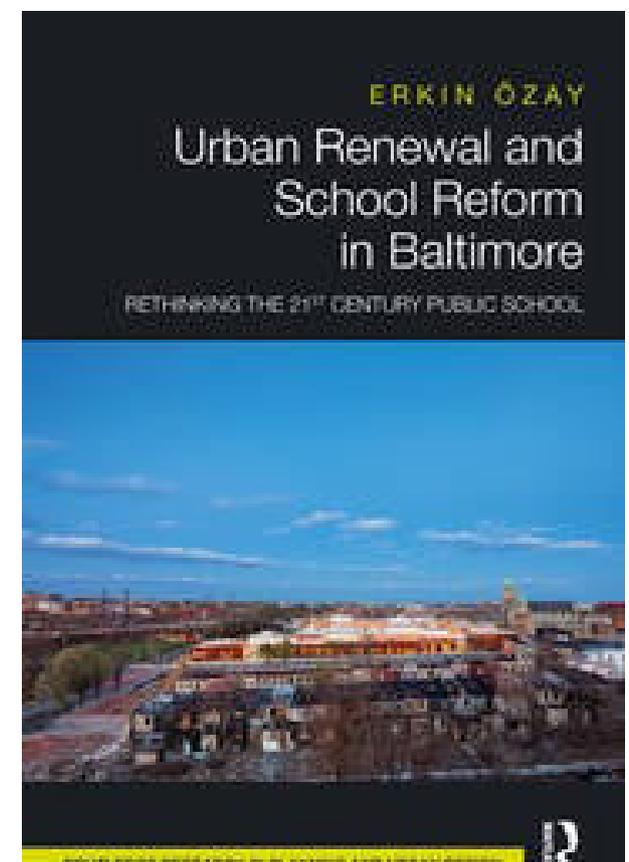
Project Follow Through:

A Case Study of Contingencies
Influencing Instructional Practices
of the Educational Establishment

Cathy L. Watkins

Cambridge Center for Behavioral Studies
Cambridge, MA

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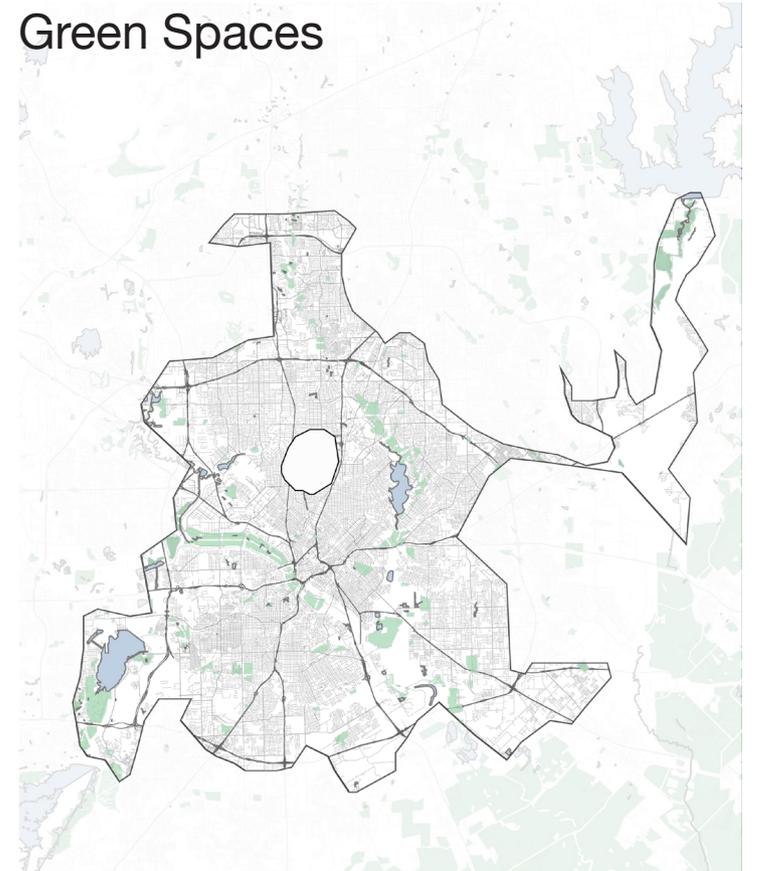


MAPPING

Dallas City Limits



Green Spaces



Major Highways



Rail Systems



RESEARCH

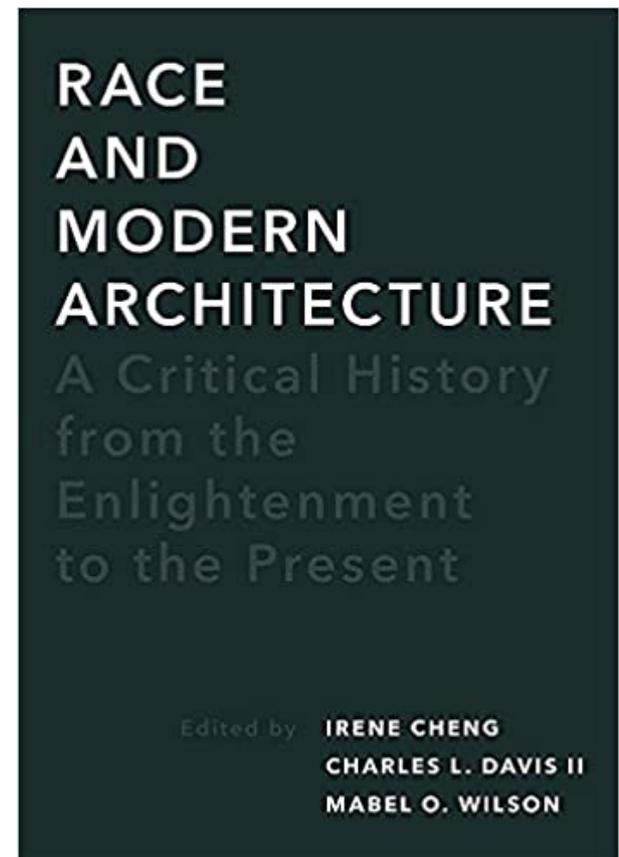
These intimate spaces are also found in the connection to outdoor environments, where small nodes of interactions can be created through small, open-air spaces. The authors go on to note that while these more open spaces bring “more freedom to talk and broader cultural references to classrooms”, they aren’t inherently a more democratic solution to the dispersal of knowledge and critique of systems of existing authoritarian intuitions (Willis et al, 2017).

Finally, in researching different methods for which knowledge to be expressed and spatialized the concept of the Educational Park was used as a precedent to critique. In Max Wolff and Alan Rinzler’s “The Educational Park: A Guide to Its Implementation” there are ideas of educational complexes in the urban context that seek to create a learning center that “brings together a clustering of educational facilities” (Wolff et al, 1970). In this text Wolff scores educational complexes and their designs based on three qualities:

1. The quality of education (what is the design application, or intention of curriculum administered).
2. The administration of education (what is the relationship between teacher and student).
3. Intergroup relations (How does the school interact with present confrontations in schooling systems).

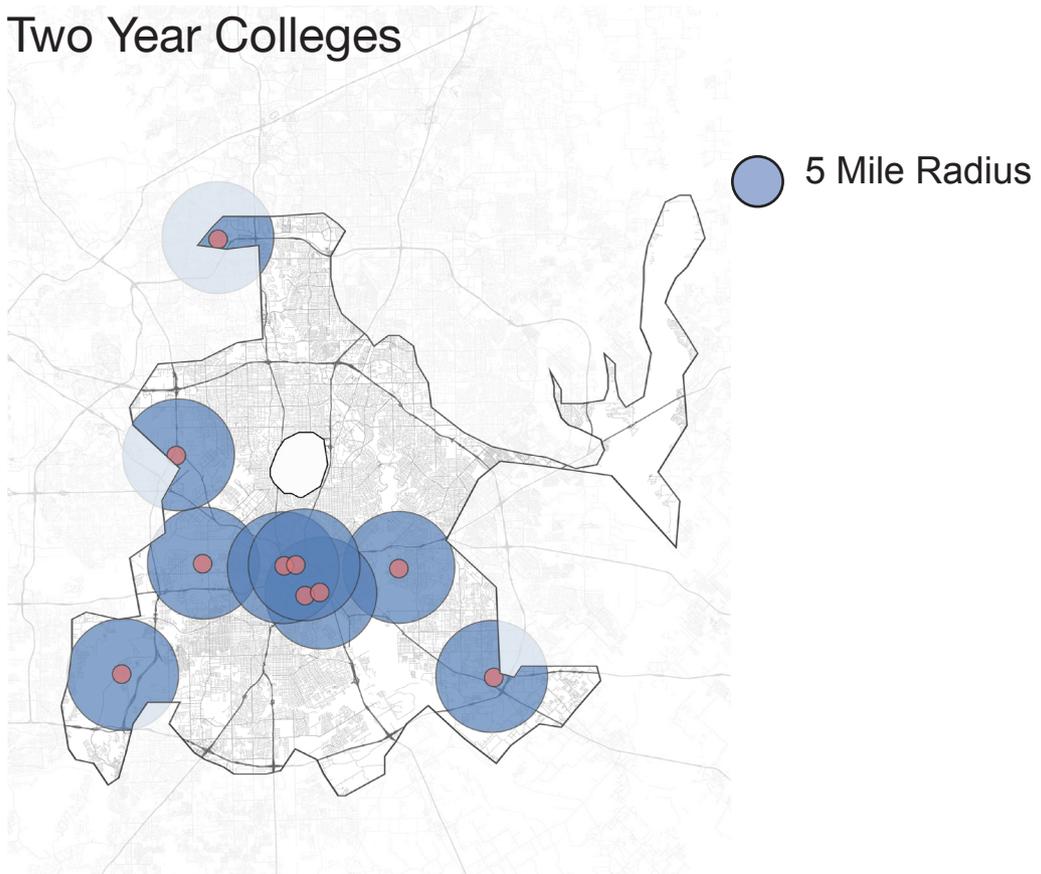
The educational park as a concept seeks to treat spaces of educations as parks themselves, allowing users from different backgrounds to have diverse experiences and trainings in the same area. This model is likened to the “neighborhood concept of schools”, in which a school collects diverse backgrounds of typology and curriculum into one “neighborhood” of spaces (Wolff et al, 1970). With a large multitude of spaces the problem often becomes that a student can get lost amongst the monumentality of a singular dominant structure. Due to this, the educational park splits these spaces into smaller areas of a larger collective.

The location of an educational park is paramount in its creation, as the complex serves the community, it “must be chosen not only for its easy access from all neighborhoods but also in terms of its present utilization” (Wolff et al, 1970). Once a site that has a large diversity in surrounding typology is chosen, there are four main design concepts that a park must adhere to: it must be consistent with its educational philosophy, it must provide equal access to all neighborhoods along its border and blend in size and scale, it must respond to the needs of the community, and it must adjust to existing transportation systems and/or be able to accommodate new facilities (Wolff et al, 1970).



MAPPING

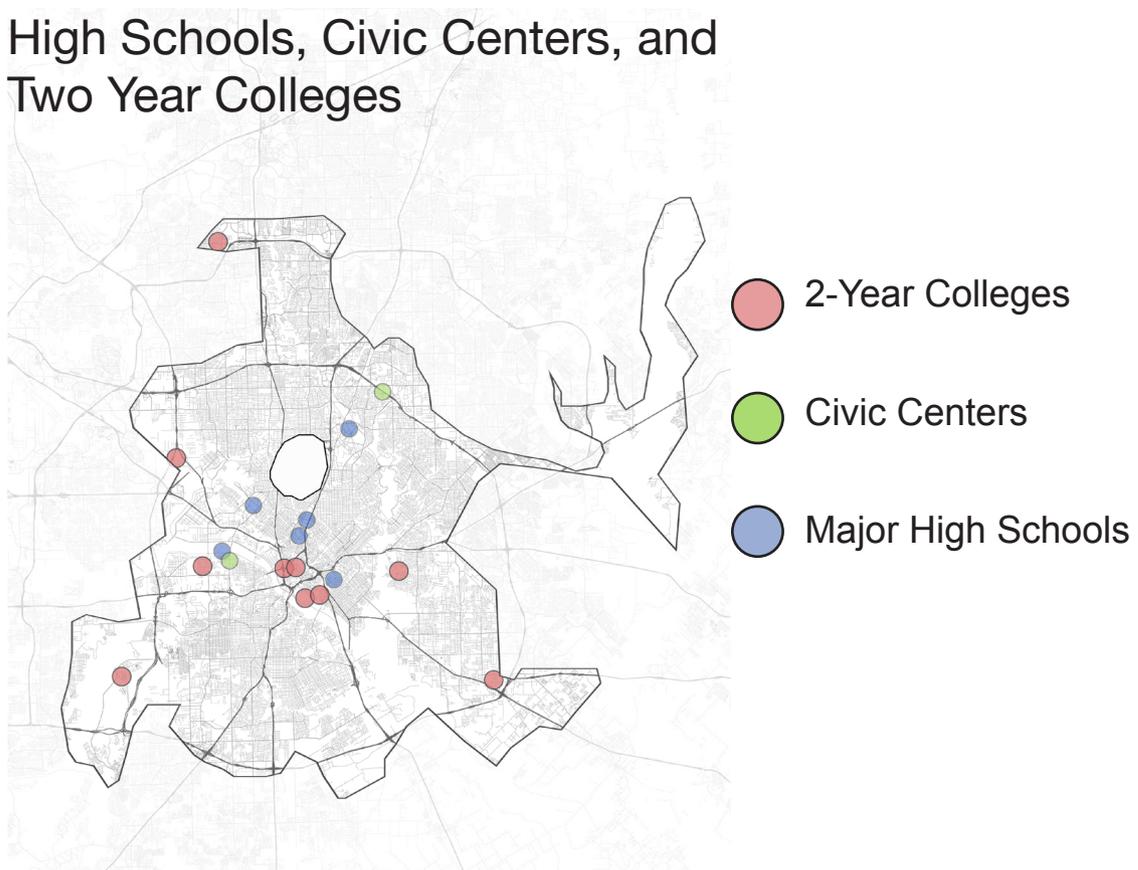
Two Year Colleges



Four Year Colleges



High Schools, Civic Centers, and Two Year Colleges



Major Highschools





Research

Precedent

Site-Context

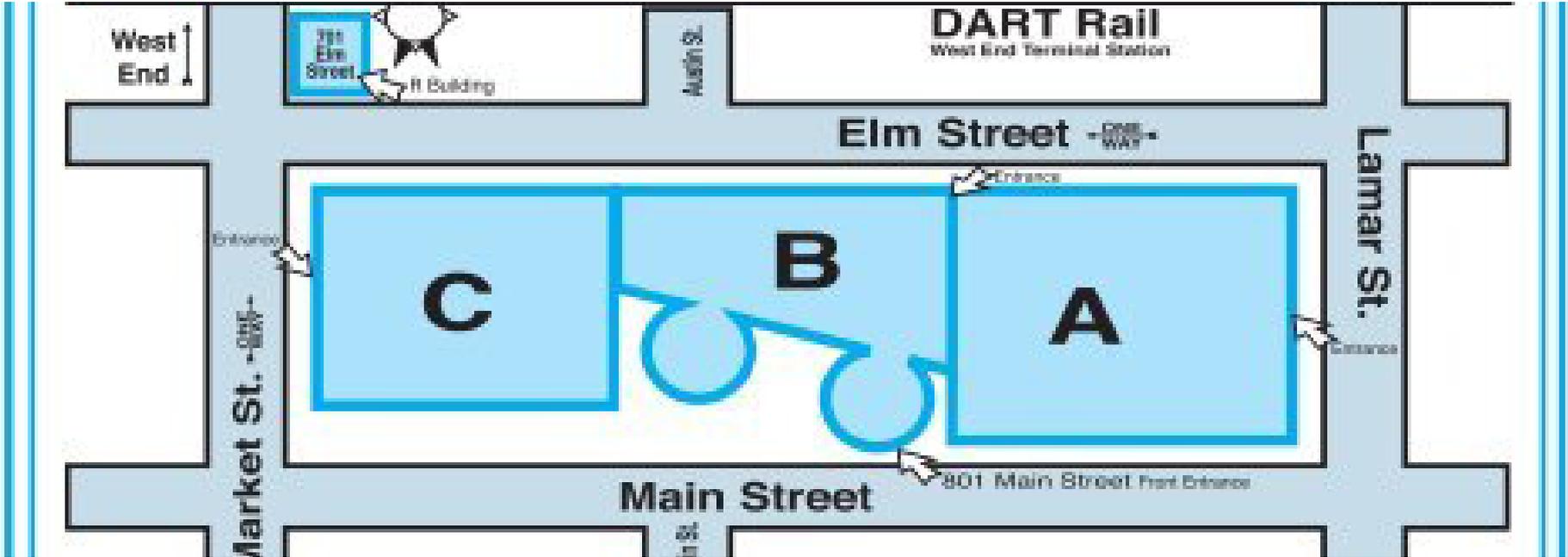
Solution

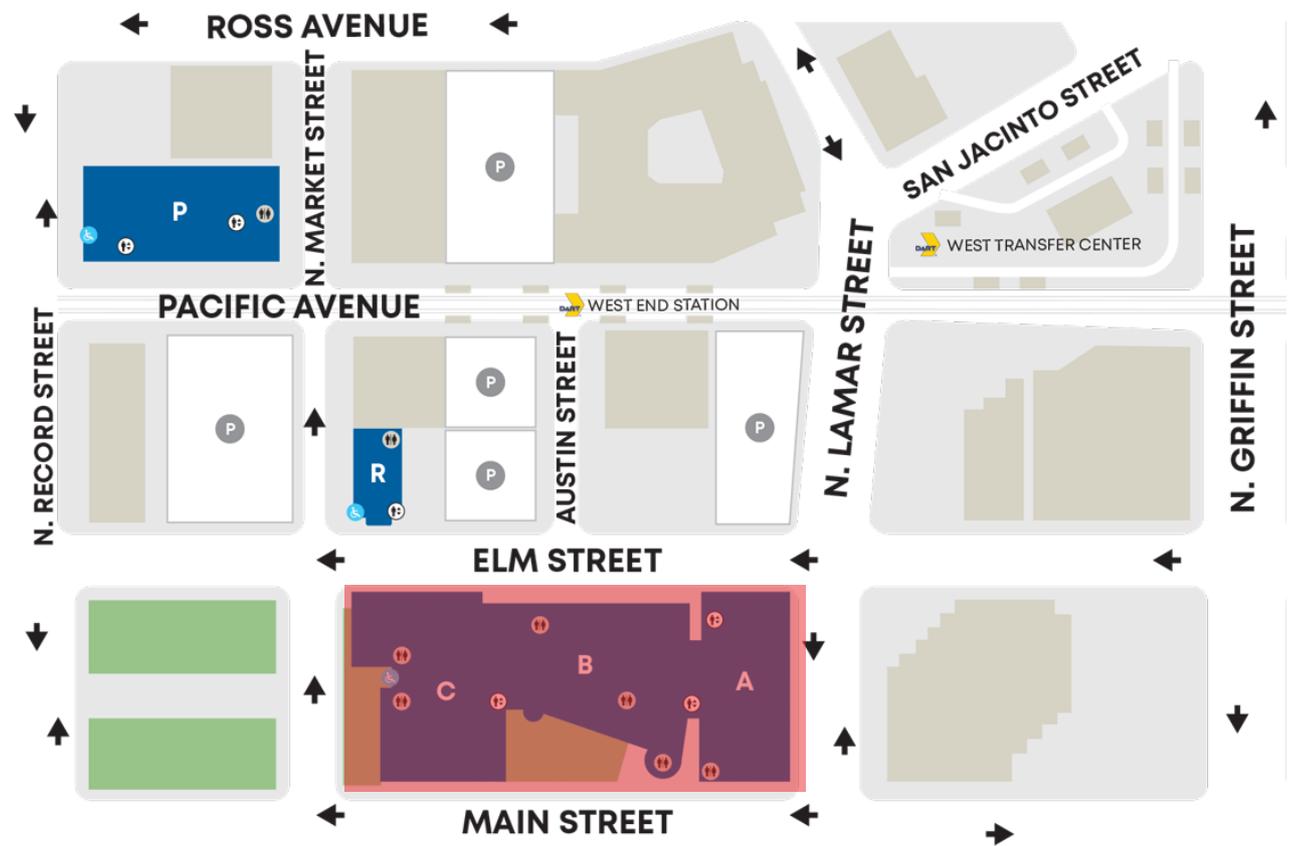
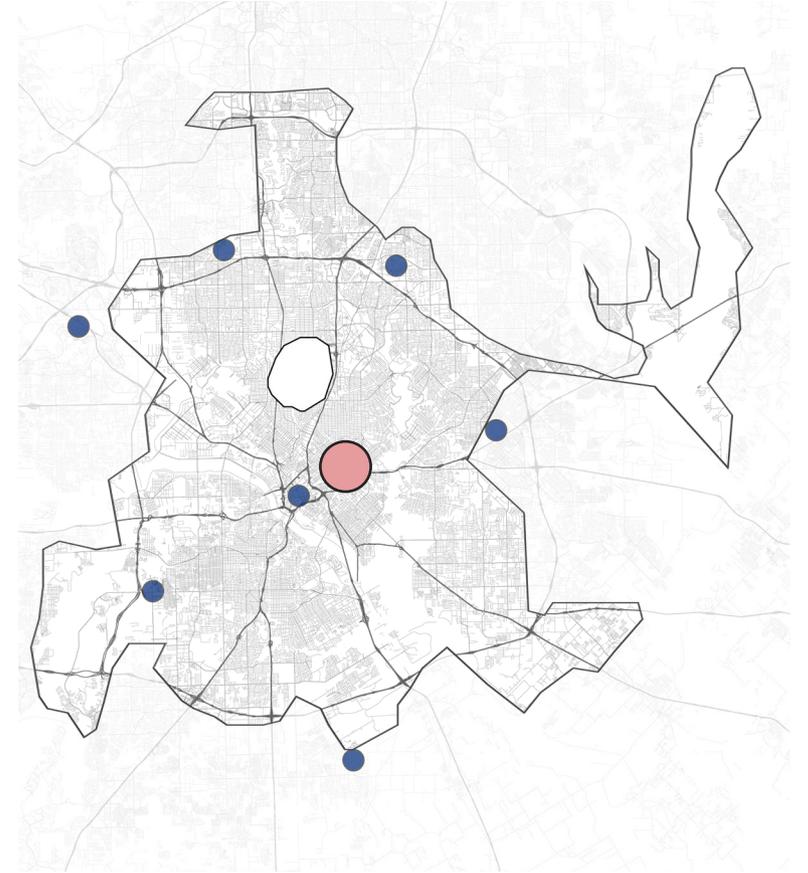
Conclusion

Through critical examination of three different structures, the following precedent studies aim to evaluate how spaces are created based on curriculum. Two studies were chosen from existing two year colleges in Dallas, TX and a third selection based solely on architectural relevance.

