CONNECTIONS COMMUNITY HIGH SCHOOL

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MS Interior Architecture & Design Thesis
Department of Architecture, Design & Urbanism
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M. Marie Mastrobattista

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INTRODUCTION

Connections Community High School has been designed with a focus on both environmental and social sustainability and aims to follow the triple-bottom line approach to design - do more good. A community high school aims to provide typical school experiences for students while also offering much more to the local neighborhood and community through the contexts of education, health and social services, and civic engagement. A community school is often compared to a smartphone in that a smartphone has many features integrated into one device and a community school has many services integrated into one built environment.

Co-locating the high school on Drexel University's campus creates unique opportunities for place-based design that can connect multiple populations, amenities, and services throughout Philadelphia while filling a gap in local quality education and easily accessible services. The adaptive reuse of a turn-of-the-century Philadelphia loft provides a beautiful setting for the design and becomes another mode of learning. The Reggio Emilia method of education promotes a school building as a catalyst for learning, a three-dimensional textbook, the third teacher (after educators and students' peers) and this design aims to embody the Reggio philosophy.

A space for students as well as the community, the program is adaptable physically not only as a place for learning but as a place for gathering, meeting, eating, growing, playing, creating, and so many other human experiences. Both inside and out, Connections Community High School is designed as a flexible environment for students, neighbors, and community members to utilize and make their own. It is a space for learning, wellness, and coming together. A space that aims to do good and provide for students, their families, and the greater local community.

BACKGROUND RESEARCH

LITERATURE REVIEW

Introduction: Architectural Responsibility and Sustainable Design

In his 1998 publication, The Rural Studio, architect Samuel Mockbee wrote that "the role of architecture should be placed in relation to other issues of education, healthcare, transportation, recreation, law enforcement, employment, the environment, the collective community that impacts on the lives of both the rich and the poor."(Samuel Mockbee 1998) Long before Mockbee's statement, architects and designers have considered how their design decisions impact people and place – a tradition that dates to the first century BCE with Marcus Vitruvius Pollio's (Vitruvius) Ten Books on Architecture. In his first Book on Architecture Vitruvius discusses the importance of architects being well-versed in many disciplines in order to perform better as architects.[1] It is Vitruvius' recognition of the responsibility of the architect as not only designer but also scholar, that has perpetuated through architectural practice and carries into today. Throughout the books, Vitruvius considers environmental aspects that affect how people experience buildings in cities, again stating the importance of architects' understanding of the environment and human perception.[2]

Today, ethical considerations and responsibilities of architects have expanded upon Vitruvius to address current environmental and social concerns like climate change, poverty, and health and wellness, among others. At the same time, the main discourse of design has largely focused on issues of "sustainability." This literature review will discuss contemporary ideas and critiques of mainstream sustainability as well as attempts to reframe the discourse around a "triple-bottom-line" approach. This approach, addressing social, environmental, and economic sustainability, has a broader understanding of design responsibility, more in line with the principles elaborated by designers like Vitruvius and Mockbee.

Brief History and Critique of "Sustainability"

In his 2004 book, The Philosophy of Sustainable Design: The Future of Architecture, Jason F. McLennan provides the history and origins of sustainable design. He defines sustainable design as, "a philosophical approach to design that seeks to maximize the quality of the built environment while minimizing or eliminating the negative impact to the environment."(Jason F. McLennan 2004) Between the 1960s-1990s, environmental consciousness grew with a major turning point in 1992 when the Earth Summit displayed documented world-wide health crises.[3] At this time, sustainable design began to not only focus on concern for the environment, primarily centered on energy use, but broadened to include materials, resources, and human health.[4] Sustainable design has since

1 (Vitruvius, Morris H. Morgan (trans.) 1914) Vitruvius writes: "The architect should also have a knowledge of the study of medicine on account of the questions of climates...air, the healthiness and unhealthiness of sites, and the use of different waters...also the laws about drains, windows, and water supply."

2 Ibid.

3 Ibid. 30.

4 Ibid. 31.

experienced shifts in focus and more widespread acceptance among professionals in the built environment and the general population.

A major turning point in the history of sustainable design occurred in the United States in 1993 when the United States Green Building Council (USGBC) was formed in order to "promote sustainability-focused practices in the building industry."("United States Green Building Council (USGBC)," n.d.) The USGBC unveiled the Leadership in Energy and Environmental Design (LEED) rating system in 2000 and it quickly became the United States' most utilized building rating system.[5] Using a rating system to obtain credits, projects can be certified at various levels – Certified, Silver, Gold and Platinum.[6] The current call for LEED and sustainable architecture and design by the USGBC is "that our built environment no longer do less harm, but do more good." [7]

Fig 1. LEED Platinum plaque

There have been many perceived and published criticisms of LEED as a standard of sustainable design as well as critiques of the term "sustainable" itself. McLennan, while a major advocate of and authority on sustainability, is one such critic and notes flaws in the sustainable building ethos. [8] Since his publication, many others agree with McLennon's criticisms. In their 2005 paper, "LEED is Broken...Let's Fix It," authors Auden Schendler and Randy Udall coined the term "LEED Brain,"(Auden Schendler and Randy Udall 2005) asking, "what happens when the potential PR [public relations] benefits of certification begin driving the design process?" [9] They reference multiple projects, of which they themselves have worked on, that have earned LEED certifications without having much sustainable impact.[10] On projects like these, the perceived effect, the "LEED Brain," takes precedent over making an impactful difference through sustainable design practice. This reality aligns with arguably the most pervasive problem with LEED and other certification programs – greenwashing.

Greenwashing, a term coined in the 1980s by environmentalist Jay Westerveld, occurs when the green, or sustainable, impact of a product, company, or organization, is embellished in order to gain profit or recognition.(Caralynn Edwards 2018) Having a sustainable certification like LEED can make companies big-money and, as evidenced by Schendler and Udall, may not always be making real impacts. Projects focused on profit seek LEED certification because people will spend more money on sustainably certified properties in which to live or work, and will spend more to work with a company that focuses on sustainability.(Mary Grauerholz 2018) Unfortunately, this emphasis on profit often becomes the focus of sustainable design and at the cost of other areas of responsible design.

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7 United States Green Building Council (USGBC).

8 McLennon, 5. "For many professionals a green building is something that merely incorporates a few recycled products or has good windows."

9 Ibid.

10 Ibid. Schendler and Udall give the example of installing a reflective roof on a project at an altitude of 8,000 feet in the Colorado Rockies. A reflective roof reduces heat island effect and gains LEED points; however, heat island effect is not a concern in that climate. Regardless, to gain the prestigious LEED certification, they opted for a reflective roof, which makes virtually no environmental difference considering the climate, because simply having the element gained points and led to certification.

In response, a concept known as the “triple bottom-line” emerged.

Redefining Sustainability: The Triple Bottom-Line Approach

The triple bottom-line was proposed by John Elkington in 1994 where he first applied the term to corporate business practices that considered the environmental, social, and economic impact of a company.[11] [12] Elkington’s concept expands upon the traditional business adage of the “bottom line,” which refers to a company’s profits and losses.[13] The triple bottom-line was a new approach for businesses to measure their impact beyond their own financial statements and look at the larger picture of broad economic impact, environmental impacts, and societal impacts, too.[14] Since the 1990s, the triple bottom-line approach has been adopted by varying business types and industries with architecture being one sector that has applied this approach to practice.

Bryan Bell, AIA, is currently one of the most prominent practitioners designing with the triple bottom-line approach both in his practice, DesignCorps, and through a professional organization SEED, Social Economic Environmental Design.[15] Bell’s practice and research recognize that only a small percentage of people in the world benefit from architectural services and seeks to expand design to improve communities.[16] [17] In 2005 a forum held at the Harvard Graduate School of Design, Bell and other practitioners in the field sought to redefine architectural practice in a way that looked to LEED for inspiration but shifted focus to a broader set of socially responsible design standards to develop design practices invested in communities.[18] Bell, through the formation of the SEED network, advocates for what is termed “reflective practice,” in which the client and end users are participants in the design process in order to create built environments that are “usable, sustainable…profound.”[19] It is important to note that Bell does not see this work happening solely in a silo of pro bono work,[20] volunteerism or grassroots architecture.[21]

Fig 2. UN Global Goals for Sustainable Development

A triple bottom line approach advocates for those marginalized or left out of the conversation. Architect Lance Hosey, FAIA, LEED Fellow, has a philosophy in practice that refocuses on the triple

16 Wilson, B.B. “The Architectural Bat-Signal: Exploring the Relationship between Justice and Design.” In Expanding Architecture: Design as Activism, 28–33. Metropolis Books, 2008. 29.
17 Architect Magazine. 2011.
18 Wilson, 29.
19 Ibid. 30. SEED members developed a set of five principles for practitioners to evaluate their projects in order to remain aligned with SEED’s goals of social and environmental responsibility.
20 This is a semi-critique of John Peterson and 1% Public Architecture program.
21 Architect Magazine. 2011.

bottom-line and believes that the construction of built environments is closely linked with social justice.[22] [23] Hosey recalls the 2030 United Nations Global Goals for Sustainable Development. These goals expand upon the United Nations' 1987 definition of sustainable development, published in the Report of the World Commission on Environment and Development: Our Common Future, which "requires meeting the basic needs of all and extending to all the opportunity to fulfill their aspirations for a better life."(The United Nations 1987) Hosey notes that while this definition has been often interpreted in terms of resources, both environmental and financial, the concept was initially founded on achieving social justice.[24]

Sustainable design cannot be a "quick-fix" – a band-aid temporarily applied to long-term problems. The focus of a triple bottom-line approach places emphasis on not one element but aims for a balance of the economic, social, and environmental aspects of design.[25] Advocacy for a triple bottom-line approach relates back to Mockbee's idea of the responsibility of architects to place themselves and their projects in the context of other issues and fields.[26] However, it remains evident that these broader issues are not always the focus of current "sustainable" design processes.

Socially and Environmentally Sustainable Design in Practice

One contemporary firm that practices socially and environmentally sustainable design approaching a triple bottom-line standard is Collective Architecture, based in the city of Glasgow, Scotland. Glasgow is the sixth-largest city in the United Kingdom and as an old, industrial city, has unique challenges that Collective Architecture aims to address uniquely with each project. (Steven Brocklehurst 2018) Collective Architecture was established to pursue themes of participation and sustainability in architecture. (Collective Architecture, n.d.)

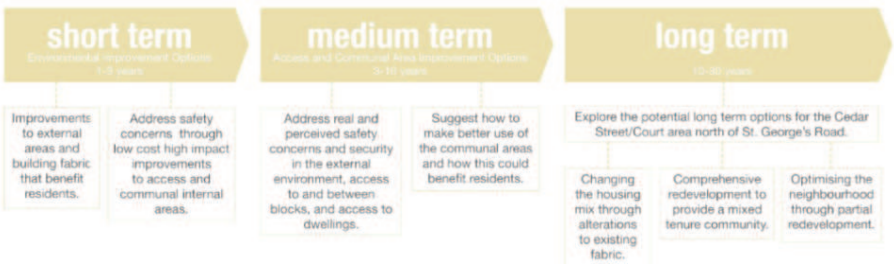

Fig 3. Collective Architecture goals for woodside

One project that embodies the triple bottom-line is a proposal for neighborhood enhancement in the high-volume, low-income, Woodside neighborhood of Glasgow. Woodside had been developed through 1892 as largely tenement housing for the factory workers in the area. (Collective Architecture 2015) Recently, the local housing association sought the help of Collective Architecture to "explore the environmental and long-term sustainable regeneration" of several the properties in the neighborhood. (Collective Architecture, n.d.)

The initial approach to the design brief resulted in short, medium and long-term considerations of sustainable environmental and social impacts for the neighborhood. The firm worked with the local housing association, community and neighborhood members and even invited feedback through consultation events encouraging community involvement on the project proposal.[27] This research and intensive community workshopping helped Collective Architecture understand what they could implement in their design that truly met the needs of the community.[28] They took the

time to place themselves and their eventual design in the context of the issues of the neighborhood. The resulting design proposal includes design elements that would create both socially and environmentally sustainable solutions for this urban neighborhood.

Many solutions proposed by Collective Architecture for the project consider the triple bottom-line of sustainable design. One example includes the rethinking of ground floor access to taller buildings in the project. This portion of the proposal provides a safer environment for the local and wider community while keeping in line with the financial investments provided for the project. (Neal Morris 2016)

A rendering of a residential low-rise shows a proposed intervention for solar heating solar heating. The implementation of solar heating not only helps the environment by reducing dependency on fossil fuels, but it could also have huge economic impact on the existing community.[29] Many residents experience "fuel poverty" and either must ration fuel or experience financial debt if they

Fig 4. Design elements needed based on community feedback

want to keep warm in Scotland's mostly chilly climate.[30] Additionally, the design for this building aims to enhance aging-in-place accessibility for the current elderly residents providing socially sustainable support, rather than displace, the existing population.[31]

The potential of a community-run commercial greenhouse that would be constructed of glazing recycled from other parts of the project.[32] This feature not only adds greenspace to a city landscape but would also create opportunities for employment and education and increase healthy food access for the local and wider community.[33] This solution proposed by Collective Architecture through their design is a multi-faceted approach to addressing the three Ps of the triple bottom-line. By repurposing the glazing, they are saving material from going to a landfill and keeping new material purchasing costs down, by adding greenspace they are reducing heat island effect, and they are helping to develop social equity by creating job and educational opportunities and potentially increasing food access.[34]

Collective Architecture also speculated on the social enterprises that can form promoting Woodside to develop its own local economy. Social enterprises are businesses that seek to address social issues and work by means of reinvesting income back into serving their missions and

30 Collective Architecture. 2015.
31 Ibid.

Fig 6. Residential low-rise rendering

communities.[35] The proposed design will give local community members opportunities to develop social enterprises that empower them to invest in themselves and, in turn, reinvest in Woodside.

Collective Architecture's design proposal considers the triple bottom-line at every step of the process, aiming to provide benefits to an underserved, local community through architectural and design solutions.

A Note on Sustainable Design in Urban Environments

The scope of this thesis project will be focused within an urban context and so it is important to consider sustainability challenges that are unique to these environments. Recently, for the first time in history, more people across the world live in cities than in other areas. Designing for the triple-bottom line in urban areas is crucial to ensure the health and wellness of people and create buildings that contribute the social and environmental well-being.[36]

In urban areas during the late 21st century, the trend of architecture was designed for and by industry, losing sight of the responsibility of architecture to people and place, highly focused on profit and, unfortunately, this trend has prevailed.[37] Architects have "abandoned their historic role as stewards of society and the environment," instead focusing on the mass-consumption mind-set of our modern era. (Boaz Ahi Omini Kedar 2017) Currently, cities waste massive amounts of energy and in the United States buildings create about 40% of the entire national C02 emissions.[38] This cannot continue.

The U.N. estimates that by 2050, two-thirds of the world population will be living in urban areas and has made a call for architecture and design to respond sustainably.(UN News 2018) This urban population boom will increase challenges in the areas of built infrastructures such as housing and transportation and social areas like education and healthcare.[39] To address this

Fig 7. Render of a community-run greenhouse

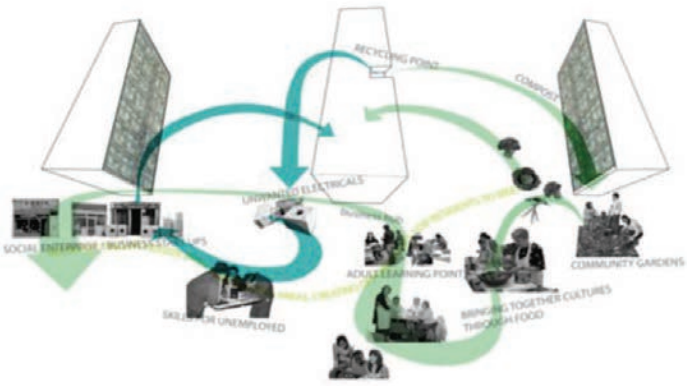

Fig 9. Social enterprise diagram

35 Ibid.
36 Hosey, 34.
37 McLennan, 34.
38 Ibid, 14.
39 Ibid.

pending future, urban sustainable architecture must be consistently considering the triple bottom-line of social, economic, and environmental design.

BACKGROUND RESEARCH

EDUCATION AND COMMUNITY SCHOOLS

Introduction: Early Education in the United States

I believe that the school is primarily a social institution…I believe that education, therefore, is a process of living and not a preparation for future living…I believe that it is also a social necessity because the home is the form of social life in which the child has been nurtured and…I believe that much of present education fails because it neglects this fundamental principle of the school as a form of community life.

-John Dewey, My Pedagogic Creed, 1897

This sentiment by philosopher and early education reformer John Dewey was written over 100 years ago and was highly progressive for Dewey's contemporaries.[1] Surprisingly, it may seem radical even today as many still think about and view education through the lens of the early 20th-century factory model. The school-as-factory model, also known as the industrial assembly line model, was highly promoted by Stanford Dean and Professor Ellwood Cubberley as the best way to educate students.[2] This model of education affected both teaching styles and built environments. Students in these settings were regarded as products, processed through the school, and teachers as line workers, responsible for overseeing that things were running smoothly.[3] Children were separated early in their educational careers based on ability with no option to progress or room for improvement, again, akin to a factory environment.[4] The teaching methods from this school-as-factory model resulted in built environments that were factory-like. Schools were built with rows of adjacent classrooms on either side of a double-loaded corridor and classrooms themselves were designed as large spaces that set children in identical rows before the teacher who lectured at the front of the room.[5] Factory school design is a tradition that many people who attended school in the United States are familiar with and a method of school design that has not fallen out of style.

Much unlike the factory model, Dewey was more interested in democracy through education. He believed in an expanded idea of school outside of the classroom, learning as a lifelong process, and school as an integral part of any community.[6] In his book, Democracy and Education, Dewey states, "not only does social life demand teaching and learning for its own permanence, but the very

1 Bruce Mau Design, OWP/P Architects, and VS Furniture. *The Third Teacher: 79 Ways You Can Use Design to Transform Teaching & Learning.* New York: Abrams, 2010.
2 Taylor, Anne P., Katherine Enggass, and Andy Pressman. *Linking Architecture and Education: Sustainable Design for Learning Environments.* Albuquerque: University of New Mexico Press, 2009.
3 Ibid.
4 Ibid.
5 Ibid.
6 Ibid.

process of living together educates" (p. 7).[7] Dewey did not negate the importance of a formalized education where learning happens at school. However, he sought to reimagine it and desired increased emphasis on shared learning. For Dewey, education requires stimulation, social interaction, conscious and unconscious learning, and moral, philosophical, and intellectual lessons.[8] Learning is both psychological and social, and without connections to the community outside of the school as an institution, the school is not effective in educating but instead prescribes an imposed set of ideas, lessons, and habits onto a child.[9]

The Third Teacher

Dewey's philosophies had a profound influence on Loris Malaguzzi, one of the founders of the Reggio Emilia method of early childhood education.[10] Founded in northern Italy post-World War II, the Reggio Emilia approach was developed on eight principles primarily influenced by three theorists: Dewey, Lev Vygotsky, and Jean Piaget.[11] Dewey's democratic view of education and knowledge construction through social interaction was one building block.[12] The second building block was Vygotsky's zone of proximal development supported by the idea of social learning. It stated that students would build knowledge mainly through adult facilitation and peer interactions.[13] The final building block came from Piaget's theory of active learning, which required interaction with the environment as a learning tool.[14]

Of the eight principles that define the Reggio Approach, 'The Role of the Environment' is profound in the context of this research. Reggio schools are renowned for their built environments and their emphasis on creating beautiful spaces that support children's development.[15] The Reggio Approach brought into context the term "third teacher" referring to the school environment – both interior and exterior – as a third instructor for students after first their parents and teachers, and second, their peers.[16] This notion initially applied to educational theorists and teachers when considering how to use their environments to teach and considering how students perceive and understand their space.[17] The development of this theory and its implementation by educators, educational theorists, and school professionals has become a leading theory for architects and designers who create these spaces.

Taylor & Enggass explore the potential of school design to support a variety of educational philosophies and academic goals unique to each school and community. They argue that the context of learning, i.e., the built environment of the school, is equally essential to the content, what is taught, and the process, how it is taught.[18] The learning environment is where learning happens, and

7 John Dewey. Democracy and Education. Simon & Brown, 1916/2016.
8 John Dewey. My Pedagogic Creed. Journal of Education, 54 (3), 77-80.
9 Ibid.
10 Mitchiner, Julie, Christi Batamula, and Bobbie Jo Kite. "Hundred Languages of Deaf Children: Exploring the Reggio Emilia Approach in Deaf Education." American Annals of the Deaf 163, no. 3 (2018): 294–327. https://doi.org/10.1353/aad.2018.0021.
11 Ibid.
12 Ibid.
13 Ibid.
14 Ibid.
15 Thornton, Linda. "The Environment as the Third Teacher." Reflections on Learning, November 23, 2015. https://www.reflectionsonlearning.co.uk/blog/post/the-environment-as-the-third-teacher/.
16 Strong-Wilson, Teresa, and Julia Ellis. "Children and Place: Reggio Emilias Environment As Third Teacher." Theory Into Practice 46, no. 1 (2007): 40–47. https://doi.org/10.1080/00405840709336547.
17 Ibid.
18 Taylor, Anne P., et al, 2009.

the building is the catalyst.[19] In addition to Dewey, Taylor & Enggass explore other theorists such as Howard Gardner and Abraham Maslow, in the context of the three-dimensional textbook. Regarding Gardner's theories of multiple intelligences, they argue that the building must be designed to support all seven intelligences: verbal, logical/mathematical, visual/spatial, bodily/kinesthetic, musical/rhythmic, interpersonal, and naturalistic.[20] For all learners to be able to grasp both the content and process, the context must provide the appropriate space.[21] They argue that all the needs explained in Maslow's Hierarchy of Needs can be supported through a safe and comfortable educational space.[22]

In 'The Third Teacher: 79 Ways You Can Use Design to Transform Teaching & Learning,' three renowned design studios create a collection of methods to achieve the Reggio ideal of a school environment that is genuinely a third teacher. The text includes interviews with writers, school chefs, entrepreneurs and inventors, and even Howard Gardner himself, and aims to guide the development of authentic third teacher spaces. This group of architects and designers compiled the book for anyone looking to improve their schools. It bridges the gap between the third teacher as an educational theory to the third teacher as architectural practice.[23] Interviews and statistics across a myriad of fields inform chapters that connect back to other theorists. For example, Chapter 1 entitled 'Basic Needs' gets to Maslow's first two levels of Physiological and Safety needs and how design can meet these.[24] The excerpts in this chapter focus on the vulnerabilities of young children and what helps them feel safe, ensuring a healthy environment through systems such as air quality and noise control, and designing for safety above all else.[25] Chapter 4, 'Community Connections,' is most akin to Dewey's emphasis on the importance of social interactions in education and genuinely making the school a place for the community.[26] Excerpts in this chapter include involving the community in the planning process, welcoming neighbors into the school environment, and creating public spaces, such as parks, through the context of the school.[27] The book takes the school-as-teacher philosophy and uses evidence-based research to support various design methods to achieve a space that can teach.

Ulrike Altenmüller-Lewis cites a Swedish proverb that, like the Reggio Approach, states three different teachers involved in a student's education: the students, the teacher, and the school environment.[28] Altenmüller-Lewis describes the concept of the school building as a three-dimensional textbook and notes, in agreement with Dewey, that schools must be central elements of their local communities and function, from an architectural standpoint, in a variety of ways.[29] School buildings, she argues, can be designed as multi-functional spaces that provide services to the overall community in the form of athletic, social, artistic, educational, or recreational spaces.[30]

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19 Ibid.
20 Ibid.
21 Ibid.
22 Ibid.
23 Bruce Mau Design, et al, 2010.
24 Ibid.
25 Ibid.
26 Ibid.
27 Ibid.
28 Altenmüller-Lewis, Ulrike. "Schools Buildings as Three-Dimensional Textbooks: The Contributions of Sustainable Learning Environments to Educating the Next Generation." The International Journal of Sustainability Education 9, no. 2 (2014): 51–59. https://doi.org/10.18848/2325-1212/cgp/v09i02/55301.
29 Ibid.
30 Ibid.

Community Schools

For many in both urban and rural American environments, school is the center of daily life. By 2000, school enrollment in the United States reached 53.2 million students, and by 2030, school enrollment is estimated to reach 60 million.[31] Bingler et al., support the research by Taylor & Enggass on factory-style schools and further elaborates on the state of school infrastructure in the United States today.[32] Their research stresses the issues that arise from the design of these old school buildings that can only support old modes of instruction – large class sizes in separate rooms with a teacher who lectures to students at stationary desks.[33] Research today supports the idea of more flexible instruction spaces that are comfortable and involve the broader community in both the design and use of the school, much like Dewey's wishes for American education.[34] Schools designed to foster and support community relationships better serve the students who use the school and, reciprocally, the entire neighborhood.[35]

Bingler et al., outline 'Six Design Principles' to help learning environments meet student needs: enhance teaching and learning and accommodate the needs of all learners; serve as a center of the community; result from a planning and design process that involves all community interests; provide for health, safety, and security; make effective use of available resources; be flexible and adaptable.[36] The study also recognizes that three conditions contribute to these principles: learning is a lifelong process; design is continually evolving; and resources are limited.[37] The study is a persuasive summary of educational theories and design practices previously explored in this review. It also provides an introduction to the argument in favor of community schools.

The National Education Association defines a community school as: a center of the community that brings together academics, health and social services, youth and community development and community engagement in one built environment, leading to improved learning, stronger families, and healthier communities.[38] The NEA not only defines community schools but also provides a framework for developing them. The Sustainable Community School (SCS) framework promotes "six pillars" that community schools can employ to create the best environment: Strong & Proven Curriculum, High-Quality Teaching, Inclusive Leadership, Positive Behavior Practices, Family & Community Partnerships and Community Support Services.[39]

The SCS framework has been implemented throughout the United States by individual schools, large districts and in the entire state of Kentucky; where the majority of these schools have seen lower absentee rates, improved grades and test scores, better student behavior, more enrollment in college prep courses, and improved graduation rates.[40] The NEA publication quoted above compares

31 U.S. Department of Education, Office of Public Affairs. "Growing Pains: The Challenge of Overcrowded Schools Is Here to Stay," 2000. http://www.ed.gov/pubs/bbecho00/.

32 Steven Bingler, Linda Quinn, and Kevin Sullivan. "Schools as Centers of Community: A Citizen's Guide for Planning and Design." National Clearinghouse for Educational Facilities, Washington, D.C., United States. 2003. https://files.eric.ed.gov/fulltext/ED539486.pdf

33 Ibid.

34 Ibid.

35 Ibid.

36 Ibid.

37 Ibid.

38 National Education Association. "The Six Pillars of Community Schools Toolkit," 2017. http://www.nea.org/assetsdocs/CommSchoolsToolKit-finaldigi-web-72617.pdf.

39 Ibid.

40 Ibid.

a community school to a smartphone in that all features are integrated into one "device".[41] Features like educational spaces integrate with health and wellness services, before and after school programs, adult learning, and other extracurricular activities can all be under one roof or on a campus of buildings like a college.[42]

Sustainable Schools

Altenmüller-Lewis takes the idea of a three-dimensional textbook to the next step. It considers sustainability in the design of the space and how it can teach about the value of environmental awareness and help create better global citizens.[43] Using sustainable building principles, architects and designers can design better buildings for educating future generations.[44] Sustainable principles such as passive heating and cooling, sensitive building siting, day lighting, natural ventilation, and water-saving fixtures and activities not only create a better, more sustainable school but also serve as examples when educating students on environmental awareness.[45]

Supporting Altenmüller-Lewis' research is Chapter 5 in 'The Third Teacher' which focuses on designing sustainable schools and the benefits they have on the health and wellness of students and neighborhoods and as educational tools.[46] Student enrollment in the United States is continually on the rise. If school design considers these educational philosophies and design principles, students' and teachers' experience can be improved.

Heming explains that a green school is holistically sustainable in that it considers current and future students in both the built environment and curriculum.[47] Green school design is based on the Whole School Sustainability framework, which consists of three pillars: reduced environmental impact, increased health and wellbeing, and increased environmental and sustainability literacy for all graduates.[48] These pillars are essential because they are measurable and impactful, and schools that follow the framework aim to support sustainability in every way.[49]

Heming cites ways that these pillars are measurable. For example, cutting energy reduces the strain on power plants and providers to reduce environmental impact.[50] To keep students and teachers healthy, building aspects like air quality, humidity, daylight, and clean water must be a significant concern for designers.[51] Finally, educating students on sustainability will create citizens prepared for the challenges of the future.[52] The Whole School Sustainability framework goes deeper and serves as a way for organizations to implement sustainability into the entire system of a school – both the physical place and the school culture.

Through the Institute for the Built Environment and the Center for Green Schools, Barr, Cross & Dunbar conducted case studies to review integrated approaches to sustainability in schools.

41 Ibid.
42 Ibid.
43 Ulrike Altenmüller-Lewis, 2014.
44 Ibid.
45 Ibid.
46 Bruce Mau Design, et al, 2010.
47 Heming, Anisa. "What Is a Green School?" Center for Green Schools, October 10, 2018. https://www.centerforgreenschools.org/what-green-school.
48 Ibid.
49 Ibid.
50 Ibid.
51 Ibid.
52 Ibid.