7 DALLAS COLLEGE

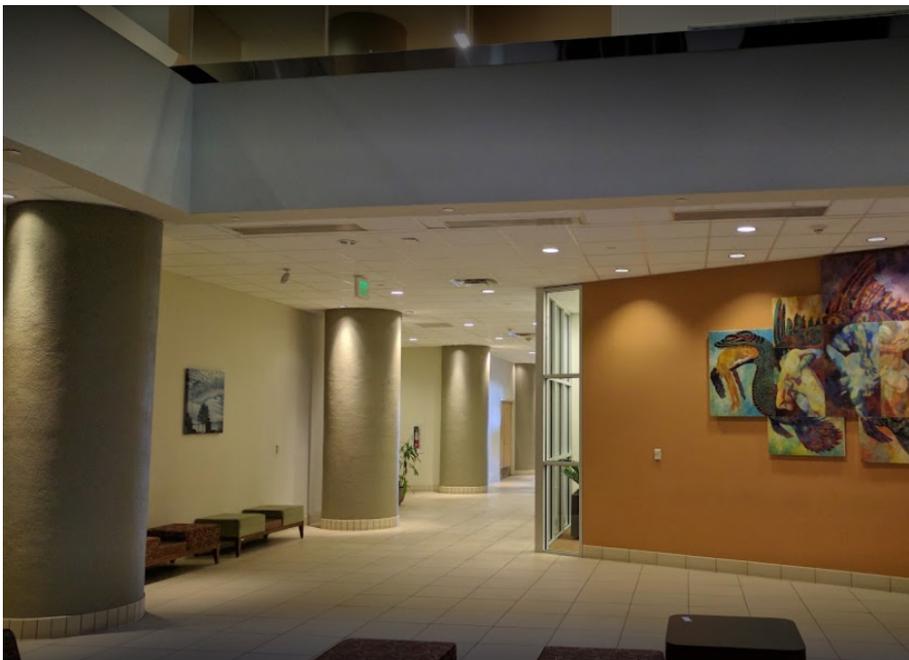
Dallas College originally operated as a district of seven independently accredited colleges. In 2020, those colleges united under a single name in order to offer students a more streamlined, more convenient experience. The first two proposed precedent studies take note of the existing college centers within this center located at the center of Dallas. The layout of this first complex assists with understanding programmatically how colleges currently separate class spaces based on use and curriculum. This precedent particularly identified the need for several smaller structures working and combined into one large complex. Located at the center of Dallas, this schools form is constructed as a result and response to the urban context without green spaces or specific places of congregation for the community it serves.

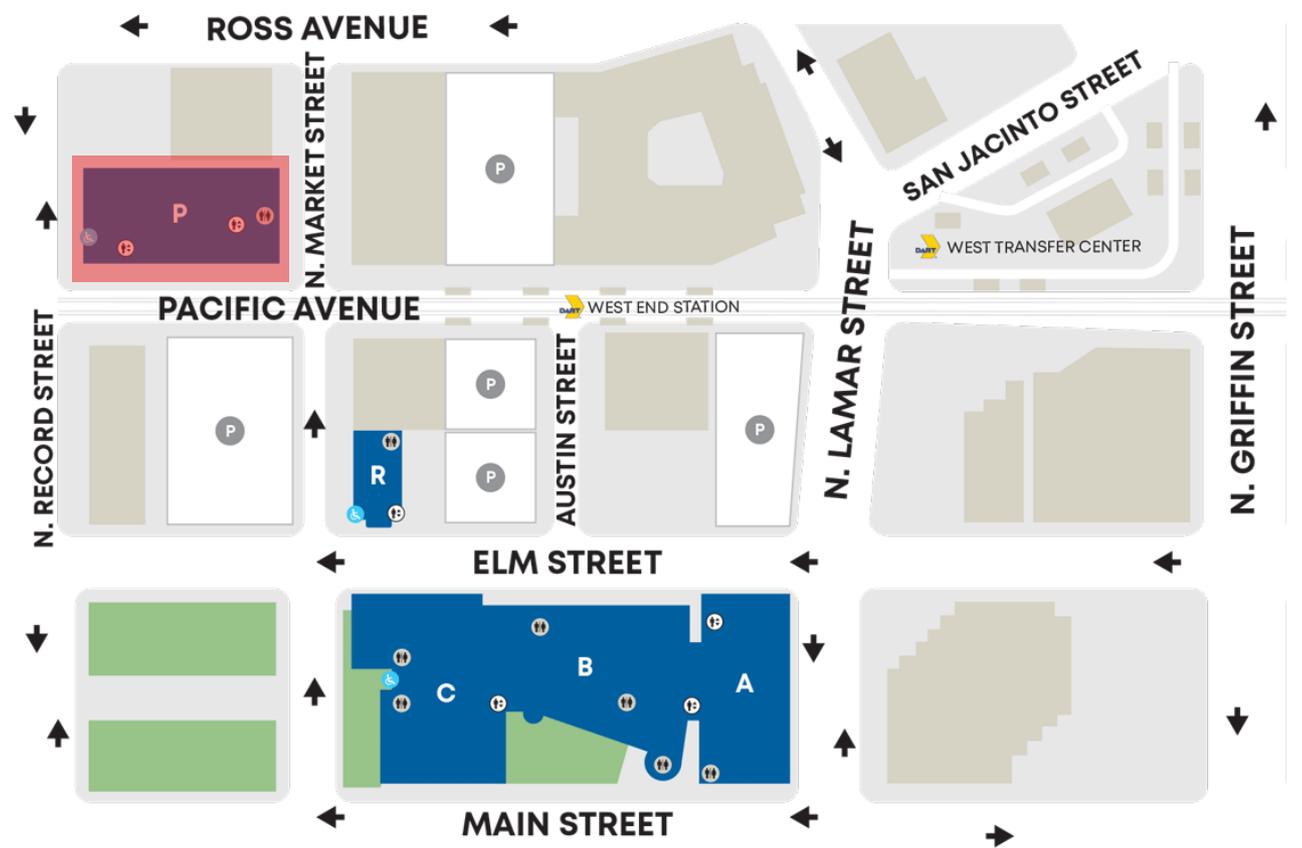
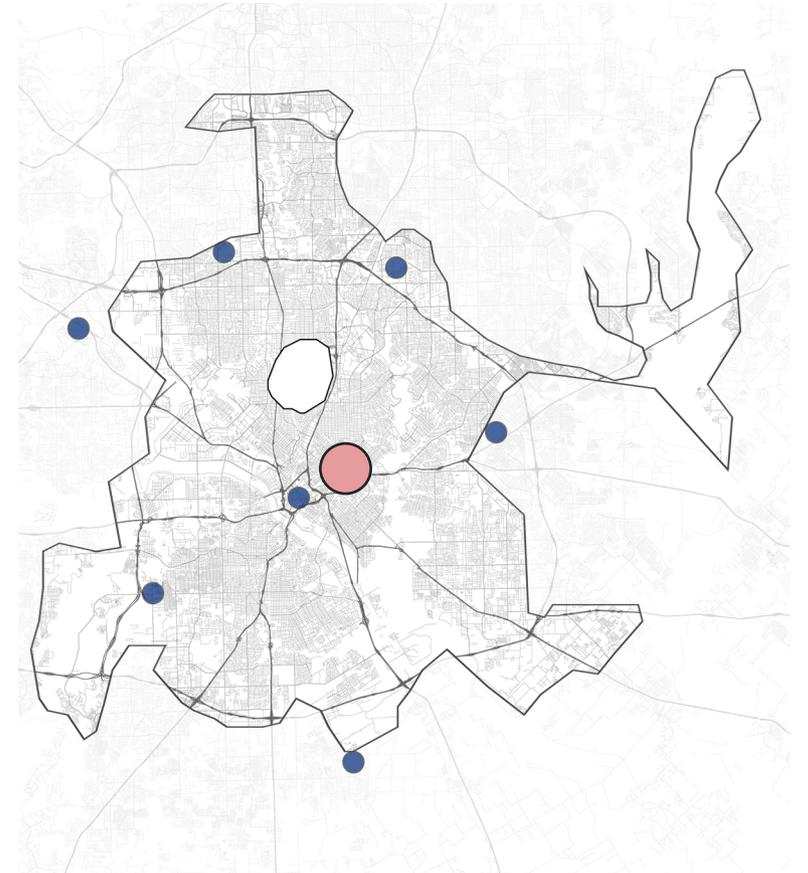




DOWNTOWN HEALTH SCIENCES CENTER

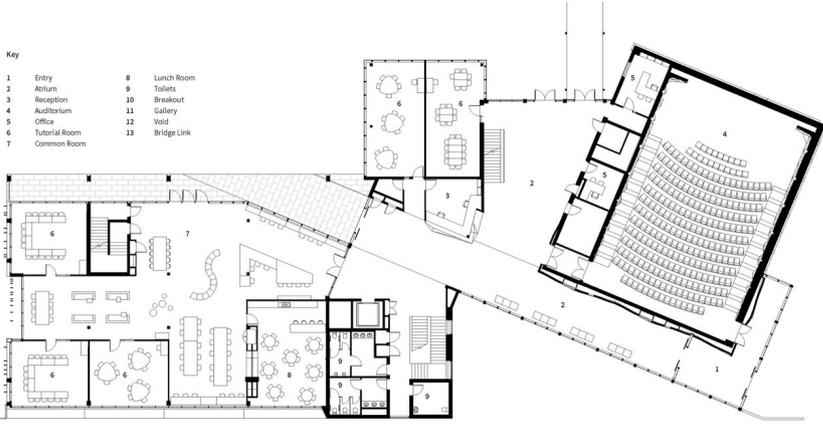
Opened in 2008, Dallas College Health Sciences Center (formerly known as El Centro College Paramount Building) is equipped with the latest classroom and laboratory tools and technology. This complex is also located at the center of Dallas and starts to employ the introduction of commercial spaces at the first level as well as a main atrium upon entering. This tactic allows more users from the community to enter and use the space, creating a more seamless transition of the college and its surroundings. This center is made up of multiple different departments and classroom typologies, allowing soft seating amongst these spaces to diminish the separation between departments and allow study space for students in the complex.



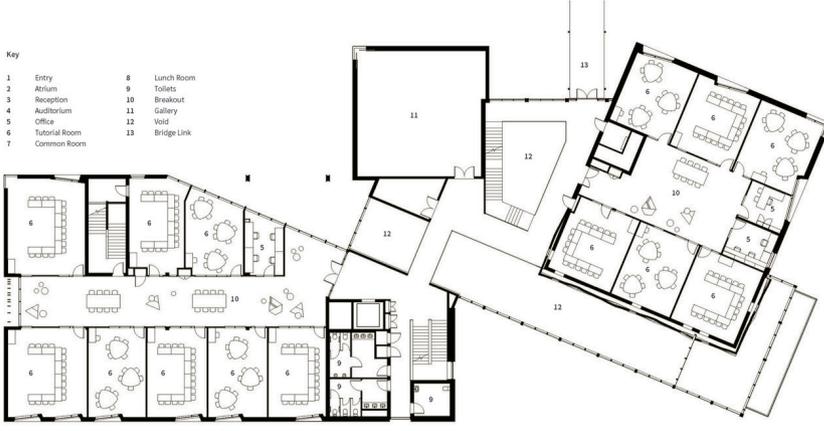


GATEWAY BUILDING FOR TRINITY COLLEGE

Opened in 2010, the Gateway center for Westchester Community college was completed as an entrance to the rest of the campus. Completed by Ennead Architects this complex was conceived as a physical embodiment of the word gateway, or, as a means of access or entrance. The 75,000 sqft complex works both as a gateway and center of campus, embodying the architectural legacy of the school while being a beacon for the future with its state-of-the-art technology. The complexes programmatic needs all fitting into one space gave excellent examples on how to balance public and private space while still making efficient work of square-footage in a building.

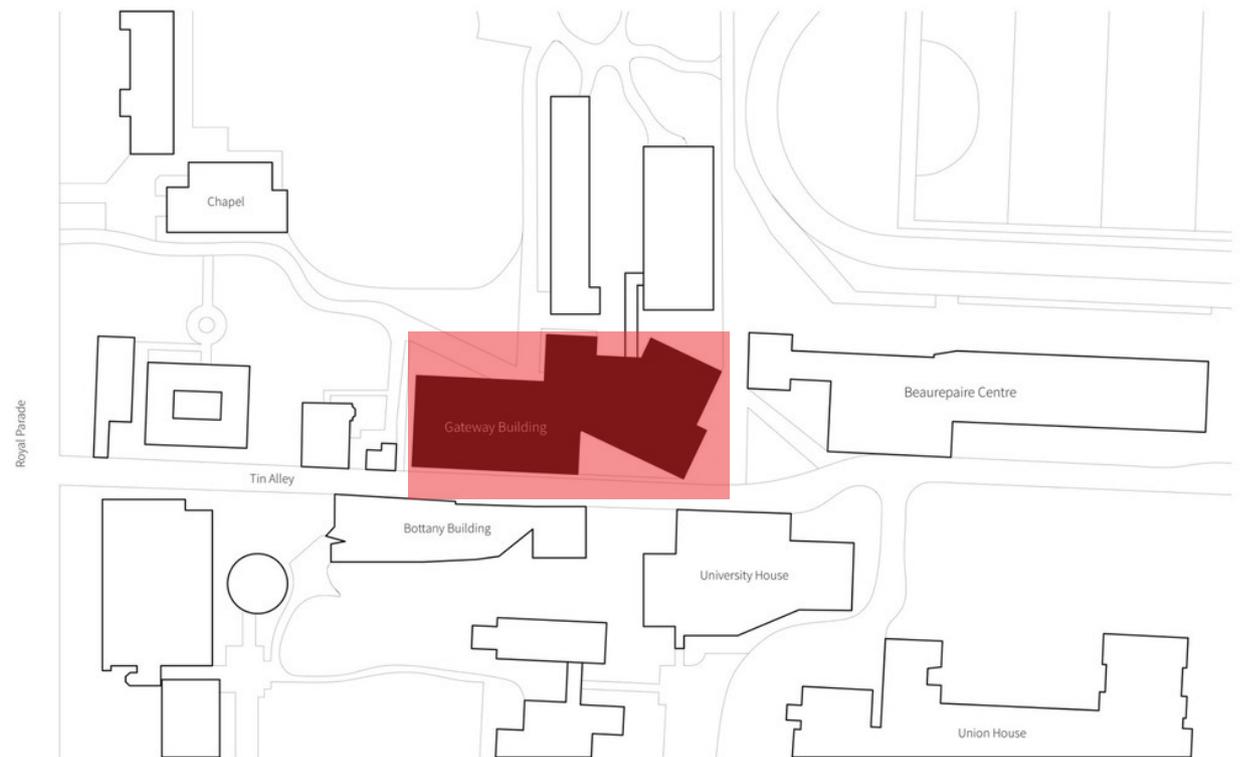
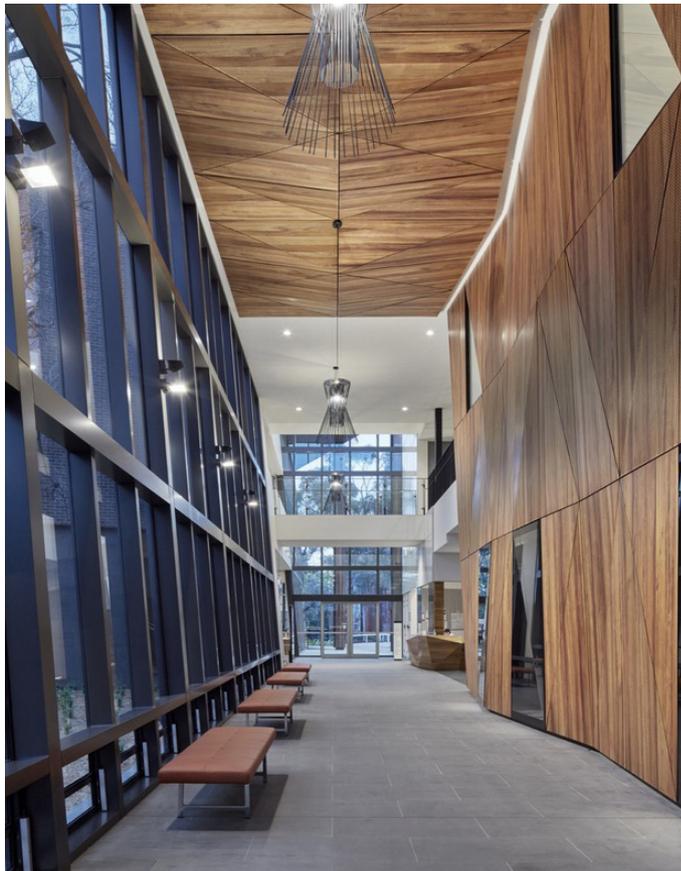
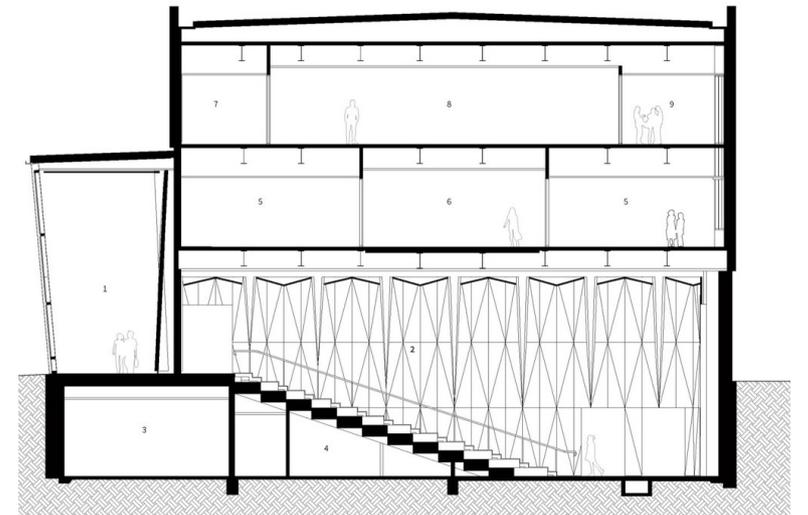


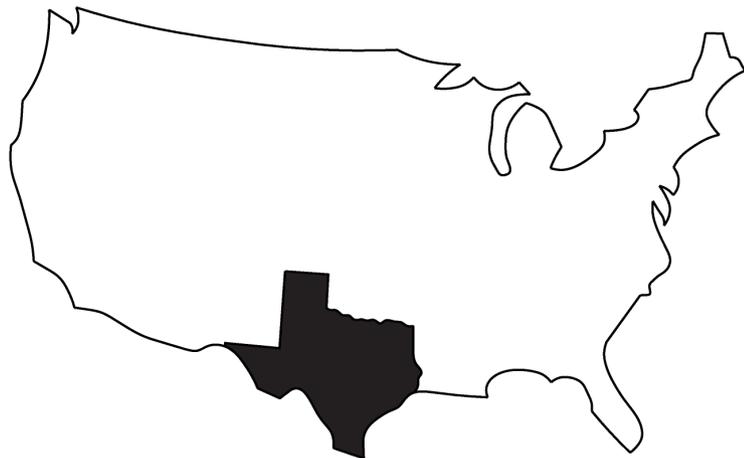
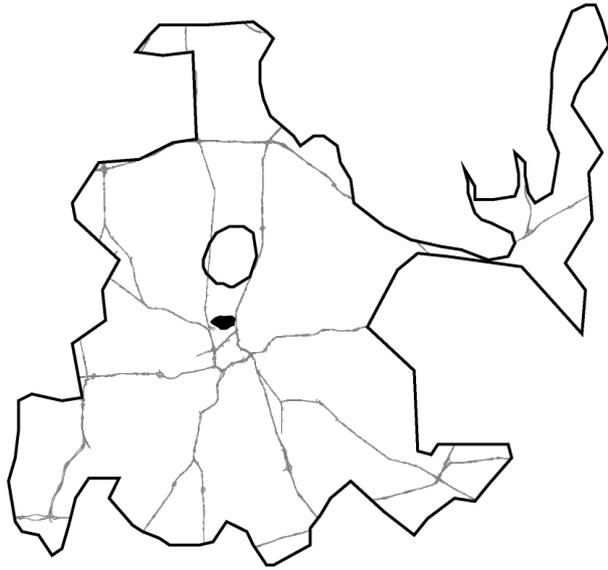
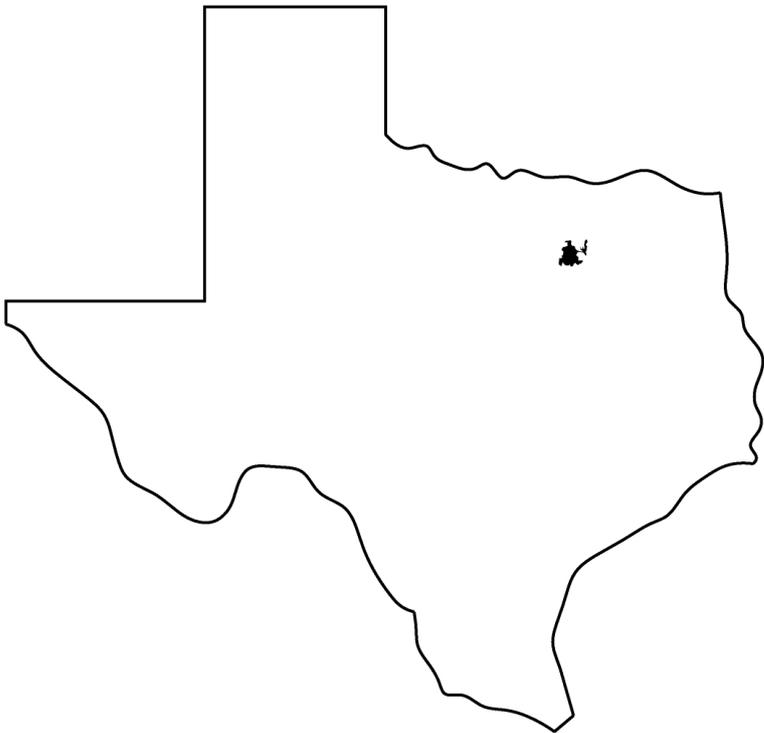
Ground Floor Plan



First Floor Plan







Research

Precedent

Site-Context

Solution

Conclusion

By mapping the quarter-mile radius around the chosen site, a better understanding of existing conditions was established allowing the design to take form reflecting the community and creating direct connections to existing infrastructure in a seamless way.