They looked at the use of the Whole School Sustainability Framework, which is a system centered around sustainability and has three main components with nine supporting principles; the main components are Physical Place, Educational Program, and Organizational Culture.[53] Whole-School design, developed in 2004, provides the foundation for designing sustainably at an organizational level, going beyond just building design or just curriculum, and discusses both.[54] The Organizational Culture calls for schools to have alignment across departments that communicate with each other because establishing and continuing sustainable programs in schools requires everyone to be on the same page.[55] This framework also recognizes the importance of physical place, including the school building and surrounding environment.[56] This idea is similar to Altenmüller-Lewis' three-dimensional textbook and states that the school can provide a context for implementing and understanding sustainable systems.[5758] Finally, the Educational Program visibly connects the sustainable mission of the organizational culture and the use and implementation of the physical place.[59] Leadership, students, community, and built environment can all support a mission of sustainability.

The writings of various theorists have influenced education in the United States, and the educational system has undergone many transformations, and spaces for educating can adapt, too. Schools that can expand their focus beyond the school day and students to serving as community institutions that focus on sustainability have the potential to function as spaces for everyone.

53 Barr, Stephanie K., Jennifer E. Cross, and Brian H. Dunbar. "The Whole-School Sustainability Framework." The Center for Green Schools, 2014. http://centerforgreenschools.org/sites/default/files/resource-files/Whole-School Sustainability_Framework.pdf .
54 Ibid.
55 Ibid.
56 Ibid.
57 Ibid.
58 Ulrike Altenmüller-Lewis, 2014.
59 Barr, Stephanie K., et al, 2014.

DESIGN PRECEDENT I

TEACHER'S COLLEGE COMMUNITY SCHOOL

SITE

Teacher's College Community School

LOCATION

168 Morningside Avenue, New York, NY 10027

223 W 132nd Avenue, New York, NY 10027

USERS

Serves grades PreK-8

HISTORY

Teacher's College Community School (TCCS) was developed in 2011 in partnership with the New York City Department of Education, Columbia University Teacher's College, and Manhattan Community Board 9. Since opening, the school has filled a gap in quality PreK-8 education in the West Harlem neighborhood. The partnership between Teacher's College and the community school has provided unique opportunities for both faculty, students and alumni at Teacher's College and improved access to a quality education for local students.

Fig 10. TCCS sign

Teacher's College provides a wide range of support and services to the school and community: they assist in curriculum evaluation and development, teacher development, academic enrichment opportunities, after-school programming, health and wellness supports, the use of College facilities, building and continuing partnerships and financial planning and assistance.

The building is unassuming and almost residential in scale. It is an exposed brick facade on the corner of a block and only 0.5 mile from Teacher's College itself. It houses 371 students between all grades and primarily consists of students from the diverse West Harlem neighborhood. The school has been recognized for a diverse student body that reflects the local demographics.

Certain programs at TCCS for some of the older students, like the orchestral program, bring students to the Columbia University campus, exposing students to the university environment. TCCS students get to connect with college students through tutoring and mentorship programs, extra curriculars like the orchestral program as well as graduate students who teach, intern and volunteer with the school.

Fig 11. Proximity map of TCCS to Teacher's College Columbia University

Fig 12. Entrance to TCCS

DESIGN PRECEDENT II

KENSINGTON HIGH SCHOOL FOR THE CREATIVE AND PERFORMING ARTS

SITE

Kensington High School for the Creative and Performing Arts (KCAPA)

LOCATION

1901 N. Front Street, Philadelphia, PA 19122

USERS

Serves grades 9-12. Public spaces are always open to the community.

HISTORY

The building was completed in 2010 and designed jointly with SMP Architects and SRK Architects for the School District of Philadelphia. The project area comprises 90,000 square feet and was the first public high school in the United States to achieve LEED Platinum Certification. The project largely focused on incorporating sustainable strategies such as taking advantage of daylighting, rainwater harvesting, using native, local plants, incorporating salvaged materials, green roofs and an energy efficient envelope. The final building is 25% smaller than the initial proposal, reducing the amount of square footage taken from the land and overall costs.

Fig 13. KCAPA exterior

The building sits at the border of the quickly gentrifying Fishtown neighborhood and the blue-collar Kensington neighborhood so bridging the gap between these two was critical to the success and sustainability of the design. A once trash-filled lot popular for drug dealers and users now offers gardens and park space open to the local community.

The architects were careful to respond to both school and community needs and this design process has created the following positive effects as stated by SMP Architects: the adjacent recreation center was renovated and incorporated green strategies similar to some used at KCAPA; a nearby Mural Arts project was designed focusing on the local environment - the nearby Delaware

watershed; student performance has increased and truancy has declined

Although KCAPA is not a community school by definition, it functions in many ways a community school would. It values the local community and provides opportunities outside of the traditional student experience. While KCAPA does provide a standard education there is an additional, specific focus on training students for creative endeavors in post-secondary education and careers. The school offers two CTE programs in Film & Broadcasting and Graphic Design and students are able to earn Adobe certificates before graduating through the Graphic Design Program.

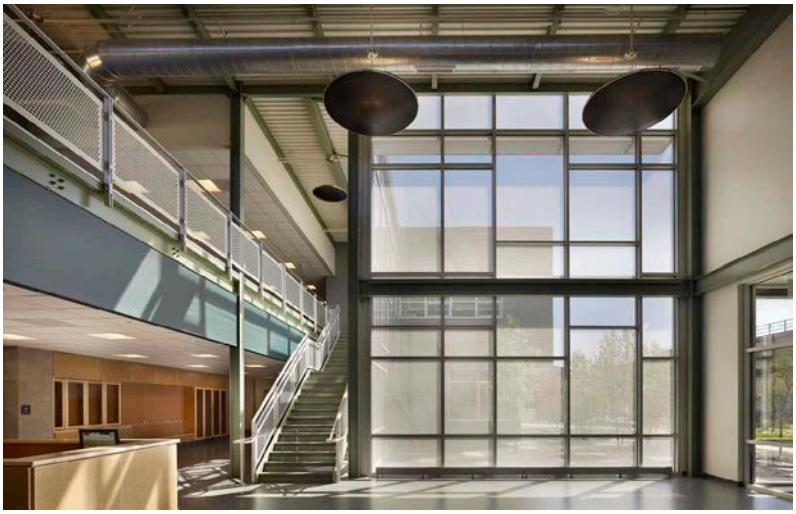

Fig. 14 Interior of KCAPA

Fig 15. First floor plan of KCAPA

DESIGN PRECEDENT III

SAMUEL POWEL ELEMENTARY & SCIENCE LEADERSHIP ACADEMY MIDDLE SCHOOL

SITE

Powel Elementary + Science Leadership Academy Middle School

LOCATION

Warren & 36th Streets, Philadelphia, PA 19104

USERS

Serves grades K-8

HISTORY

Construction broke ground on the site in December 2019 and the school is expected to be completed in January 2021. The school will be part of a new 14-acre science and technology campus at Drexel University. The goal of the building is to co-locate two local public schools - Powel Elementary and Science Leadership Academy Middle School (SLAMS).

Fig 16. Exterior rendering

The 87,000 square-foot, two story, two-acre building is located on a slope at the intersection of Warren Street with 36th Street and the newly constructed 37th Street. Open spaces and two centrally located stairs encourage interaction and engagement and the double-height circulation spaces connect to collaboration zones. Natural light is maximized throughout the space.

The design of the school allows each school to operate as its own entity and space for the elementary and middle schoolers to be separate while also providing ample opportunity for shared spaces and programming.

The program features learning spaces, science labs, maker space, library, art and music spaces, administration offices, and a gymnasium and cafetorium. The gym and cafetorium have separate public entrances for community access.

The schools' pairing with the university provides a unique opportunity and a link between the schools, Drexel University, and the new science and technology campus.

Fig 17. Interior rendering

Fig 18. Stacking diagram

CASE STUDY

SOUTH PHILADELPHIA HIGH SCHOOL

The National Education Association (NEA) (2017) defines a community school as: a center of the community that brings together academics, health and social services, youth and community development and community engagement in one built environment, leading to improved learning, stronger families, and healthier communities. School buildings can be more and do more than just serve as brick-and-mortar locations for daily instruction. With proper planning and design, consideration for sustainability, the right organizational structure and neighborhood involvement, community schools can be created to best serve everyone.

Altenmüller-Lewis (2014) describes the ways in which schools can function as "three-dimensional textbooks" by teaching children about the value of environmental awareness and helping create better global citizens. Inspired by a Swedish proverb that states there are three instructors in school education – the fellow students, the teacher and the building – Altenmüller-Lewis explains the methods that lend to sustainable and impactful institutions.

Altenmüller-Lewis speaks of schools as central elements of communities – acting as more than schools for children and teachers but multi-functional buildings that can provide services to the local communities, too. School design can and should include athletic, social, artistic, educational and recreational spaces and services that serve the neighborhoods and cities where they are located.

In the vein of recognizing schools as centers of the community, one of the most critical learning exercises in the development of this project was conducting a case study and observations on an existing community school in the city of Philadelphia - South Philadelphia High School.

SITE

South Philadelphia High School

LOCATION

2101 South Broad Street, Philadelphia, PA 19146, at the intersection of Broad Street and Snyder Street. It is served by the Broad Street Line and SEPTA bus lines 2, 4, 37 and 79.

USERS

Currently houses around 600 students, grades 9-12. School serves various parts of South Philadelphia. Certain services and events are open to community members.

HISTORY

The original South Philadelphia High School was built in 1907, by Lloyd Titus who was the architect for the Board of Education. It was initially built as a three-year training school for 350 boys

in the largely Jewish and Italian immigrant population of South Philadelphia. Additions were added to the original building between 1914 – 1941. The original school was demolished in 1955 and the new building was constructed and opened in 1956 as a four-year, co-ed high school.

Fig 19. South Philadelphia High School, 1920

The new building includes a grand plaza entrance, an asphalt school yard and green space. It has four stories, three elevators, 190 classrooms, a full-sized gymnasium, auditorium and lunchroom that can hold 1,500. In 2018, the school partnered with Philadelphia's Mural Arts Program and students along with artist Ben Volta painted a large mural on the front façade. Future plans for improving the infrastructure of the school include rooftop agriculture on the two-acre roof, outdoor classrooms, solar panels. A recent grant provided $50,000 worth of music creation and technology equipment to the school.

MATERIALITY

Light tan brick façade exterior, steel framed windows, interior cinder block walls, cement flooring and staircases.

IMPRESSIONS

There is a disparity between the interior and exterior spaces of Southern. The exterior is welcoming – the large plaza entrance is made vibrant not only by students but also by the mural covering much of the plaza façade. The colors of the mural are complimented by multicolored panels that face the plaza. Approaching the plaza from any of the three entries takes guests by green spaces – small open spaces with trees and community gardens lie at the exterior of the property.

Fig 20. South Philadelphia High School, 2018

The interior, especially upon first entry, has a very different, and more imposing feeling. Inside the front door is a security checkpoint with a guard and metal detectors both for people to walk through and that bags and belongings must pass through. The entry doors are set back under an awning creating a

dark entry sequence into the space far removed from the beautiful courtyard mural. Directly at the school entrance lies a massive auditorium, a clear point of pride as its double doors open out to the entry doors.

The halls of the school are dim with minimal access to daylight. The school is a typical factory-style design with classrooms on either side of a double-loaded corridor. The hallways have fluorescent lights overhead and are made lively by student work and school spirit posted throughout. Another moment of school spirit lies with notable alumni wall, across from administrative offices and the nurse. Southern prides itself on notable alumni, many who have gone on to be musical performers and actors.

Many of the classroom spaces are empty during the day due to the disparity between the enrollment the school was constructed for and the current student body. Still full of classroom furnishings, these empty rooms hold memories of students past but also potential for use in the school's future and purpose as a community school. Some classrooms have been converted for use by community school activities, such as the community closet. This is a student-run space with donated clothes and food where students can 'shop' for free and without stigma. The conversion of empty spaces into useful and vibrant ones provide spaces for students and the community to claim as their own throughout the school.

PROGRAM IMPLICATIONS

Below are initiatives that have developed at SPHS as a result of the community school partnerships. Each category heading is a need that the school identified in an assessment before becoming a community school. The Needs Assessment identified Jobs and Job Training, Social and Emotional Health Support, Academic Supports, and Physical Activity Promotion as elements that were lacking not only within the existing school but within the surrounding community. The assessment and resulting programs and partnerships aim to address these needs in order to provide for those involved within the community. These partnerships and initiatives have helped to inform the programming of this thesis project.

JOBS & JOB TRAINING	SOCIAL & EMOTIONAL HEALTH SUPPORT	ACADEMIC SUPPORTS	PHYSICAL ACTIVITY PROMOTION
Community Closet	Reproductive and Sexual Health and Wellness	Tutoring Programs	Sports Activities and Clinics
Financial Literacy Workshops	LGBTQ Health	Fundraising Initiatives	Dance Programs
Student Internship Opportunities	Drug Use Prevention	University and College Partnerships	Multigenerational Movement Activities
CTE Programs	Healthy Relationships	Mentor/Mentee Partnerships	

CASE STUDY

U.S. SCHOOL INFRASTRUCTURE

Every four years, the American Society of Civil Engineers publishes an Infrastructure Report Card for different sectors in the United States. In 2017 the ASCE gave schools a grade of D+; this was up from a 'D' grade in 2013.[1] Their report states that 53% of public schools need improvements to reach good condition.[2] A quarter of the 100,000 permanent public-school buildings were in below-average condition, and 30% required improvements to facilities such as plumbing and HVAC.[3] They found that 36% of parking lots, 31% of athletic facilities, and 27% of playgrounds were in "fair" or "poor" condition.[4]

Today's average American school is 50+ years old, many built for the baby boomer generation when they were school-aged, and many without significant improvements since.[5] Interestingly, this is not a phenomenon unique to the United States as other places, such as Canada, experienced a similar baby boom that created a demand for new school construction between the 1950s – 1970s.[6] The architectural life span of a building is 50 years, and so the expiration date on these spaces has come and gone.[7] In the United States, recessions in the 1990s and 2008 exacerbated the problem of disrepair because funding was either too tight or unavailable to provide necessary improvements.[8] In the United States, as in Canada, most public-school buildings are in disrepair, which causes problems for student success and teacher retention.[9]

Studies show that the physical environment can have significant effects on both students and teachers, and these effects can be positive when designed well and negative when designed poorly.[10] Many of these effects have to do with comfort in the school environment and comfort can be affected by many factors including temperature, air quality, light quality, acoustic quality, a sense of safety, the style of furniture, and the color of finishes such as paint and fabrics.[11] A building in a poor state of repair likely is not meeting many of these comfort needs.

With the projected boom in school enrollment by the U.S. Department of Education through 2030, a lack of space and crowding are problems in older buildings too small to serve their

1 ASCE Foundation. "Infrastructure Report Card - Schools." American Society of Civil Engineers, 2017. https://www.infrastructurereportcard.org/wp-content/uploads/2017/01/Schools-Final.pdf.

2 Ibid.

3 Ibid.

4 Ibid.

5 Steven Bingler, Linda Quinn, and Kevin Sullivan. "Schools as Centers of Community: A Citizen's Guide for Planning and Design." National Clearinghouse for Educational Facilities, Washington, D.C., United States. 2003. https://files.eric.ed.gov/fulltext/ED539486.pdf

6 Després, Carole, Andrée-Anne Larivière-Lajoie, Sandrine Tremblay-Lemieux, Marianne Legault, and Denise Piché. "Healthy Schools, Healthy Lifestyles: Literature Review." In *Health and Well-Being for Interior Architecture*, 123–36. New York, NY: Routledge, 2018.

7 Ibid.

8 Bingler, Steven, et al, 2003.

9 Ibid.

10 Mark Schneider. "Do School Facilities Affect Academic Outcomes?" National Clearinghouse for Educational Facilities, Washington, D.C., 2002. http://www.edfacilities.org/pubs/outcomes.pdf

11 Ibid.

community needs and can be a significant cause of discomfort at school.[12] [13] An overcrowded space can lead to increased stress for both students and teachers, and for students, it can have many adverse effects.[14] Research shows that crowded schools promote students' aggression and contribute to poor memory, overall performance, and student satisfaction increases with more square footage per person.[15] All humans react to stress, and children are particularly vulnerable to stress levels and are more likely to have intense reactions to heightened stress.[16] Children who experience external stressors and do not have a place for respite can reach a breaking point that may cause crying, aggression, headaches, or stomachaches.[17] These reactions and a constant level of stress will have adverse effects both in the short and long-term for students.[18]

Schools with outdated HVAC systems can contribute to an increased risk of asthma or amplification of existing asthma symptoms, as well as sick building syndrome, which causes headaches and fatigue.[19] Outdated systems can be alleviated when school windows are operable and fresh air can be brought into the space for ventilation. However, in the United States in the 1970s, many secondary schools were designed with fewer windows to cause students less distraction during the school day.[20] While this was believed at the time to help student concentration, removing windows removed visual access to the outdoors and potential green space. They removed the option for fresh air entering the learning environment.[21] Research shows that access to daylight and natural ventilation benefits students' wellbeing and concentration.[22] [23]

Additionally, students report better moods when at school, when they have access to sunlight.[24] Finally, not only is natural light relevant, but quality artificial light is essential, too. Quality lighting that does not create eyestrain can counter what is known as light-deprivation, which can cause fatigue and irritability.[25]

Acoustic comfort is another factor in the level of concentration and comfort that students and teachers experience at school that can be profoundly affected by the built environment.[26] Learning becomes compromised when students cannot hear and, therefore, cannot pay attention to what is going on, and noise minimization strategies are vital to alleviating stress from the audial environment.[27] High noise levels reduce concentration and have the potential to cause headaches and fatigue.[28] The most problematic noise concern in classrooms is reverberation, which produces extra noise when sound bounces off too many hard and parallel surfaces prevalent in the factory-

12 Bingler, Steven, et al, 2003.
13 U.S. Department of Education, Office of Public Affairs. "Growing Pains: The Challenge of Overcrowded Schools Is Here to Stay," 2000. http://www.ed.gov/pubs/bbecho00/.
14 Kopec, David Alan. Environmental Psychology for Design. New York, NY: Fairchild Books, an imprint of Bloomsbury Publishing Inc, 2018.
15 Ibid.
16 Ibid.
17 Ibid.
18 Ibid.
19 Ibid.
20 Ibid.
21 Ibid.
22 Ibid.
23 Bingler, Steven, et al, 2003.
24 Després, Carole, et al, 2018.
25 Kopec, 2018.
26 Ibid.
27 Ibid.
28 Després, Carole, et al, 2018.

style classroom design.[29] [30]

Ergonomic comfort can be another issue in schools that have not been able to update old, wobbly, or broken furniture that students and teachers use daily. Poorly designed or selected and highly worn furniture will likely lead to body aches and can even cause headaches.[31] The scale of furniture is critical, and students sitting in furniture that is too big or too small for their age will experience discomfort, causing a lack of concentration.[32] In particular, seating that does not support a variety of postures, such as sitting up to pay attention or leaning over to write notes, can also hinder learning.[33]

Schoolyard and play spaces received abysmal marks in the 2017 ASCE report card, and this is particularly detrimental to school children because these outdoor spaces can have the most positive effects when designed and maintained well.[34] [35] Exterior green spaces at schools have the potential to be restorative, reduce stress, and foster physical activity, creative play, and social interaction.[36] [37] Covered and shaded outdoor seating encourages and promotes social skills in developing students, and areas with natural vegetation are favored over wholly artificial spaces.[38]

Finally, overall school design from the 1950s – 1970s does not support today's modes and methods of teaching and learning, which have evolved dramatically since the factory-style days.[39] Today's classrooms require the flexibility to support new educational methods, furnishings, new technologies, and a wide range of learning styles to support and prepare students for a 21st-century world.[40] While the vast spaces of the factory-style classroom can promote flexibility and a range of uses, smaller sized rooms foster discussion and participation among students.[41] [42] Additionally, whereas the rectangular factory-style classroom helps all students have visibility, rooms with varied shapes or designed to include alcoves can support different teaching methods and learning styles.[43]

In summation, many features of the prior standard school and classroom design do not support today's research or school users. The poor condition of schools on the whole and apparent benefits of improving learning spaces makes evident the need for investment in and proper, thoughtful school design in the United States.

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29 Kopec, 2018.

30 Taylor, Anne P., Katherine Enggass, and Andy Pressman. *Linking Architecture and Education: Sustainable Design for Learning Environments*. Albuquerque: University of New Mexico Press, 2009.

31 Després, Carole, et al, 2018.

32 Kopec, 2018.

33 Ibid.

34 ASCE Foundation, 2017.

35 Després, Carole, et al, 2018.

36 Kopec, 2018.

37 Després, Carole, et al, 2018.

38 Kopec, 2018.

39 Bingler, Steven, et al, 2003.

40 Ibid.

41 Kopec, 2018.

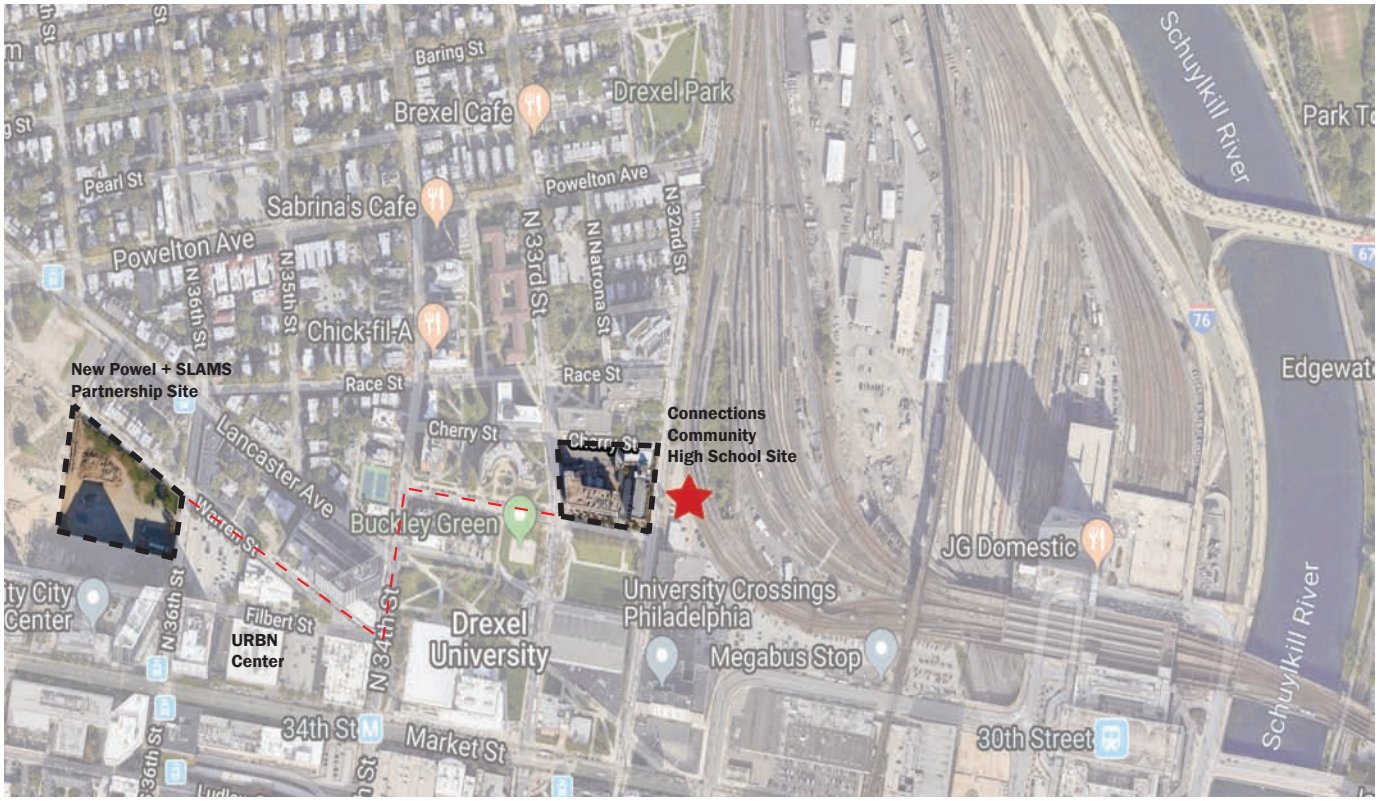
42 Taylor, Anne P., et al, 2009.

43 Kopec, 2018.

SITE RESEARCH + DOCUMENTATION

SITE DOCUMENTATION

CONTEXT MAP

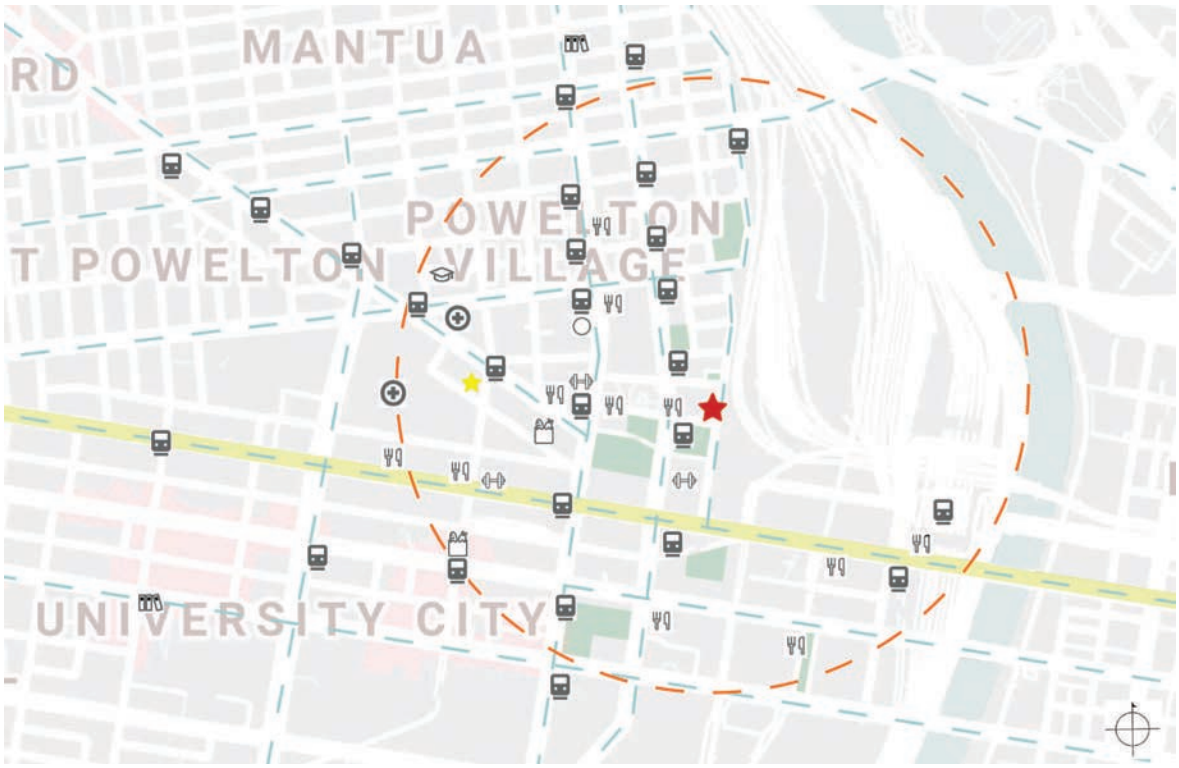


The thesis building site is at 32nd and Arch streets, at the eastern edge of the university campus. It is a four-story building that was constructed at two separate times, the southern half was built around 1900 using a timber structural system and the northern half of the building was built around 1920 and has a concrete structural system. Previously an office building, it was acquired by Drexel in 1988 during a campus expansion master plan and currently houses Drexel services such as the Steinbright Career Center, public safety, and human resources. Part of the program for my project reserves space in the building in order for these offices to remain and partner with Connections Community High School.

Additionally, it is only a half-mile from the new Powel and SLAMS K-8 school, opening the potential for co-learning and mentorship programs between the two schools and with Drexel students. It's location at the eastern edge of campus provides stunning unobstructed views over the Schuylkill River to Center City, and situates the school near many existing amenities.

SITE DOCUMENTATION

NEIGHBORHOOD ANALYSIS



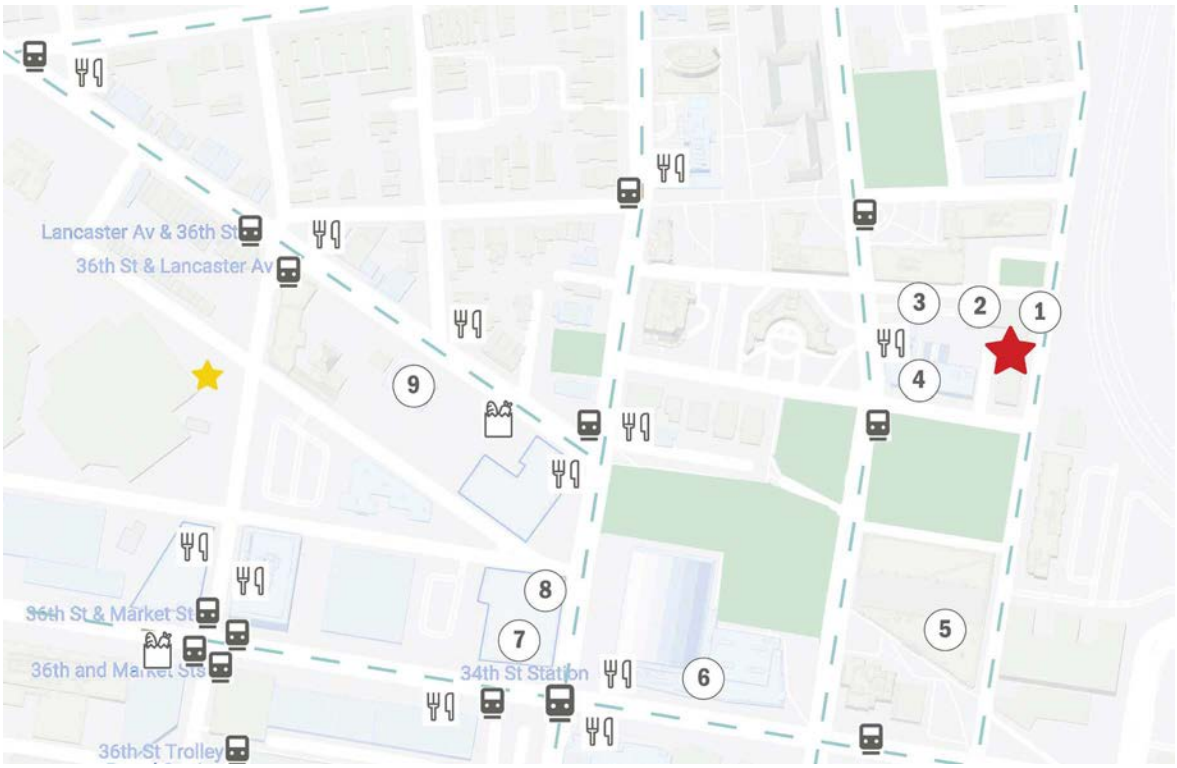
Legend

- Thesis Site
- Public Transportation
- Free Library
- Medical
- Drexel K-8 Site
- 1/2 Mile Site Radius
- K-12 School
- Fitness
- Market-Frankford El
- Bike Lanes
- Food/Restaurant
- Grocery

Within a half-mile of the site are a number of existing amenities. A range of food and grocery options already exist on campus. Drexel has a number of fitness facilities and green spaces available for sports and recreation and overall is easily accessible via public transportation, bicycle and walking. Currently, the closest high school for local students in the neighboring Powelton, Mantua and Haverford neighborhoods is about two miles away from the selected site, so the strategic placement is not only near great amenities, but also fills a gap for local students by placing an easily accessible high school in closer proximity.

SITE DOCUMENTATION

CAMPUS TO COMMUNITY PARTNERSHIPS



Legend

- Thesis Site
- Drexel K-8 Site
- Bike Lanes
- Public Transportation
- Food/Restaurant
- Grocery
- 1 Steinbright Career Center
- 2 Lindy Center for Urban Innovation
- 3 The Annex
- 4 James E. Marks Intercultural Center
- 5 The Armory
- 6 Drexel Athletic Center
- 7 ExCITe Center
- 8 Drexel Health Center
- 9 Community Arts Space

A closer look at the site reveals opportunities for organizational partnerships which are key to any successful community school. Existing opportunities include services such as athletics, health care, arts and cultural programs, social and religious services, and maker spaces.

1 Steinbright Career Center

The Steinbright Career Center will serve as the primary partner between Connections Community High School and Drexel University. Already located in the building, the tenant will remain and not only provide services to Drexel students but will also provide information on internships as well as college and career counseling for Connections' students.

2 Lindy Center for Urban Innovation

The Lindy Center for Urban Innovation already conducts work to connect the Drexel and neighboring communities. Located in the adjacent building, this partnership will help to further foster connections between the university, high school, and neighbors.

3 The Annex

Also located in an adjacent building on Cherry St, The Annex has maker spaces and shops to partner with the fine arts program at Connections.

4 James E. Marks Intercultural Center

On the same block, the James E. Marks Intercultural Center already exists as a multifaith chapel, a great support for the multifaith space within Connections. It houses Drexel's Offices of Diversity and has large multipurpose rooms and exhibition spaces that have the potential to support a wide range of Connections activities.

5 The Armory 6 Drexel Athletic Center

Drexel's Armory and Athletic Center provide opportunities for sports and physical activities with their gyms and athletic courts. Additionally, outdoor spaces including the neighboring sand volleyball court and fields at Buckley Green and Recreational Fields provide opportunities for outdoor gym classes during good weather.

7 ExCITe Center

This space provides a STEAM hub for both students and professionals located in the ic@3401 space on Drexel's campus. The building supports Drexel programs in gaming and robotics and also houses incubation spaces and Angela Duckworth's Character Lab.

8 Drexel Health Center

Drexel's Health Center already has the potential to serve Drexel students and the neighboring communities and could be a place for referrals from the SBHC and partner with the HRT Lab to provide student opportunities.

9 Community Arts Space

The existing Community Arts Space adjacent to campus already has programming that supports evening arts and dance classes for adults and a partnership with Connections could expand the number of people utilizing and benefiting from these programs.

SITE DOCUMENTATION

3201 ARCH STREET

SITE
3201 Arch Street
Philadelphia, PA 19104

NEIGHBORHOOD
University City

SQUARE FOOTAGE
Approximately 55,512 SQ FT

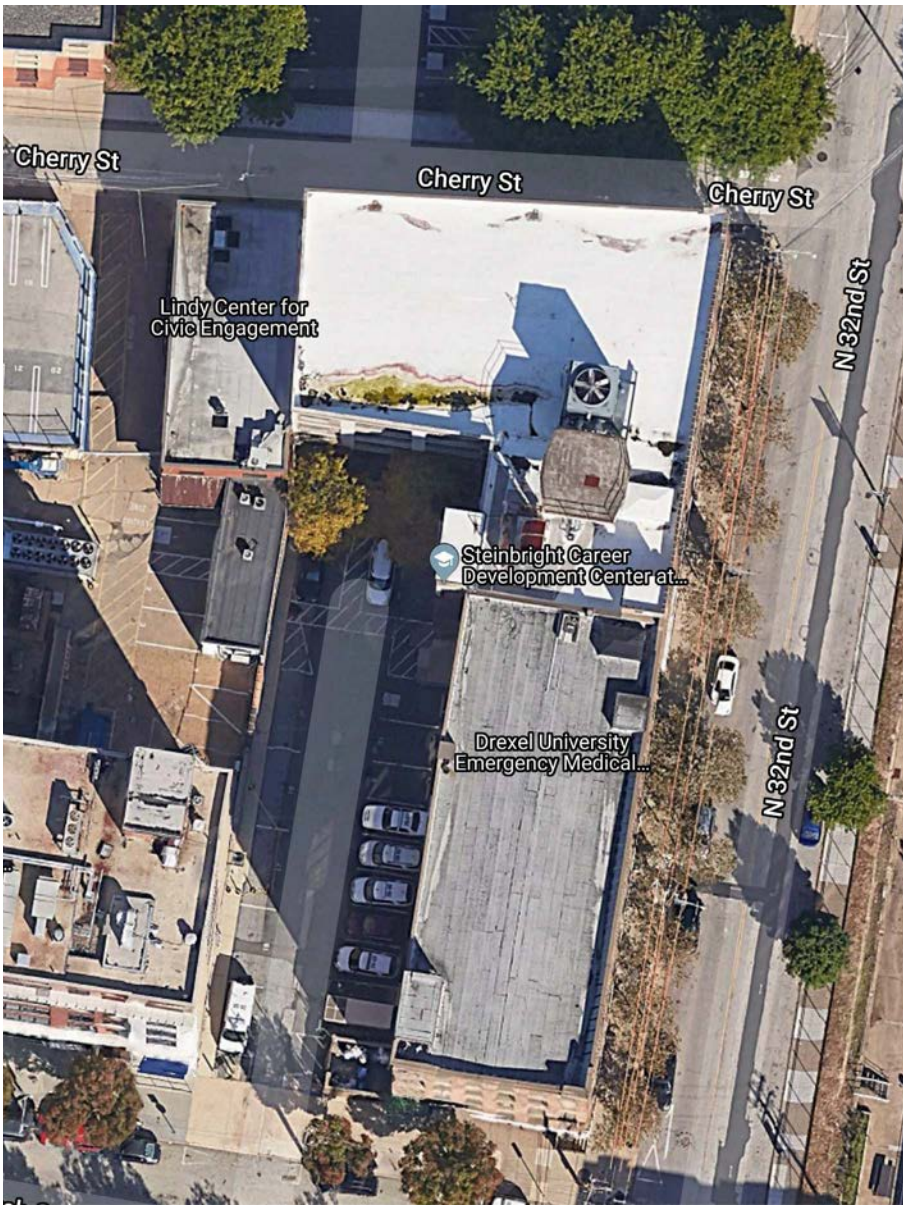
NUMBER of FLOORS
4 Floors with Basement

CURRENT USE
Steinbright Career Center, Drexel University Offices

BUILDING INFORMATION
Acquired by Drexel University in 1988

Southern wing constructed between 1895 and 1900 – heavy timber structure

Northern wing constructed circa 1920 – concrete frame of rectangular exterior columns, double row of round mushroom columns, concrete slab



3201 Arch Street is emblematic of turn the century loft buildings in Philadelphia with a southern wing built with a heavy timber structure and thick brick bearing walls between 1895 and 1900. This wing has individual window openings in the brick and original windows were wood double hung units. The north addition was built with a concrete structure that features rectangular exterior columns and an interior double row of round mushroom columns on the interior. This modern structural system supports larger expanses of glass and exposes the structural system on the Cherry Street and rear facades. It was common for an architectural treatment to mask a structural system on the public side of the building which is why the column structure is hidden on the main expanse of 32nd Street, and left exposed on the smaller Cherry Street and in the rear. Typically, buildings of this time had water tanks that also helped reveal the structural system. The water tower on the southern wing sat upon the southwest stairwell and on the new wing sat on a still existing concrete frame.

Interestingly, this building has three unique Philadelphia Fire Towers that are telling of the period. The south fire stair is within the building perimeter, contained by load bearing brick walls with partially exposed balconies, and extended beyond the roof. The center stair is external to the building and access to the stair happens via balconies cantilevered off the building structure. This fire tower was constructed where the new addition met the old. The north tower is a modern version of the south with a partially exposed balcony and brick fire walls within the concrete frame. Fire doors are built up of metal sheets over a wood plank door and all have an arched top.

The building's original windows on the southern wing were double hung wood framed as was common in both residential and office buildings at the time. After 1910, steel framed windows were more common and used to replace wood framed windows. The panel grid of the northern wing likely initially supported steel windows that were operable in some way indicated by the heavy frame.

Generally, rooftop water towers were common features on buildings in many cities that have fallen out of favor since. In more recent years, they are again gaining popularity for their sustainable features as they reduce the need for electric water pumps to maintain pressure. Wooden tanks, like the one on the southwestern fire stair tower, were made of wooden staves held together by metal bands and a low pitch roof to secure against contamination. It's likely that these tanks held between 5,000 - 10,000 gallons of water. Tanks on concrete structures could be much larger and hold a higher volume. Steel tanks were more common on concrete structures because their weight could be more readily supported.

Rose, James. "Turn of the Last Century Loft Buildings," May 14, 2015.

3201 Arch Street
Circa 1975
Northeast view

3201 Arch Street
Circa 1975
Northwest view

BUILDING EXTERIOR EXISTING CONDITIONS

Building Eastern Facade
Looking Southwest

Building Entrance from Arch Street
Looking North

Building Courtyard
Steinbright Career Center Entrance
Looking Northwest

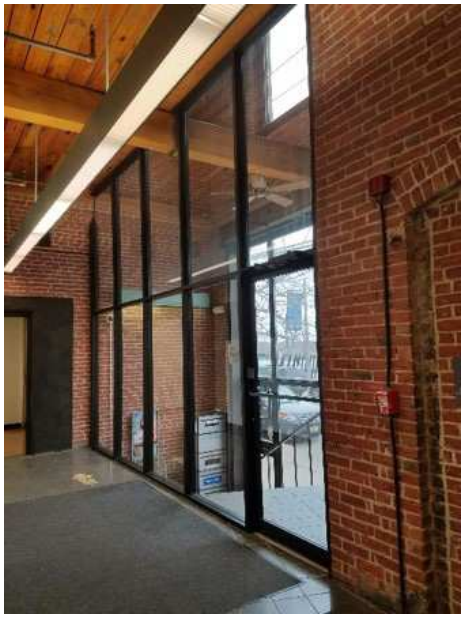
Building Window and Facade Detail, Southeast Corner
Looking Northwest

BUILDING INTERIOR EXISTING CONDITIONS

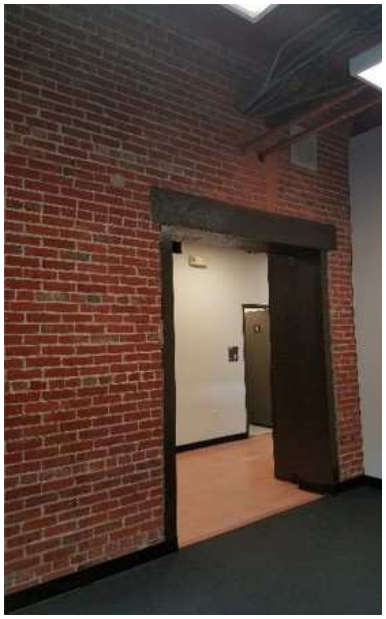
Original Fire Stair Doors in 1920 Wing

Inset Concrete Mushroom Columns in 1920 Wing

Exposed Brick and Concrete Columns in 1920 Wing



Entrance at 32nd Street



Threshold between 1900 Wing and 1920 Wing

Timber Column Structure in 1900 Wing

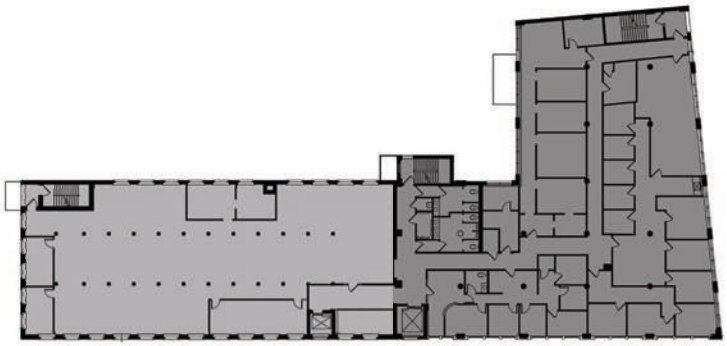
EXISTING CONDITIONS FLOOR PLANS

1895-1900 Wing

1920 Wing

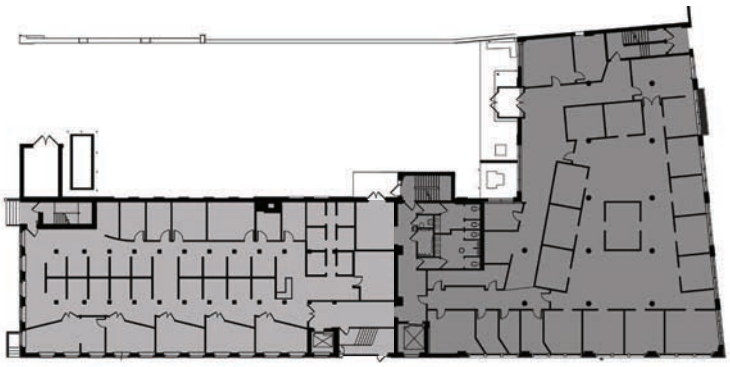
Second Floor Plan
Approximately 12,316 SQ FT

Ceiling Height:
12’-4”

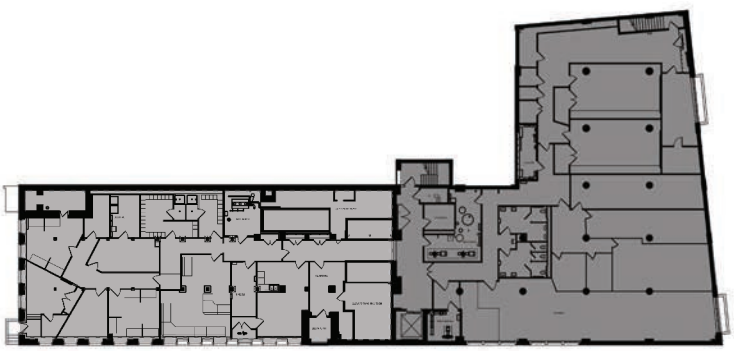


First Floor Plan
Approximately 12,305 SQ FT

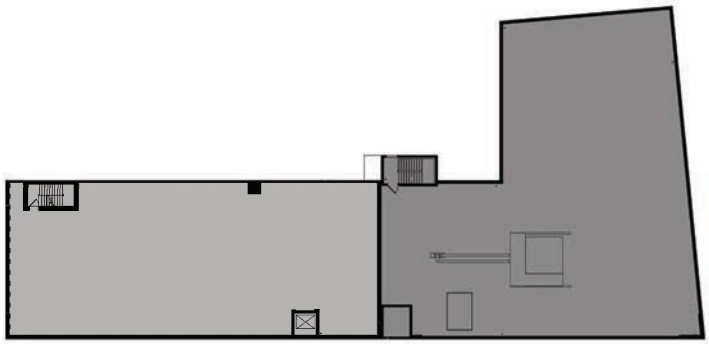
Ceiling Height:
13’-5 1/2”



Basement Floor Plan



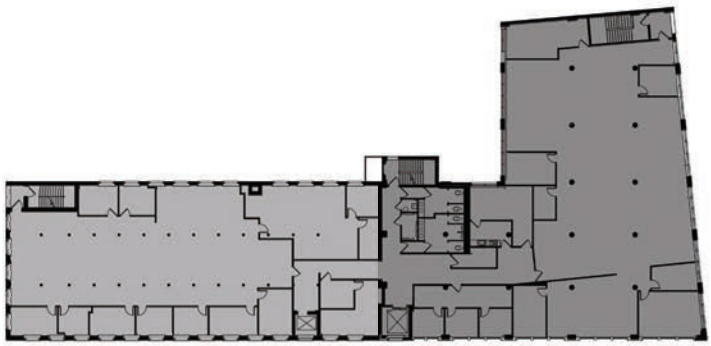
Roof Plan



Fourth Floor Plan

Approximately 12,462 SQ FT

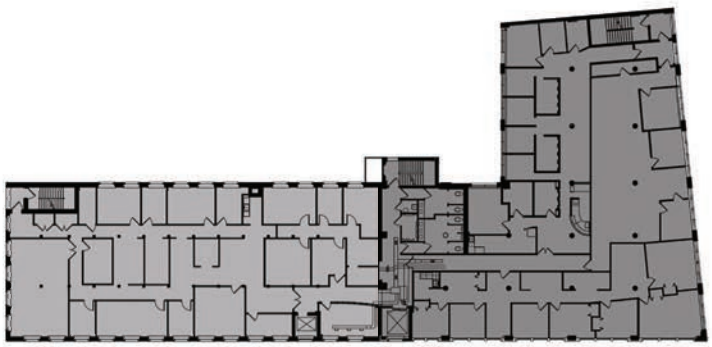
Ceiling Height:
13’-3 1/2”



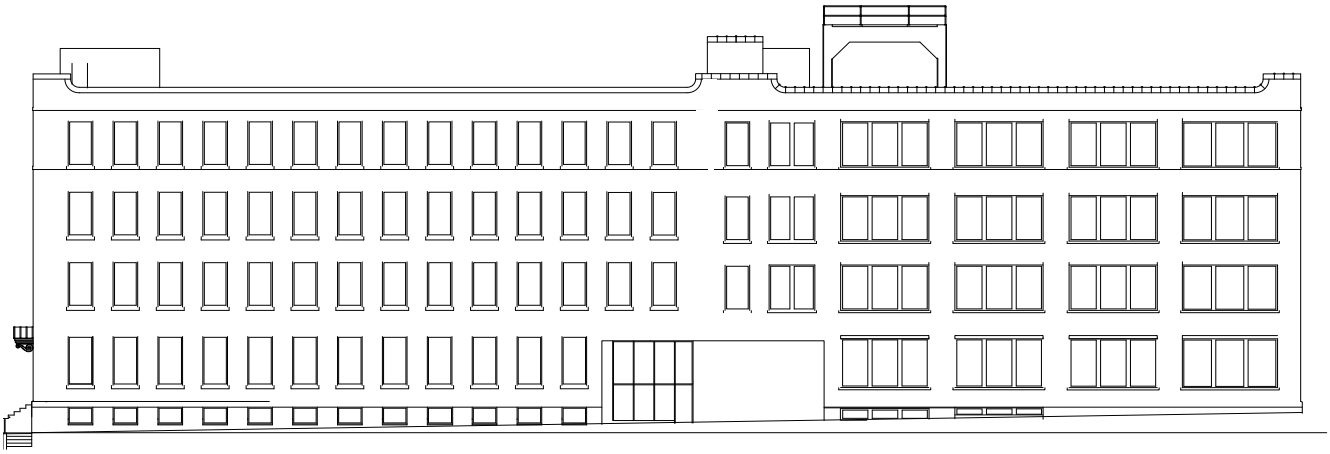
Third Floor Plan

Approximately 12,462 SQ FT

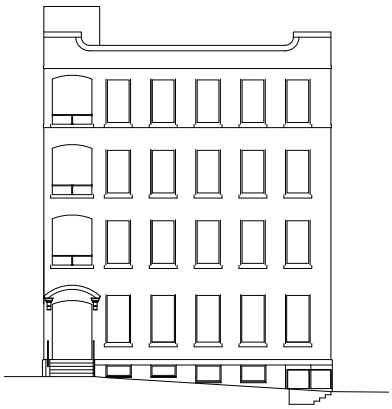
Ceiling Height:
12’-4”