HALF-MILE RADIUS

The quarter-mile radius can be understood as the length to which a person can comfortably travel by foot. Due to this, it's important to map existing conditions of the proposed site to understand the existing infrastructure that can be connected to or relied upon. Through a series of mapping highlighting important amenities nearby such as green spaces, commercial spaces, housing, and even schools, which will be a major focus of this project. The two schools can be identified in this mapping, the proposed site lying directly between these two zones. The site is located adjacent to a main highway, allowing for direct automotive circulation but posing the problem of connection to the school located directly to the northwest. Also identified are the large amounts of residential areas located all around this site, that take many shapes and forms from single to multi-family.



Figure-Ground

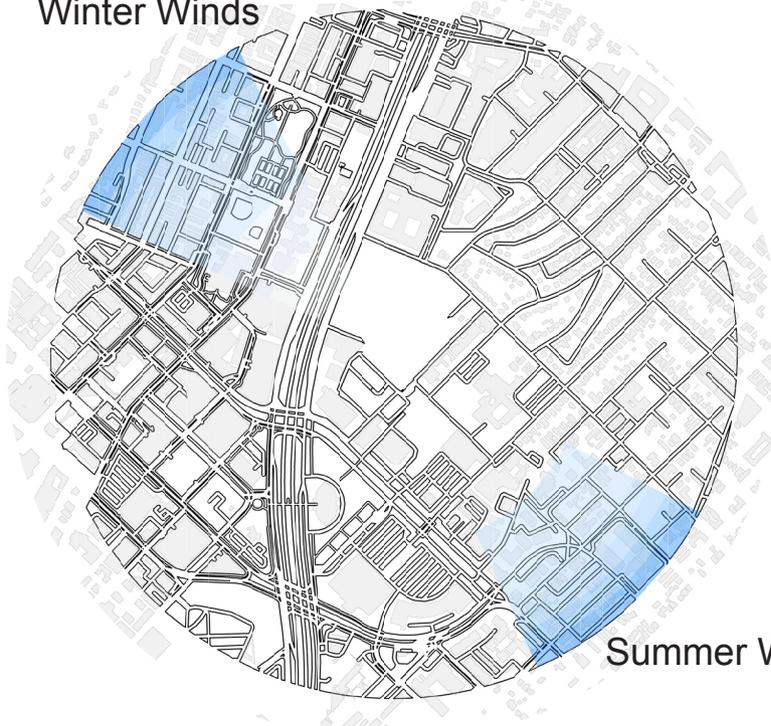


Solar Path



Green Spaces

Winter Winds



Summer Winds

Wind Direction

- Automotive
- Bike Path
- Public Transit



Circulation



Traffic Patterns

- Residential
- Religious
- Schooling
- Commercial
- Mixed-Use
- Community Space
- Site Location



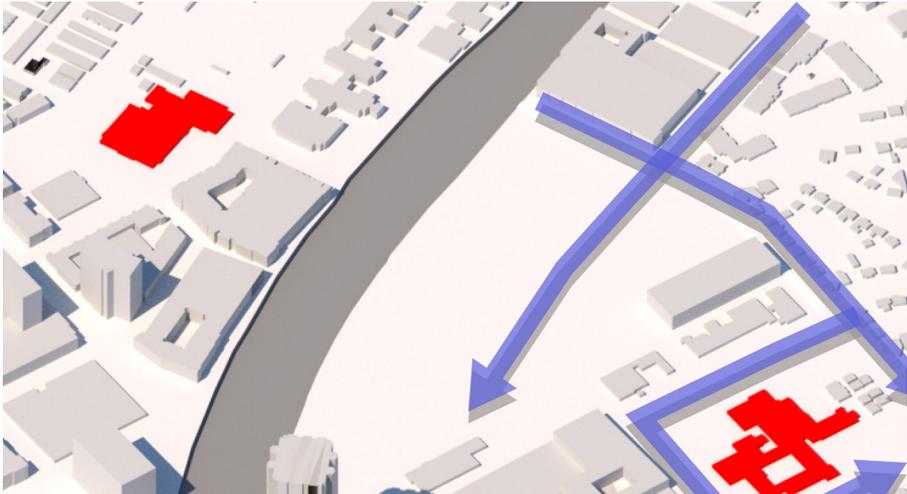
Building Typology

SITE CIRCULATION

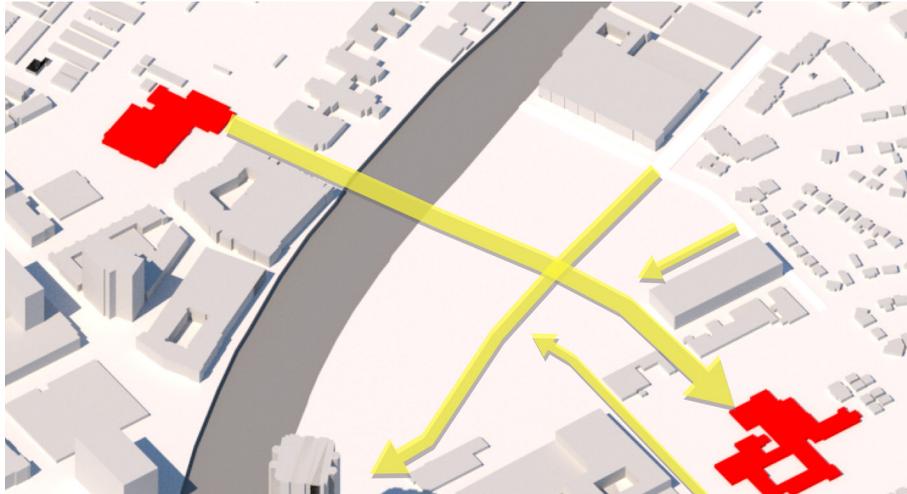
After mapping the quarter-mile radius, the next step was to look closely at circulation around the site, both existing and proposed. While existing automotive circulation is ample, there is an apparent need for more friendly pedestrian foot traffic both from the northeast and across the highway from the northwest. Throughout all of the circulation, the most important in this instance was the direct connection between to two mentioned schools, demonstrated in each of the circulation diagrams as shown.



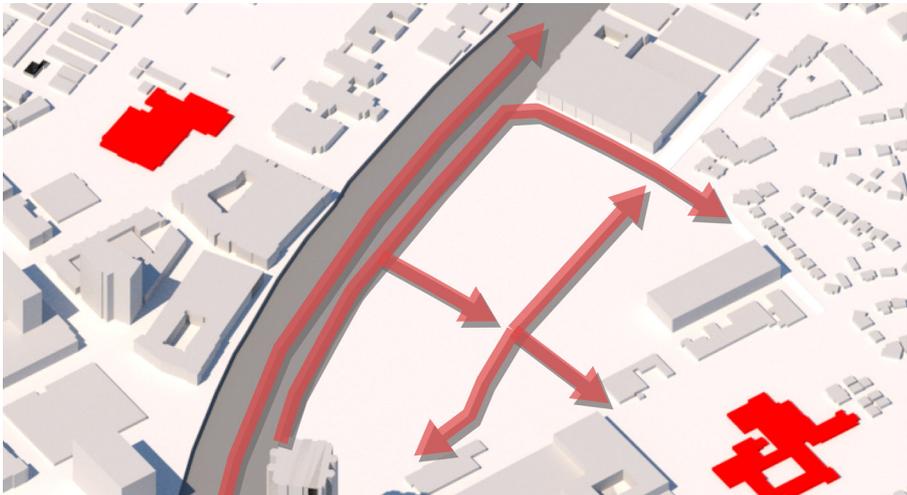
Site Location



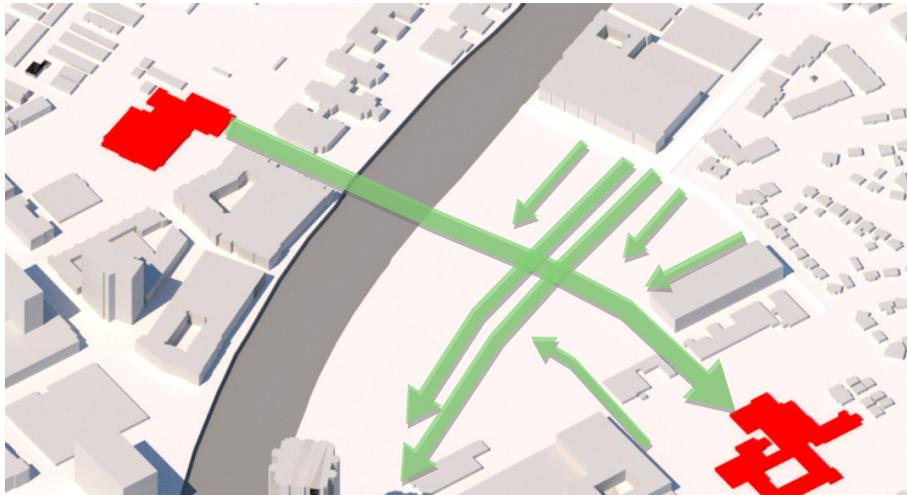
Transit



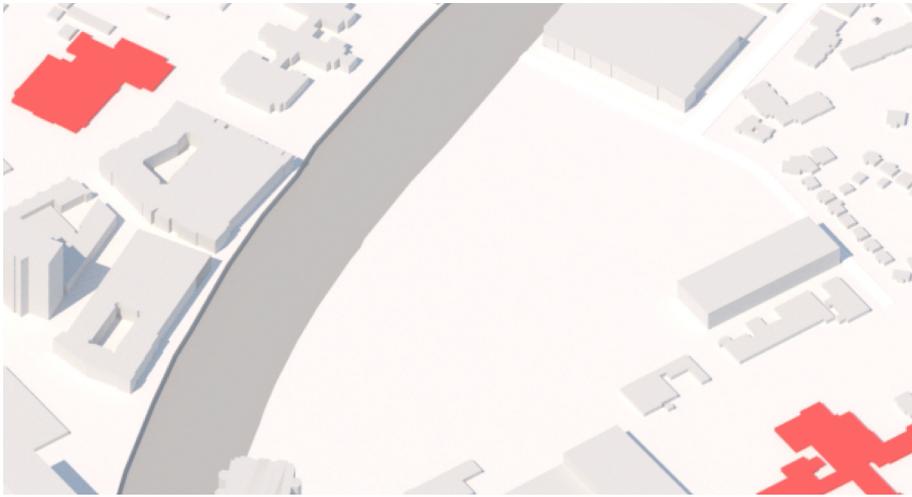
Bicycle



Automotive

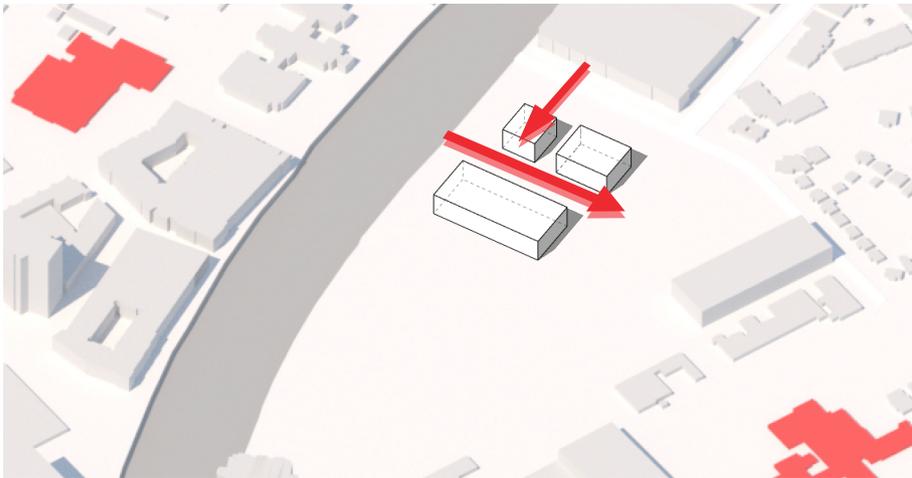


Pedestrian

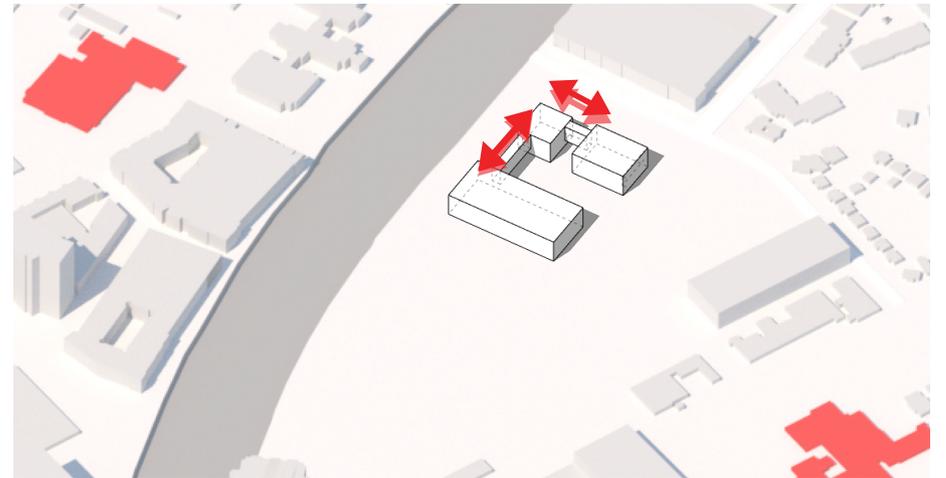


Site Location

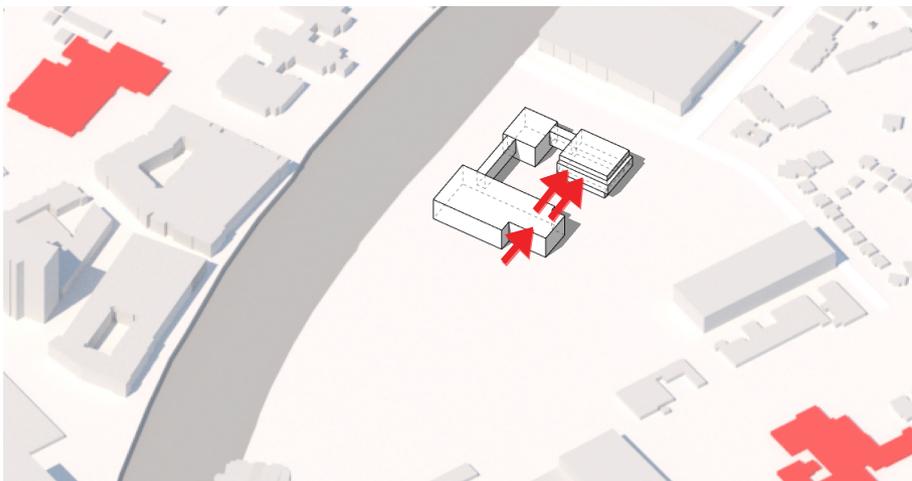
Once Circulation was established, form generation took its shape from these paths of travel. Through various readings and formation attempts, there demonstrated a need for the separation of building structures to avoid the monumentality of one large extrusion. Once the form was split, there needed to be maintained an edge condition against the highway to abate noise and disconnect users from the mass transit system. This was accomplished through sky bridges connecting the now three separate structures. Openings on the first floor connect users from the southwest to northeast axis. Now that paths of circulation were established, the mass was manipulated to allow for areas of transition from interior to exterior on the first floor as well as outdoor spaces located on higher levels.



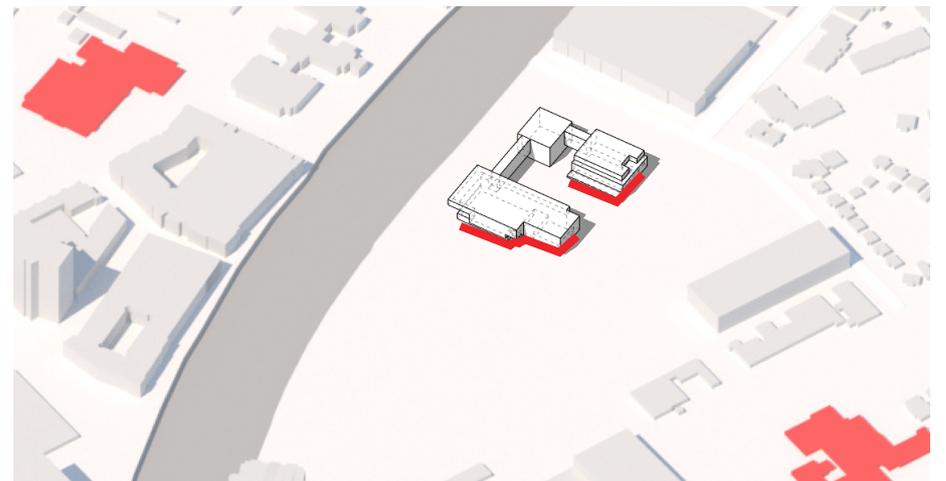
Form One



Form Two



Form Three



Form Four



Research

Precedent

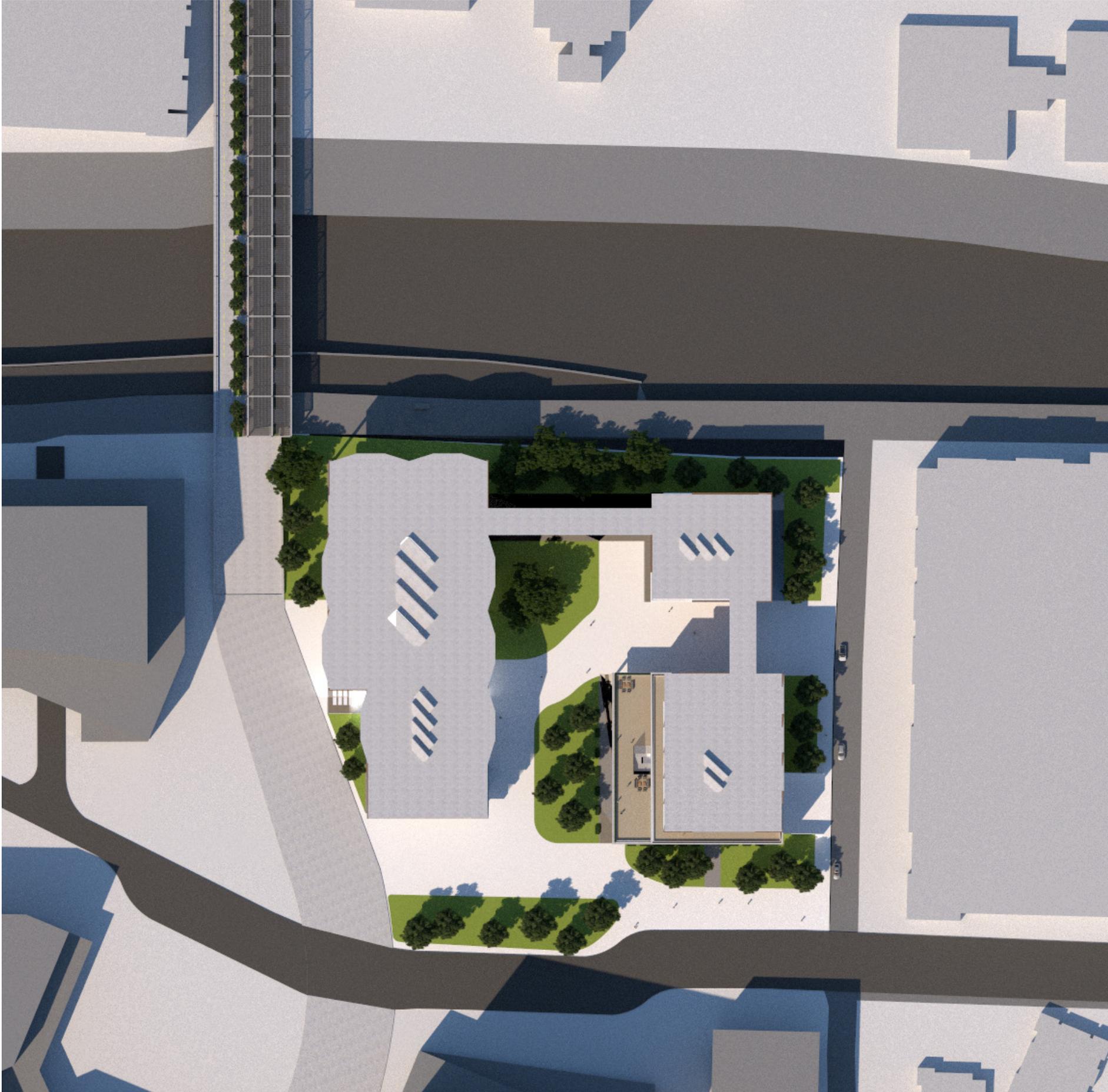
Site-Context

Solution

Conclusion

The following chapter includes plans and diagrams demonstrating the proposed design for the education complex. Throughout the chapter, the design becomes more detailed and splits into three main projects that shape and ground the project further.

SITE PLAN

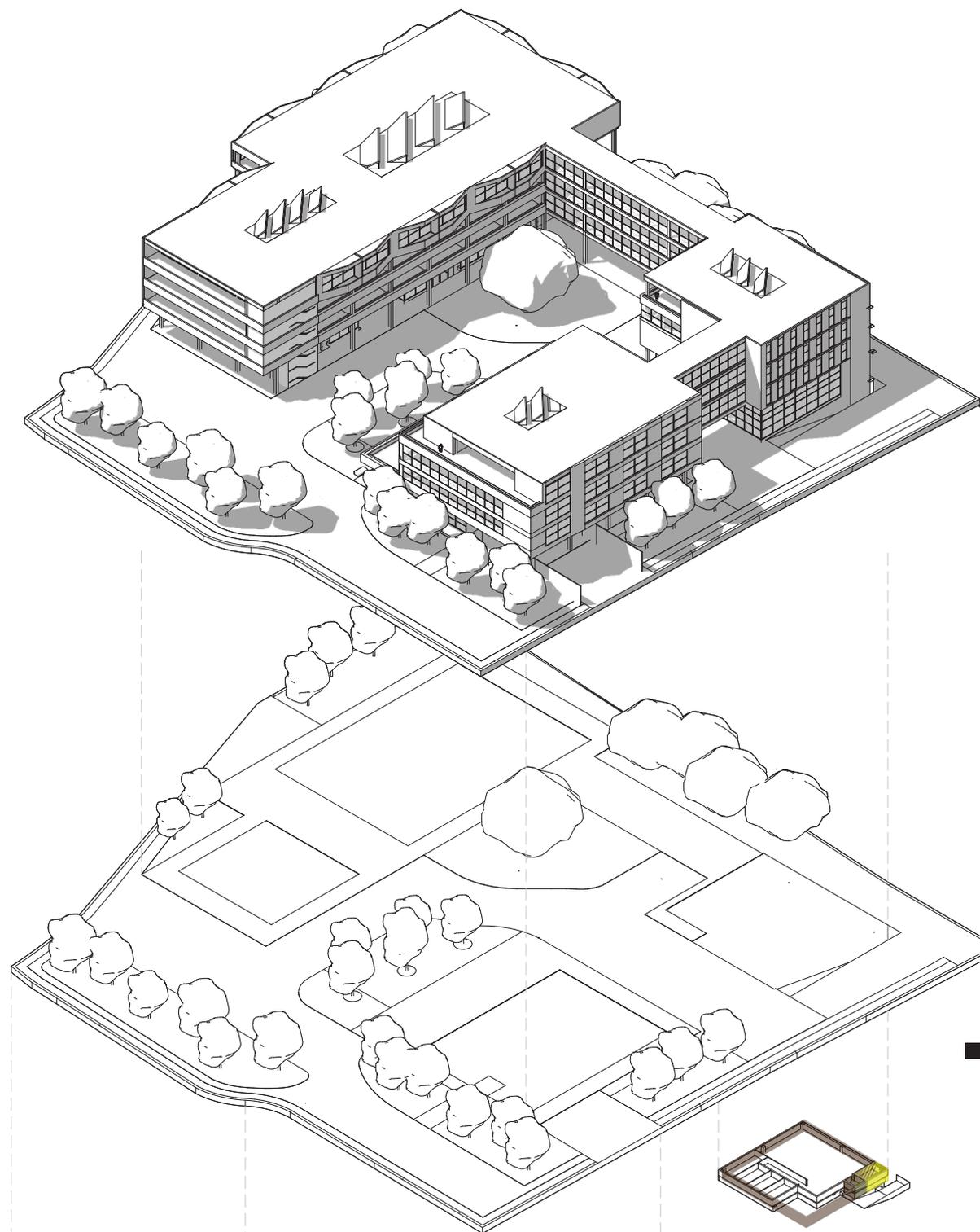


PROGRAM AXONOMETRIC

The overall form of the building naturally creates a courtyard that allows users access to green space through all four levels. Shading was considered for this courtyard, using the main structure located to the southern portion of the complex. Solar paths were also considered in the placement and orientation of the clerestory windows located in each buildings light-well.

Located one level below the site is the two-level auditorium space. This placement dug into the site to allow for noise mitigation and the placement of like-spaces, this area only being used for special events and thusly being tucked into back of the site.

- Auditorium
- Circulation
- Maintenance

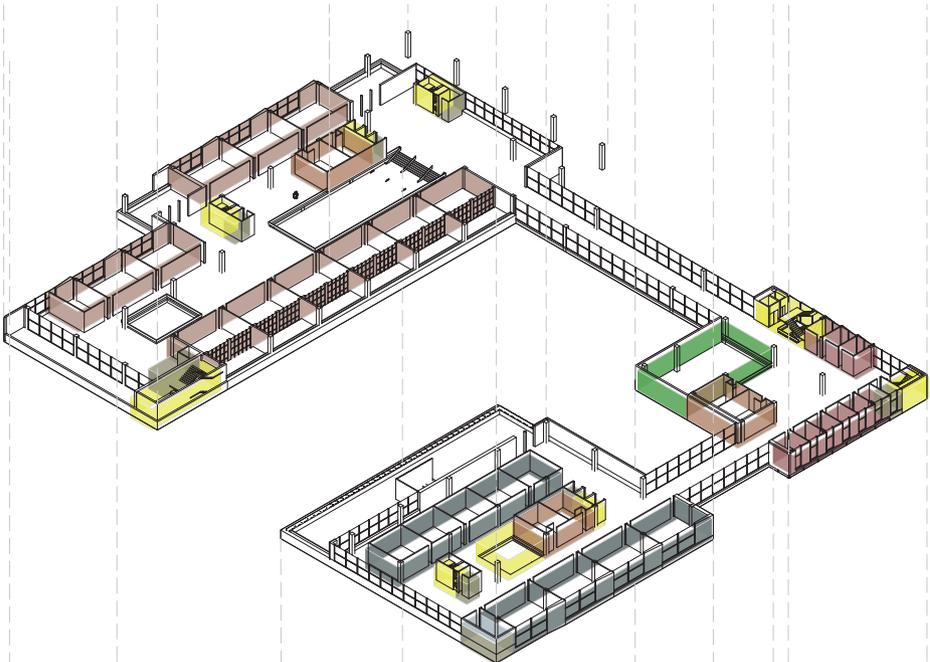


-1

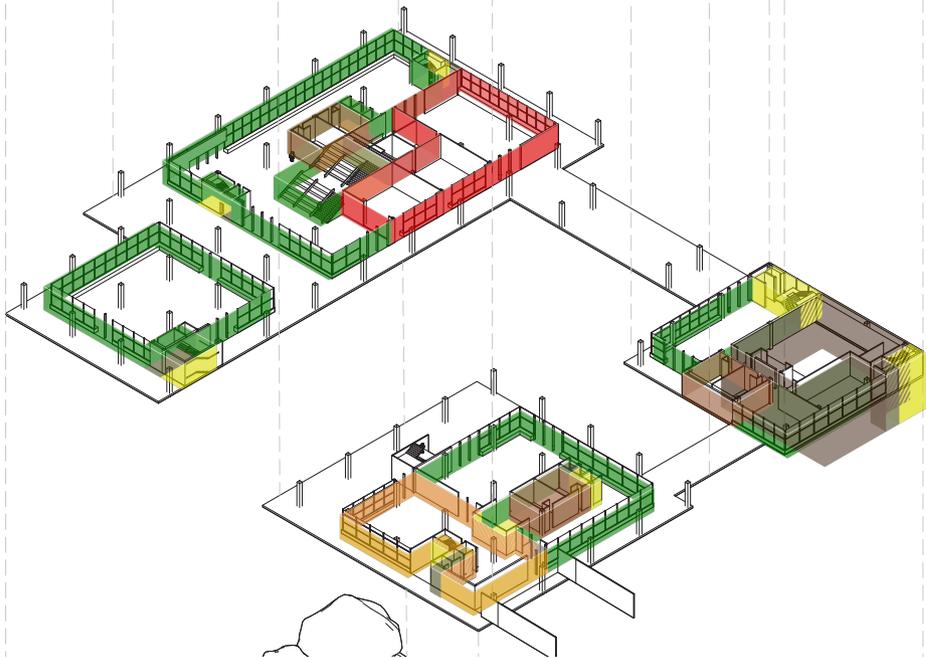
PROGRAM AXONOMETRIC

Throughout the first level of the site is where primarily public space is located, intended to allow all community users to have some level of access and intention. The grand learning stair located on the first level is meant to allow open connection to the second level of classrooms and offices.

2



1

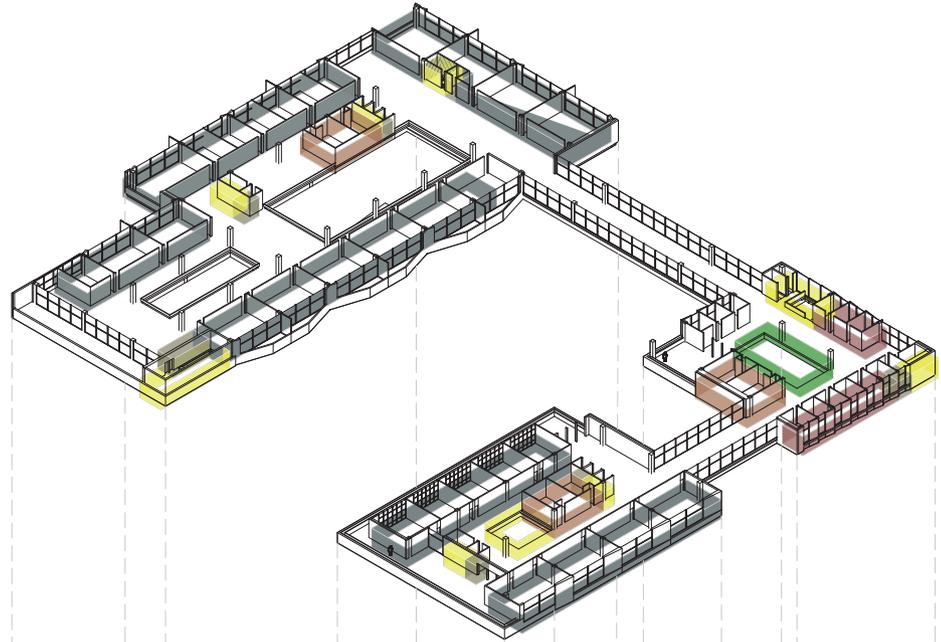


- Auditorium
- Circulation
- Auxiliary
- Community Classroom
- Classroom
- Maker Space
- Public Space
- Administrative
- Commercial

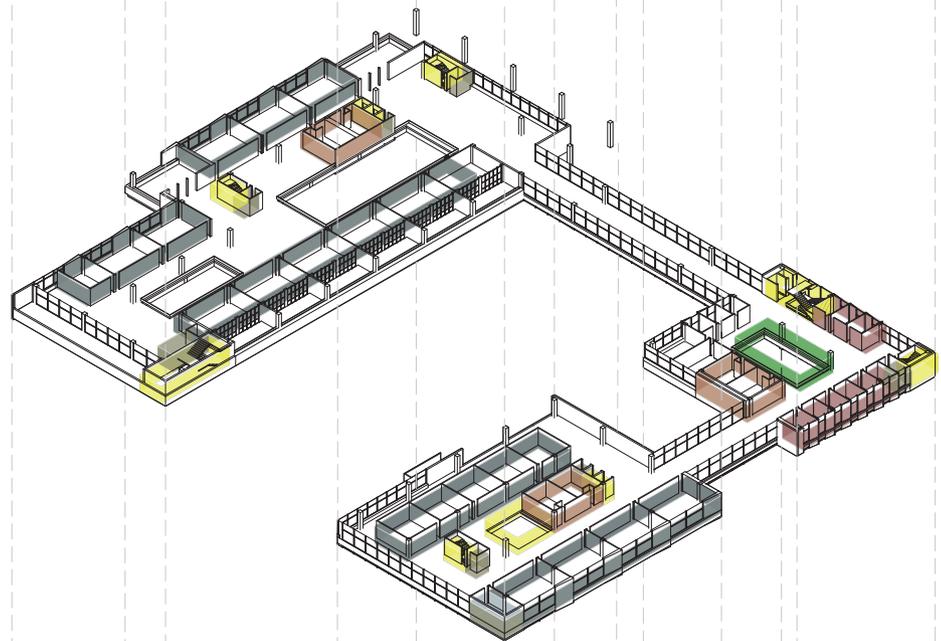
The third level takes similar shape to the second, housing primarily classrooms spaces, differing now in the amount of administrative space and location of public soft-seating spaces. The fourth level mimics these spaces but changes in the shape and intent of classroom spaces to allow for different types of instruction.

- Auditorium
- Circulation
- Auxiliary
- Community Classroom
- Classroom
- Maker Space
- Public Space
- Administrative
- Commercial

4

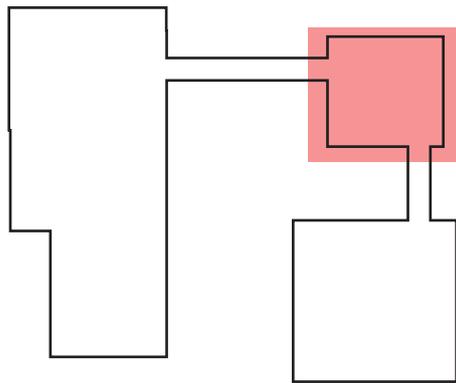


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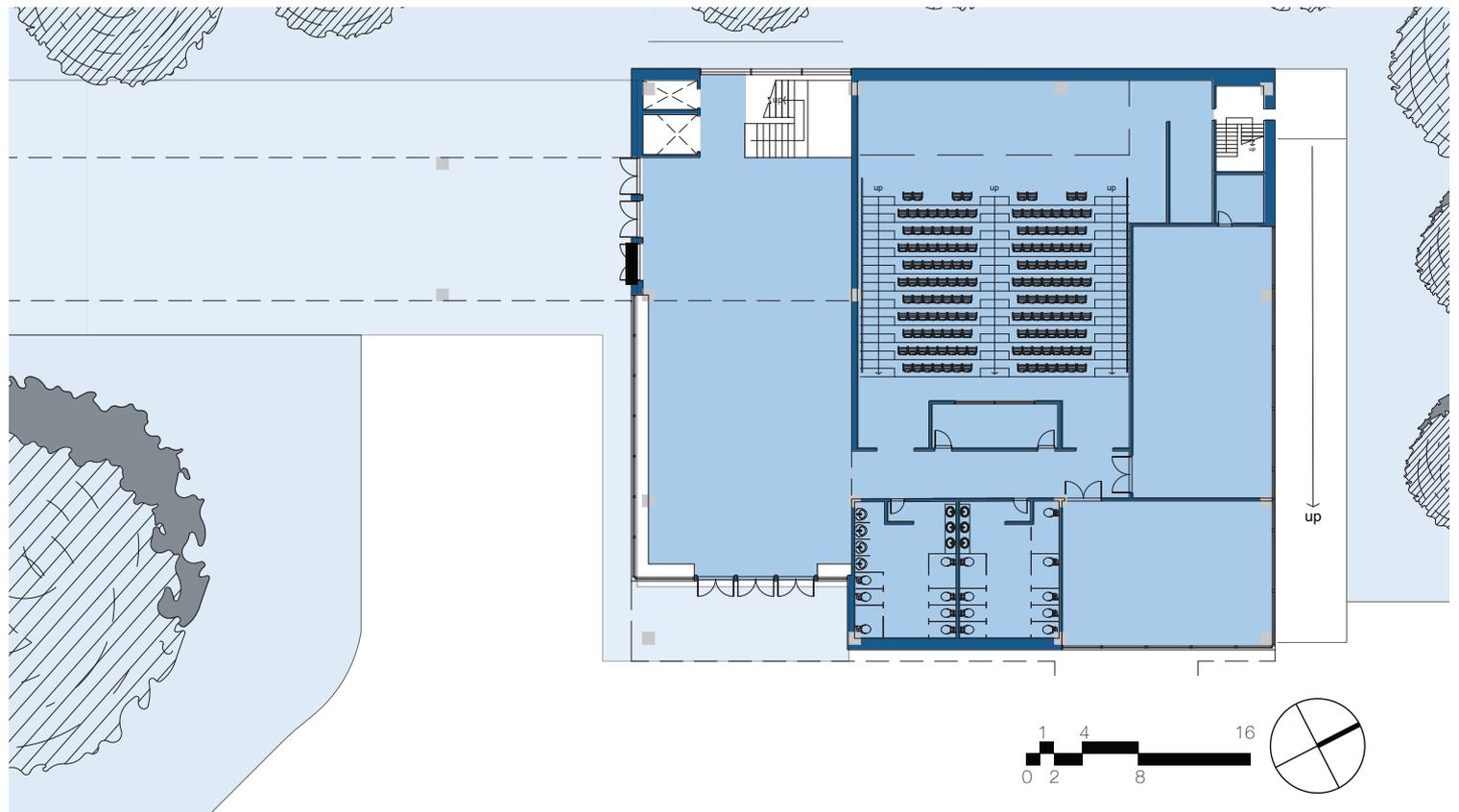


LEVEL ONE

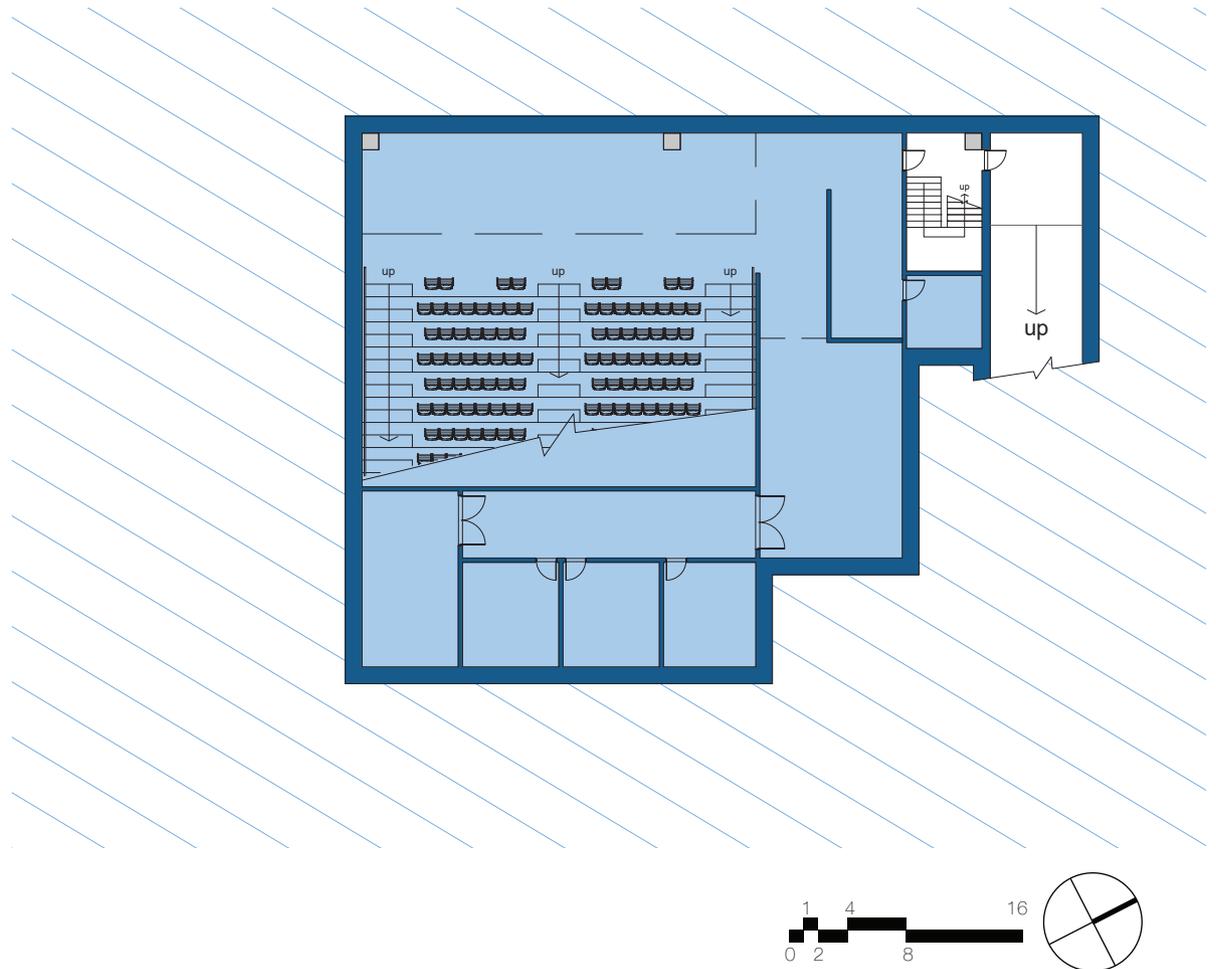
Shown to the right is plan view of level one, the level at which the community interacts with the complex itself. The first level primarily consists of public and commercial spaces, with room for events and gathering, both small and large. In the detail plan is shown the configuration of the auditorium space as it relates to the adjacent open atrium that rises throughout the complex. Sub-level one is presented as well, demonstrating this layout and its exterior ramp connection as well.