EXISTING CONDITIONS ELEVATIONS



32nd Street Facade Elevation

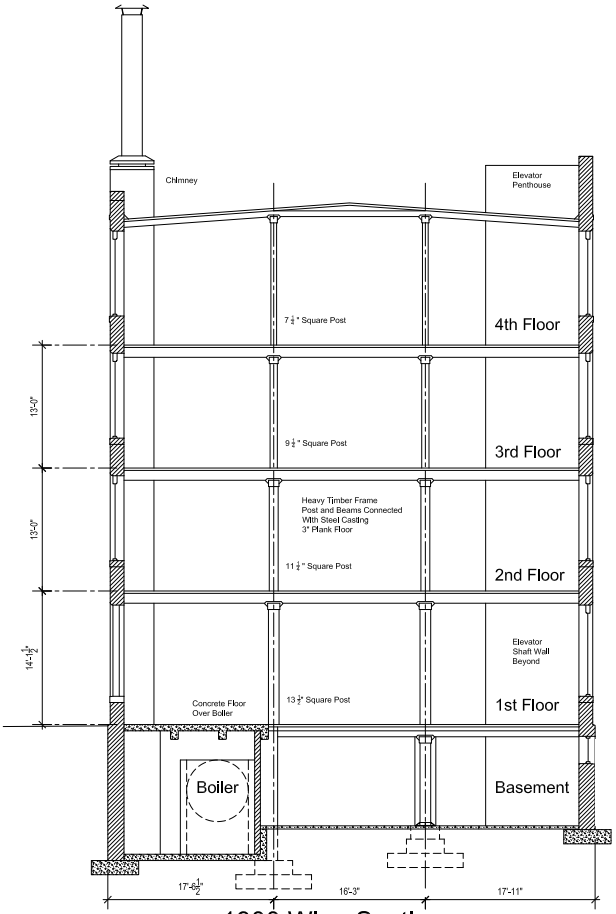


Cherry Street Facade Elevation

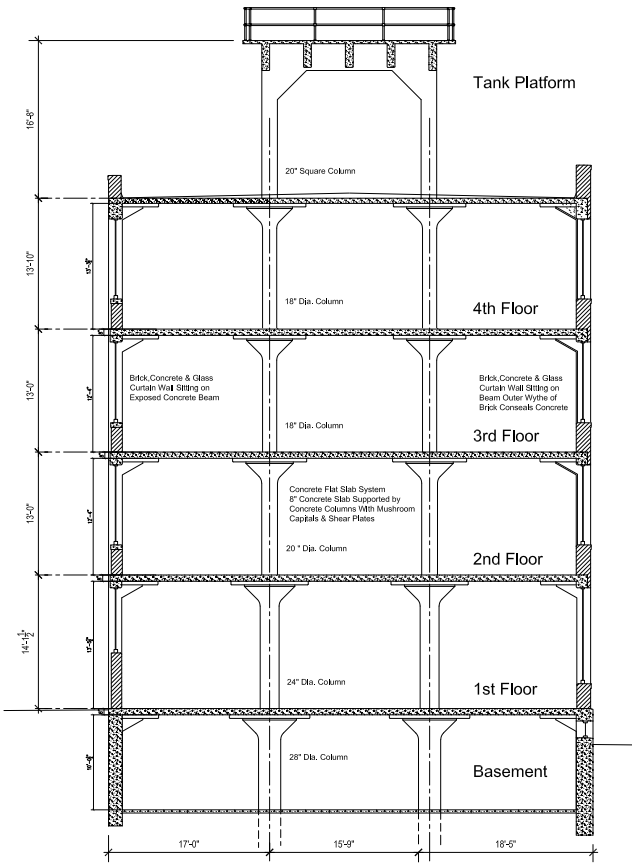
Interior Courtyard Facade Elevation

Arch Street Facade Elevation

EXISTING CONDITIONS SECTIONS

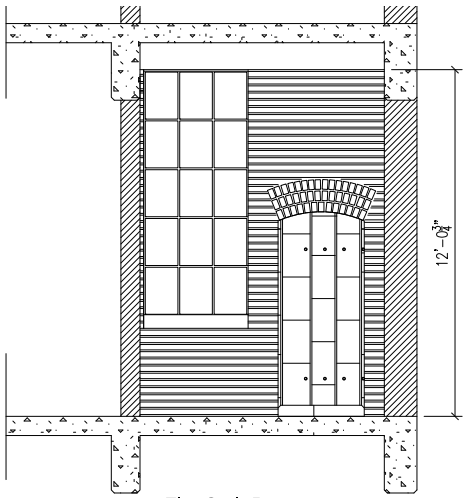


1900 Wing Section

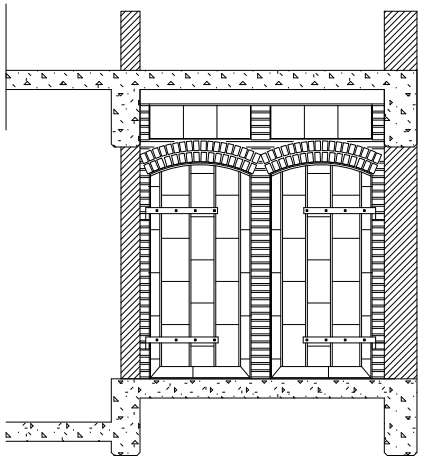


1920 Wing Section

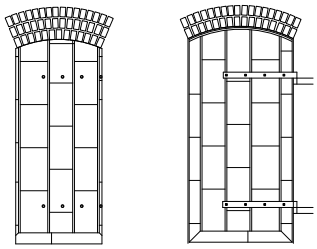
FIRE STAIR DETAILS



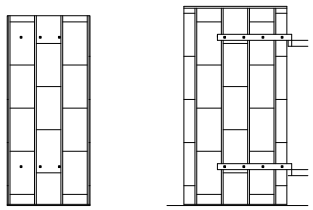
Fire Stair Balcony
Typ Floor Elevation



Fire Stair Exit
Elevation at Grade

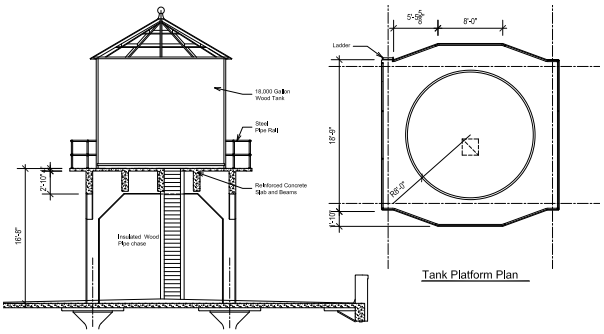


Arched Opening
Fire Doors

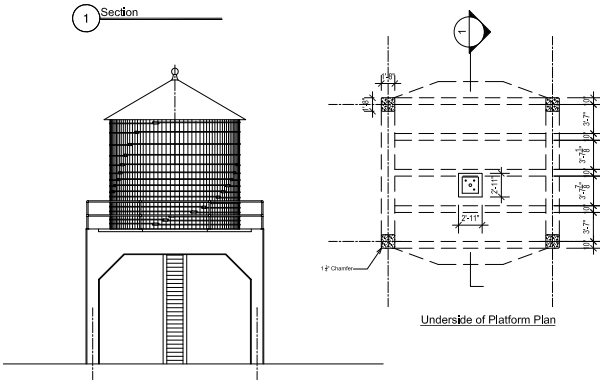


Flat Steel Lintel
Fire Doors

WATER TOWER DETAILS

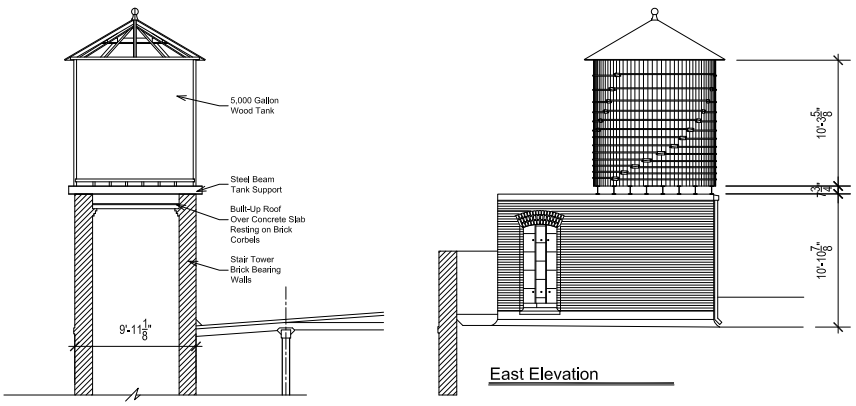


1 Section



East Elevation

3201 Arch Street 1920 Wing
Water Tower



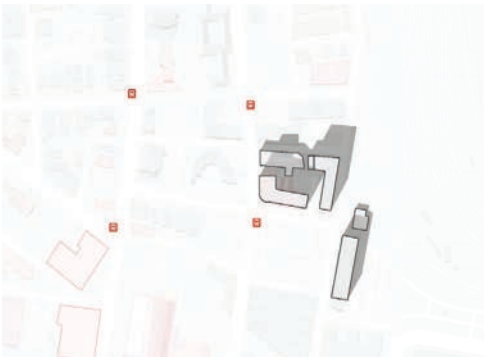
1 Section

3201 Arch Street 1900 Wing
Water Tower

SUN STUDIES

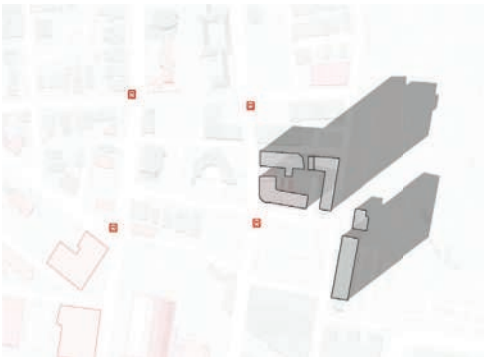
JANUARY

January 1, 8:00 am



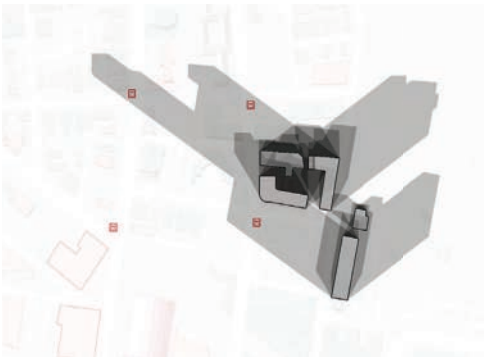
January 1, 2:00 pm

January 1, 10:00 am



January 1, 4:00 pm

January 1, 12:00 pm



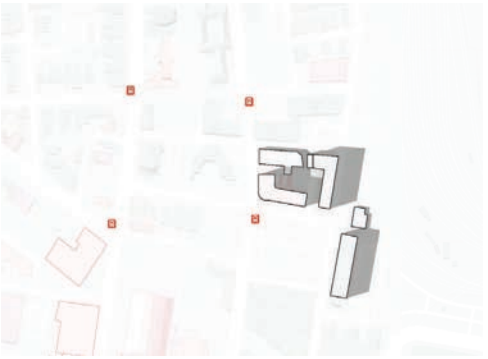
January 1, Composite

APRIL

April 1, 8:00 am

April 1, 2:00 pm

April 1, 10:00 am

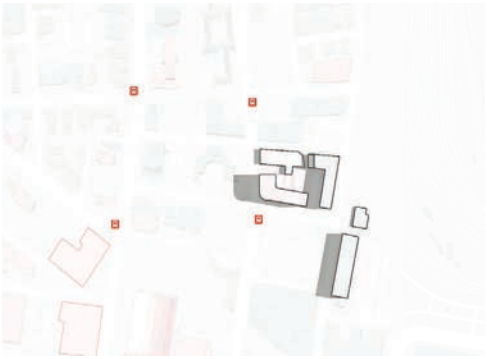


April 1, 4:00 pm

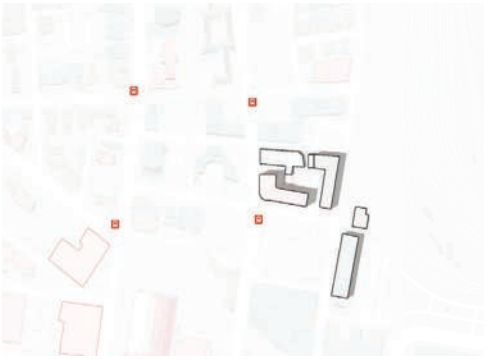
April 1, 12:00 pm

April 1, Composite

JULY

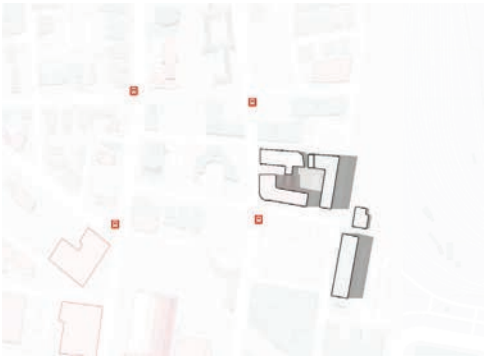


July 1, 8:00 am



July 1, 2:00 pm

July 1, 10:00 am



July 1, 4:00 pm

July 1, 12:00 pm

July 1, Composite

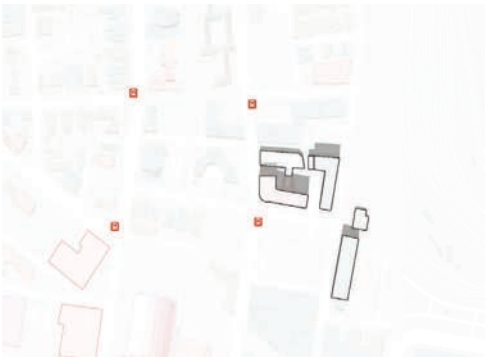
OCTOBER

October 1, 8:00 am

October 1, 2:00 pm

October 1, 10:00 am

October 1, 4:00 pm

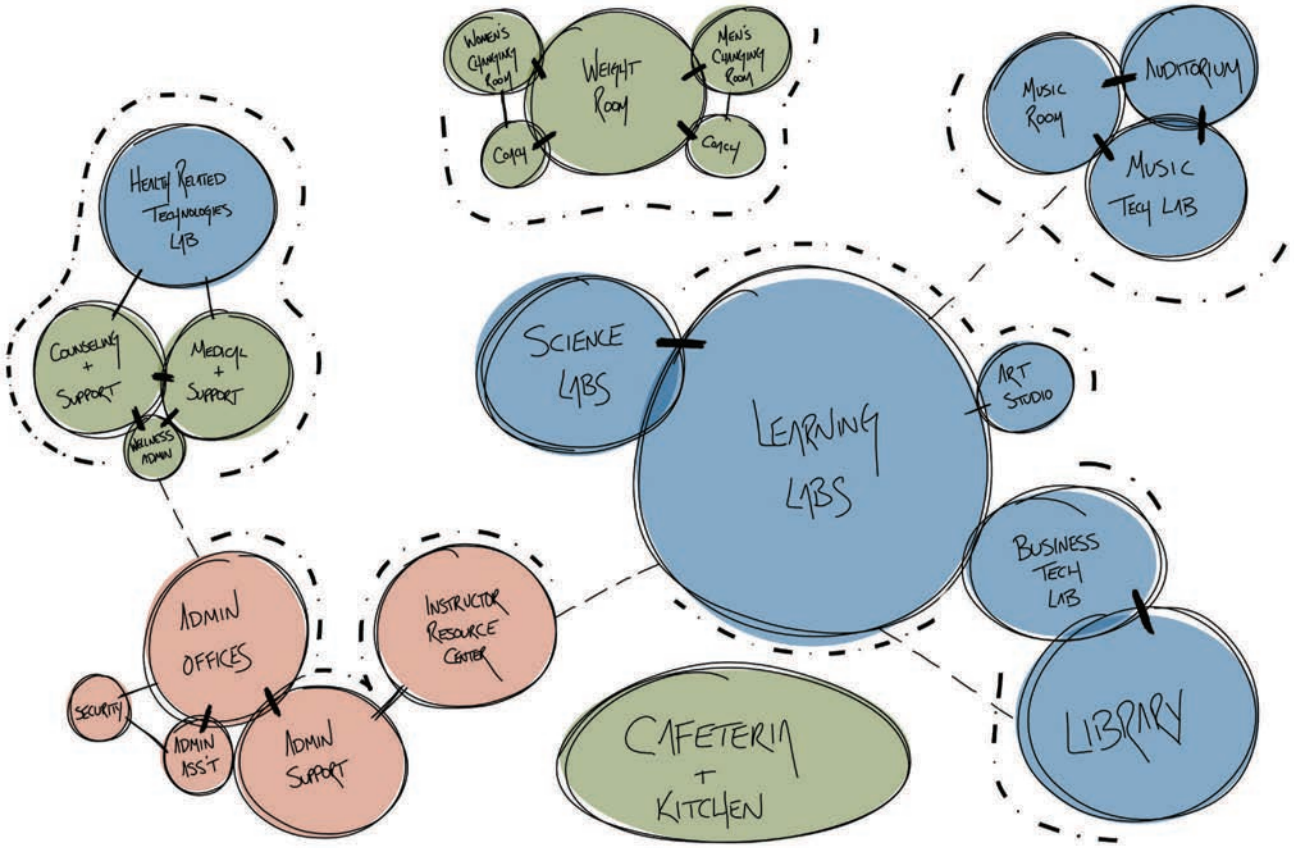


October 1, 12:00 pm

October 1, Composite

DESIGN DEVELOPMENT + PROGRAM

PROGRAM DIAGRAMS

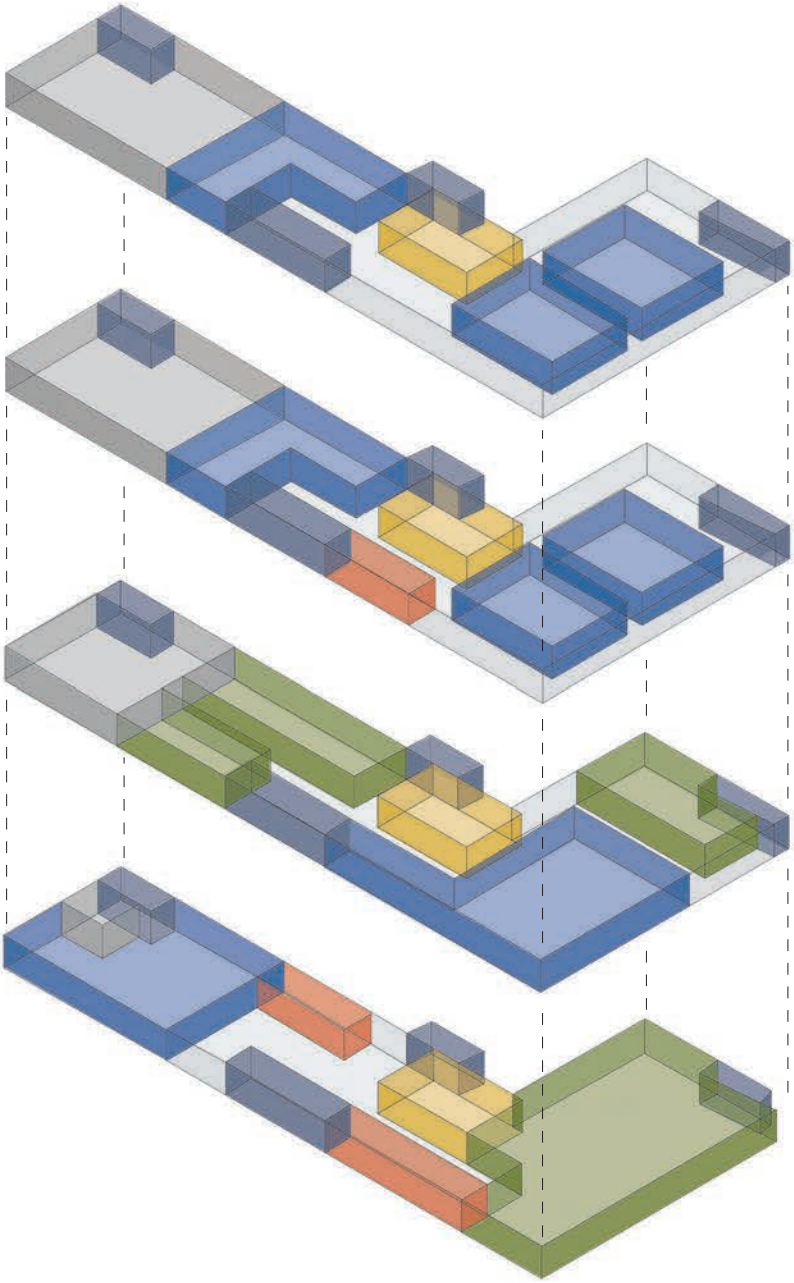


Based on background research, the school's program was developed with a focus on three distinct neighborhoods: Learning, Health and Wellness, and Administrative. These neighborhoods were programmed throughout the building with varying levels of public access and considerations of adjacencies and acoustics in critical locations.

Legend

- Learning
- Health and Wellness
- Administrative

- Direct Adjacency
- Adjacency
- Desired Connection
- Acoustic Considerations

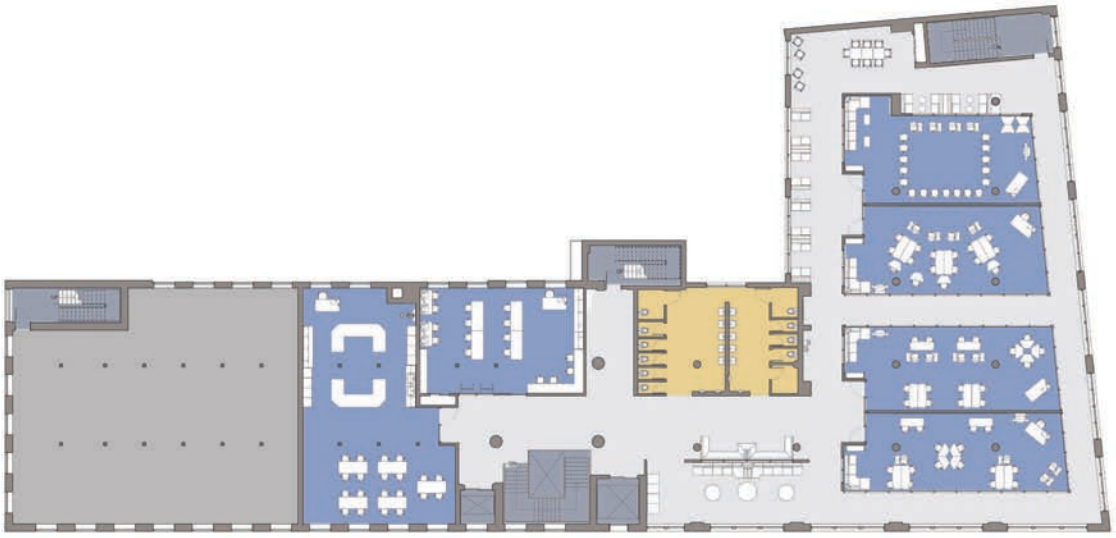


Legend

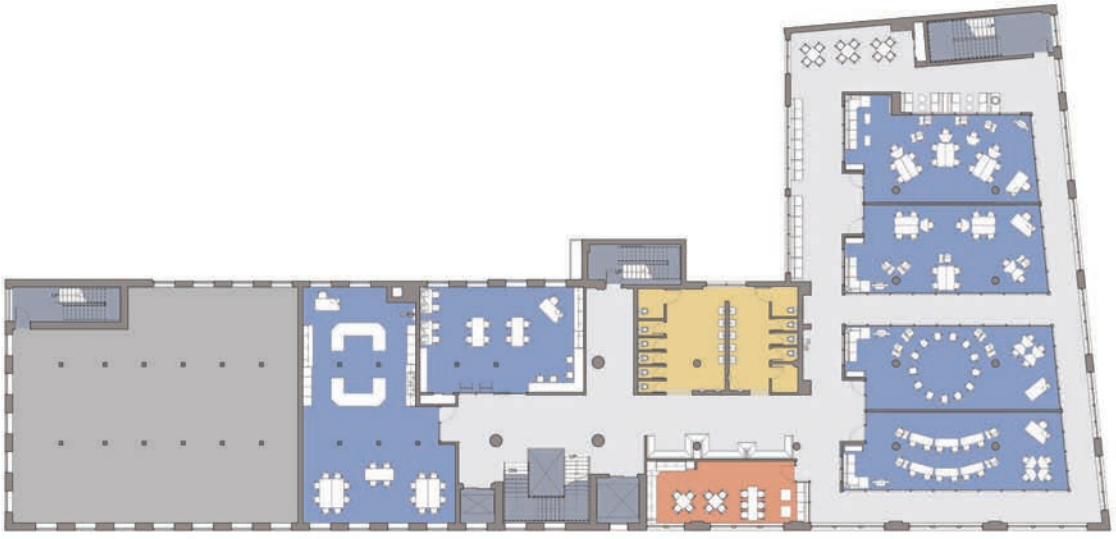
- Learning
- Health and Wellness
- Administrative
- Vertical Circulation
- Circulation
- Restrooms
- Drexel Tenant Space

Second Floor Plan
Not to Scale

First Floor Plan
Not to Scale



Fourth Floor Plan
Not to Scale



Third Floor Plan
Not to Scale

Legend

- Learning
- Health and Wellness
- Administrative
- Vertical Circulation
- Circulation
- Restrooms
- Drexel Tenant Space

PROGRAM MASTER LIST

First Floor

Administrative Offices	955 sq ft
Lobby	780 sq ft
School - Based Health Center	1,239 sq ft
HRT Lab	983 sq ft
Cafeteria	1,828 sq ft
Kitchen	380 sq ft
Business Technologies Lab	813 sq ft
Library	1,886 sq ft
Restrooms	644 sq ft
Janitorial	50 sq ft
Program Square Footage +/- 30% Circulation Total Square Footage	9,558 sq ft 2,867 sq ft 12,425 sq ft
Drexel Tenant Space	250 sq ft

First Floor Plan
Not to Scale

Legend

- Learning
- Health and Wellness
- Administrative
- Vertical Circulation
- Circulation
- Restrooms
- Drexel Tenant Space

PROGRAM SPACE	SUPPORTED PROGRAMMING
Lobby	Open Houses, Guest Speakers, Music and Theater Performances, Community Gatherings, Movie Nights
School - Based Health Center	Community Mental and Physical Health and Wellness, Small Group Therapy, Medical Referrals
HRT Lab	Education in Nursing, Pharmaceuticals, Clinical Experience, Introductory and Advanced Health Care
Cafeteria & Kitchen	Nutrition Education, Culinary Arts, Student and Community Meals, Large Events - Open Houses, School Dances, Guest Speakers, Movie Nights
Business Technologies Lab	Education in Business, Finance, Entrepreneurship, Economics, Incubation Space for Students & Neighbors, Technology Provision
Library	Small Group Work and Incubation, Technology and Resource Provision, Book and A/V
Courtyard	Gardening, Nutrition and Biology Education, Student and Community Gathering, Relaxation Space

Second Floor

Fitness Center	912 sq ft
Women's Locker	392 sq ft
Men's Locker	393 sq ft
Coaching Offices	214 sq ft
Music Technologies Lab	1,149 sq ft
Music Education	833 sq ft
Fine Arts Studio	931 sq ft
Student Health Center	678 sq ft
Laundry & Loot	210 sq ft
Multifaith Room	270 sq ft
Restrooms	798 sq ft
Janitorial	30 sq ft
Program Square Footage +/- 30% Circulation Total Square Footage	6,810 sq ft 2,043 sq ft 8,853 sq ft
Drexel Tenant Space	1,833 sq ft

Second Floor Plan
Not to Scale

Legend

- Learning
- Health and Wellness
- Administrative
- Vertical Circulation
- Circulation
- Restrooms
- Drexel Tenant Space

PROGRAM SPACE	SUPPORTED PROGRAMMING
Fitness Center	Gym Classes, Fitness Training, Olympic Lifting, Cardiovascular Training
Music Tech. Lab & Music Education	Education in Music Production, Vocal and Instrumental Education and Recording, Small and Large Vocal and Instrumental Practice Spaces
Fine Arts Studio	Painting, Drawing, Sculpting, Mixed-Media Arts
Student Health	Student Mental and Physical Health and Wellness, Small Group Therapy, LGBTQ Health, Drug Use Prevention, Safe-Sex Education, Healthy Relationship Education
Laundry & Loot	Washer & Dryer Machines, Free Thrift Store - Clothing and Non-Perishables, Education in Retail Management
Multifaith Room	Religious Observance, Small Group Prayer and Gathering

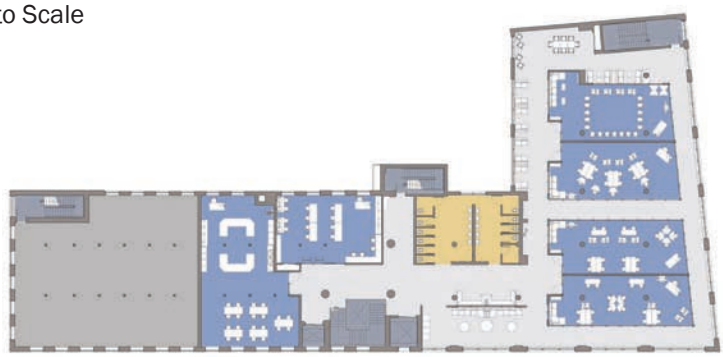
Third Floor

Instructor Resource Room	407 sq ft
STEM Science Lab	1,257 sq ft
STEM Media Lab	724 sq ft
Learning Labs (4)	2,820 sq ft
Restrooms	644 sq ft
Janitorial	30 sq ft
Program Square Footage +/- 30% Circulation Total Square Footage	5,882 sq ft 1,764 sq ft 7,646 sq ft
Drexel Tenant Space	2,597

Fourth Floor

Instructor Resource Room	407 sq ft
STEM Science Lab	1,257 sq ft
STEM Media Lab	724 sq ft
Learning Labs (4)	2,820 sq ft
Restrooms	644 sq ft
Janitorial	30 sq ft
Program Square Footage +/- 30% Circulation Total Square Footage	5,882 sq ft 1,764 sq ft 7,646 sq ft
Drexel Tenant Space	2,597

Third Floor Plan
Not to Scale



Fourth Floor Plan
Not to Scale

Legend

- Learning
- Health and Wellness
- Administrative
- Vertical Circulation
- Circulation
- Restrooms
- Drexel Tenant Space

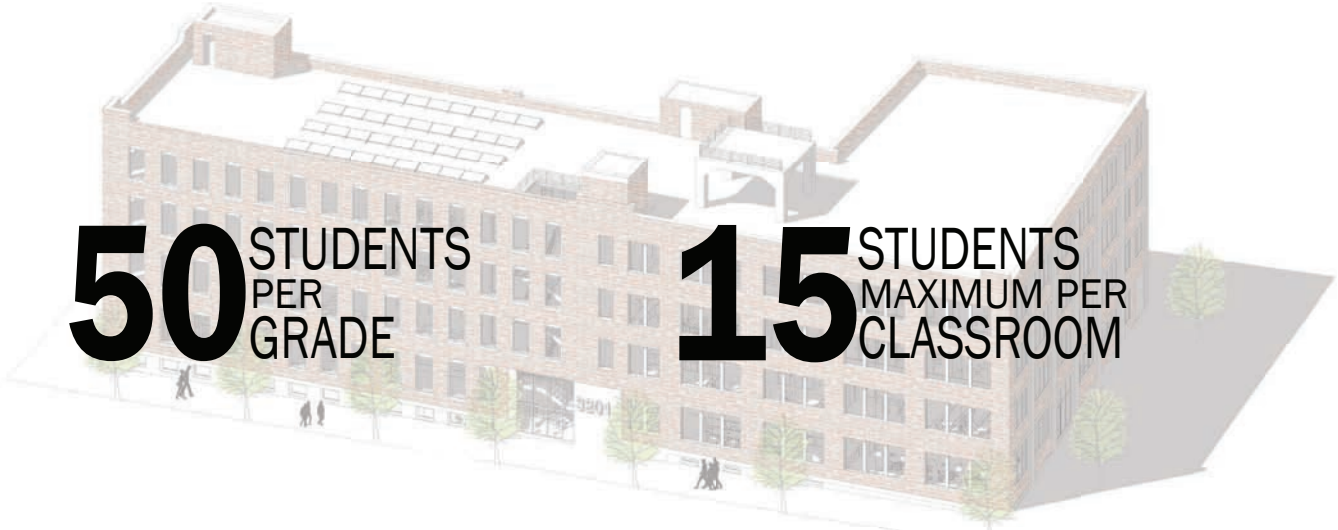
PROGRAM SPACE	SUPPORTED PROGRAMMING
Instructor Resource Room	Teacher, Faculty and Volunteer Support, Small Group Meals and Meetings, Tutoring, Co-Working
Student Lounge	Before- and After-School Gathering Space, Informal Education, Student Club and Activity Meeting Space
STEM Science Lab	Education in Physics, Biology, Chemistry
STEM Media Lab	Education in Robotics, Engineering, Applied Sciences
Learning Labs	General Education in Math, English, Foreign Languages, History, and Social Studies, Available for Evening and Weekend Adult Classes, Lectures and Workshops

CONNECTIONS COMMUNITY HIGH SCHOOL

STATISTICS

GRADES
9-12

STUDENTS
200



50 STUDENTS PER GRADE

15 STUDENTS MAXIMUM PER CLASSROOM

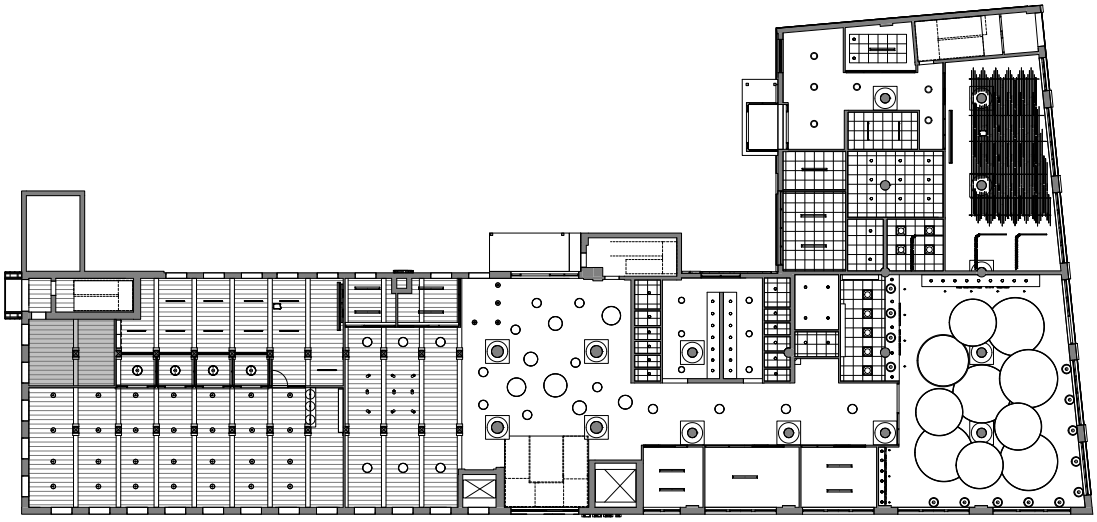
36 FACULTY AND STAFF

10:1 STUDENT TEACHER RATIO

CONNECTIONS COMMUNITY HIGH SCHOOL

FINAL DESIGN

FIRST FLOOR



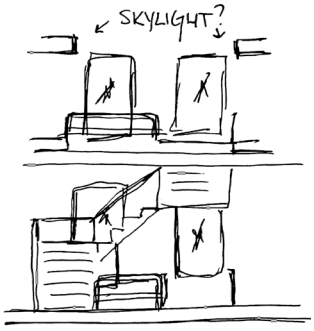
First Floor RCP
Not to Scale

First Floor Plan
Not to Scale

LOBBY

Design Principle: Encourage Movement

At the start of a school day, the lobby provides a touchpoint for students before grabbing breakfast from the cafeteria. Comfortable soft seating that can be reconfigured lets students meet and gather in groups before heading to class. The existing building has three fire stairs all tucked away in dark, brick stairwells. The addition of a feature stair with a skylight at the 32nd Street entrance provides a more beautiful vertical circulation experience and encourages walking, rather than using the elevators.



ENCOURAGES WALKING
LOCATED @ MAIN ENTRY + CIRCULATION POINTS ON 2/3/4
(BULLITT CENTER)

CONTINUE/TRUE TO BUILDING MATERIALITY - EXISTING STRUCTURAL MATERIALS
CONCRETE // PIPE RAILINGS

WELL LIT - EXISTING WINDOWS FACING EAST

Design Principle: Open the Doors

At night, the lobby's furniture can be easily stored away allowing the lobby to transform into a large, open space appropriate for public events and welcoming the neighborhood to use it for showcases, such as an art show, open house, or guest speaker. The simple transition from day to night and back again ensures an easy set-up for students to return in the morning.

Design Principle: Keep it Casual

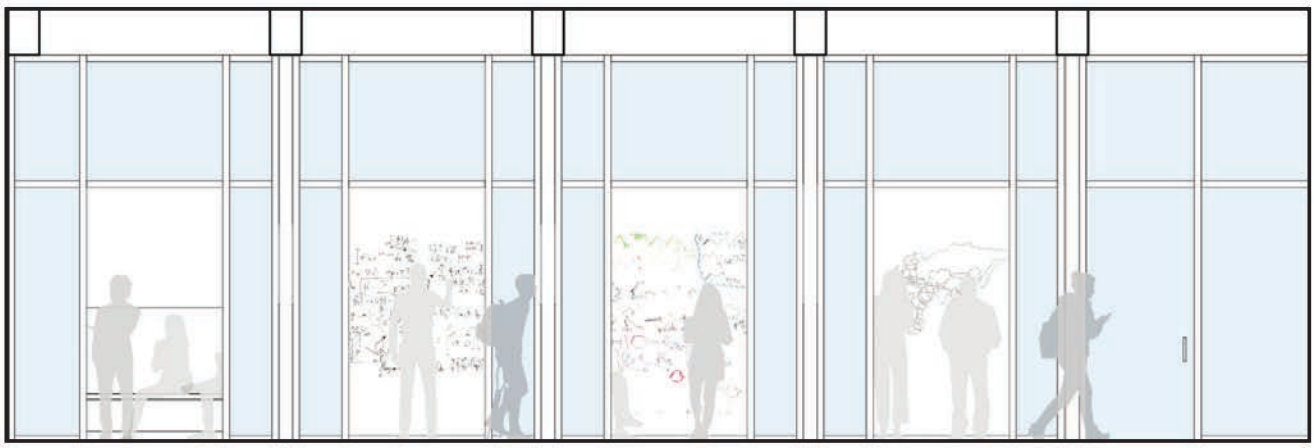
The lobby also features this stadium seating area which becomes a hub where students can meet with each other, receive tutoring, or chat with administrators outside the confines of a formal office. Additional benches and cushions provide soft seating while the perimeter rail doubles as a bar-height work surface with stools. With flexible track lighting overhead, this can also easily transform info a performance stage for music groups or guest speakers. Screens at the back wall can display a rotation of images and videos highlighting student activities, awards and honors, and community engagement events.

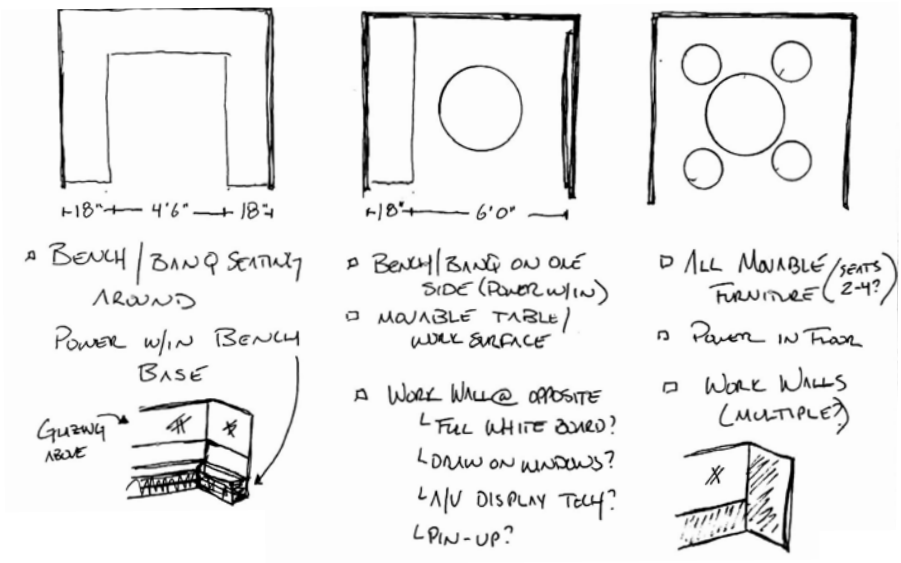
LIBRARY

Design Principle: Provide for Privacy and Comfort

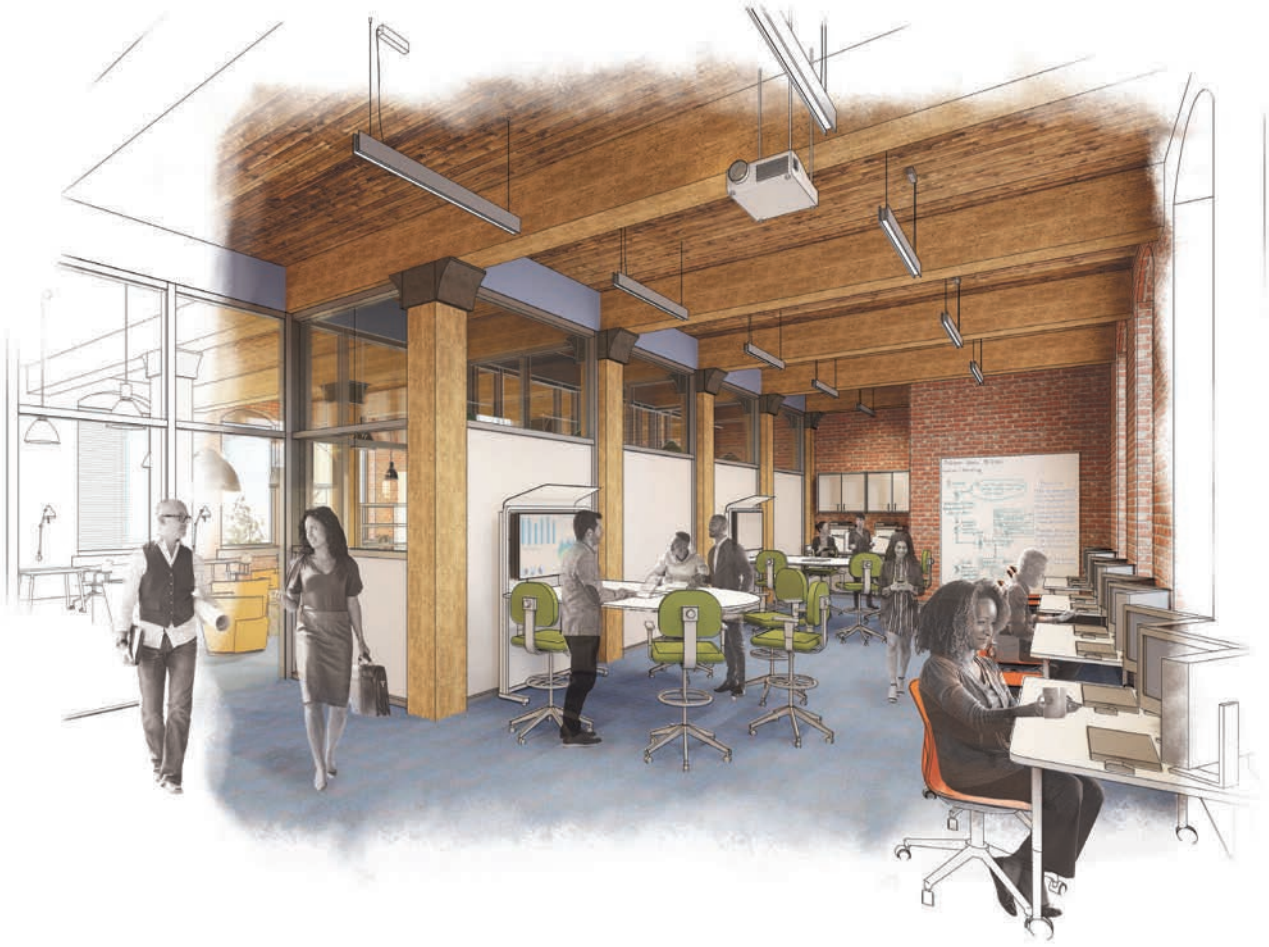
South of the lobby, a variety of seating options in the library provide different levels of privacy and promote varied interactions. The library is an ideal place for students who may otherwise struggle to find quiet, comfortable places to work outside of the school. If basic needs like safety and security are not met, students cannot focus on their assigned work. Lounge seating adds comfort while custom library stacks designed with counter-height seating are ideal for heads-down work.

The library also hosts four semi-private huddle rooms for small group work. Each room has whiteboard paneling and banquette seating comfortable for about four people to meet and work. The slightly larger huddle room at left has additional banquette seating and a wall monitor for digital work and presentations.




18" 4'6" 18"
BENCH / BANQ SEATING AROUND
POWER W/IN BENCH BASE
GLAZING ABOVE
18" 6'0"
BENCH/BANQ ON OLÉ SIDE (POWER W/IN)
MOVABLE TABLE/ WORK SURFACE
WORK WALL@ OPPOSITE
FULL WHITE BOARD?
DRAW ON WINDOWS?
A/V DISPLAY TECH?
PIN-UP?
ALL MOVABLE (SEATS 2-4?) FURNITURE
POWER IN FLOOR
WORK WALLS (MULTIPLE?)

BUSINESS TECHNOLOGIES LAB



Design Principle: Provide Varied Learning Spaces

Adjacent to the library, the Business Technologies Lab provides a unique learning space. By day, the space hosts classes for students seeking to gain early education in entrepreneurship or finance, and after hours it can open as an incubator space for Drexel students and neighbors. A variety of digital and smart learning tools help prepare students for technologies they may encounter in higher education or the workforce.

CIRCULATION

Design Principle: Be Revealing

Circulation throughout the school reveals the various structural materials and building systems, providing learning opportunities about built environments, how their systems function, and the architectural history of Philadelphia. The Reggio Emilia method of education promotes the role of the environment as critical to student learning. The idea of the school building as a third teacher, after instructors and peers, and has become a way for designers to think about a comprehensive use of the building as a mode of learning.

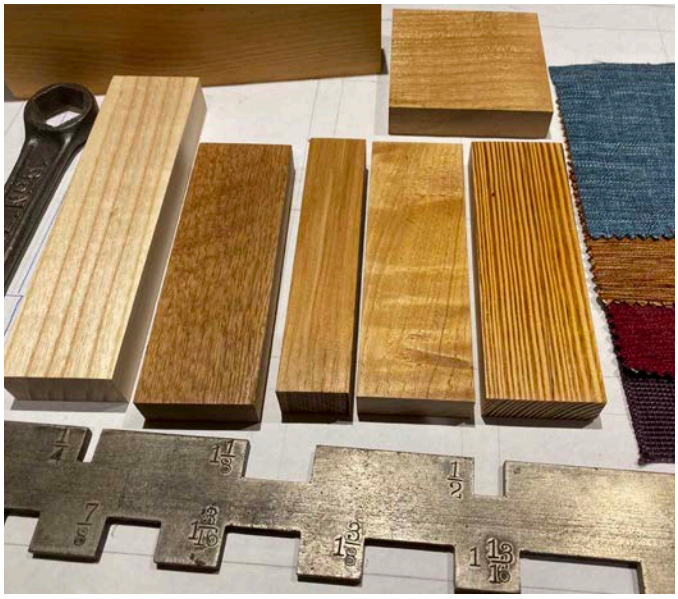
Design Principle: Trigger the Senses

Color, materials, light, and sound create a multisensorial and beautiful learning environment. A color palette that uses Drexel's blue and gold is enhanced by additional colors found in local murals throughout the Powelton and Mantua neighborhoods.

CAFETERIA

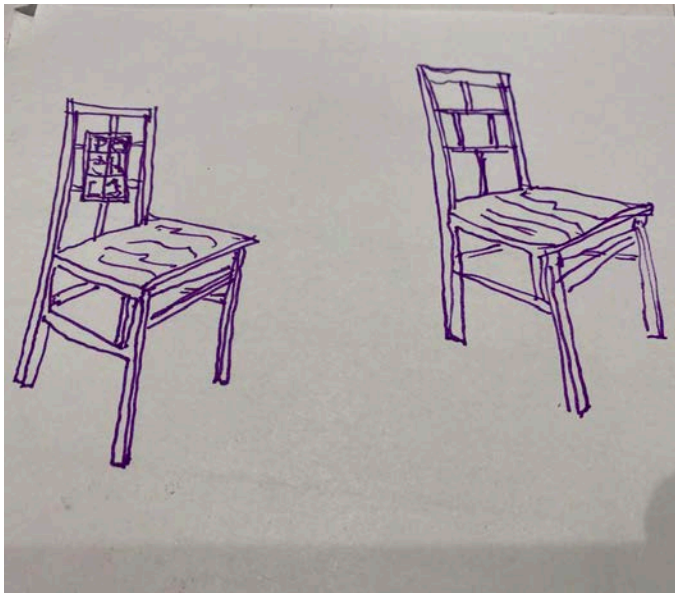
Design Principle: Stay Local and Support Local Craftspeople

A cafeteria is a constantly bustling space providing multiple meals to students by day, and hosting events by night. The space provides the opportunity to dine indoors at tables or a counter along the windows, or head out the double doors and enjoy lunch in an adjacent park. Enamel pendant lights at the windows and white subway tiles used in the cafeteria kitchen were sourced locally at Philadelphia Salvage in North Philadelphia. Furniture for the cafeteria was designed by local maker and Drexel professor Jay Haon. Jay has been a maker in Philadelphia for many years and has connections with local businesses such as Roxborough Timber and Hearn Hardwoods.



Through the design process and a shared understanding of the design intent paired with Jay's expertise, we decided on sourcing Pennsylvania-grown regional hardwoods such as locust, white oak, and reclaimed southern yellow pine. The southern pine is pictured above on top of Jay's custom cast iron table base which would be cast at a local foundry.

The custom chair, pictured below in sketch and mock-up, features a back design with Jay's 'Palpable Industries' logo and elements, like the gear, that pay homage to Philadelphia's industrial past and current thriving maker culture.

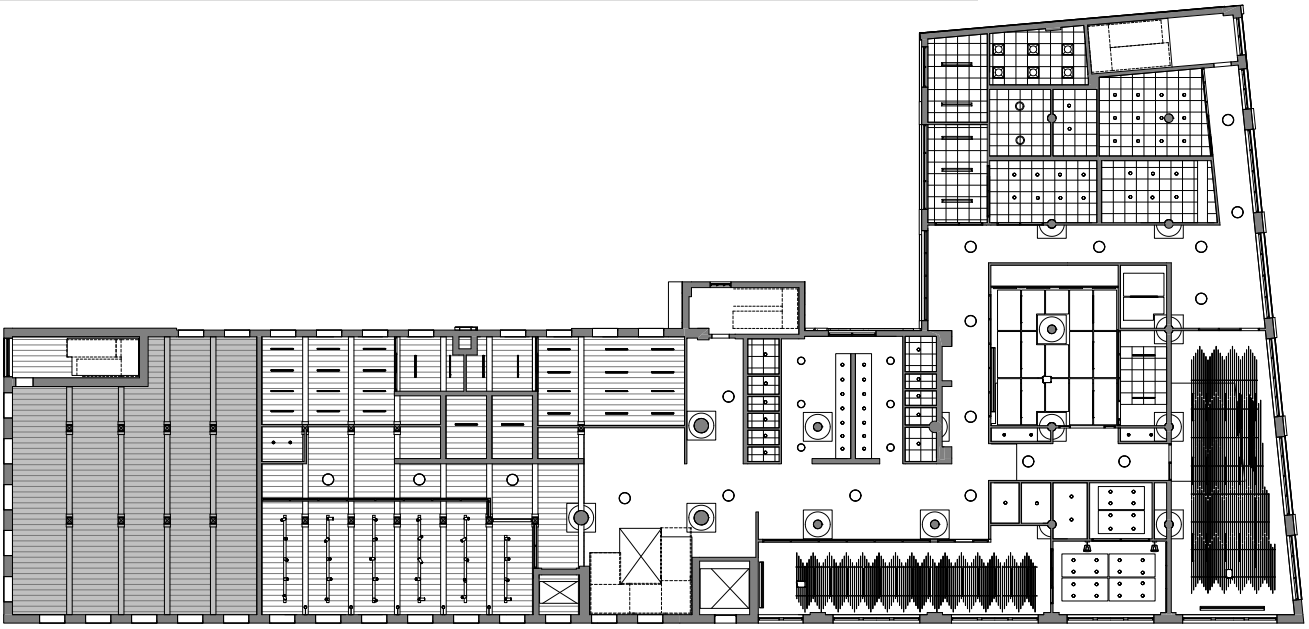


HEALTH - RELATED TECHNOLOGIES LAB

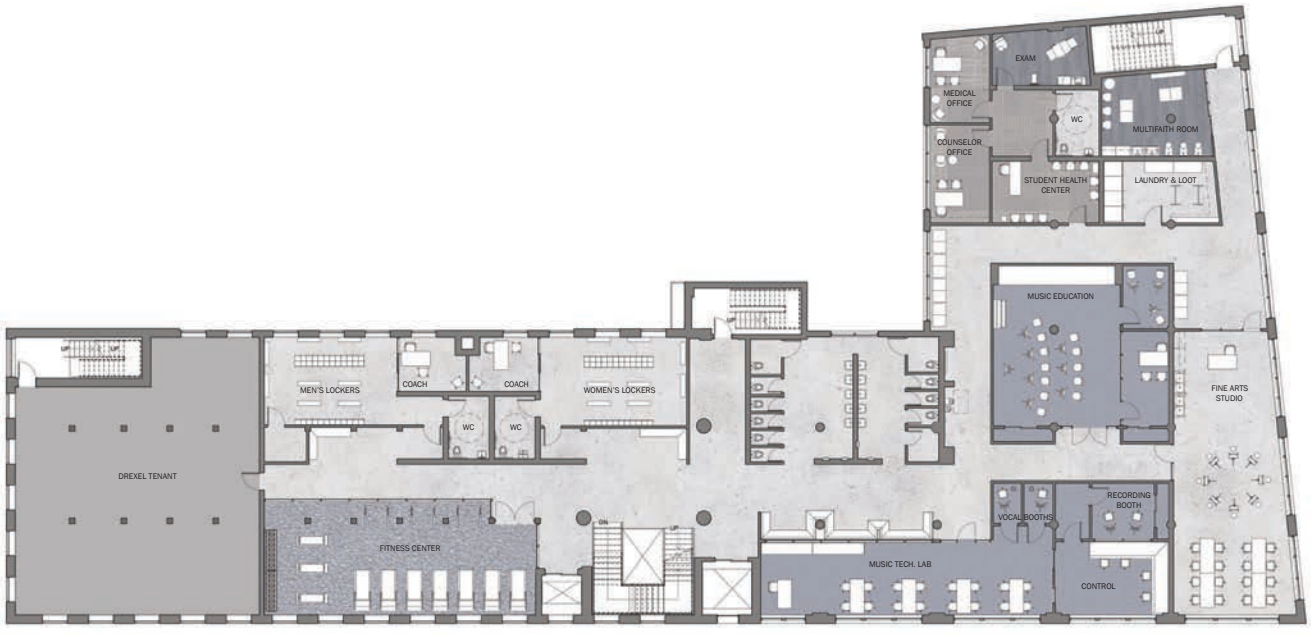
Design Principle: Prepare for the Future

Like the Business Technologies Lab, the Health-Related Technologies Lab is a Career and Technical Education program, very commonly offered in Philadelphia community schools.
Health related CTE programs help students get a head start on professions like nursing and pharmaceuticals, which are major industries in our city. Co-locating this lab within the School-Based Health Center gives students opportunities for first-hand experience with clinicians and patients.

SECOND FLOOR



Second Floor RCP
Not to Scale

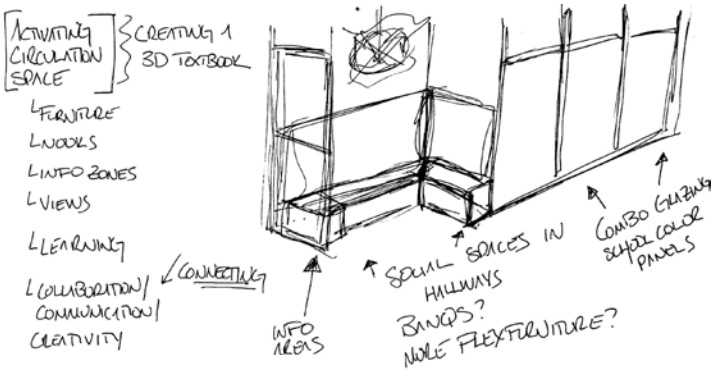


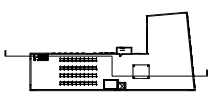
Second Floor Plan
Not to Scale

LONGITUDINAL SECTION - EAST

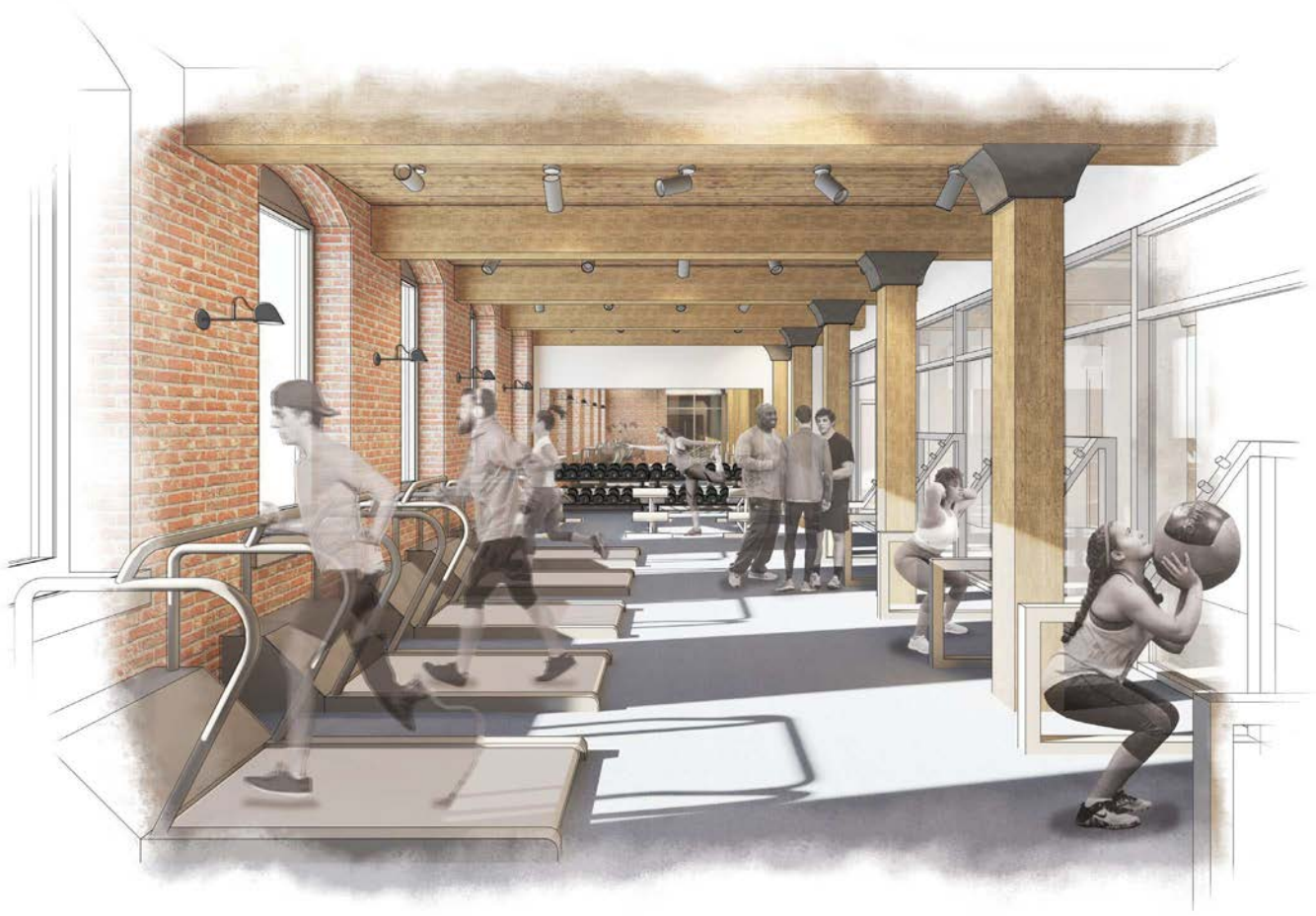
Design Principle: Slow the Pace

Alcoves and breakout spaces in hallways reduce the speed of traffic and create spaces for serendipitous meetings and scheduled gatherings. They serve to activate circulation, provide moments for respite, and let learning happen anywhere. Adjacent to the second-floor break-out space are the vocal booths and recording studio that are part of the Music Technologies program.





FITNESS CENTER



Design Principle: Promote Fitness

The second-floor fitness center provides an in-house space for weight-lifting and cardio. The school's siting is a block away from Drexel's Armory and Buckley Recreational Field which have indoor and outdoor spaces for a variety of sports. This range of fitness opportunities for gym classes ensures daily physical activity for all students.

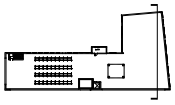
LATITUDINAL SECTION - SOUTH

Design Principle: Foster an Environment of Inclusivity

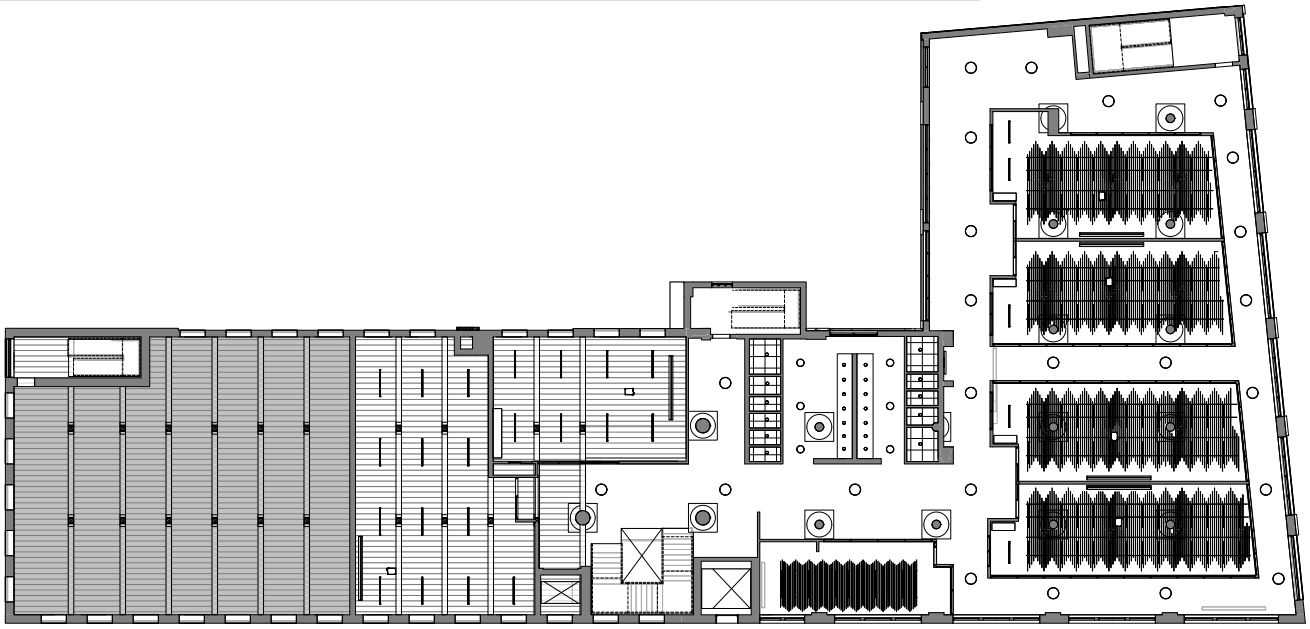
The second floor houses the ‘Laundry and Loot’ room with machines donated by Whirlpool as part of their Care Counts program and with clothing donations that any student can claim for no cost. Missing only one day of school per month can throw students off course compared to their classmates and a space like this ensures no student skips school due to a lack of clean clothes. The adjacent multi-faith room lets students of any religion gather without stigma.