DETAIL PLAN

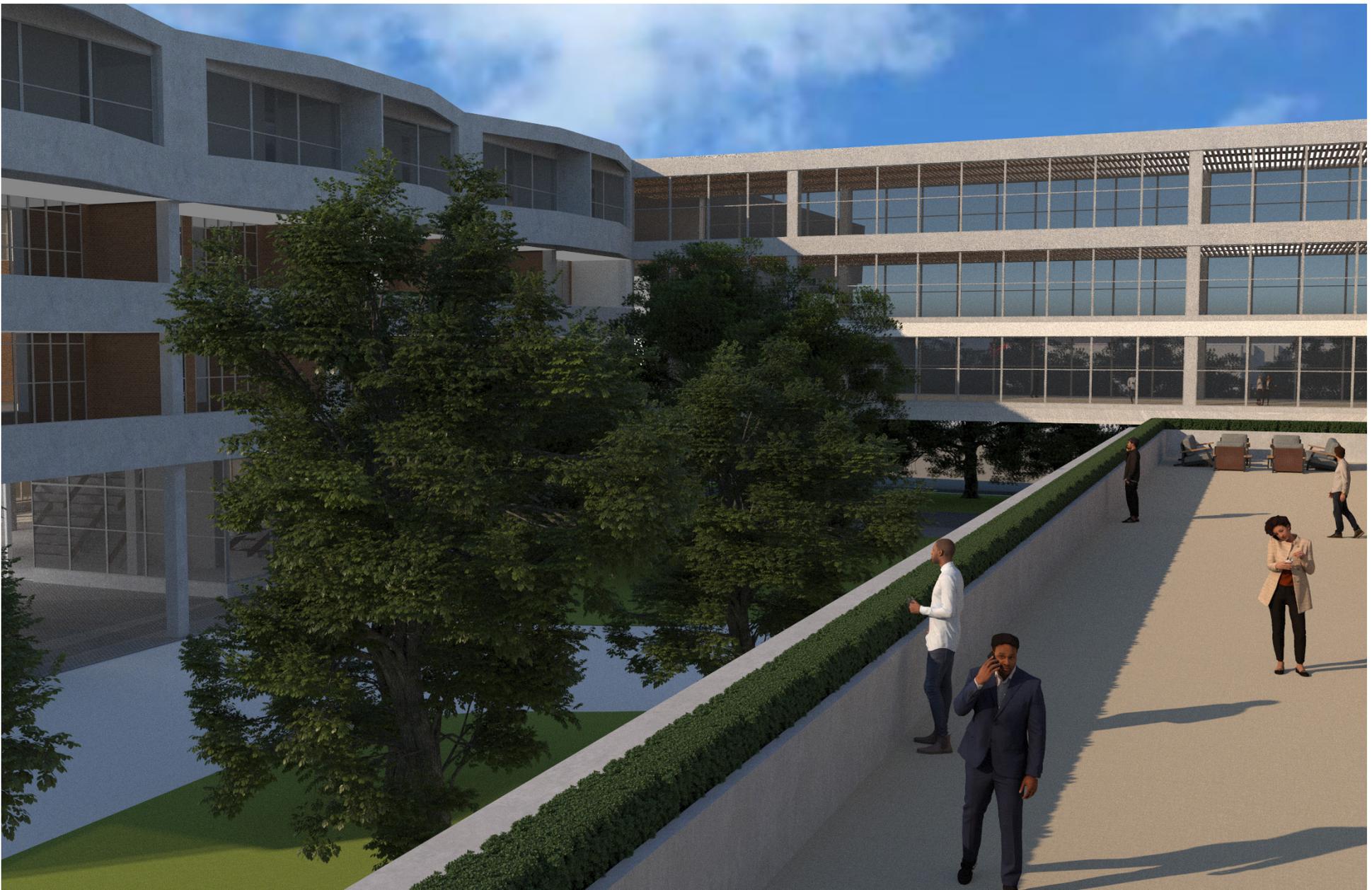


SUB-LEVEL ONE

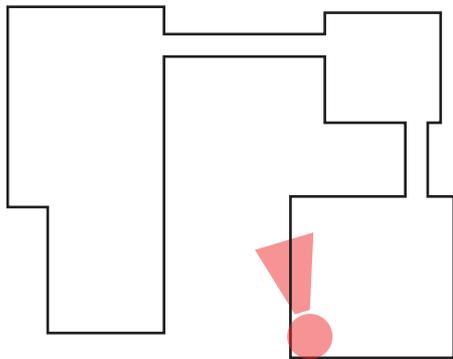


LEVEL ONE



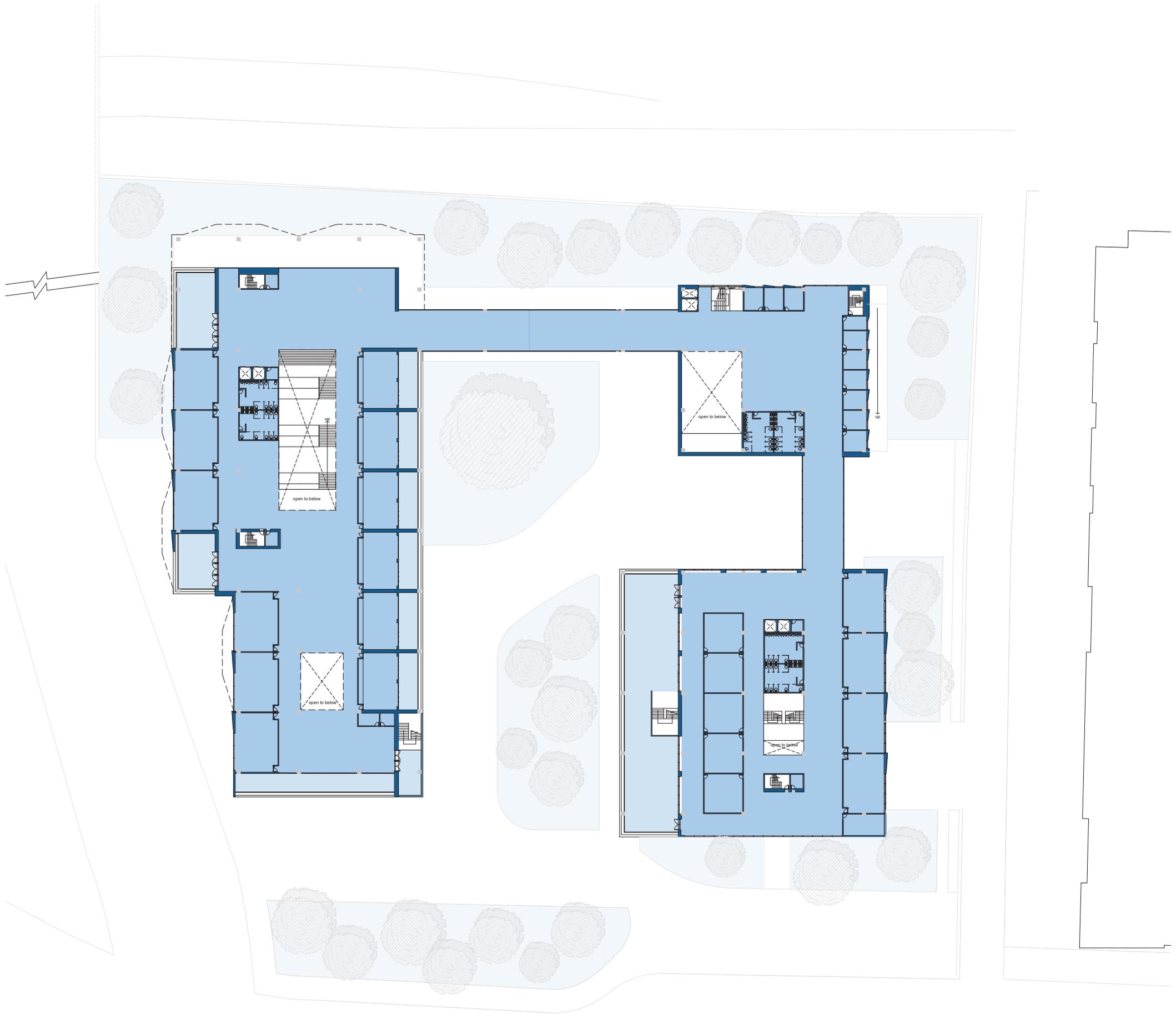


Level Two Outdoor Space



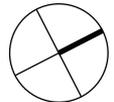
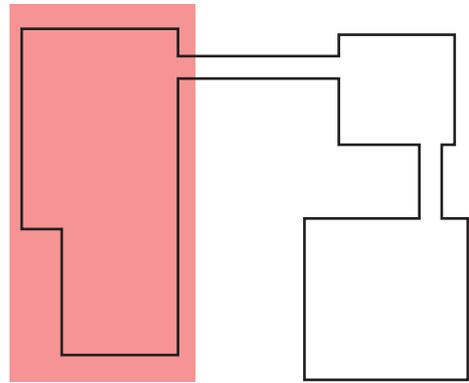
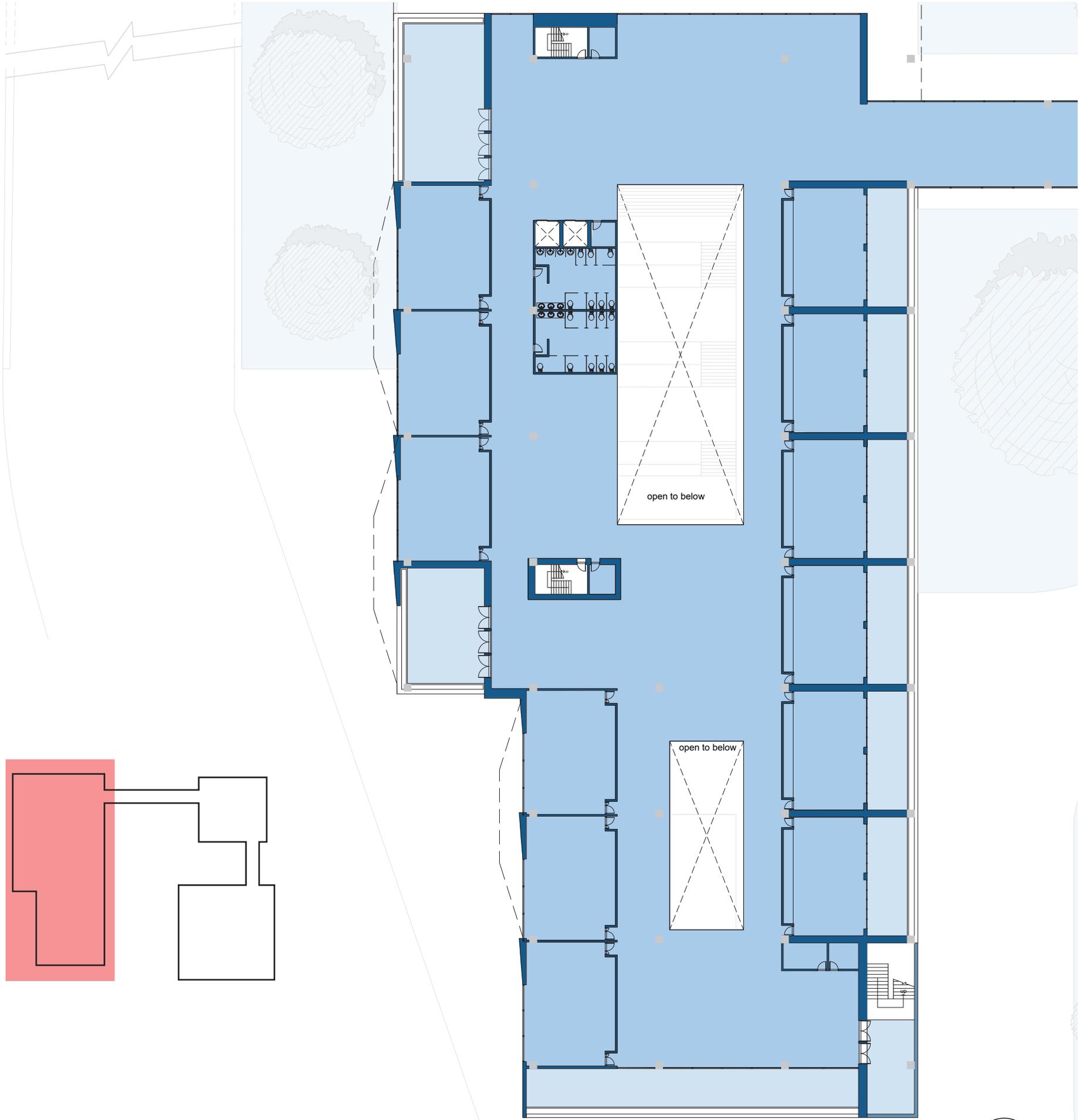
Level two is where the separate structures start to connect both physically through sky bridges and visually through outdoor spaces on all facades that allow users to see and connect with each other across the open green space. Shown above is a rendering of the second floor outdoor space overlooking the courtyard and across to the open classrooms.

LEVEL TWO

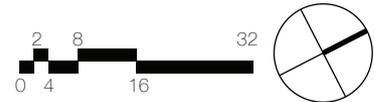
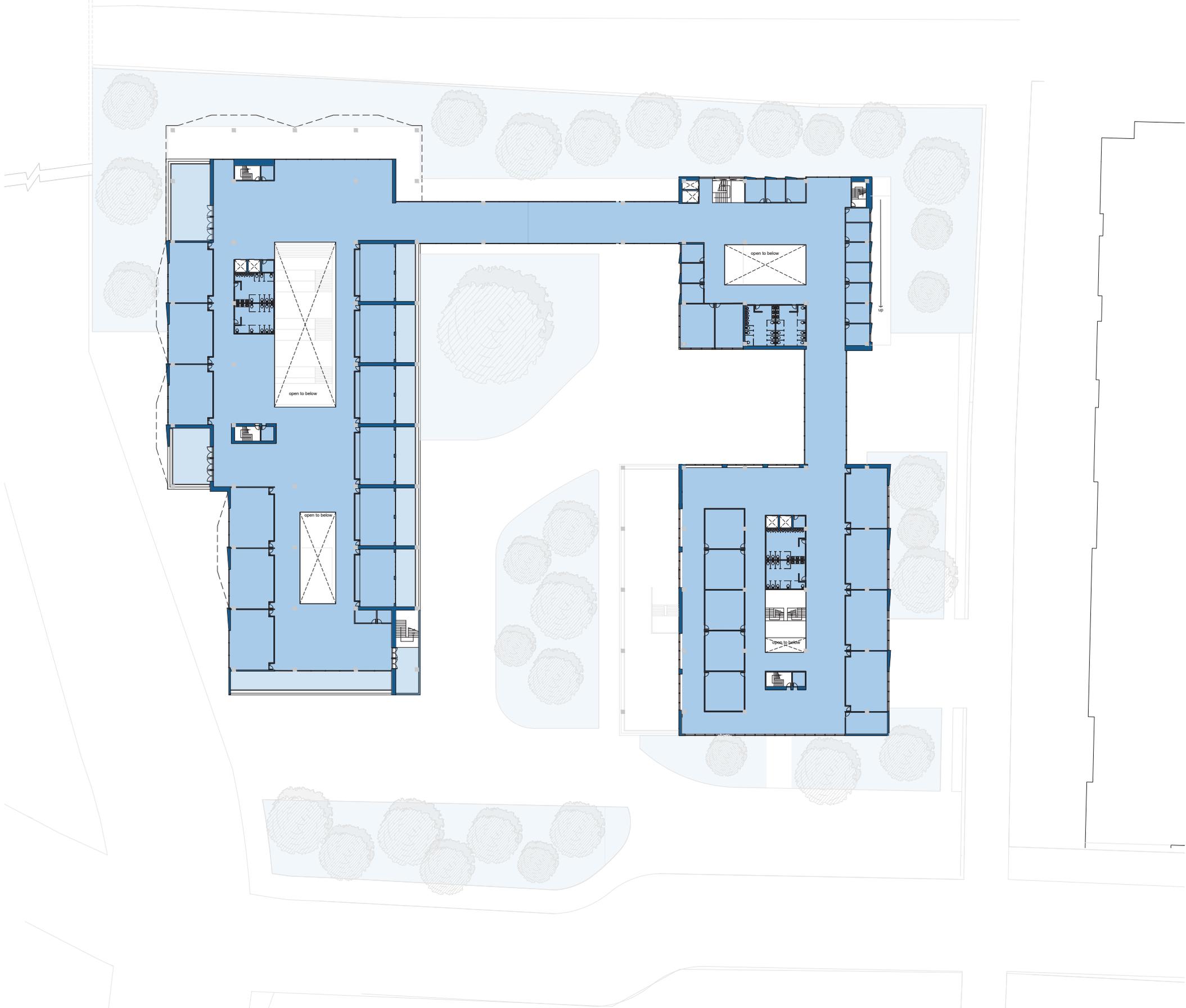


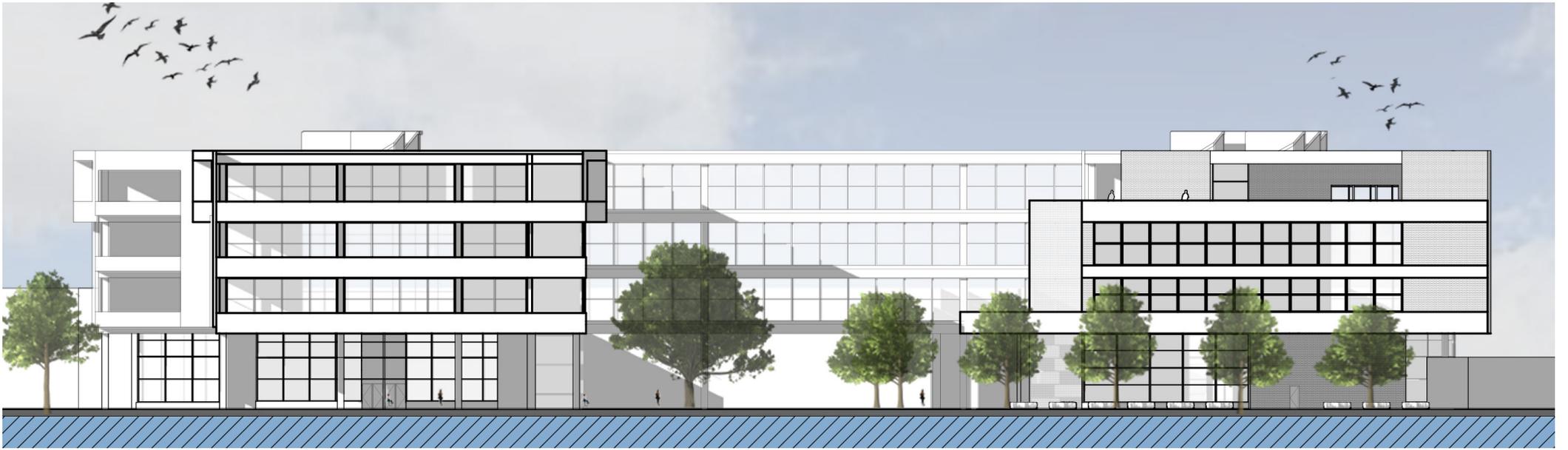
LEVEL THREE

DETAIL PLAN



LEVEL THREE

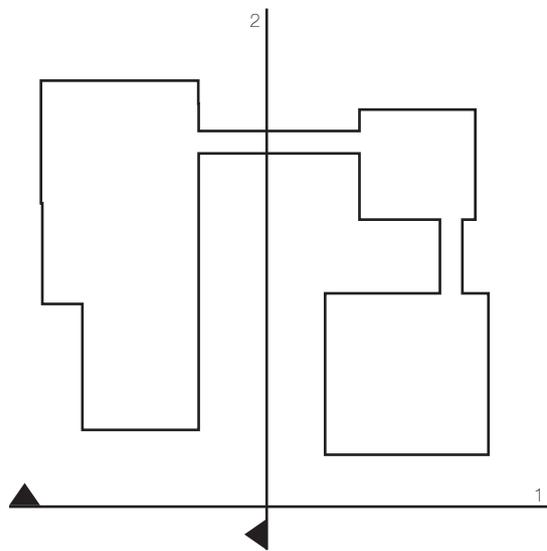




Elevation One



Elevation Two



Level four starts to diverge from the rest, breaking the façade with an final piece that visually ends the building. These concrete protrusions again house space for users to inhabit and experience the connection to the exterior. The façade is a combination of brick and concrete for weight and glass for transparency and balance to the other materials. The elevations above show how shadows work with the structure, giving views from the main pedestrian pathway in elevation one and the interior courtyard in elevation two.