Design Principle: Use the Built Environment to Eco-Educate

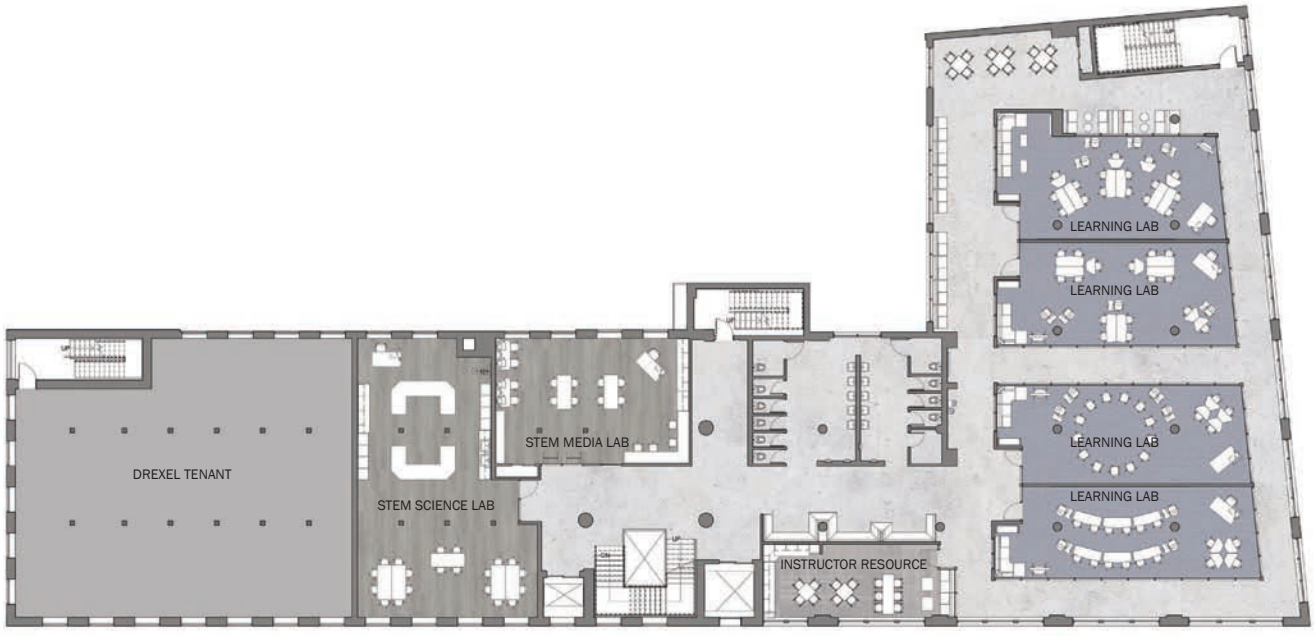
Schools with missions of sustainability are supported by the design through elements such as signage in the cafeteria that encourages students to consider trash, compost, and recycling options. The accessible solar panels on the roof connect to interactive media throughout the circulation spaces that provide real-time updates on the building’s systems.



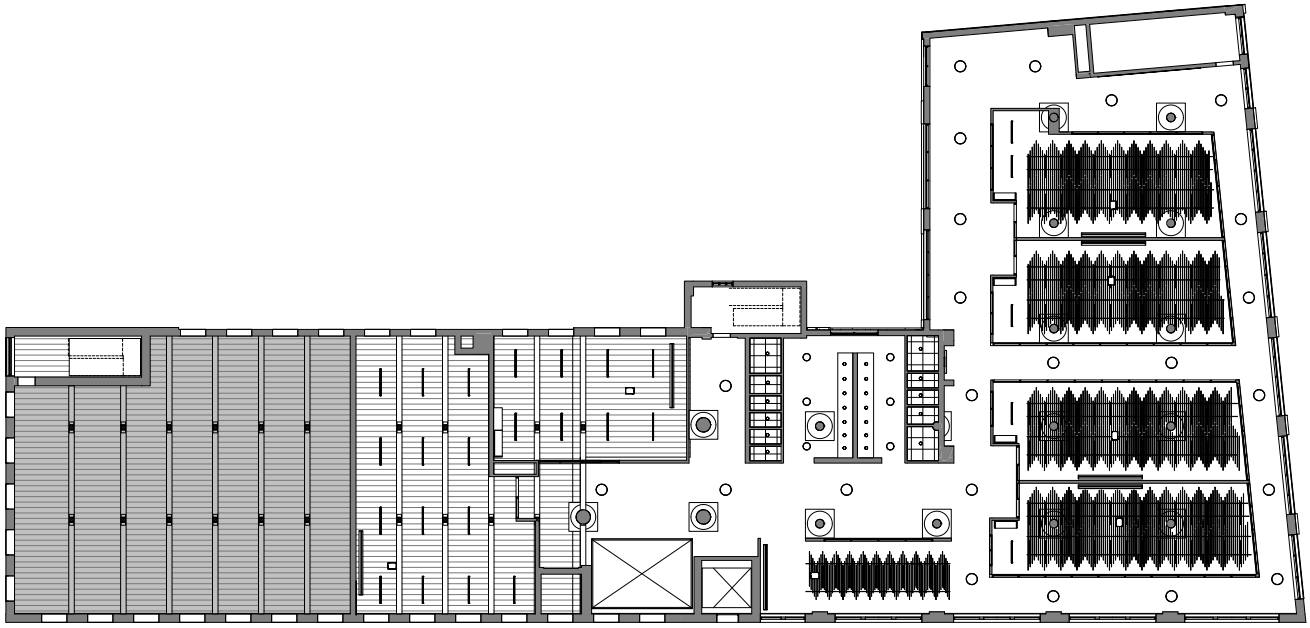
THIRD AND FOURTH FLOORS



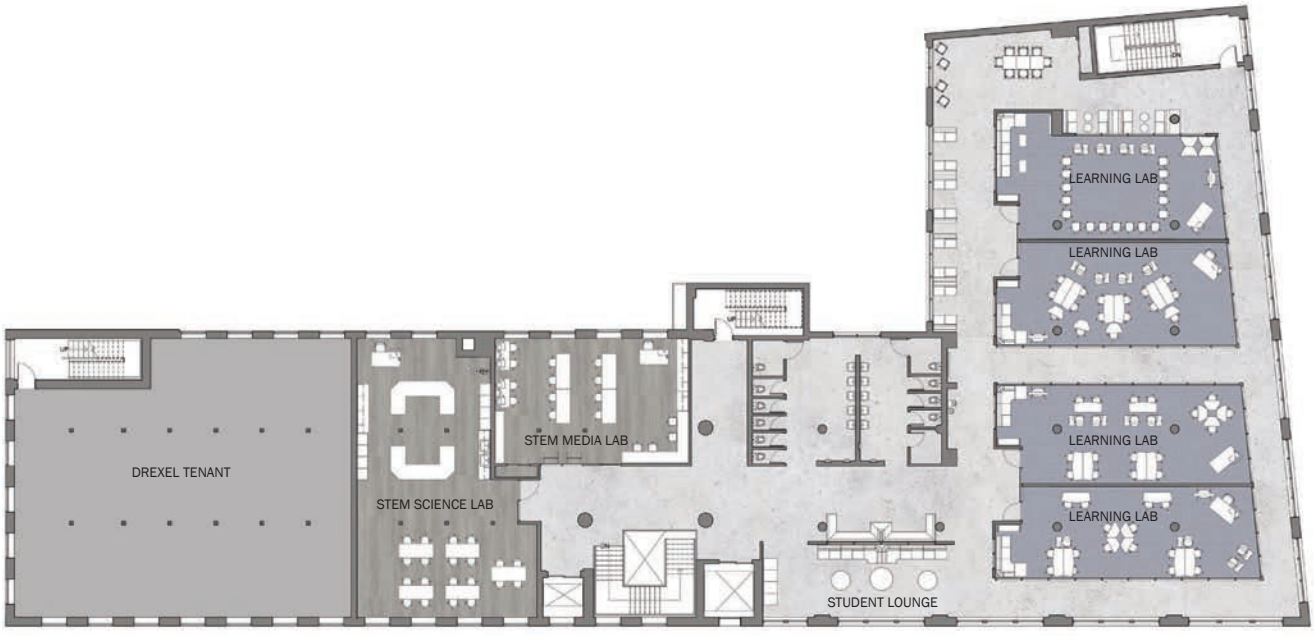
Third Floor RCP
Not to Scale



Third Floor Plan
Not to Scale



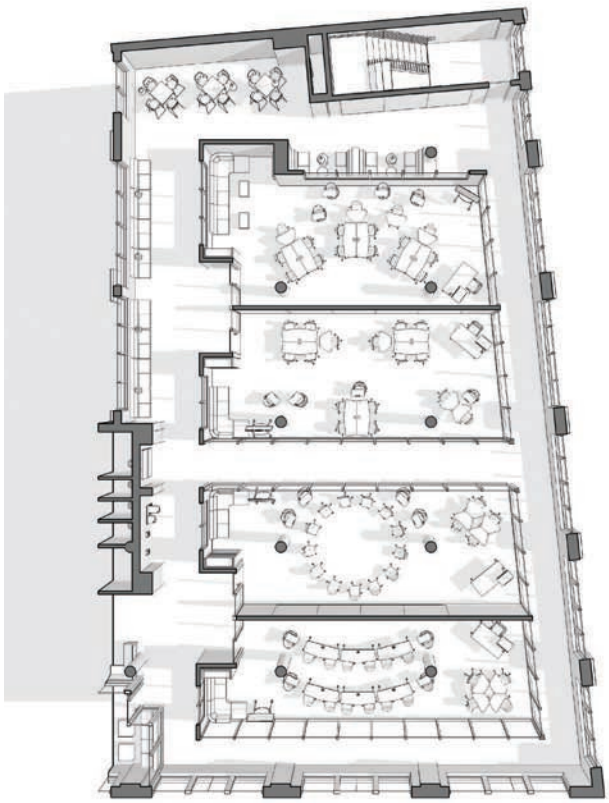
Fourth Floor RCP
Not to Scale



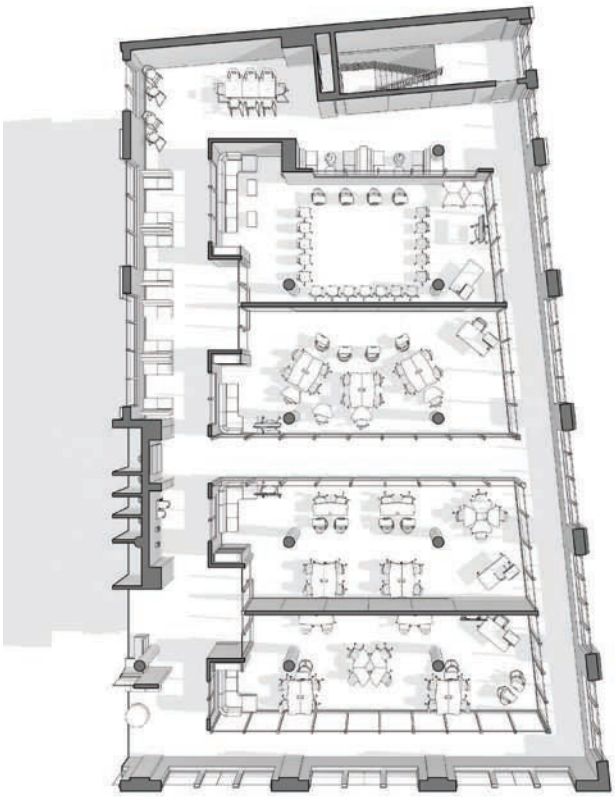
Fourth Floor Plan
Not to Scale

Design Principle: Agile Classrooms Support Active Learning

Across the third and fourth floors, the eight learning labs are furnished with the same amount and types of furniture and are reconfigurable to support active learning. Active learning is a pedagogical method that encourages students to be participants in their learning and is supported by both physical space and technology. Movable and flexible furniture contributes to three types of lab layouts: Lecture, Seminar, and Group Work.



Third Floor Learning Labs



Fourth Floor Learning Labs

Design Principle: Think Ergonomically

Good furniture can support learning and concentration. School furniture that is comfortable, appropriately sized, and flexible won't detract from the day by causing discomfort.

LEARNING LAB - LECTURE LAYOUT

Design Principle: Design for Speech and Hearing

The first layout is a “classic” lecture style set-up where students focus on a presenter at the front of the room. Highlighted through this view are the room’s parallel walls at the front and back which create reverberation while acoustic ceiling baffles and a carpeted floor dampen unwanted noise promoting better focus and concentration.

LEARNING LAB - SEMINAR LAYOUT

Design Principle: Encourage Lifelong Learning

The second layout is a seminar style which promotes discussion with tables folded and stored out of the way and chairs arranged so that everyone can see each other. Desks that fold and stack let instructors and students easily and safely configure rooms themselves. This is a great layout to support adult learners utilizing the spaces for evening or weekend classes for everything from creative writing seminars to improv workshops. Opening learning spaces to evening and weekend sessions for adult classes welcomes new groups into the school and provides continued education opportunities.

LEARNING LAB - GROUP WORK LAYOUT

Design Principle: Encourage Fidgeting and Swiveling

The third and final layout is for group work and furniture on casters lets students chat, swivel, roll, and reconfigure to their needs. A variety of furniture that allows for stillness or fidgeting supports different learning styles and pedagogical methods. Analog learning aids like whiteboards complement technology like personal laptops and movable presentation screens. Additionally, each classroom is designed with a lounge space that has soft seating for small breakouts and informal discussions.

BREAKOUT SPACES

Design Principle: Put Learning on Display

It is important that learning can happen outside of the labs, too, and this view of a breakout space shows one of the many opportunities for this to happen. Much like the library, a variety of seating and levels of privacy can promote different types of work and put learning on display outside of the typical classroom. Whiteboards throughout these areas give students opportunities to showcase their work and progress while collaborating together.

STUDENT LOUNGE

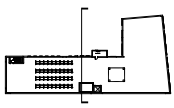
Design Principle: Let the Sun Shine In

Breakout areas, learning spaces, and areas for health and wellness have all been designed with ample glazing to take full advantage of the building's long east-facing façade. Not only does a well-lit space reduce the need for constant artificial light, research has shown that students who have access to daylight throughout their school day perform better academically. Spaces like the student lounge remain bright and welcoming throughout the day thanks to this strategic siting and layered glazing between the building envelope and interior elements.

LATITUDINAL SECTION - NORTH

Design Principle: Foster Belonging, Foster Pride

Learning and creativity can both be put on display and can promote a sense of ownership and pride for students at their school. Partnerships with local programs like Mural Arts or Drexel's many fine arts programs allow Connections High School students to claim white walls as their own while learning from local artists and beautifying spaces throughout the building in their own way.



COURTYARD

Design Principle: Grow Your Own

Another way for the student body to claim space as their own happens through gardens in the exterior courtyard. Just as students can learn about architecture, sustainability, and engineering from their built environment, the cultivation of a natural environment creates opportunities for lessons on gardening, nutrition, and science. The school becomes a third teacher both inside and out. Additionally, the partial reclaiming and greening of the existing parking lot make for a beautiful entry sequence into both the school and health center.

Design Principle: Be a Good Neighbor

A green space can be a point of neighborhood pride and encourage gathering beyond the context of education. Vegetables from the garden can be used for student events, neighborhood dinners, and social gatherings. At right, factory-style cafeteria tables sourced from Provenance Salvage in Kensington, Philadelphia provide ample seating for eating and dining. At left, custom swings manufactured at a local foundry seat 2-3 people and are a fun way to come together and relax. The exterior courtyard is an extension of the school and the space that welcomes students, faculty, and neighbors inside. It is a visual and physical way for the site to be consistently accessible and connect both the Drexel and neighboring communities.

APPENDIX

CODES AND OCCUPANCY

First Floor

OCCUPANCY

ROOM	USE GROUP	SQUARE FTG	LOAD FACTOR	OCCUPANCY
Administrative Offices	B	955 sq ft	150 gross	7 people
Lobby	A	780 sq ft	15 net	52 people
School - Based Health Center	B	1,239 sq ft	150 gross	28 people
HRT Lab	B	983 sq ft	15 net	18 people
Cafeteria	A	1,828 sq ft	15 net	100 people
Kitchen	A	380 sq ft	150 gross	2 people
Business Technologies Lab	A	813 sq ft	50 net	14 people
Library	A	1,886 sq ft	100 gross	20 people
			TOTAL OCCUPANCY	241 PEOPLE

PLUMBING

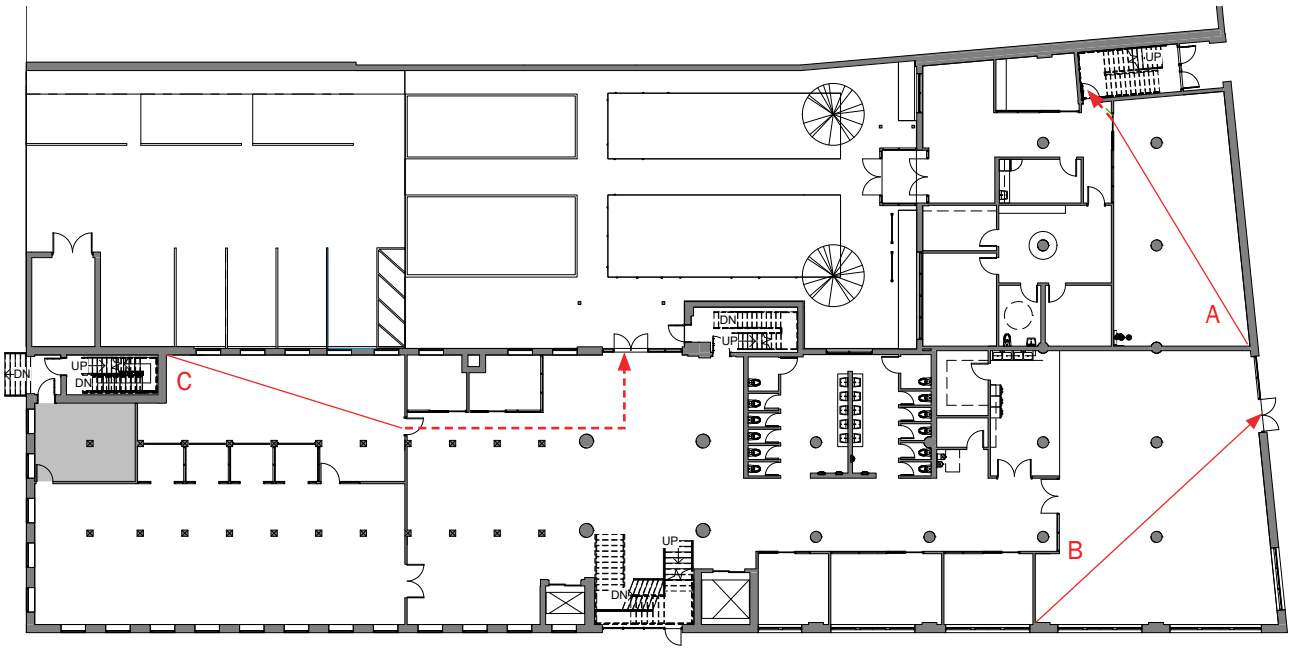
MEN'S REQUIREMENTS:
WC: 5 minimum
LAV: 5 minimum

WOMEN'S REQUIREMENTS:
WC: 5 minimum
LAV: 5 minimum

DRINKING FOUNTAIN REQUIREMENTS:
2 minimum

FINAL DESIGN:
NON-GENDERED RESTROOMS
WC: 12 (2 ADA compliant)
LAV: 10

DRINKING FOUNTAINS:
2 installed



EGRESS

Use Group: A Fully Sprinklered: 250’ max travel distance to exit, 75’ common path of travel
Use Group: B Fully Sprinklered: 300’ max travel distance to exit, 100’ common path of travel

Route	Distance to Exit	Common Path	Total Distance
A	47’	4’	51’
B	55’	N/A	55’
C	45’	55’	100’

Second Floor

OCCUPANCY

ROOM	USE GROUP	SQUARE FTG	LOAD FACTOR	OCCUPANCY
Fitness Center	E	912 sq ft	50 gross	18 people
Women's Locker	E	392 sq ft	50 gross	10 people
Men's Locker	E	393 sq ft	50 gross	10 people
Coaching Offices (2)	E	214 sq ft	150 gross	2 people
Music Technologies Lab	E	1,149 sq ft	50 net	21 people
Music Education	E	833 sq ft	20 net	32 people
Fine Arts Studio	E	931 sq ft	50 net	17 people
Student Health Center	B	678 sq ft	150 gross	17 people
Laundry & Loot	B	210 sq ft	100 gross	3 people
Multifaith Room	A	270 sq ft	100 gross	4 people
			TOTAL OCCUPANCY	134 PEOPLE

PLUMBING

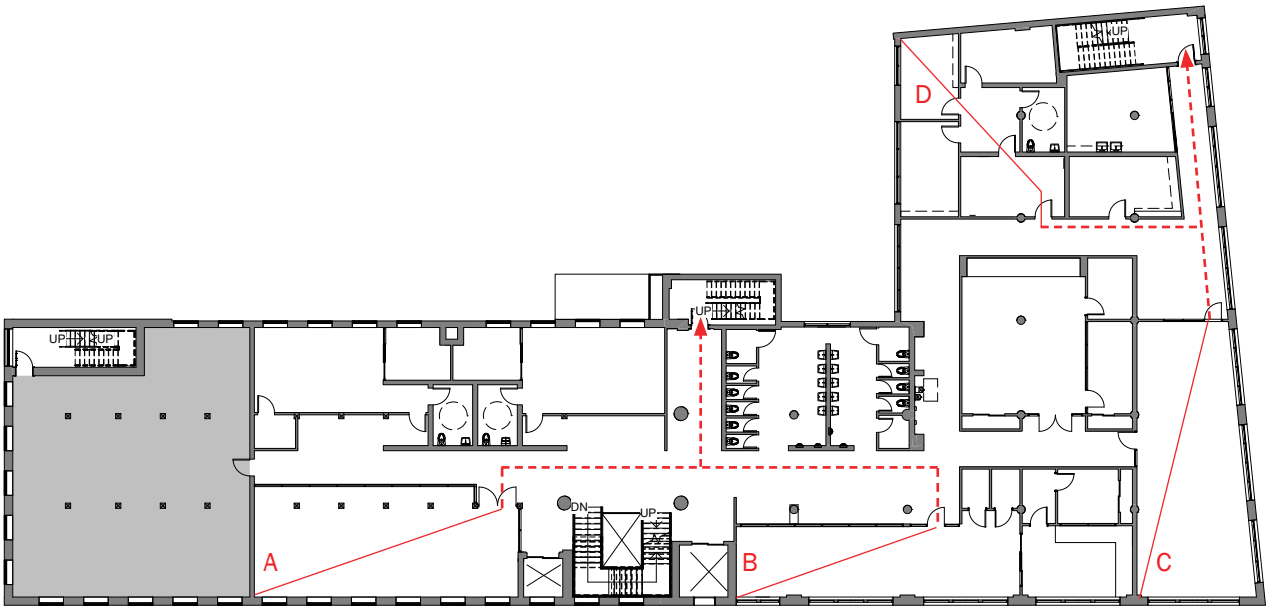
MEN'S REQUIREMENTS:
WC: 3 minimum
LAV: 3 minimum

WOMEN'S REQUIREMENTS:
WC: 3 minimum
LAV: 3 minimum

DRINKING FOUNTAIN REQUIREMENTS:
2 minimum

FINAL DESIGN:
NON-GENDERED RESTROOMS
WC: 15 (5 ADA compliant)
LAV: 13

DRINKING FOUNTAINS:
4 installed



EGRESS

Use Group: A Fully Sprinklered: 250’ max travel dist to exit, 75’ common path of travel
Use Group: E Fully Sprinklered: 250’ max travel dist to exit, 75’ common path of travel
Use Group: B Fully Sprinklered: 300’ max travel dist to exit, 100’ common path of travel

Route	Distance to Exit	Common Path	Total Distance
A	45’	50’	95’
B	38’	73’	111’
C	50’	46’	96’
D	44’	47’	91’

Third Floor

OCCUPANCY

ROOM	USE GROUP	SQUARE FTG	LOAD FACTOR	OCCUPANCY
Instructor Resource Room	E	407 sq ft	15 net	24 people
STEM Science Lab	E	1,257 sq ft	50 net	21 people
STEM Media Lab	E	724 sq ft	20 net	31 people
Learning Lab (1)	E	696 sq ft	20 net	32 people
Learning Lab (2)	E	714 sq ft	20 net	33 people
Learning Lab (3)	E	705 sq ft	20 net	33 people
Learning Lab (4)	E	705 sq ft	20 net	33 people
			TOTAL OCCUPANCY	207 PEOPLE

PLUMBING

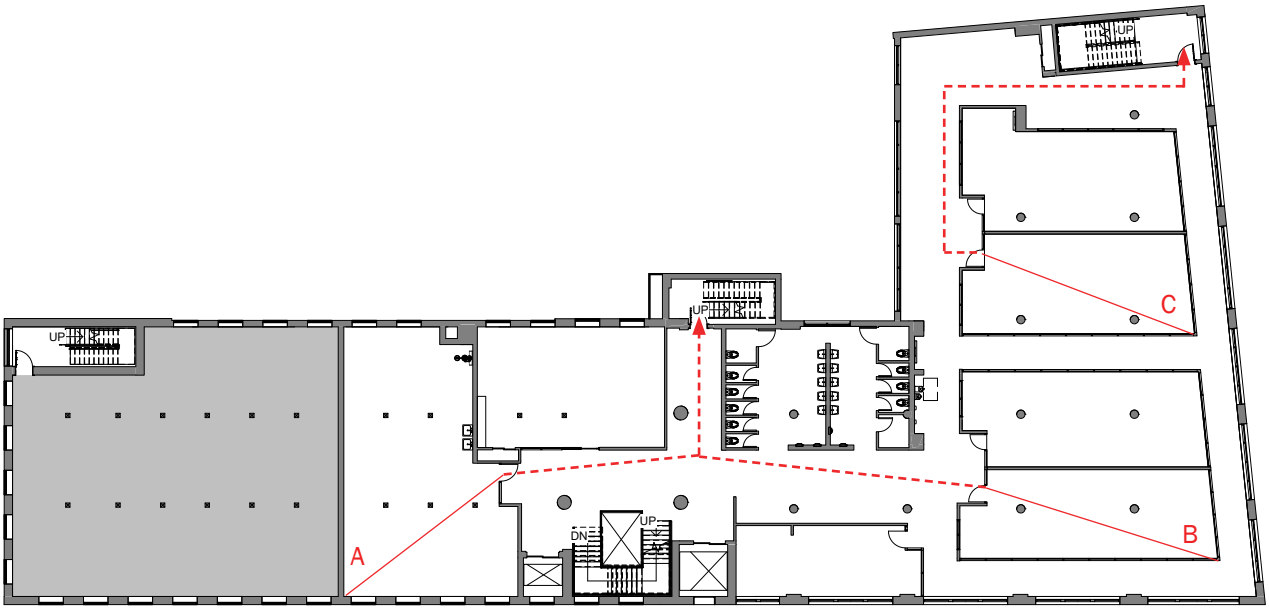
MEN'S REQUIREMENTS:
WC: 4 minimum
LAV: 4 minimum

WOMEN'S REQUIREMENTS:
WC: 4 minimum
LAV: 4 minimum

DRINKING FOUNTAIN REQUIREMENTS:
2 minimum

FINAL DESIGN:
NON-GENDERED RESTROOMS
WC: 12 (2 ADA compliant)
LAV: 10

DRINKING FOUNTAINS:
4 installed



EGRESS

Use Group: E Fully Sprinklered: 250’ max travel dist to exit, 75’ common path of travel

Route	Distance to Exit	Common Path	Total Distance
A	35’	60’	95’
B	43’	70’	113’
C	40’	75’	115’

Fourth Floor

OCCUPANCY

ROOM	USE GROUP	SQUARE FTG	LOAD FACTOR	OCCUPANCY
Student Lounge	E	407 sq ft	15 net	24 people
STEM Science Lab	E	1,257 sq ft	50 net	21 people
STEM Media Lab	E	724 sq ft	20 net	31 people
Learning Lab (1)	E	696 sq ft	20 net	32 people
Learning Lab (2)	E	714 sq ft	20 net	33 people
Learning Lab (3)	E	705 sq ft	20 net	33 people
Learning Lab (4)	E	705 sq ft	20 net	33 people
			TOTAL OCCUPANCY	207 PEOPLE

PLUMBING

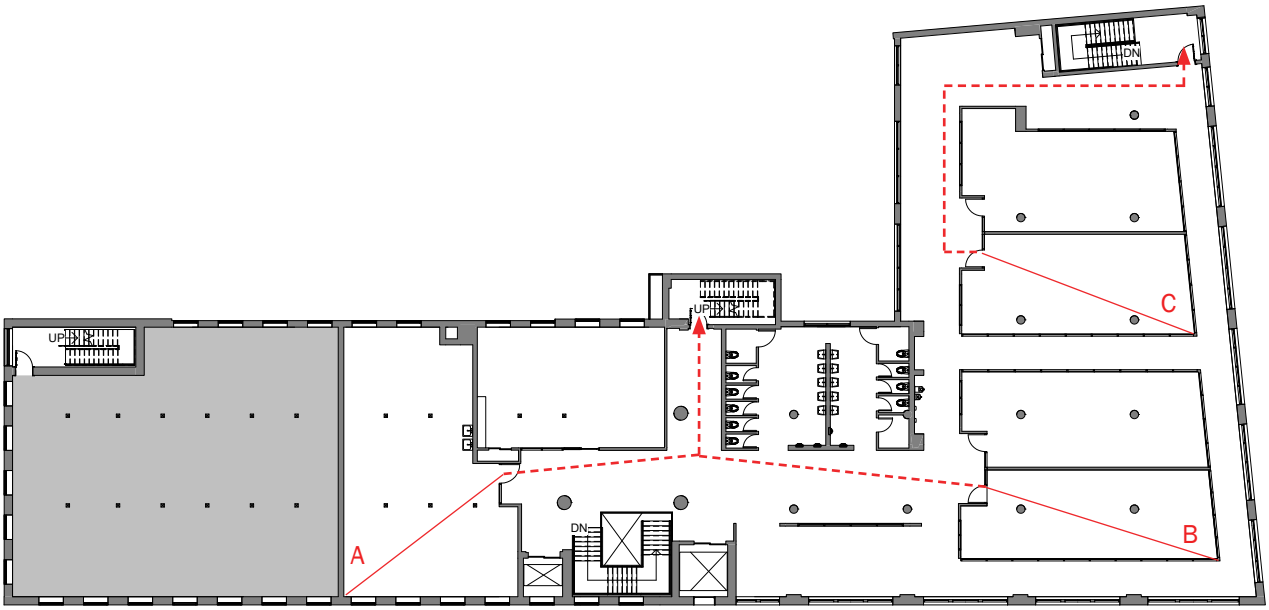
MEN'S REQUIREMENTS:
WC: 4 minimum
LAV: 4 minimum

WOMEN'S REQUIREMENTS:
WC: 4 minimum
LAV: 4 minimum

DRINKING FOUNTAIN REQUIREMENTS:
2 minimum

FINAL DESIGN:
NON-GENDERED RESTROOMS
WC: 12 (2 ADA compliant)
LAV: 10

DRINKING FOUNTAINS:
4 installed



EGRESS

Use Group: E Fully Sprinklered: 250’ max travel dist to exit, 75’ common path of travel

Route	Distance to Exit	Common Path	Total Distance
A	35’	60’	95’
B	43’	70’	113’
C	40’	75’	115’

EXPERT INTERVIEWS

Interviewee I: Ulrike Altenmüller-Lewis

Expert Credentials: Architect, researcher, educator

Interests: the impact of the built environment on human wellbeing and performance, specifically on learning environments, how they can support pedagogical concepts and improve learning outcomes

Findings:

- Finland completely revamped its education system after the country experienced an economic downturn
- The country placed more value on education to propel future generations into success
- School buildings are considered “three-dimensional textbooks” meaning that students can learn from the school building itself - based on a Swedish proverb that a school has three teachers: the teacher, the students, and the building
- Sustainably designed buildings helped educate students about environmental health, personal health, accountability to the environment, and the effects of the built environment on human wellness and wellbeing
- Architects and designers worked closely with school teachers to understand what that area’s local school would need as a part of the design process
- Both rural and urban areas throughout the country enacted this practice
- Educators and researchers were taken aback by the high achieving level of Finland’s students after changes in the built environment

Reflections:

- When Finland invested in its young people and citizens, they experienced a return on the investment in terms of advancing their people
- Considering the ways that the physical school building and built environment can help young people become better global citizens and understand their impacts on the environment and the impacts of

the built environments on their health

- Implementing sustainable design as a baseline standard for school buildings is possible and is made possible through educating citizens about the benefits of designing and spending money on sustainable buildings
- The United States can learn from the built learning environments of Finland and other progressive and sustainably designed schools throughout Scandinavia
- Architects and designers can learn from teachers to better understand the needs of educators and students in the environments that they are designing
- Sustainable schools designed with the input of educators can be successful regardless of the economic standing

Interviewee II: Leah Stoner

Expert Credentials: Former public school educator, interior designer, and researcher of rural school buildings

Interests: creating place-based schools to improve the state of rural education in the United States and better serve rural communities

Findings:

- Southern rural schools are underfunded and under-served
- The U.S. government has been pouring money into Appalachia to revitalize the region, and while schools are seeing some money, they are not highly improved
- Teachers did not feel effective or supported in their classrooms; environments were hostile
- Spaces did not support student learning: in the Mississippi Delta school each building was separate, and "hallways" were outside; the school in Appalachia was lucky to have an auditorium
- Because of the extensive poverty in U.S. rural areas, the majority of students were on free or reduced lunch programs; for many the free lunch was the only full meal they would have daily
- Education is not highly valued because many students entered trades, the military, or join the illicit drug market
- Students valued the physical building as a space to spend time before, during and after school; especially valuable for many students who did not have a stable home life
- Communities rallied around sports events because they bring in money; however, many athletes graduated without being able to read
- A suggested solution was place-based schools where the school building is designed specifically for the needs of that region

Reflections:

- School funding is a problem in rural areas as it is in urban and suburban areas
- The school building is an essential center for students and the community as a whole
- The school building can serve as a haven, meeting space, and the only place for a reliable meal
- Just because the school itself is valued; it does not equate to placing value on education
- Rural areas are especially affected by poverty which in turn affects the life cycle of residents
- Place-based schools are design solutions that consider the needs of students and the community overall; the design can meet the exact needs of that community

Interviewee III: Janelle Harper

Expert Credentials: South Philadelphia High School Community School Coordinator

Q: What is your role as the Community School Coordinator at Southern? Do you spend most of your time at the school or are you often between the mayor's office and school?

A: I spend all of my time at the school, there's rarely reason for me to go to the mayor's office. Southern is the only public community school in the district so my role here is unique in that our programs are majority self-funded, meaning I am doing the fundraising as a big part of my job. The city does not give us a budget, as opposed to private or nonprofit community schools which receive specific funding and have budgets, and the mayor's office seeks out and applies for grants. Another big part of my job is working with the partners and in that regard, I consider myself like a "property manager" - I guide the partners on how to connect with students. I can facilitate and then the partners are responsible for working with the students and I can mediate any issues there.

Q: I have researched various community school models, the NEA model which has six-pillars and the community schools four pillars model. Can you explain to me in your experience how the community school system in Philadelphia functions?

A: Philadelphia works with pillars, too. We call it the Logic Model and it has seven pillars. The pillars have to do with some things you're probably familiar with – curriculum, partnerships, school climate. Each of these pillars is broken up into different inputs and outputs, the document is huge. It becomes complicated when you have different people interpreting things differently both within the school and then within the different programs. Numbers and deliverables are critical. We have to demonstrate certain performance metrics to the city and partners and potential partners need to have numbers, too, to display to us how effective the programs are. If the program isn't effective or they can't demonstrate they won't receive funding. Everything comes back to the money.

Q: Can you speak any more to how money works for, or against, you and programming for the school? I feel like every time I speak to someone about my project being in education the conversation always touches on funding.

A: Money is a critical factor and there's never enough of it, as you know. Like I said, because we don't receive a budget I rely heavily on self-funding. We received a donation of $500 recently which doesn't sound like a lot but I can make that work for us. This will be the first year that the city is providing us some money for OTS (out of school time) activities which will help, too. The city will fund different arts and culture events but I don't find those beneficial. Money is critical but the most important aspect for us is human capitol.

Q: Can you elaborate on how human capitol is most important for you?

A: Bottom line, if the staff and educators don't care, nothing works. I need the people here to be involved and invested. Unfortunately, in our situation a lot of our teachers are what I call "pension pushers", they're really just here to collect a paycheck. The other major part of my job is making connections, I think any other coordinator would agree. The city tries to foster relationships, but it just never works. At the city level everything is too siloed. I can be talking to someone from one department about how we are working with someone else in their own department and they will have no idea, it's that bad. If the city could make more connections it would be better.

Q: How are partners found or selected? Are there specific criteria?

A: Partners were initially based on a 2013 Needs Assessment that was conducted by the district, which is pretty outdated now. I think all partners can benefit the school if they are able to justify their work and obtain funding. Now I try to focus on service gaps and what students or faculty express a need for. We have a large immigrant community so that's a current focus on how to serve them. (The 2013 Needs Assessment identified 5 gaps: job training and access to job opportunities; food insecurity and access to healthy foods; access to physical, social and emotional health services, including the need for a "trauma informed" approach to serving students; access to clothing and uniforms; cultural and social opportunities CITE)

Q: How do partnerships and programs work once you do foster those connections?

A: I'm not big on tabling but I have done a large Partner Fair at the beginning of each year and it is crazy. It's fun, interactive, we play games and have prizes but really it's an opportunity for students to connect with partners. We have some partners who have permanent space here, only two. One of those two is here every day, one is here three days a week and splits the other two between other community schools. Otherwise we work out appropriate times for partners to interact – before or after school, during the school day, at lunch, on weekends, attending teacher meetings – and I write the daily announcements so I make sure updates get into there. We also have 5 CTE programs (Career & Technical Education) - HRT (Health Technologies), Computer Systems, Graphic Design, Culinary and Engineering. We also have JROTC which a lot of students take advantage of and I find really important.

Q: The programs that you do hold and offer, do you find that the students take advantage?

A: No. A lot of students don't understand the community school even though we make it a part of their ninth grade orientation. I hear from alumni who don't realize what they had here until they're gone. The students who do get involved are really the Student Council kids and that number has been growing each year. I try to encourage them to take their own initiatives and I'm transparent with

them about when things work and when they don't. This way they start to understand the system. My hope is that they talk to their fellow classmates and spread news through word of mouth. We have also seen, too often, kids skipping school but coming for programs after school. They don't value the education for one reason or another but they value the programs. I have a hard time tracking and measuring student engagement in programs, this is something I would like to do better in the future.

Q: Do you stay connected with alumni? Do they stay involved with any programs?

A: A lot of alumni do stay very involved, many were concerned when they heard that Southern was becoming a community school, they didn't understand. They were concerned that the building was going to be affected and I said, "No, it's just me coming in and here's what we are doing." I see and hear a lot from recent alumni, I just went to Applebee's with a girl. It's nice because we are a smaller scale student body, about six hundred, I can create long-term relationships. People come back to visit and stay in touch.

Q: Do you have any statistics on your alumni, for example, what they do after graduation in terms of college, jobs, or where they end up?

A: The city does no post-grad tracking. I do not understand it. With all the metrics they want they don't track their graduates. Because I have been able to connect with so many students, I know what a lot of them are up to. Many go to CCP (Community College of Philadelphia), some end up at Lincoln, some work, a lot stay local.

Q: Can you speak at all to the location? Any thoughts that you have about the building or the physical space?

A: I think the building is great. Our location is amazing here on Broad and Snyder. We also have the parking lot which is rare. We have three elevators. There is definitely an excess of space, the building was built in 1954 and we have a lot less students now. I think that's okay because we have spaces for programs in the future. It gets back to money, too, facilities definitely needs more money from the city for upkeep. I will say I think the building has a lack of spirit. Which might contribute to the lack of enthusiasm from staff and educators.

STAKEHOLDER ANALYSIS

ECOSYSTEM MAPPING

The ecosystem of stakeholders involved in a community school is vast and complex and these diagrams attempt to map the relationships between the individuals and entities involved. The rings of the maps convey three levels that consider scale:

(1) School (Level A)

(2) Community (Level B)

(3) City+ (Level C)

Stakeholders placed within the appropriate level on the map and those who may be concerned with multiple levels sit across two. For examples, students and parents have a stake both in their local community and in the school itself while the mayor holds stake at a larger scale both in the city and the community but is farther removed from the school itself.

Stakeholders are color-coded to create an additional layer of information:

Red = School Employees

Orange = Community Members

Green = Design Professionals

Yellow = National Stakeholders

Upon visual analysis, it is evident that certain groups of stakeholders are stakeholders at different levels, but those levels are generally consistent. Additionally, it should some individual stakeholders were grouped for visual clarity of the map.

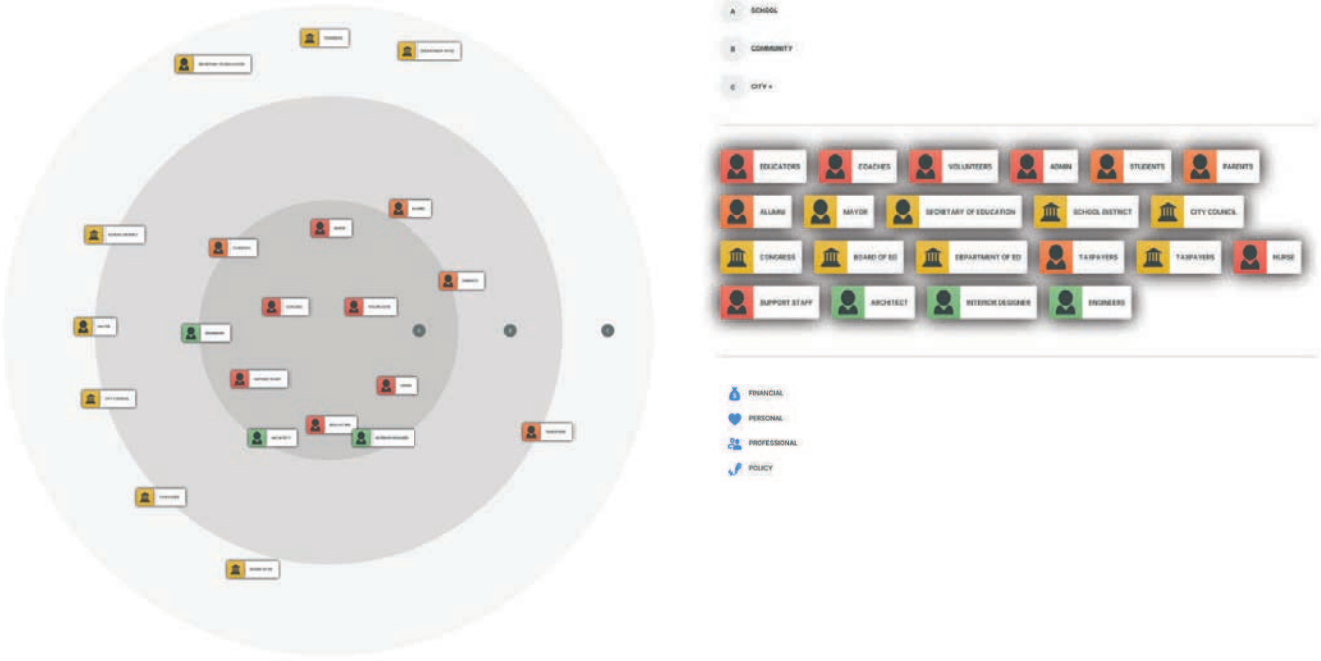
The second map is concerned with relationships between Level A and Level B stakeholders. These relationships are qualified as two types: Interpersonal, denoted by the 'heart' symbol and Professional, indicated by the symbol of two individuals. As these stakeholders are often members of the same community who know each other through the context of the neighborhood or school, these types of personal relationships dominate the stakeholder network.

Of course, there are nuances to these relationships not readily displayed through such as exercise. For example, a parent who helps as a volunteer coach, for example, may have both interpersonal and professional relationships among the other stakeholders. For clarity, the most likely scenario of the association was connected.

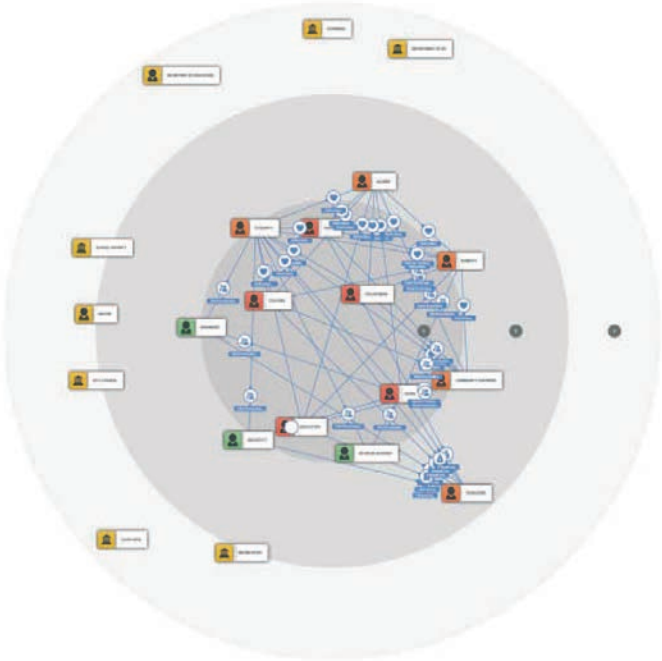
The third map is concerned with relationships between Level A and Level C stakeholders. These relationships are qualified as two types: Financial, denoted by the 'money' symbol, and Policy, indicated by the 'writing' symbol. These stakeholders may be far removed from personal connections

to a community school and likely have a stake through one of these other means. For example, taxpayers who do not have children at school have a financial stake in a community school.

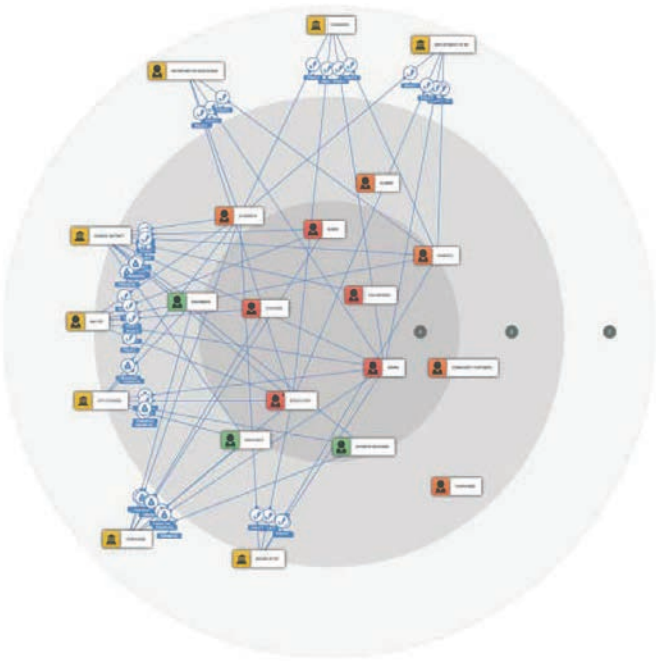
Ecosystem Map 1



Ecosystem Map 2



Ecosystem Map 3



STAKEHOLDER ANALYSIS

PERSONA AND EMPATHY MAPPING

Conducting Persona Profile and Empathy Mapping exercises help to understand some of the users and stakeholders involved with a community school. These exercises helped to prevent an abundance of presumptions on the part of the researcher and visits to a local Philadelphia community school informed personae development (LUMA Institute, LLC., 2012). The Persona Profiles are not intended to be stereotypes but are instead "fictional characterizations" drawn from observation and interviews (LUMA Institute, LLC., 2012, p. 34). Personae provide insights into these stakeholders as individuals.

After the development of personae, empathy maps capture more in-depth information about the personae and take into account their actions, thoughts, wants, needs, and feelings to better inform the design and how it can affect these personae.

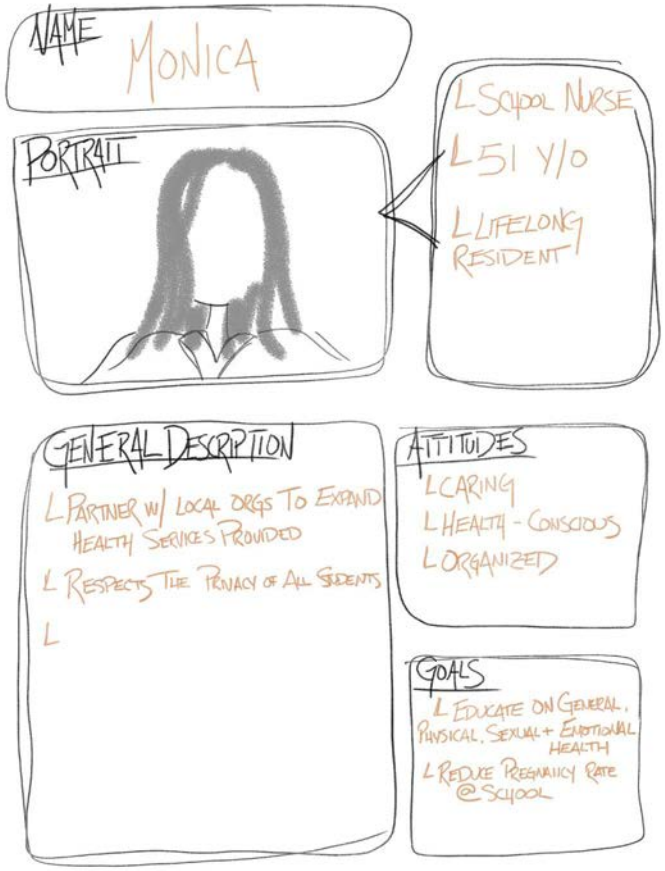
Persona Profile & Empathy Map:
Community School Nurse

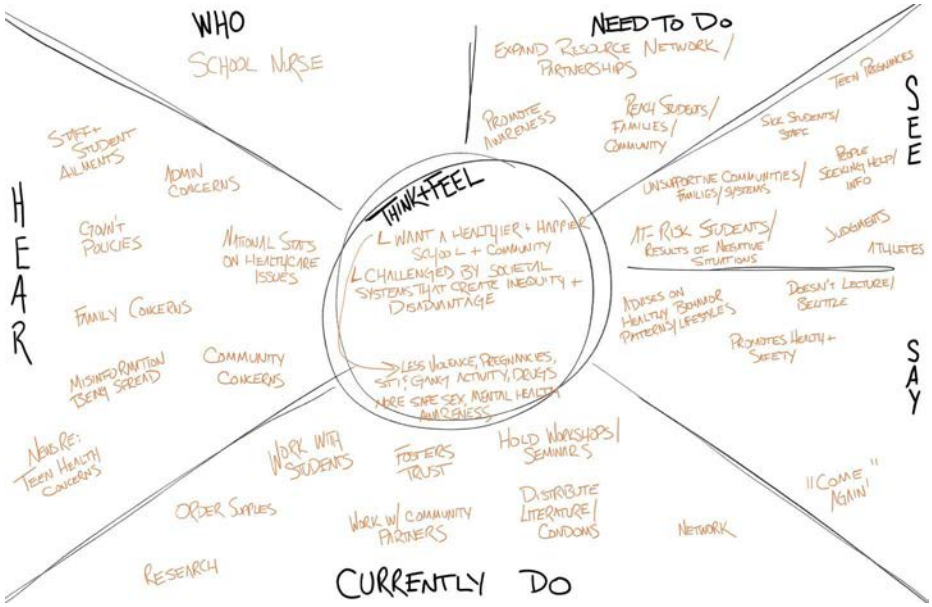
The school nurse profile describes an experienced local resident responsible for overseeing students' health and wellness and, when possible, extending their expertise to the community. By nature, the nurse is a caring and health-conscious individual, setting an example for her colleagues and the student body. The community school nurse is responsible not only for physical health and wellness but also with mental and emotional health and sexual health.

In using an empathy map to further elaborate on the community school nurse, it is clear that her responsibilities and concerns are vast. On a daily basis, she is responsible for maintaining student health and wellness and seeks to expand the services and education available to students. Some common concerns she comes across from students deal with developing healthy relationships, situations of domestic or relationship abuse and violence, confirmed pregnancies and pregnancy scares, sexually transmitted infections, and drug use or abuse.

Through the means and resources of the community school network of partnerships, she seeks out partners within the extensive Philadelphia healthcare network. They can assist her small team in outreach and education to help address these issues.

Her larger goals are improving the health and wellness of her school and community, but challenges stem from a lack of critical resources. Lack of resources can be physical such as essential


NAME
MONICA
PORTRAIT
L SCHOOL NURSE
L 51 Y/O
L LIFELONG RESIDENT
GENERAL DESCRIPTION
L PARTNER W/ LOCAL ORGS TO EXPAND HEALTH SERVICES PROVIDED
L RESPECTS THE PRIVACY OF ALL STUDENTS
L
ATTITUDES
L CARING
L HEALTH-CONSCIOUS
L ORGANIZED
GOALS
L EDUCATE ON GENERAL, PHYSICAL, SEXUAL + EMOTIONAL HEALTH
L REDUCE PREGNANCY RATE @ SCHOOL


WHO
SCHOOL NURSE
NEED TO DO
EXPAND RESOURCE NETWORK / PARTNERSHIPS
PROMOTE AWARENESS
TEACH STUDENTS/ FAMILIES/ COMMUNITY
SEE STUDENTS/ STAFF
TEEN PREGNANCIES
SEE
HEAR
SAY
THINK+FEEL
L WANT A HEALTHIER + HAPPIER SCHOOL + COMMUNITY
L CHALLENGED BY SOCIETAL SYSTEMS THAT CREATE INEQUITY + DISADVANTAGE
→ LESS VIOLENCE, PREGNANCIES, STI'S, GANG ACTIVITY, DRUGS + MORE SAFE SEX, MENTAL HEALTH AWARENESS
STAFF + STUDENT AILMENTS
ADMIN CONCERNS
GOV'T POLICIES
NATIONAL STATS ON HEALTHCARE ISSUES
FAMILY CONCERNS
MISINFORMATION BEING SPREAD
COMMUNITY CONCERNS
UNSUPPORTIVE COMMUNITIES/ FAMILIES/ SYSTEMS
PEOPLE SEEKING HELP/ INFO
AT-RISK STUDENTS/ RESULTS OF NEGATIVE SITUATIONS
JUDGMENTS
ATHLETES
ADDRESS ON HEALTHY BEHAVIOR PATTERNS/ LIFESTYLES
DOESN'T LECTURE/ SENSITIZE
PROMOTES HEALTH + SAFETY
NEWS RE: TEEN HEALTH CONCERNS
WORK WITH STUDENTS
FOSTERS TRUST
HOLD WORKSHOPS/ SEMINARS
"COME AGAIN"
ORDER SUPPLIES
WORK W/ COMMUNITY PARTNERS
DISTRIBUTE LITERATURE/ CONDOMS
NETWORK
RESEARCH
CURRENTLY DO

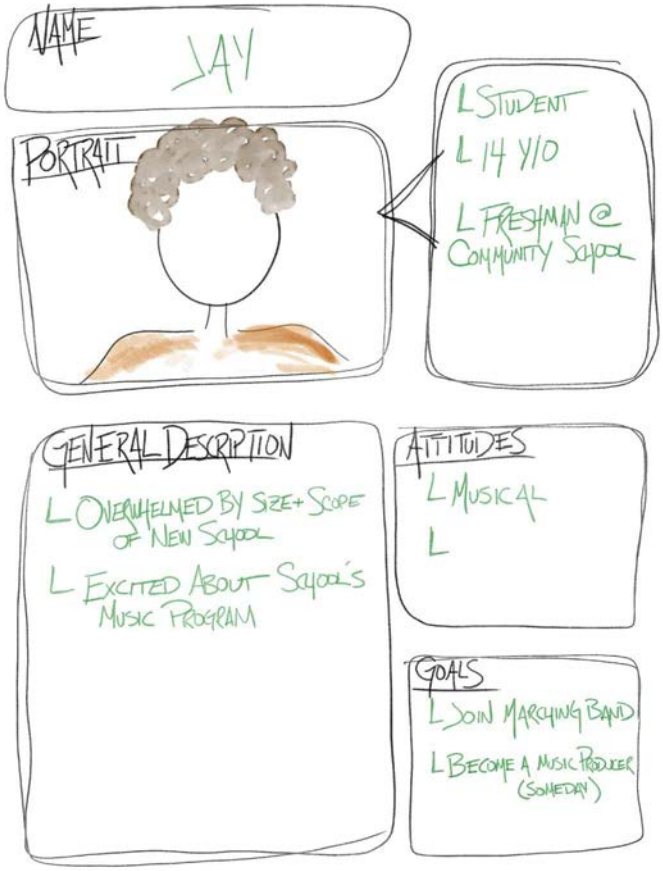
equipment or low staffing or educational resources such as sex education classes. To properly promote health and wellness to her students and the community, she needs the resources to do so.

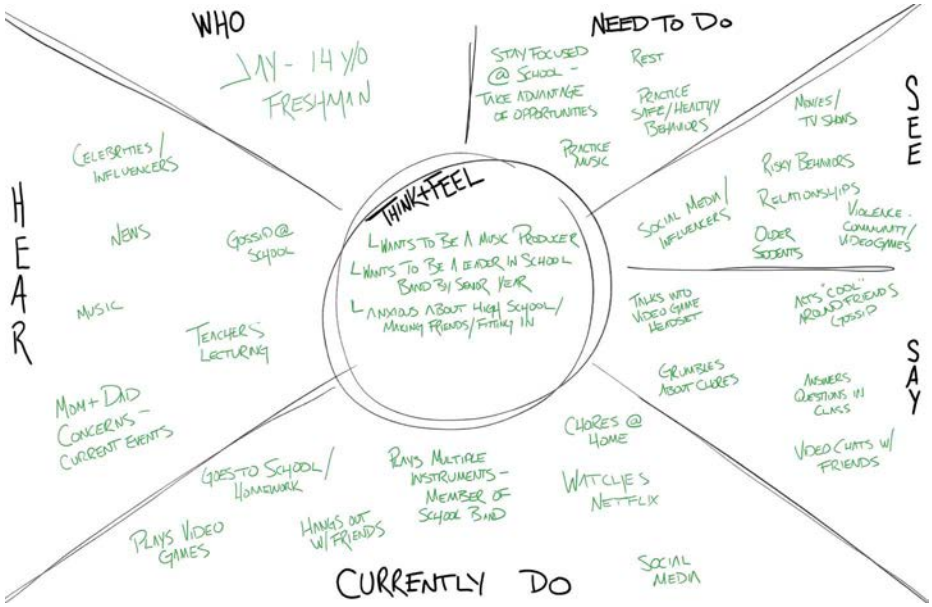
Persona Profile & Empathy Map:
Freshman Student

A freshman student profile describes a male student who is just learning how to navigate high school and all that the community school has to offer. He is young and intimidated to have moved up to high school but excited about this new adventure, mostly due to the school's extensive music program. In the short-term, he seeks to join the school's marching band and participate in music classes, and in the long term, he thinks he wants to become a music producer.

This freshman student is intimidated by a new school, meeting new people, making new friends, and finding his place. He still does not fully understand what it means to attend a community school and is unsure of everything the school offers. He is sure about pursuing music - he knows how to play multiple instruments and grow his talents. He is particularly excited about attending the school because it boasts an excellent music program. The program offers not only the opportunity to be in the marching band but also smaller ensembles such as jazz band. The school also recently received a grant to purchase equipment to develop a music recording studio, which he hopes to utilize. This opportunity, unique to the community school, will give him the experience to eventually pursue a career as a producer in the music industry.