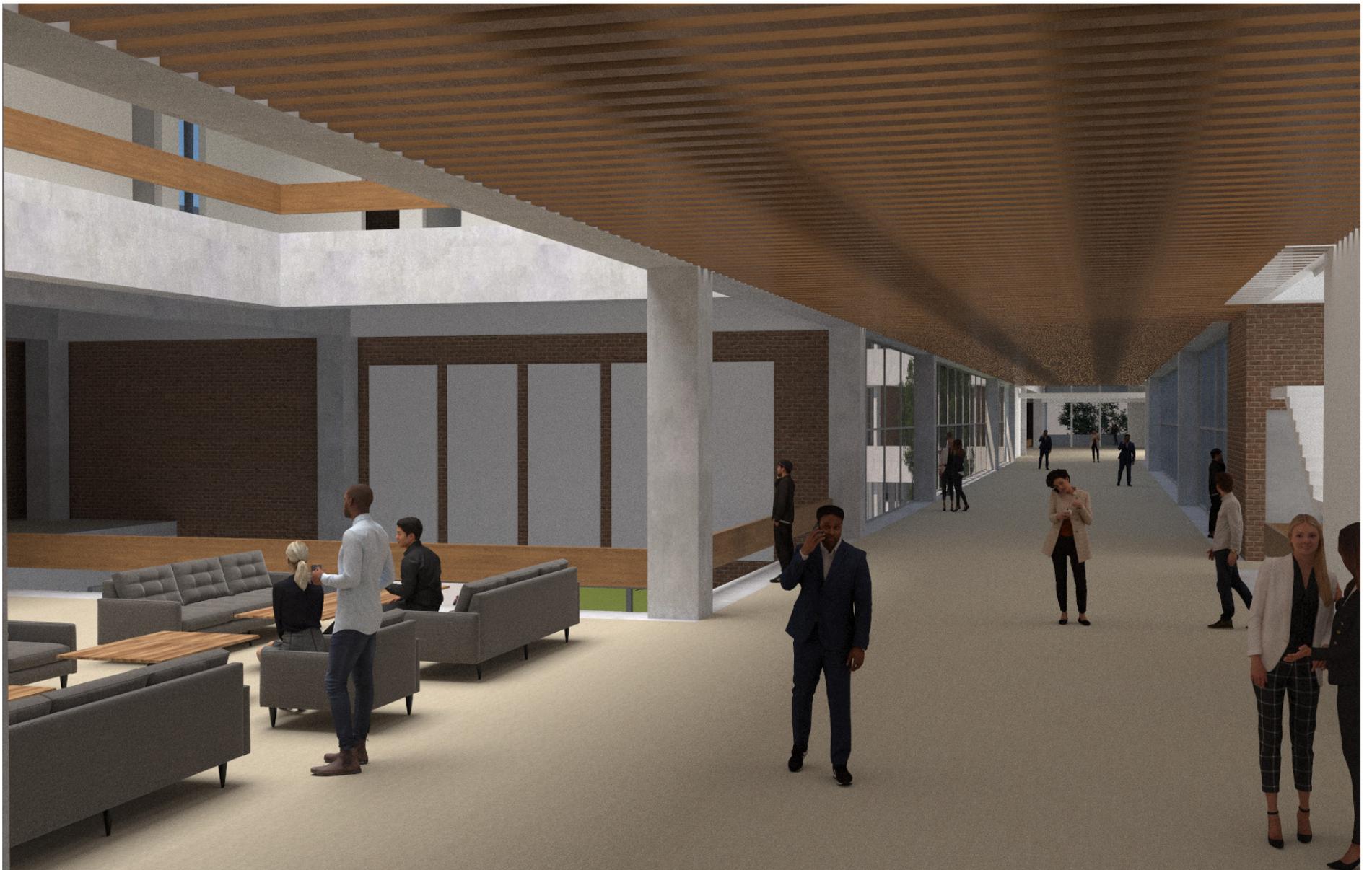
LEVEL FOUR



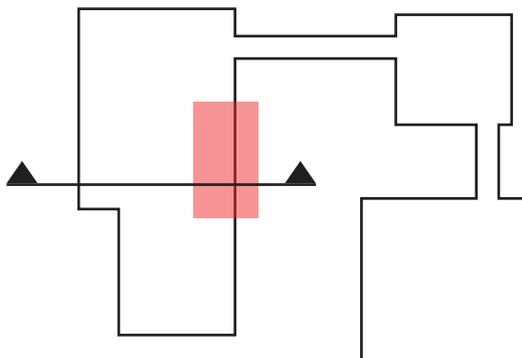
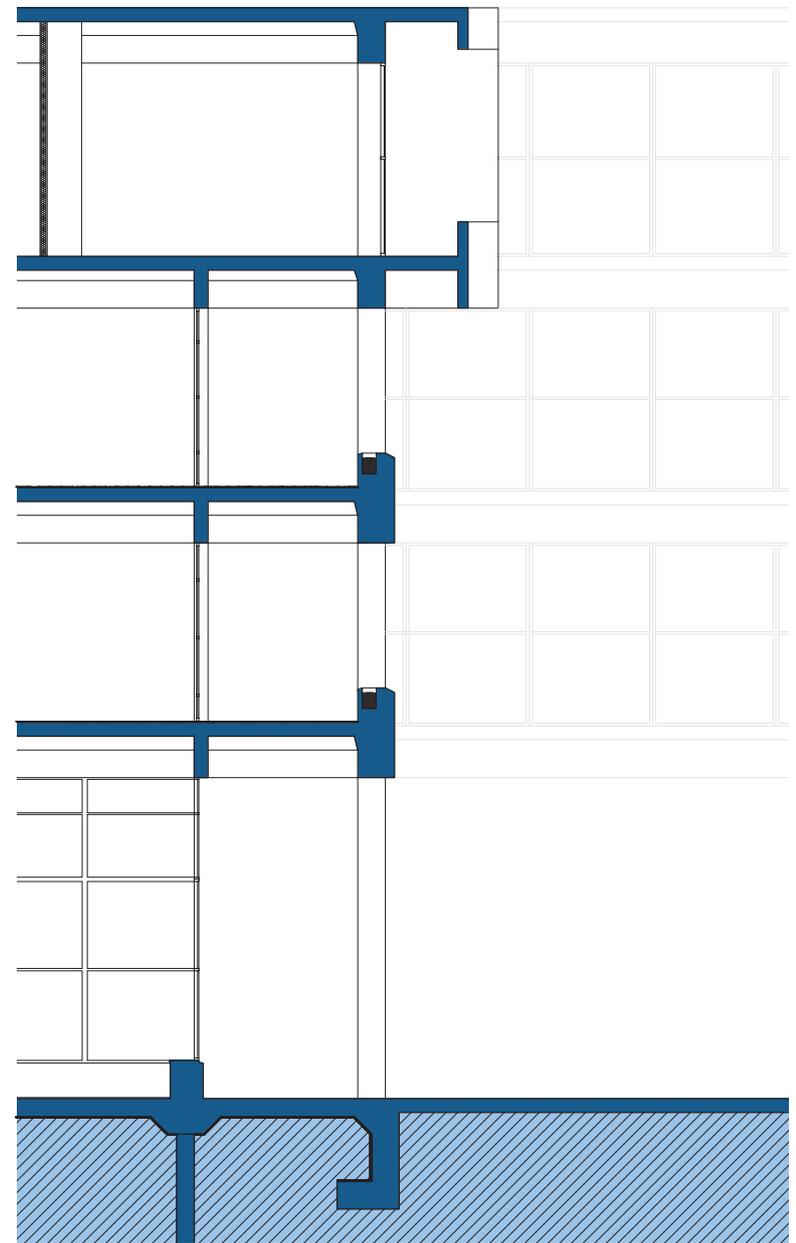
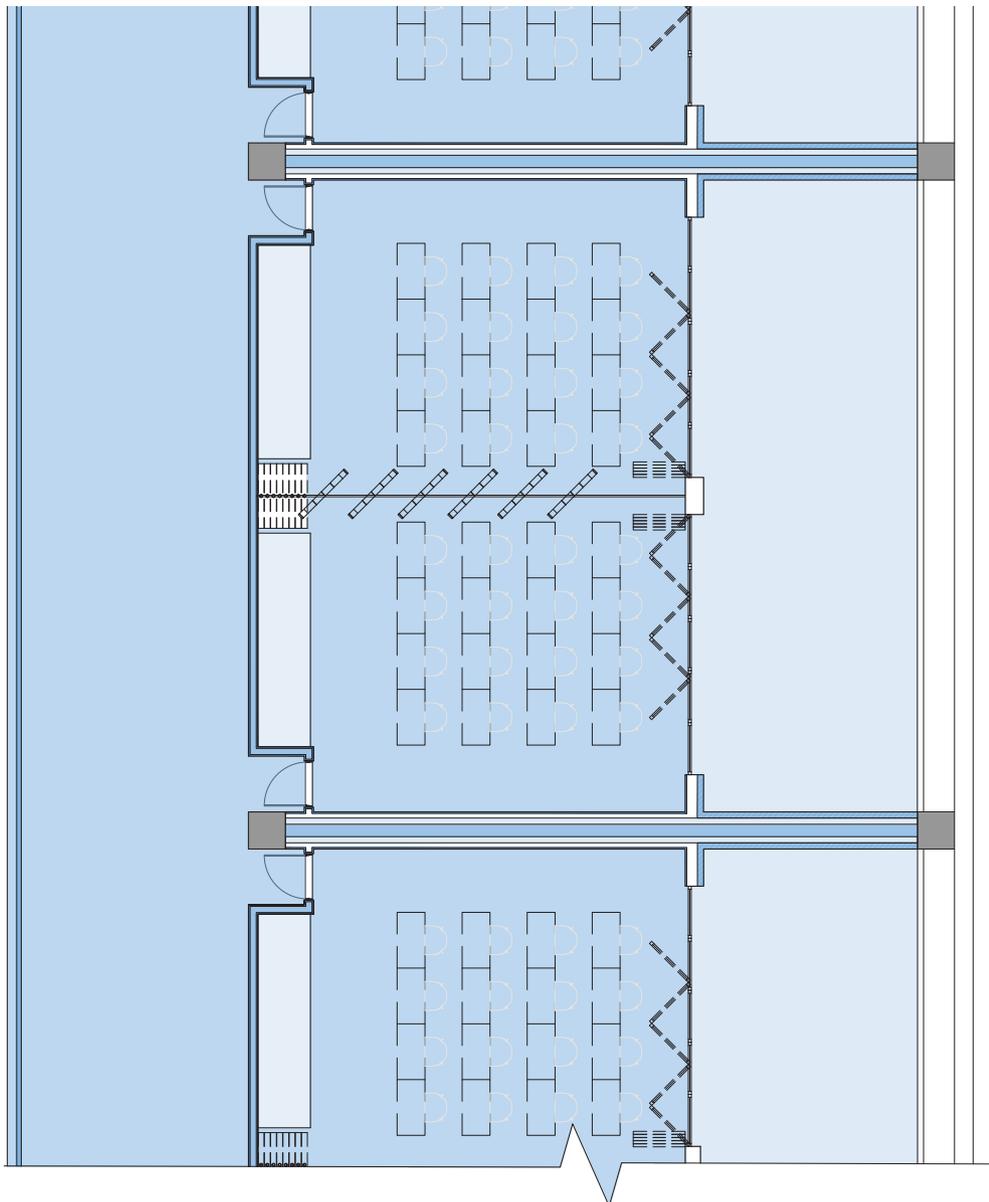
The perspective below shows the interior of the classrooms that work to open and close, allowing for multiple classroom typologies to work within one space.



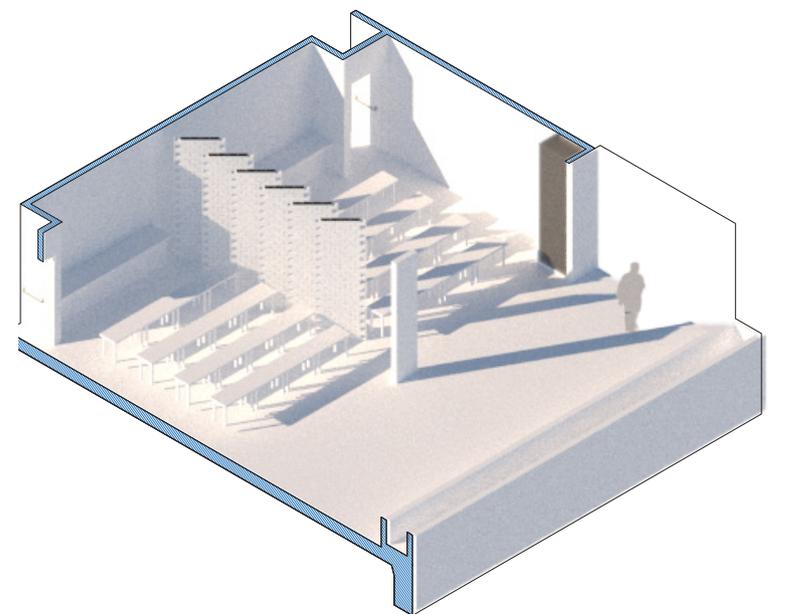
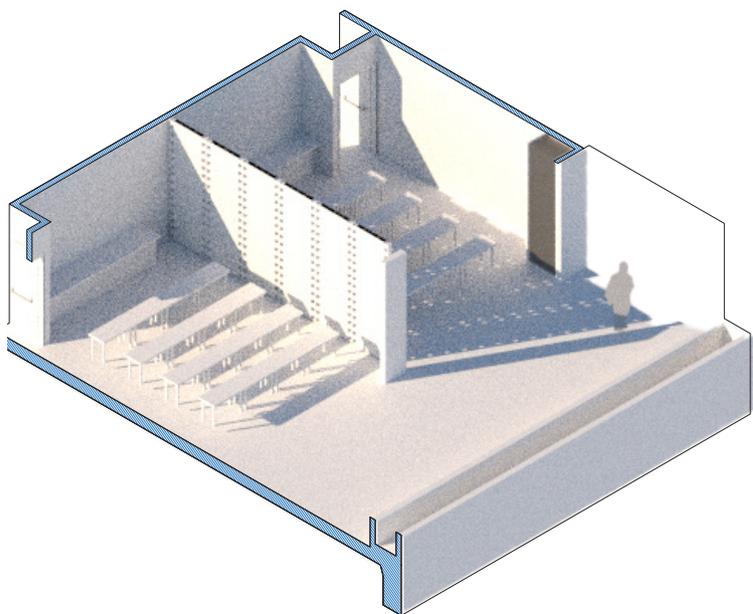
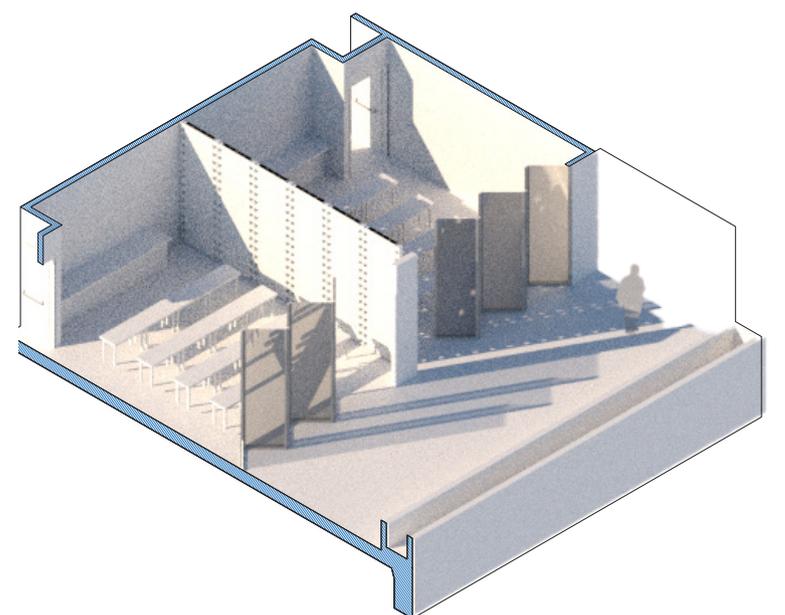
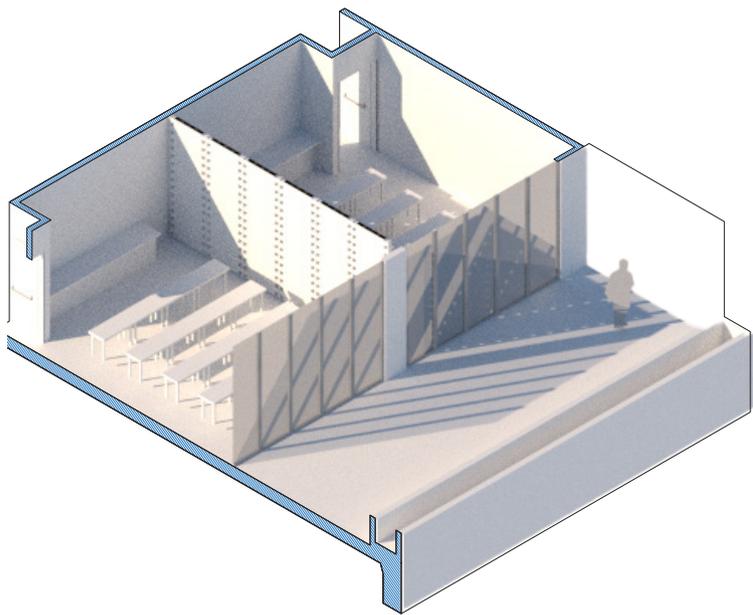
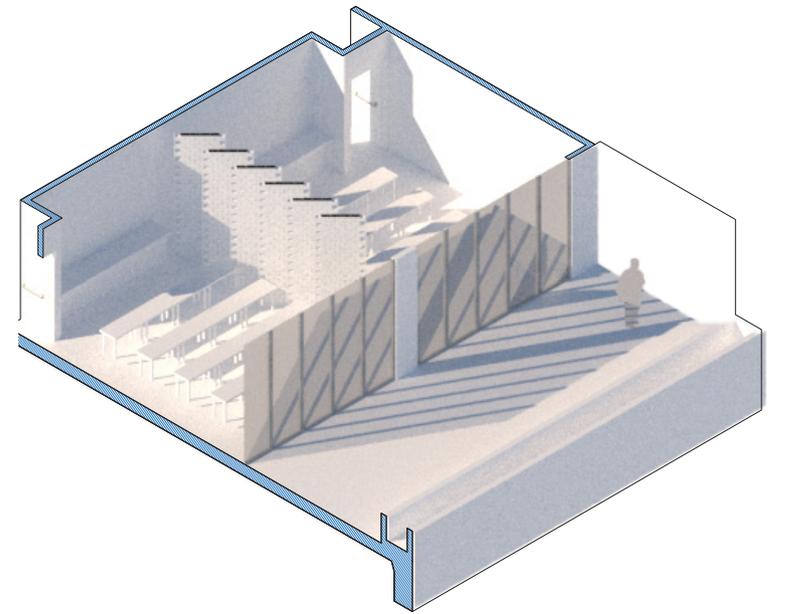
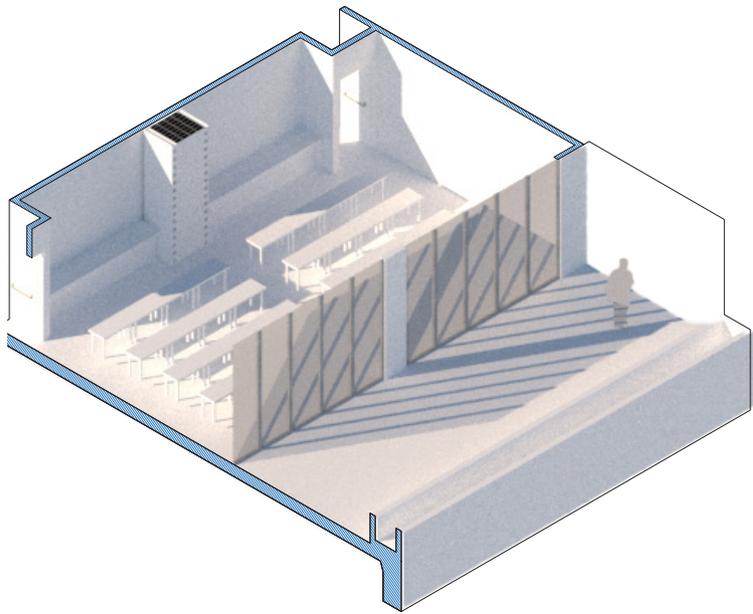
A view of the interior intersection of three complexes by sky bridge with an allotted space for artwork and banners to be displayed for events.

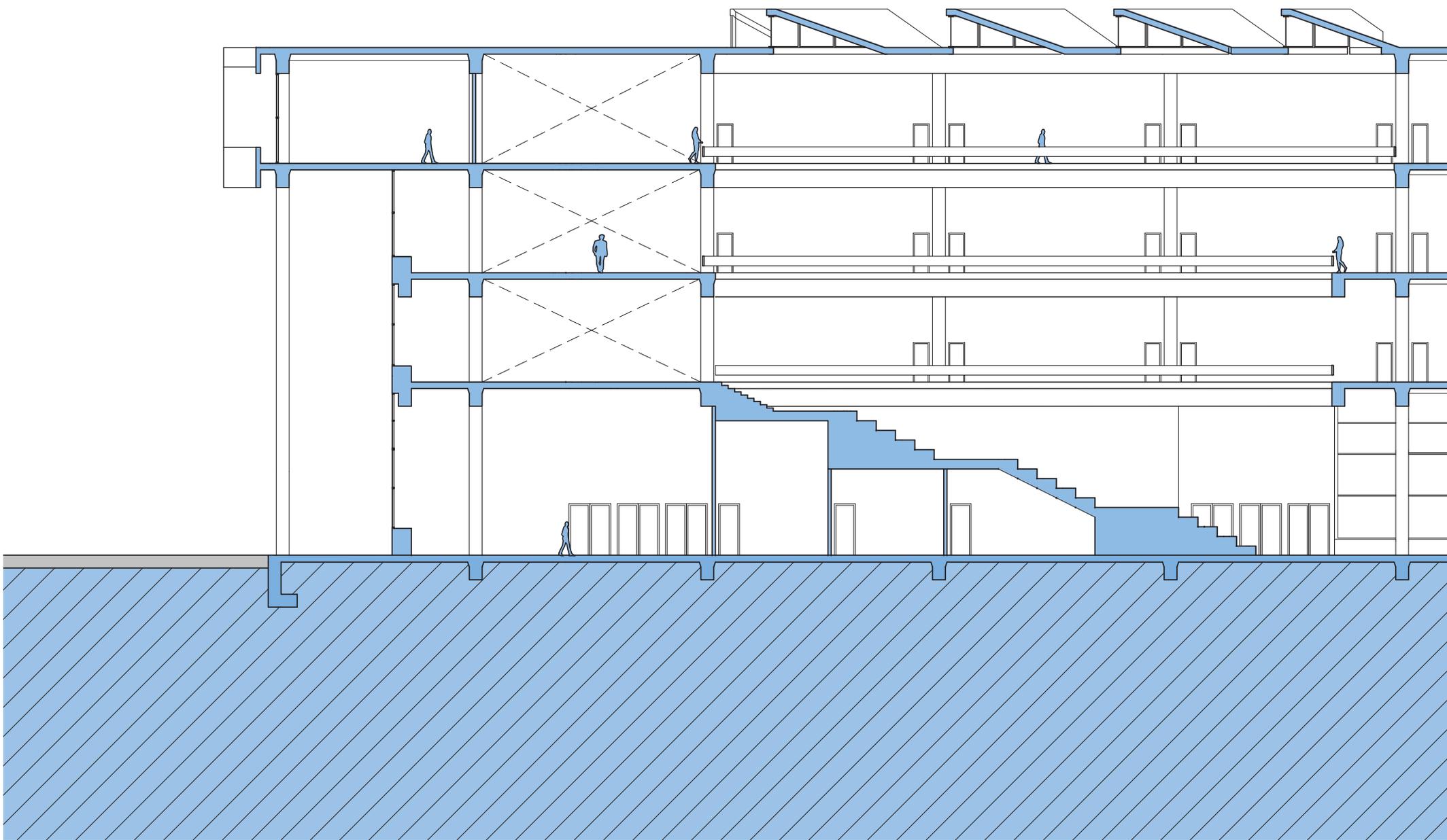


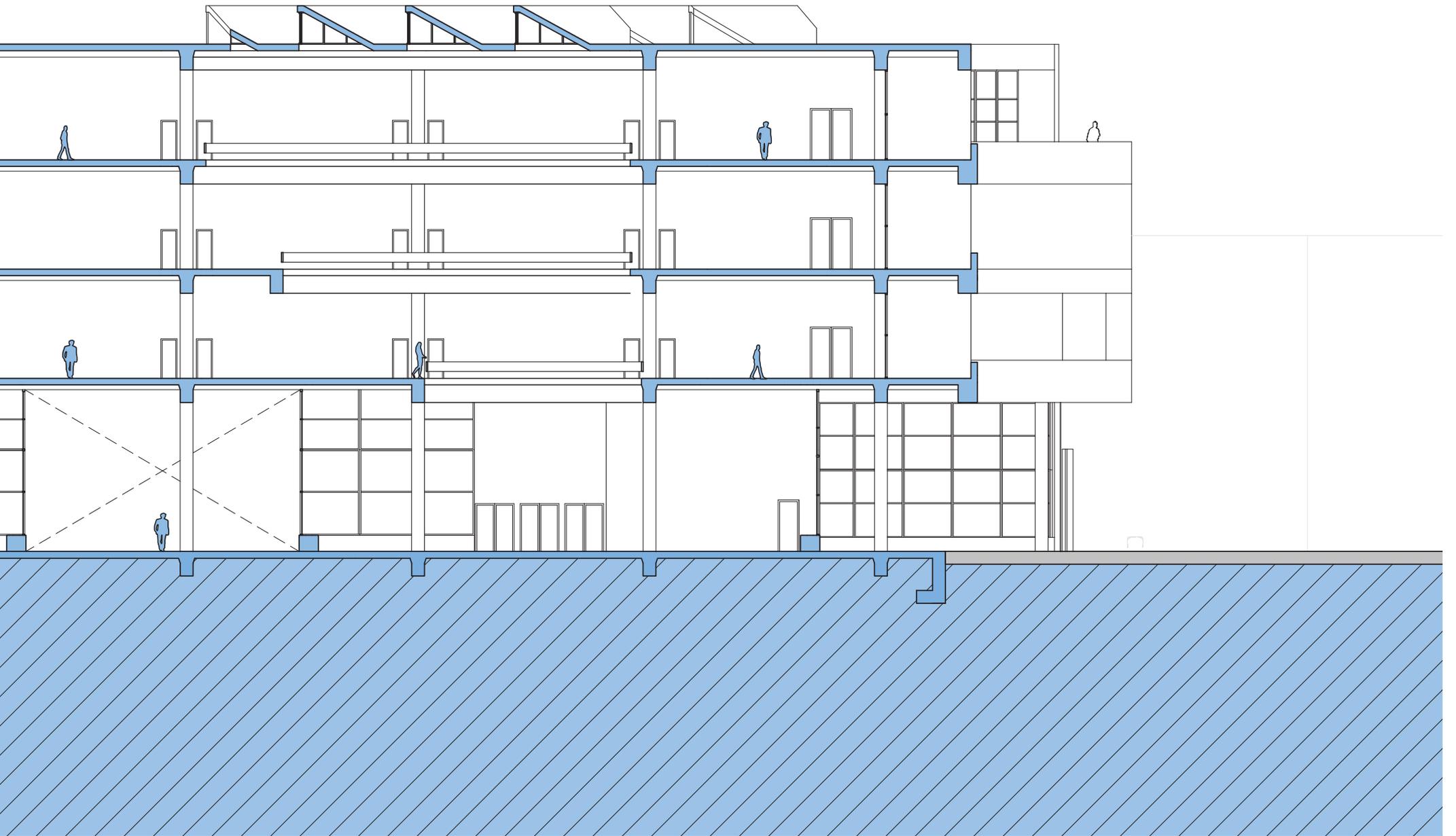
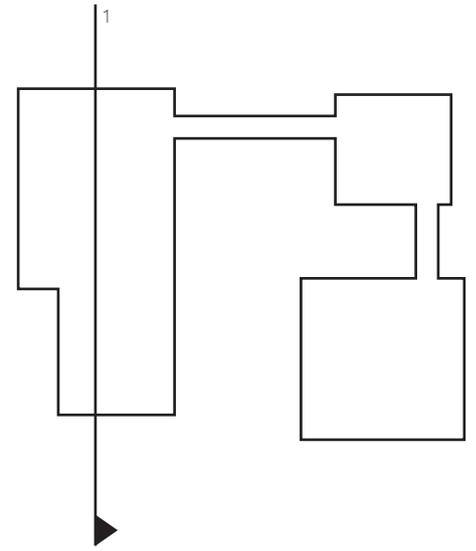
PROJECT ONE



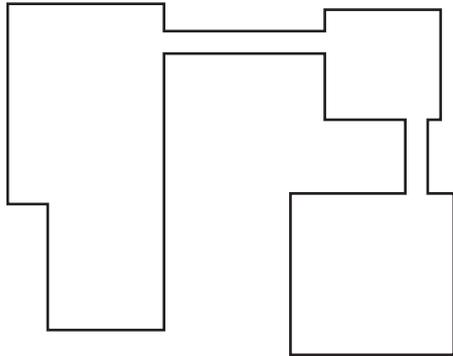
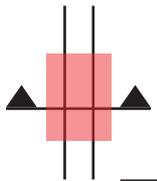
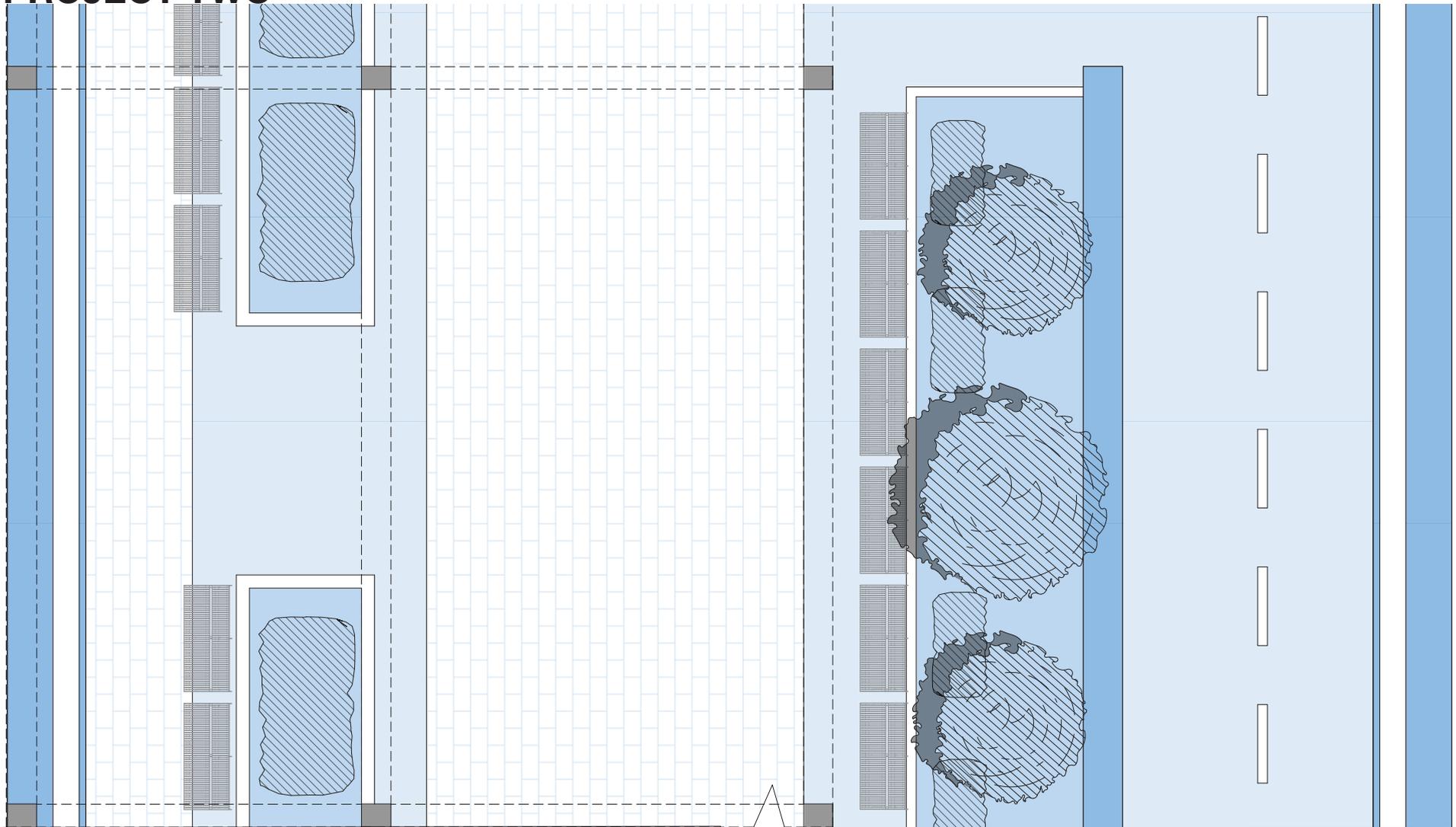
Project one sought to examine the classroom module, looking specifically at how a space could be opened further to the outdoors and operate in a modular fashion, allowing one room to be split into two and then opened to an exterior space for a new type of classroom space. The spaces are separated by a brick curtain wall system to keep the texture of the exterior façade and connect seamlessly when opened to the outdoors. Shown to the right are variations of this module at certain degrees of open and closed.



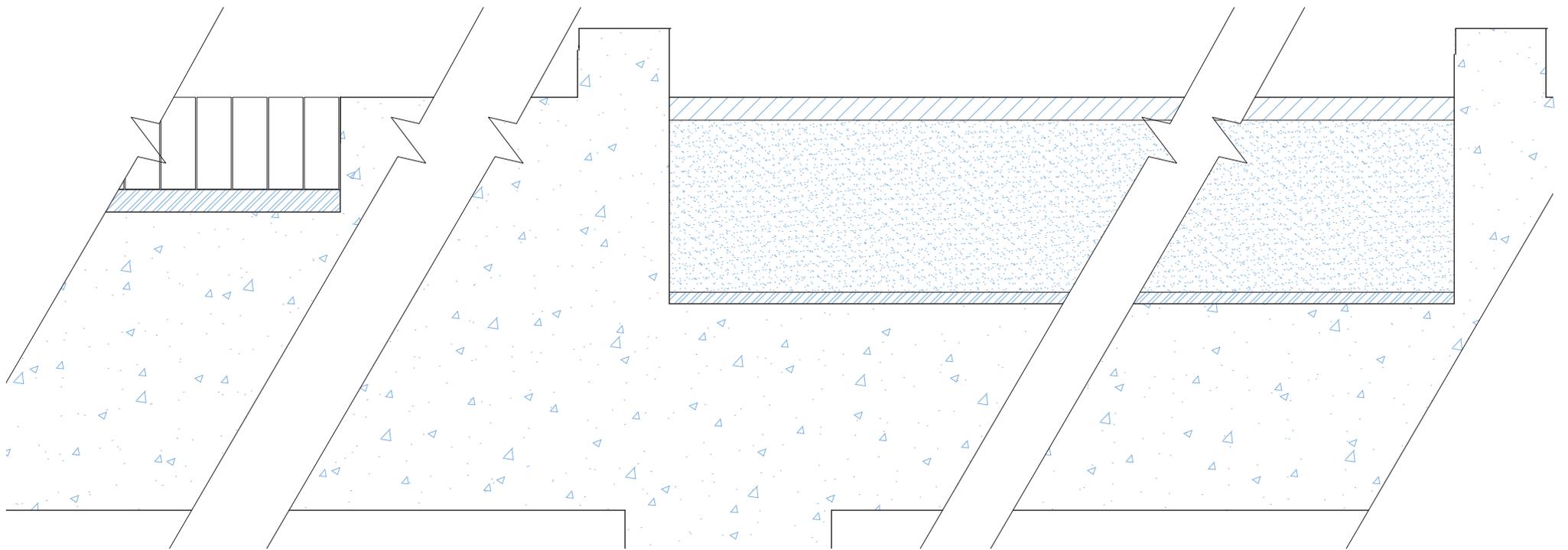
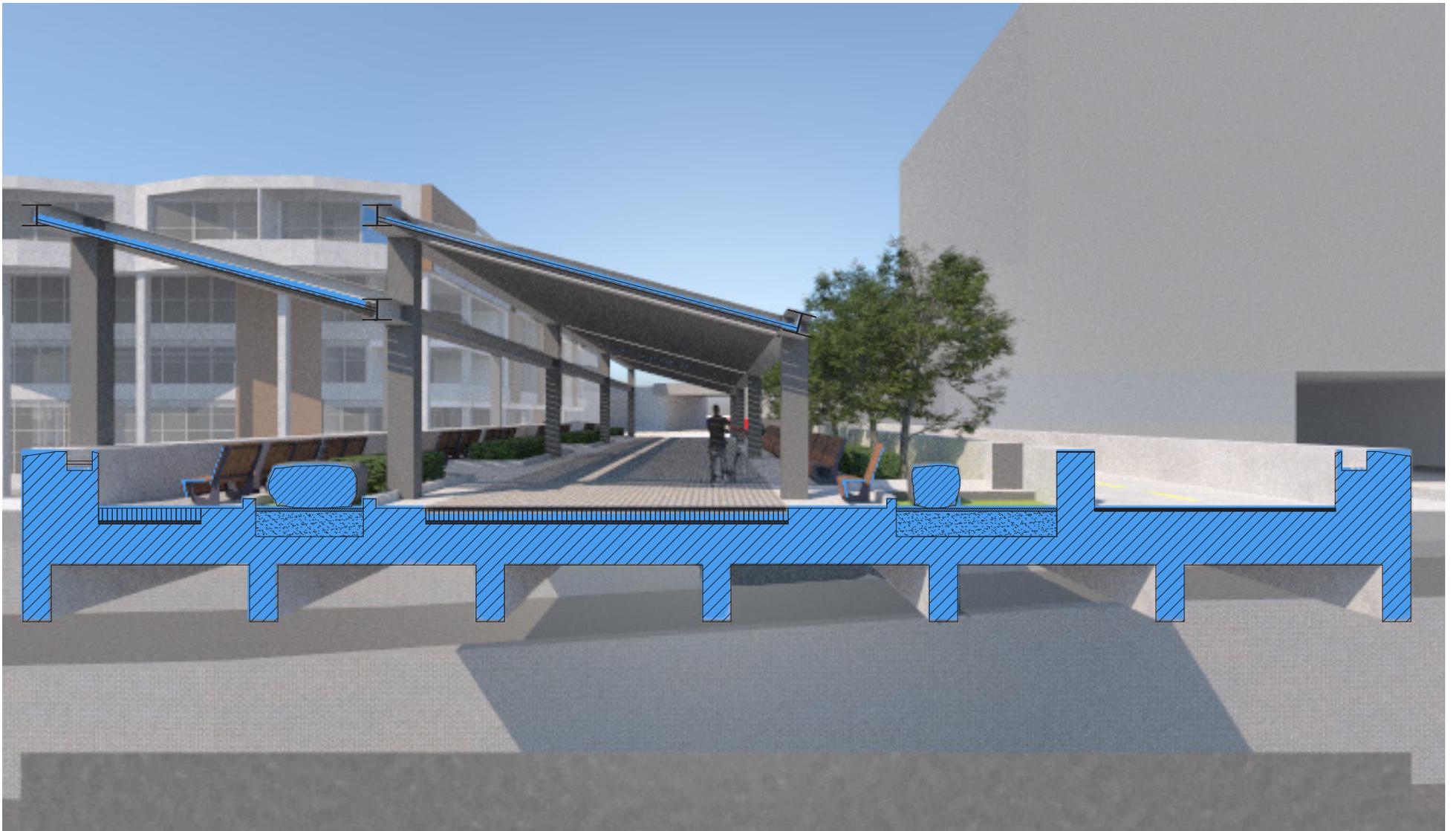


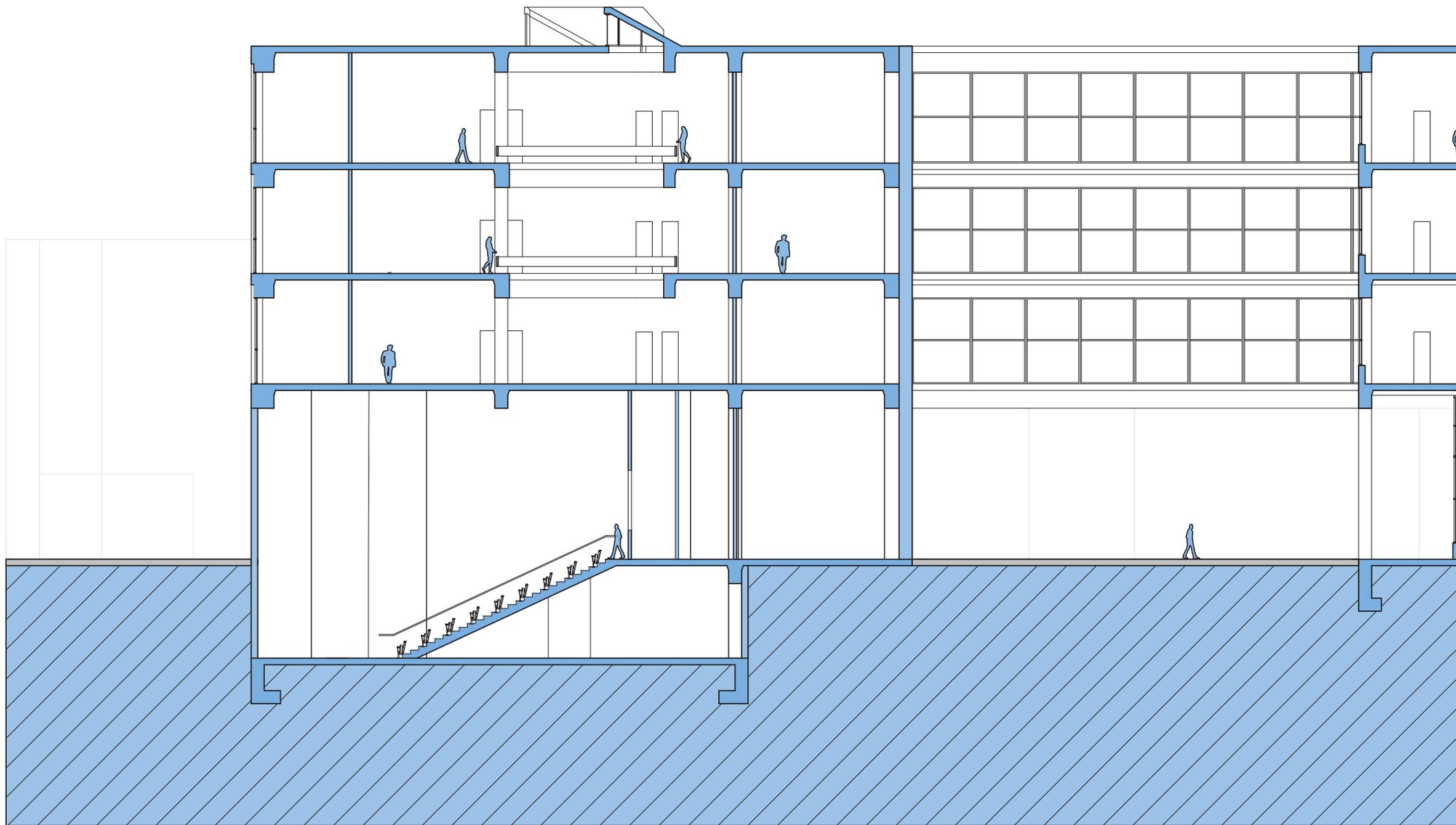


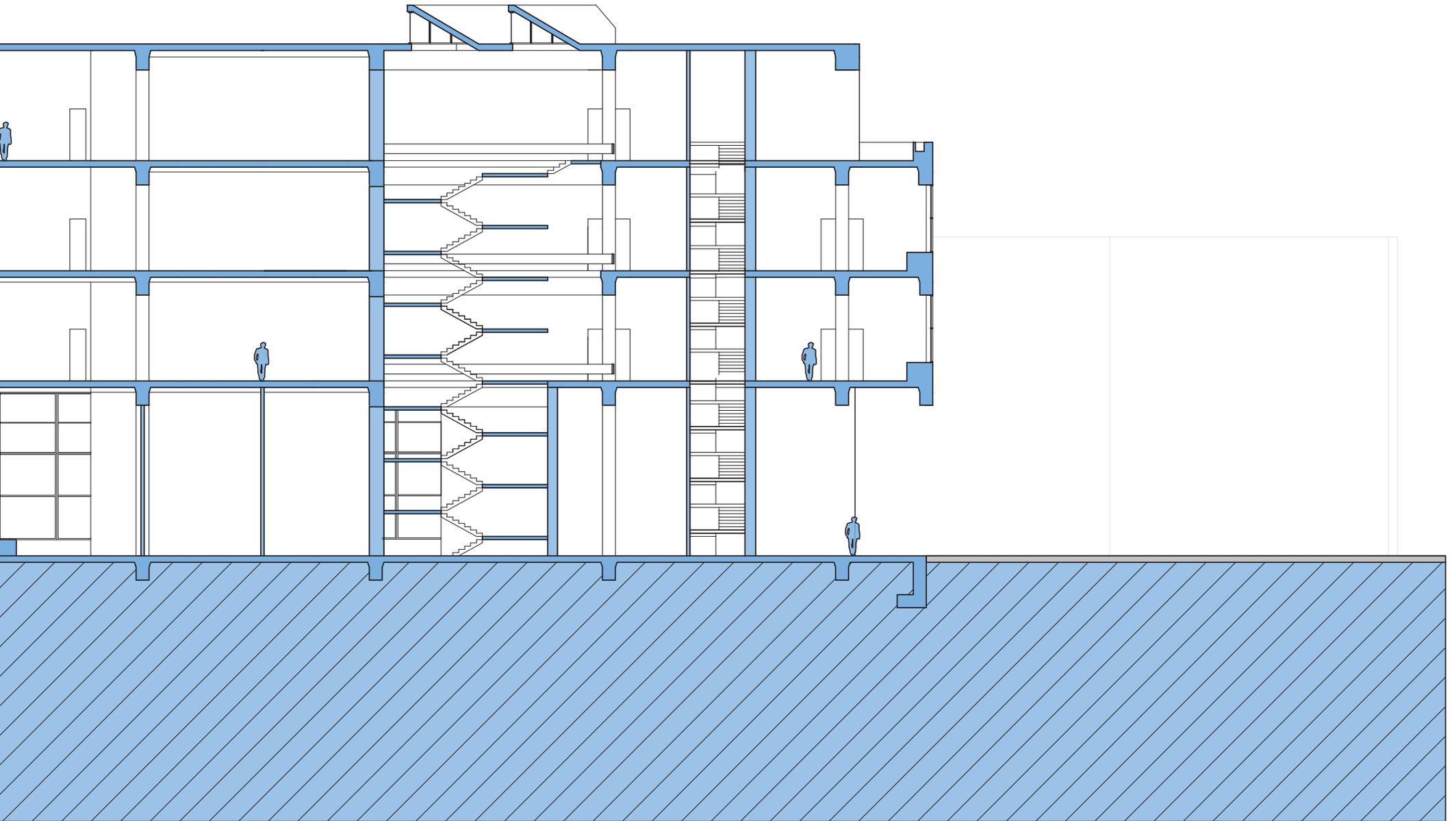
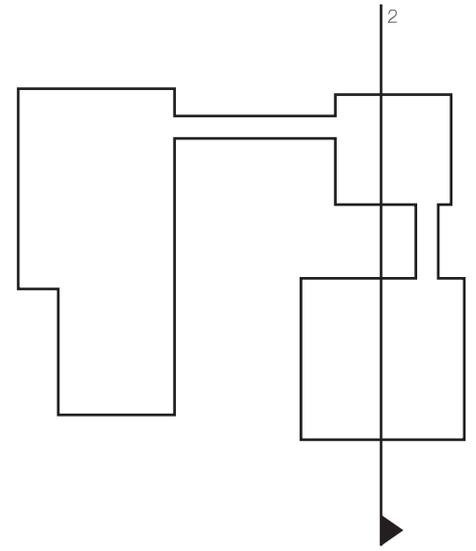
PROJECT TWO



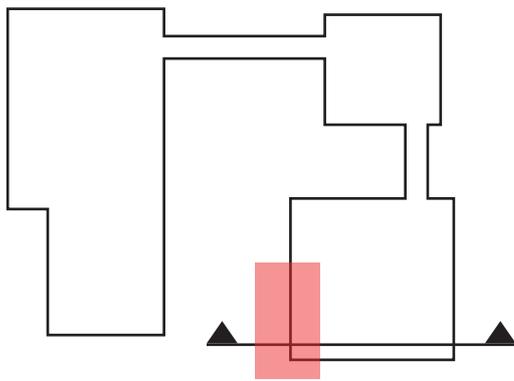
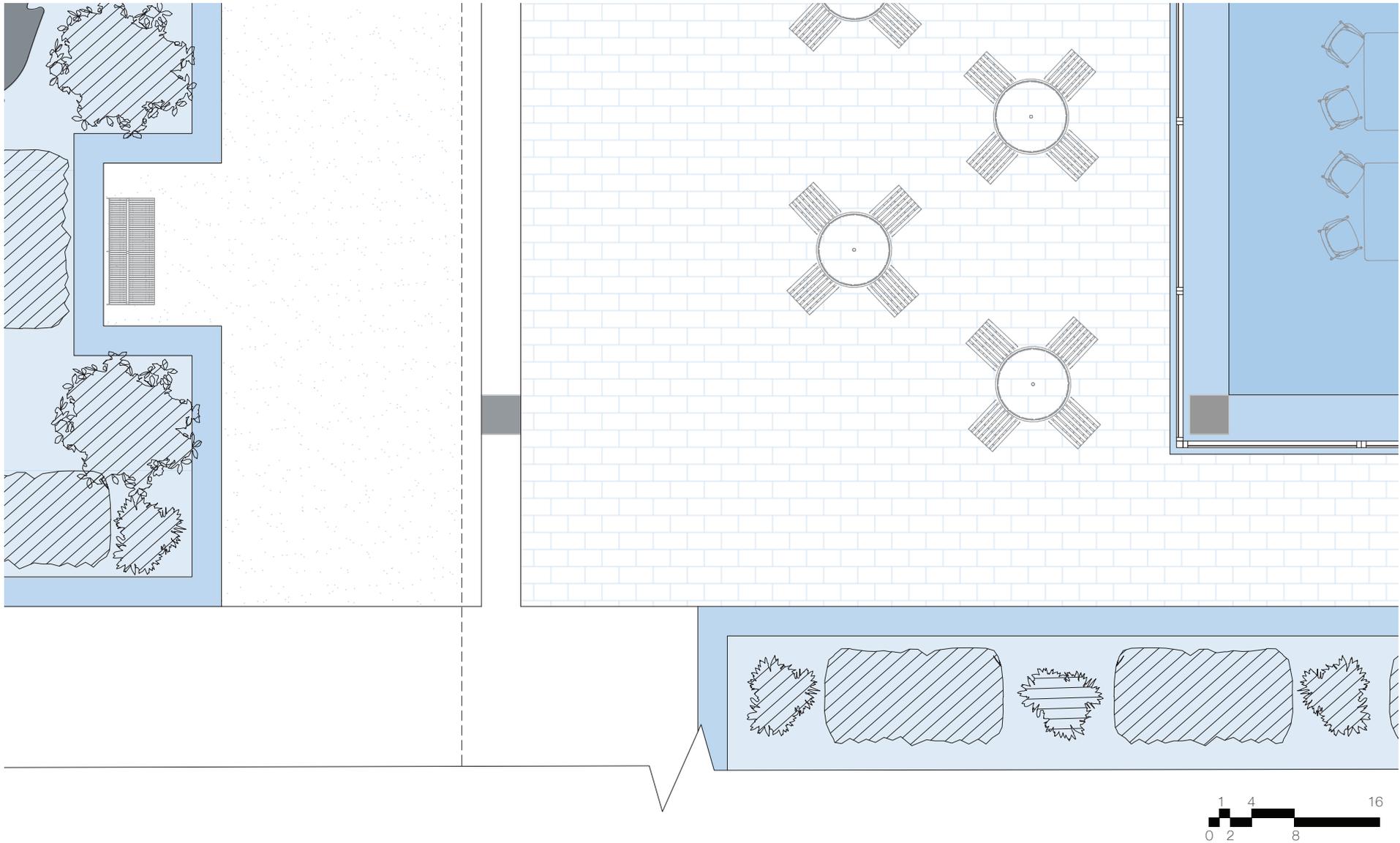
Project two builds on the established pedestrian bridge that connects over the highway to the intended high school. The cross section of this bridge and its width were justified with the implementation of bike paths, pedestrian paths, and seating areas for users. All lanes of traffic were then separated by green beds with vegetation.



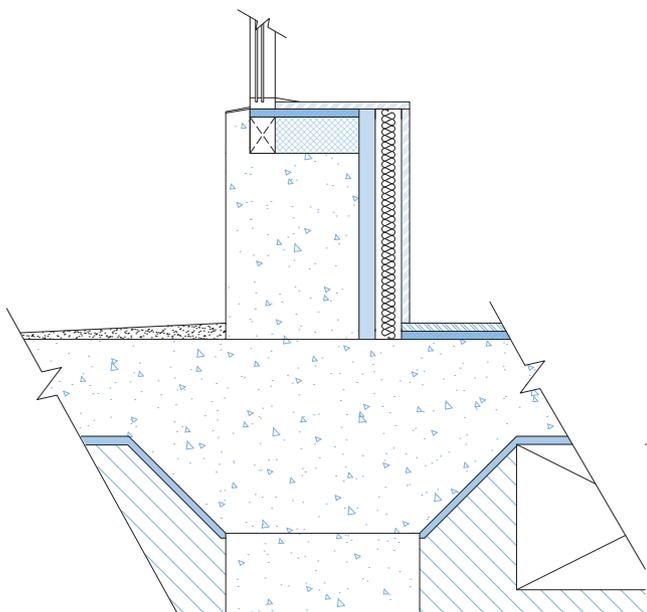
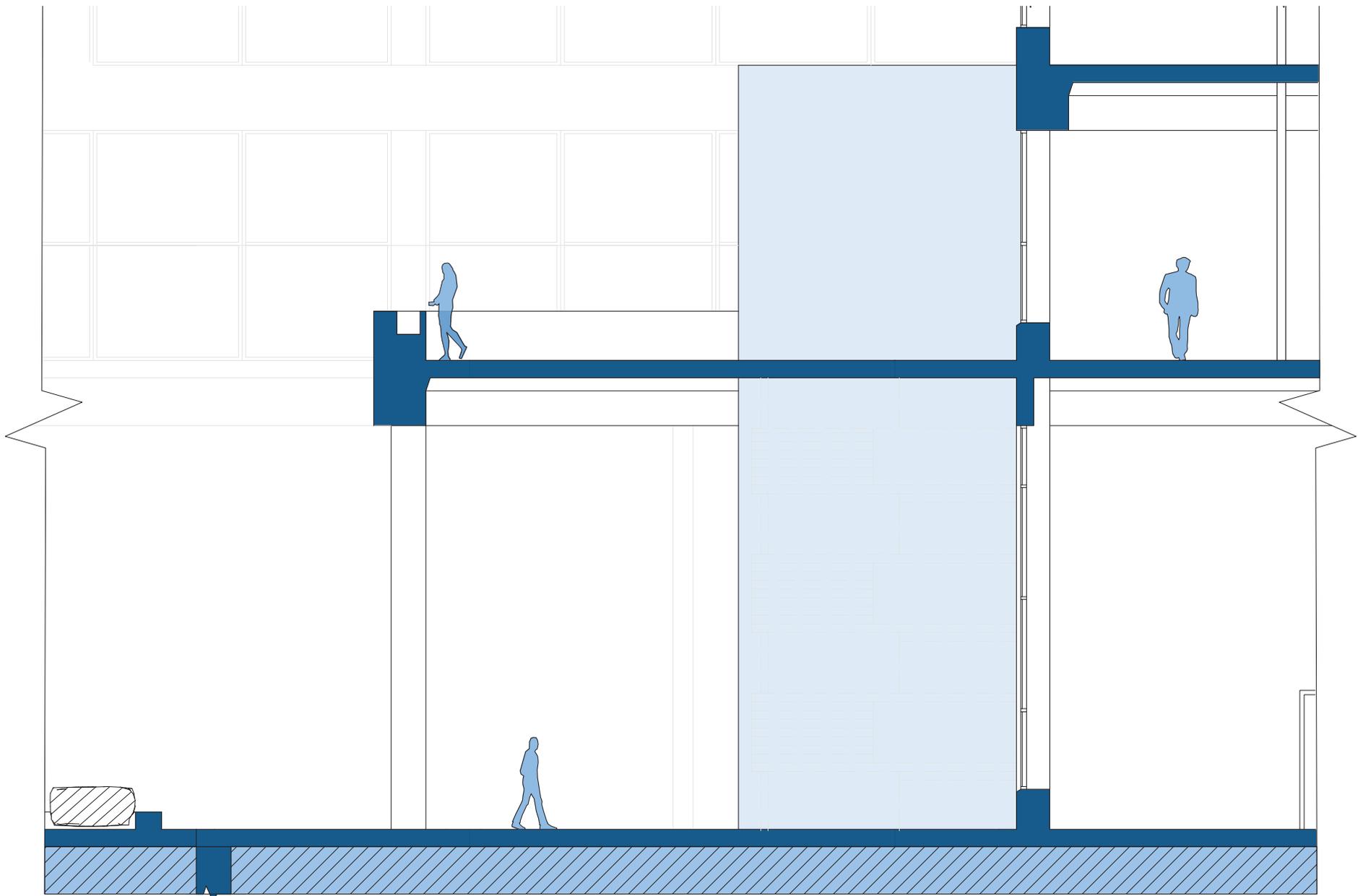


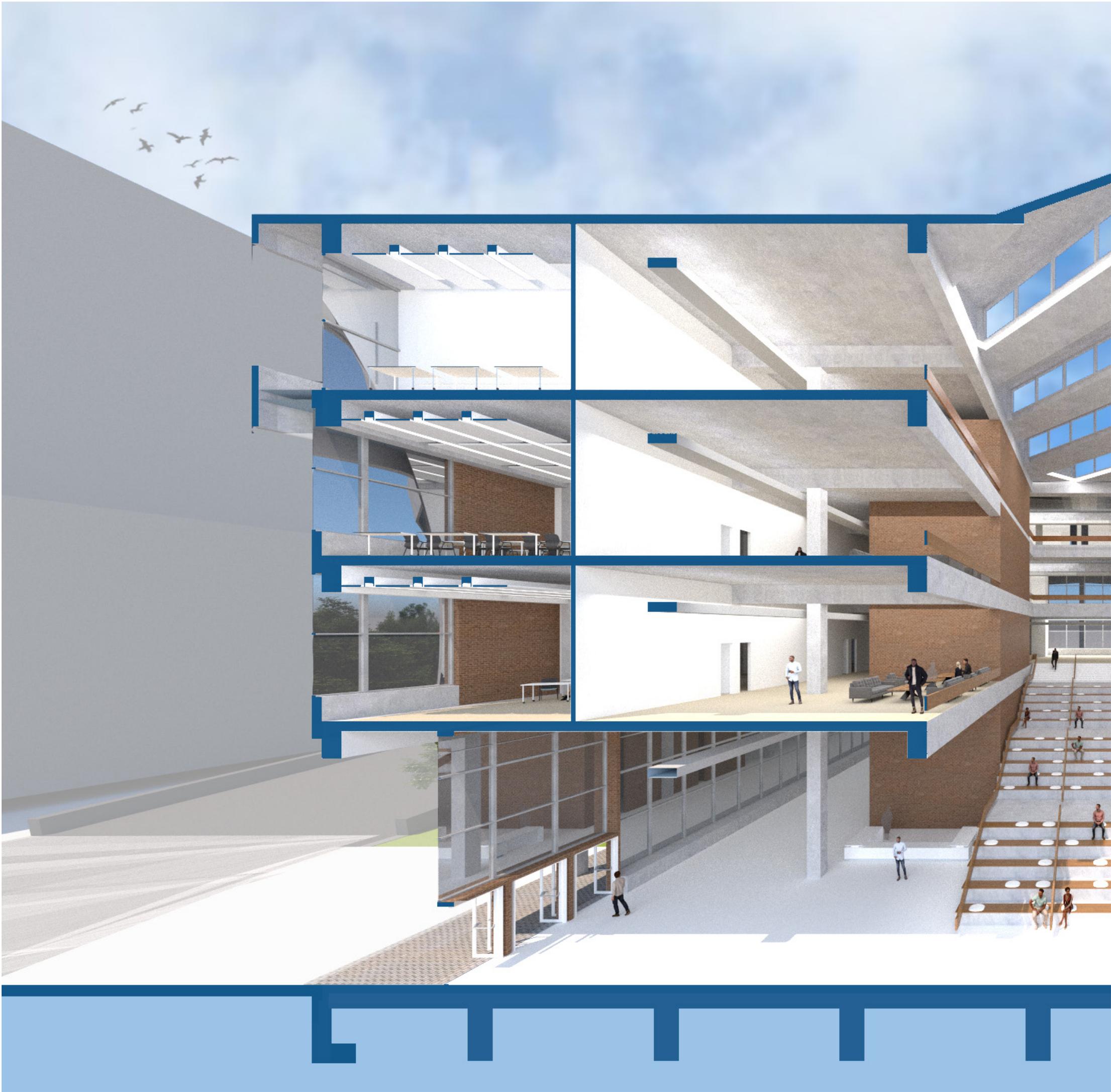


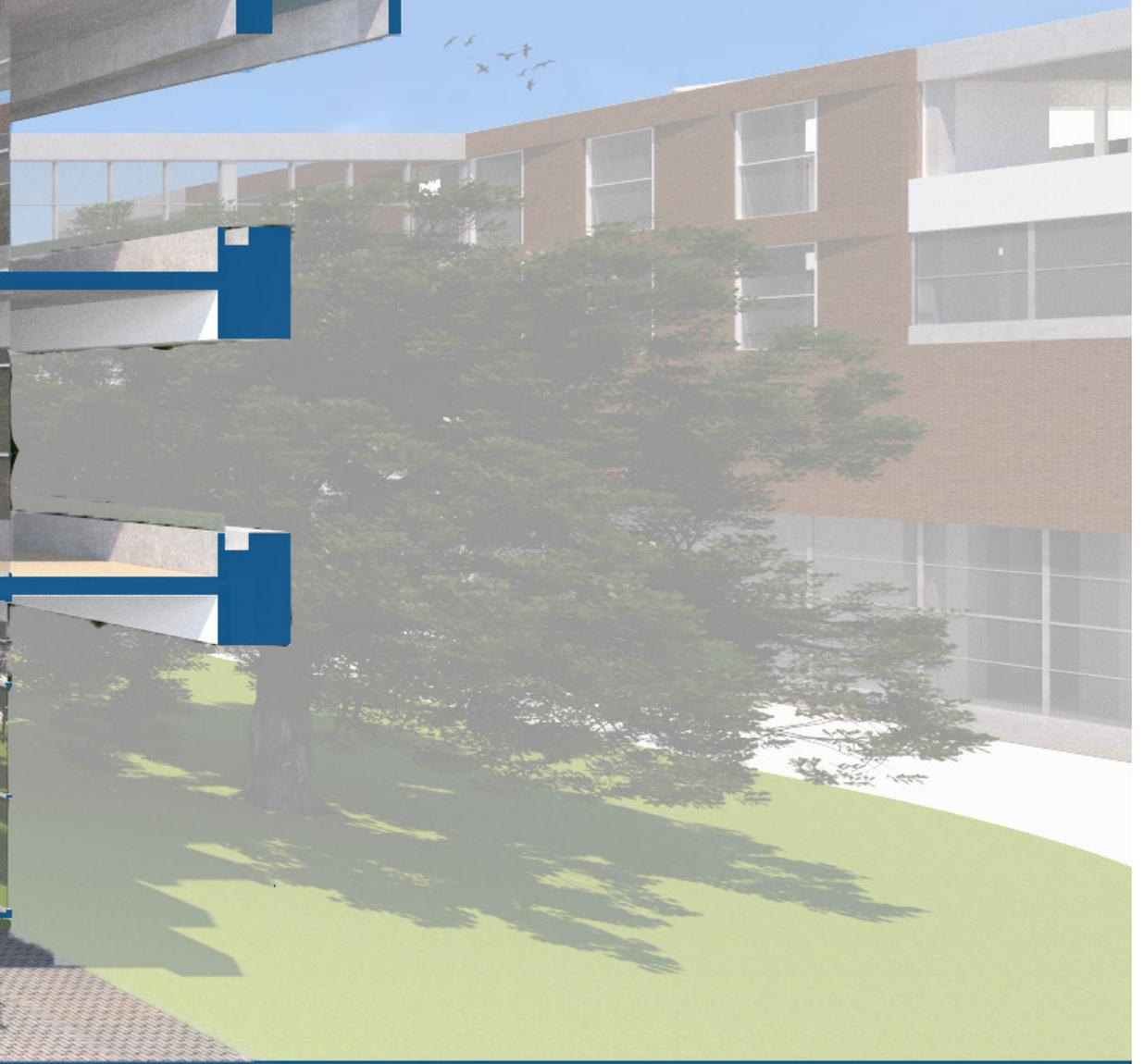
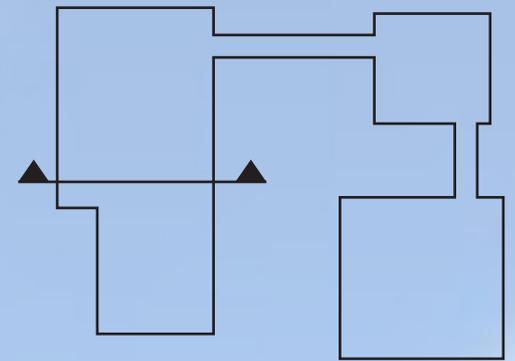
PROJECT THREE

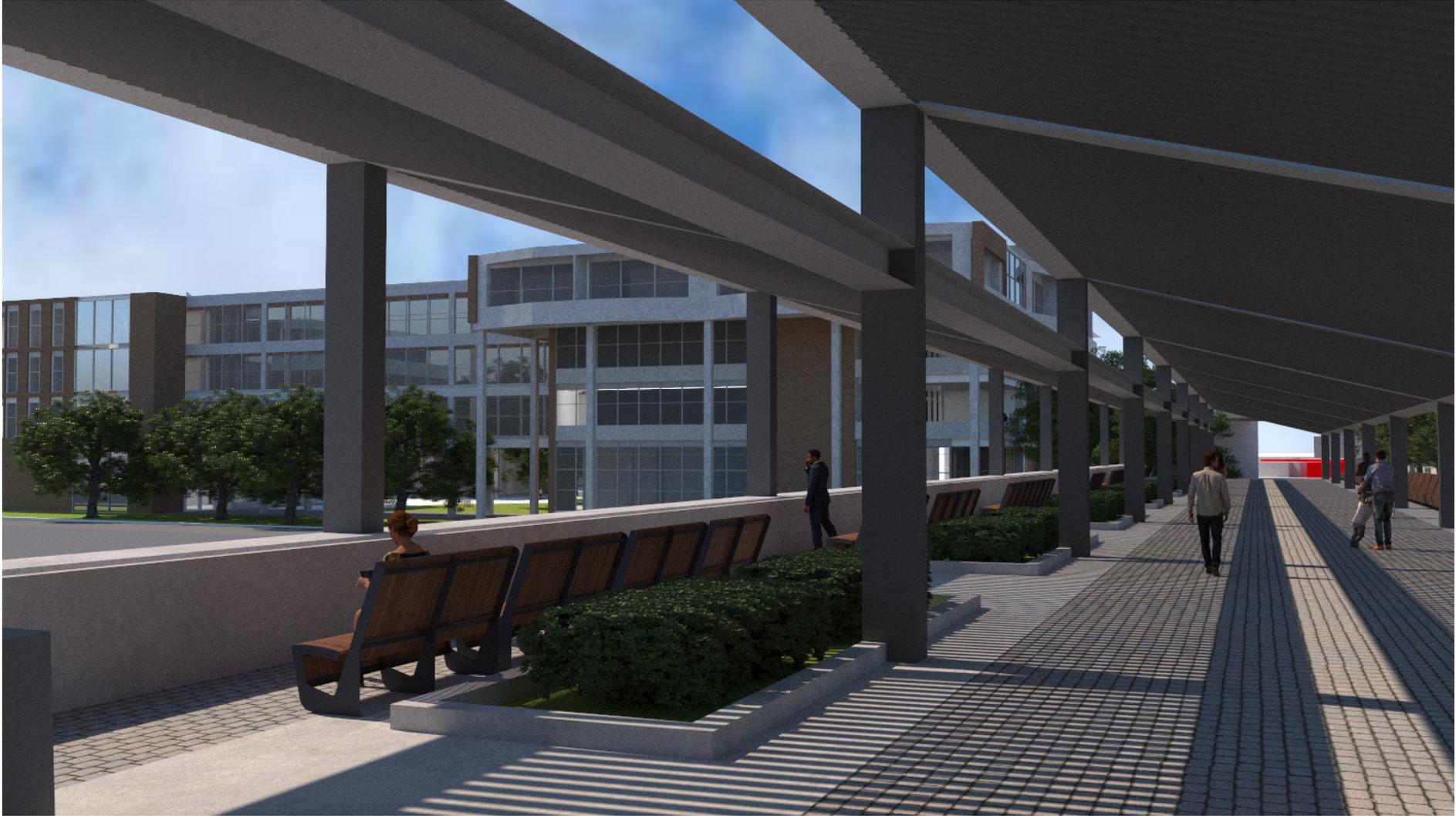


The third project focused on the transition from interior to exterior and the experience the community has at level one. This transition is highlighted through the use of the envelope as a space to stop and reflect as well as materiality in flooring and ceiling. Every threshold has a moment of transition where covered space alleviates the shift of scale and eases the harsh line monumental education complexes can create.









Research

Precedent

Site-Context

Solution

Conclusion

Conclusion includes bibliography of referenced materials included in this project

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