In his spare time, he likes to play video games or go to the movies with his friends. At home, he likes to practice music and watch Netflix with his family.


NAME
JAY
PORTRAIT
L STUDENT
L 14 Y/O
L FRESHMAN @ COMMUNITY SCHOOL
GENERAL DESCRIPTION
L OVERWHELMED BY SIZE + SCOPE OF NEW SCHOOL
L EXCITED ABOUT SCHOOL'S MUSIC PROGRAM
ATTITUDES
L MUSICAL
L
GOALS
L JOIN MARCHING BAND
L BECOME A MUSIC PRODUCER (SOMEDAY)

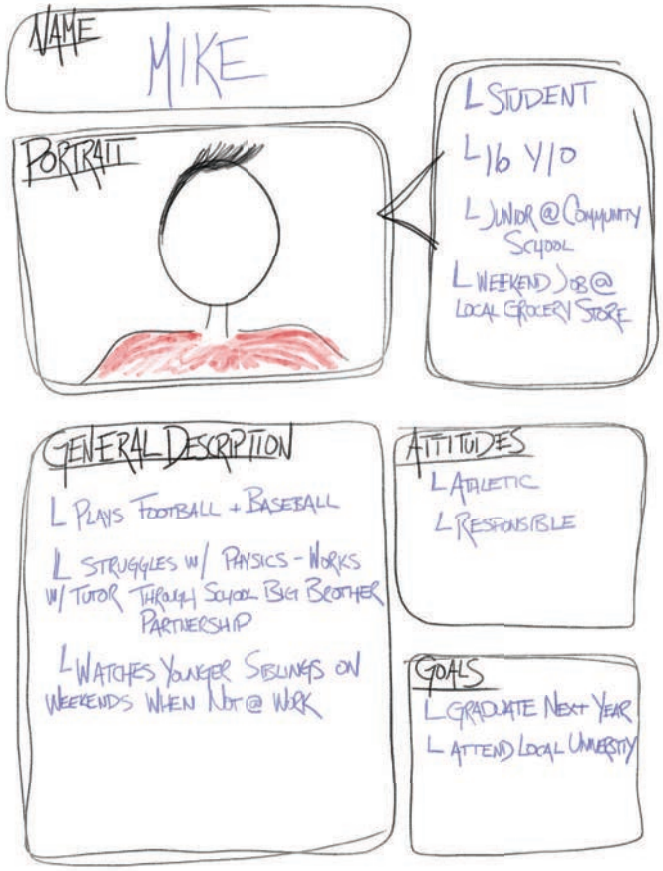

WHO
JAY - 14 Y/O FRESHMAN
NEED TO DO
STAY FOCUSED @ SCHOOL - TAKE ADVANTAGE OF OPPORTUNITIES
REST
PRACTICE SAFE/HEALTHY BEHAVIORS
PRACTICE MUSIC
SEE
MOVIES/ TV SHOWS
RISKY BEHAVIORS
RELATIONSHIPS
VIOLENCE - COMMUNITY/ VIDEO GAMES
SOCIAL MEDIA/ INFLUENCERS
OLDER STUDENTS
HEAR
CELEBRITIES/ INFLUENCERS
NEWS
GOSSIP @ SCHOOL
MUSIC
TEACHERS LECTURING
MOM + DAD CONCERNS - CURRENT EVENTS
THINK+FEEL
L WANTS TO BE A MUSIC PRODUCER
L WANTS TO BE A LEADER IN SCHOOL BAND BY SENIOR YEAR
L ANXIOUS ABOUT HIGH SCHOOL/ MAKING FRIENDS/ FITTING IN
TALKS INTO VIDEO GAME HEADSET
ACTS "COOL" AROUND FRIENDS
GOSSIP
SAY
GRUMBLES ABOUT CHORES
ANSWERS QUESTIONS IN CLASS
VIDEO CHATS W/ FRIENDS
CHORES @ HOME
WATCHES NETFLIX
SOCIAL MEDIA
GOES TO SCHOOL/ HOMEWORK
PLAYS MULTIPLE INSTRUMENTS - MEMBER OF SCHOOL BAND
HANGS OUT W/ FRIENDS
PLAYS VIDEO GAMES
CURRENTLY DO

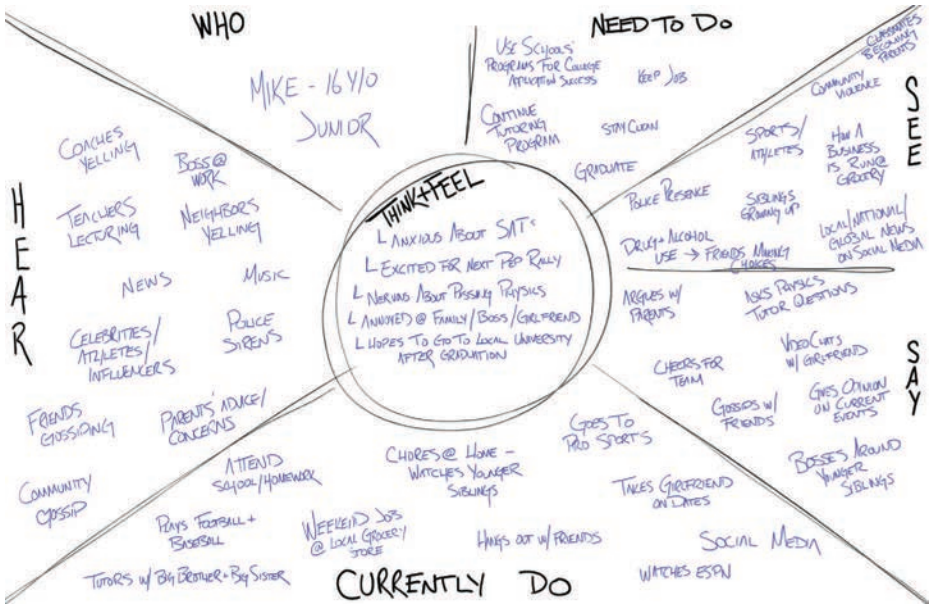
Persona Profile & Empathy Map:
Junior Student

The profile of a junior student at the community school describes a male student who is an active athlete, and since the junior year is the time to apply, aspiring to attend a local community college or university. He is a multi-sport athlete, participating in football and baseball and holds a part-time weekend job at a local grocer. He often works with friends also employed at the grocer restocking inventory on the shelves. His mother often works, so when he is not at work himself, he helps watch his younger siblings. He has some general struggles with school, particularly this year in physics, but has been working with a tutor from the school's Big Brother partnership.

Junior year is a challenging one, and he is juggling a lot on his plate. There are school considerations, extra-curricular activities such as sports, a part-time job, college preparation such as taking the SATs, working with tutors, and a college-prep program. Additional considerations on his plate include his personal life where he wants to hang out with friends, take his girlfriend out on dates, and help his mom by taking care of his younger siblings.

He knows he wants to graduate and continue to higher education, but he is not sure what to pursue. However, he knows he cannot go far because his mom still will need help around the home. He has put in his best efforts to improve his performance at school, where he is having trouble. He appreciates the partnership between his school and the Big Brother program because he has someone to help him where he needs it. It also helps him set a good example for his younger siblings. He has seen friends and friends' siblings fall victim to violent crime or drug abuse and does not want that for his own family.


NAME
MIKE
PORTRAIT
L STUDENT
L 16 Y/O
L JUNIOR @ COMMUNITY SCHOOL
L WEEKEND JOB @ LOCAL GROCERY STORE
GENERAL DESCRIPTION
L PLAYS FOOTBALL + BASEBALL
L STRUGGLES W/ PHYSICS - WORKS W/ TUTOR THROUGH SCHOOL BIG BROTHER PARTNERSHIP
L WATCHES YOUNGER SIBLINGS ON WEEKENDS WHEN NOT @ WORK
ATTITUDES
L ATHLETIC
L RESPONSIBLE
GOALS
L GRADUATE NEXT YEAR
L ATTEND LOCAL UNIVERSITY


WHO
MIKE - 16 Y/O
JUNIOR
NEED TO DO
USE SCHOOL'S PROGRAMS FOR COLLEGE APPLICATION SUCCESS
KEEP JOB
CONTINUE TUTORING PROGRAM
STAY CLEAN
GRADUATE
THINK+FEEL
L ANXIOUS ABOUT SAT'S
L EXCITED FOR NEXT PEP RALLY
L NERVOUS ABOUT PASSING PHYSICS
L ANNOYED @ FAMILY/BOSS/GIRLFRIEND
L HOPES TO GO TO LOCAL UNIVERSITY AFTER GRADUATION
HEAR
COACHES YELLING
BOSS @ WORK
TEACHERS LECTURING
NEIGHBORS YELLING
NEWS
MUSIC
CELEBRITIES/ ATHLETES/ INFLUENCERS
POLICE SIRENS
FRIENDS GOSSIPING
PARENTS' ADVICE/ CONCERNS
COMMUNITY GOSSIP
SEE
CELEBRITIES BECOMING PARENTS
COMMUNITY VIOLENCE
SPORTS/ ATHLETES
HOW A BUSINESS IS RUN @ GROCERY
POLICE PRESENCE
SIBLINGS GROWING UP
DRUG + ALCOHOL USE → FRIENDS MAKING CHOICES
LOCAL/NATIONAL/ GLOBAL NEWS ON SOCIAL MEDIA
ARGUES W/ PARENTS
LOSS PHYSICS TUTOR QUESTIONS
SAY
VIDEO CHATS W/ GIRLFRIEND
CHEERS FOR TEAM
GOSSIPS W/ FRIENDS
GIVES OPINION ON CURRENT EVENTS
BOSSES AROUND YOUNGER SIBLINGS
GOES TO PRO SPORTS
TALKS GIRLFRIEND ON DATES
SOCIAL MEDIA
WATCHES ESPN
CURRENTLY DO
ATTEND SCHOOL/HOMEWORK
CHORES @ HOME - WATCHES YOUNGER SIBLINGS
PLAYS FOOTBALL + BASEBALL
WEEKEND JOB @ LOCAL GROCERY STORE
HANGS OUT W/ FRIENDS
TUTORS W/ BIG BROTHER + BIG SISTER

Persona Profile & Empathy Map:
Graduating Senior

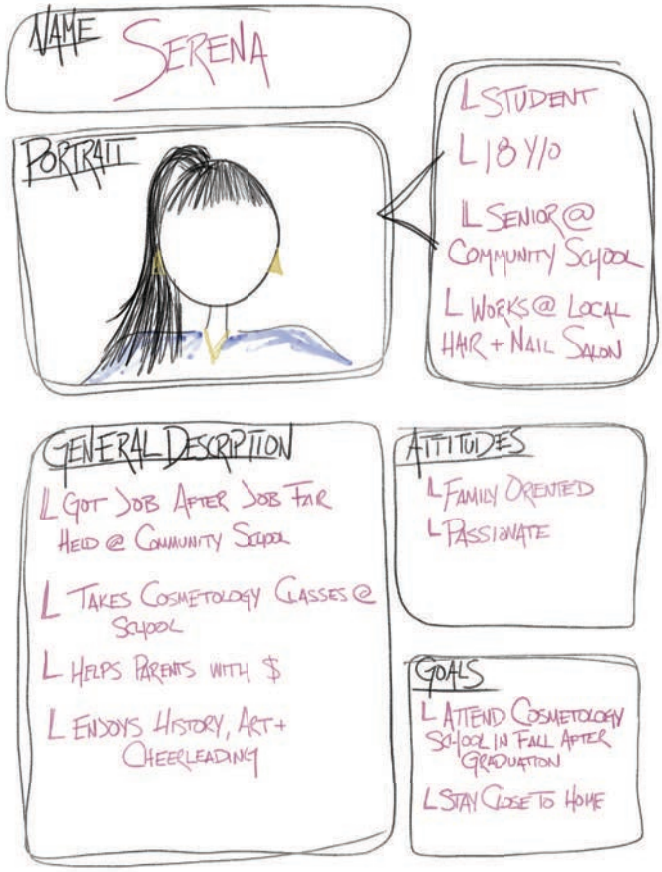
The profile of a graduating senior at the community school describes a female student who is approaching finishing her high school career and moving onto her next phase of life. This student currently works part-time at a local hair and nail salon and hopes to attend cosmetology school after graduating. During her time as a student, she has been able to take introductory cosmetology classes through the career and technical education (CTE) programs at the community school. She participates in other activities at school, such as cheerleading, and wants to stay close to home to be with her family after graduating.

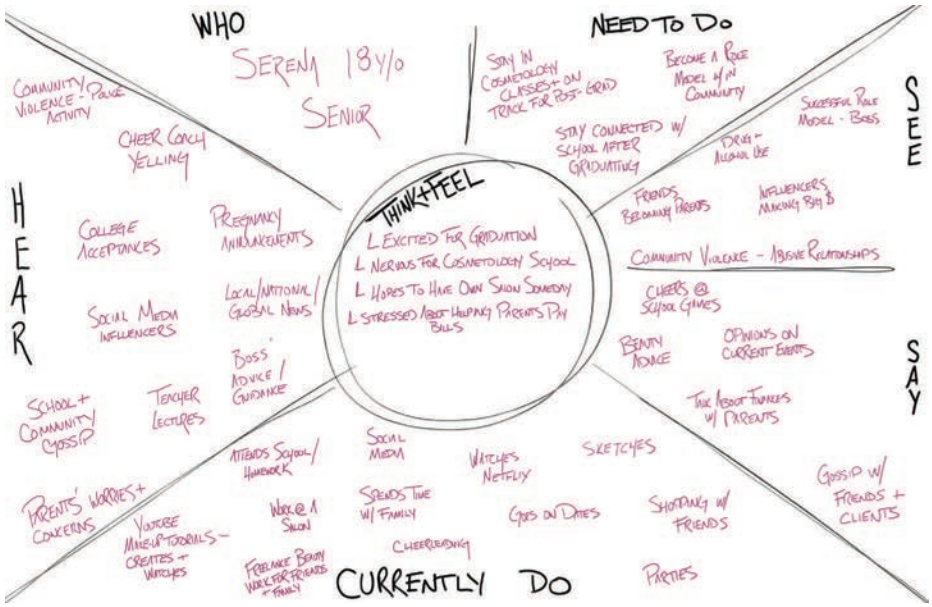
As a senior, this student has spent her past four years at the community high school and has the typical excited anticipation about what comes next. She is a student who has kept herself on track throughout school, despite external stressors such as holding a job, helping her family, regular coursework and extra-curricular activities, and personal relationships. She has seen classmates deal with serious life-events such as violence, pregnancies, drug abuse, and despite challenges like these, she has maintained her goals.

In her spare time, she likes to hang out with her friends and go shopping, goes on dates with her classmates, keeps up-to-date with current cosmetology trends, and even runs her own YouTube tutorial channel to showcase her skills.

She has participated in much of what her community school has offered and aspires to remain connected to the school as a role model for future students. She has had an excellent role model through her boss at her part-time job and wants to be the same person to future aspiring nail or hair technicians.

People are a critical component to this research and a local scope helped to inform stakeholder and persona analyses. While zooming-in like this is important, zooming-out, and considering the problem from a larger scale, is also an important method to gain information and insights.

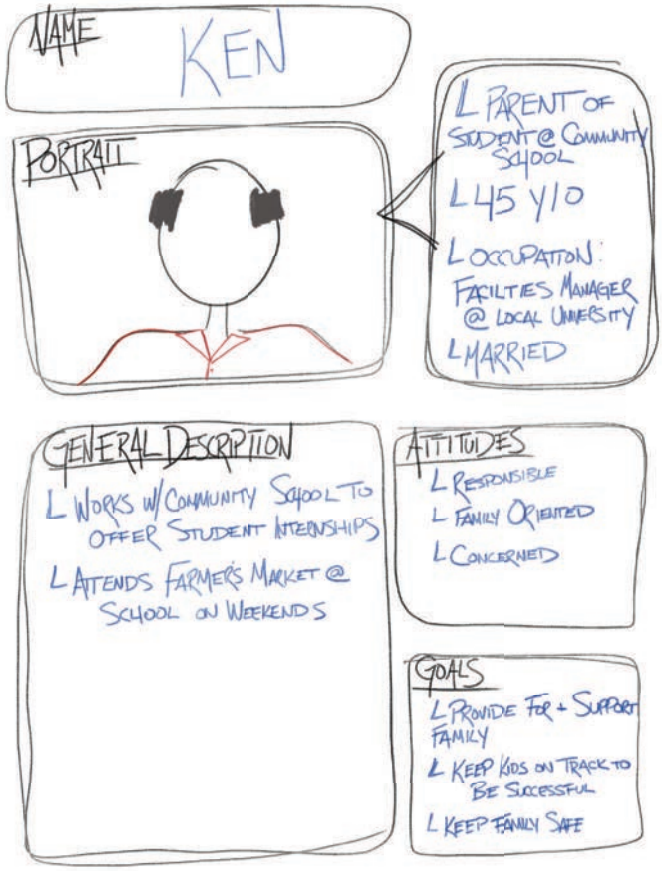

NAME SERENA
PORTRAIT
L STUDENT
L 18 Y/O
L SENIOR @ COMMUNITY SCHOOL
L WORKS @ LOCAL HAIR + NAIL SALON
GENERAL DESCRIPTION
L GOT JOB AFTER JOB FAIR HELD @ COMMUNITY SCHOOL
L TAKES COSMETOLOGY CLASSES @ SCHOOL
L HELPS PARENTS WITH $
L ENJOYS HISTORY, ART + CHEERLEADING
ATTITUDES
L FAMILY ORIENTED
L PASSIONATE
GOALS
L ATTEND COSMETOLOGY SCHOOL IN FALL AFTER GRADUATION
L STAY CLOSE TO HOME


WHO
SERENA 18 Y/O
SENIOR
NEED TO DO
STAY IN COSMETOLOGY CLASSES + ON TRACK FOR POST-GRAD
BECOME A ROLE MODEL W/IN COMMUNITY
STAY CONNECTED W/ SCHOOL AFTER GRADUATING
SUCCESSFUL ROLE MODEL - BOSS
DRUG + ALCOHOL USE
FRIENDS BECOMING PARENTS
INFLUENCERS MAKING $$$
COMMUNITY VIOLENCE - ABUSIVE RELATIONSHIPS
CHEERS @ SCHOOL GAMES
BEAUTY ADVICE
OPINIONS ON CURRENT EVENTS
TALK ABOUT FINANCES W/ PARENTS
THINK + FEEL
L EXCITED FOR GRADUATION
L NERVOUS FOR COSMETOLOGY SCHOOL
L HOPES TO HAVE OWN SALON SOMEDAY
L STRESSED ABOUT HELPING PARENTS PAY BILLS
HEAR
SEE
SAY
CURRENTLY DO
COMMUNITY VIOLENCE - POLICE ACTIVITY
CHEER COACH YELLING
COLLEGE ACCEPTANCES
PREGNANCY ANNOUNCEMENTS
SOCIAL MEDIA INFLUENCERS
LOCAL/NATIONAL/GLOBAL NEWS
BOSS' ADVICE / GUIDANCE
SCHOOL + COMMUNITY GOSSIP
TEACHER LECTURES
PARENTS' WORRIES + CONCERNS
ATTENDS SCHOOL/HOMEWORK
SOCIAL MEDIA
WATCHES NETFLIX
SKETCHES
GOSSIP W/ FRIENDS + CLIENTS
VOLUNTEER MAKEUP TUTORIALS - CREATES + WATCHES
WORK @ SALON
SPENDS TIME W/ FAMILY
GOES ON DATES
SHOPPING W/ FRIENDS
CHEERLEADING
FREELANCE BEAUTY WORK FOR FRIENDS + FAMILY
PARTIES

Persona Profile & Empathy Map:
Parent

The profile of a parent who has a student that attends the community school describes a father who works to stay involved. He is married and works as the manager of facilities at a local university. He does his best to remain involved with his family and ensure his students remain on-track in school. Part of the way he manages this is to stay engaged with the community school through a few avenues. He works with the school to offer student internships through his position at a local university. He supports programs at the community school, such as shopping for produce at the weekend farmers market. He aims to set a good example for his kids and combat systemic issues present in his community.

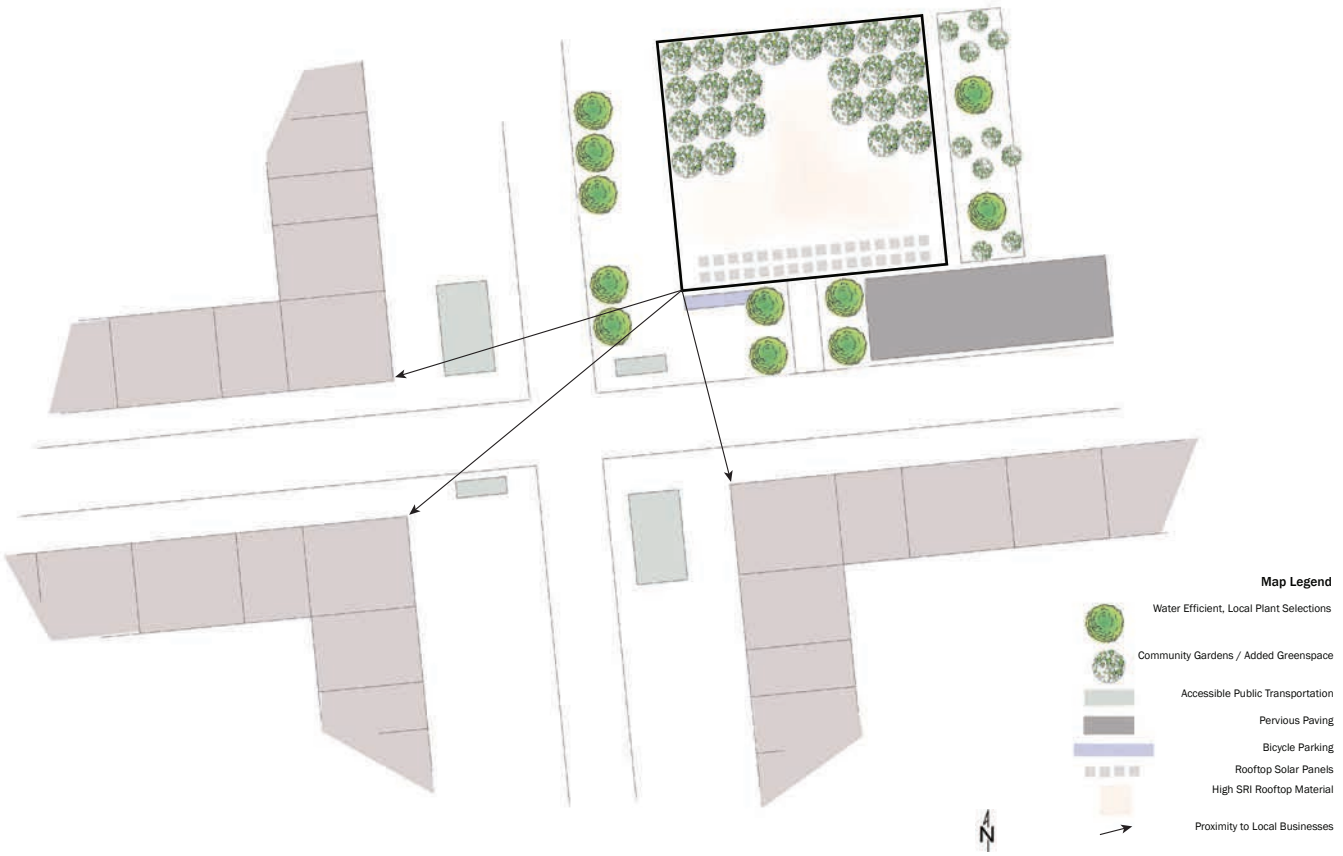
As a parent with students in a public school, he is always concerned about the quality of education his kids receive and what they are exposed to daily. He witnesses firsthand the disparity between the vast resources provided at the university level and the meager resources his local schools receive. The apparent divide between the local and university communities is evident and puts a strain on personal relationships—issues like gentrification, education, healthcare, violence, and food access.


NAME
KEN
PORTRAIT
L PARENT OF STUDENT @ COMMUNITY SCHOOL
L 45 Y/O
L OCCUPATION: FACILITIES MANAGER @ LOCAL UNIVERSITY
L MARRIED
GENERAL DESCRIPTION
L WORKS W/ COMMUNITY SCHOOL TO OFFER STUDENT INTERNSHIPS
L ATTENDS FARMER'S MARKET @ SCHOOL ON WEEKENDS
ATTITUDES
L RESPONSIBLE
L FAMILY ORIENTED
L CONCERNED
GOALS
L PROVIDE FOR + SUPPORT FAMILY
L KEEP KIDS ON TRACK TO BE SUCCESSFUL
L KEEP FAMILY SAFE


WHO
PARENT - KEN
NEED TO DO
STAY INVOLVED IN KIDS' LIVES + COMMUNITY ACTIVITIES
CONTINUE - EXPAND WORK W/ COMMUNITY SCHOOL
HEAR
SCHOOL STATISTICS
KIDS' CONCERNS
COMMUNITY GOSSIP
LOCAL + NATIONAL NEWS
FAMILY STORIES
COMMUNITY CONCERNS - VIOLENCE, HEALTH ISSUES, GENTRIFICATION, FOOD ACCESS, HOMELESSNESS
THINK + FEEL
L WANTS CHILDREN TO BE SAFE, HEALTHY, HAPPY, SUCCESSFUL
L WORRIES ABOUT LOCAL, NATIONAL + GLOBAL ISSUES
L HOPES CHILDREN MAKE GOOD CHOICES
L WANTS LOCAL COMMUNITY TO IMPROVE
SEE
CHILDREN GROWING
COMMUNITY STRUGGLES + SUCCESSES
SCHOOL CLOSURES/ ENROLLMENT STATS
LOCAL VIOLENCE
VOICES CONCERNS @ HOME + WORK
SAY
POLITICAL VIEWS
OPINIONS ON SCHOOL PERFORMANCE
VOICE FOR CHILDREN
CURRENTLY DO
MAKES A LIVING - SUPPORTS FAMILY
VISITS EXTENDED FAMILY
WORKS W/ SCHOOL TO OFFER INTERNSHIPS
QUALITY TIME W/ FAMILY
WORKS OUT
GROCERY SHOPS
PLAYS GUITAR

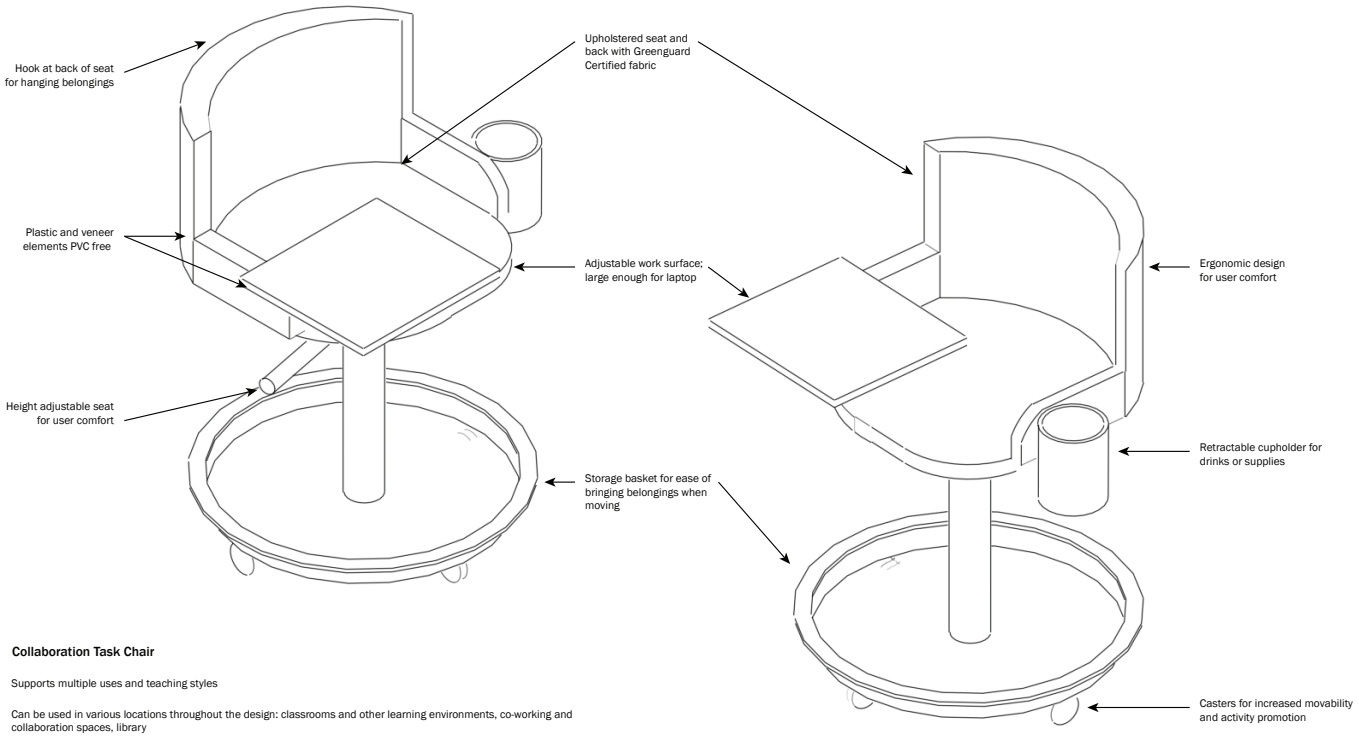
DESIGN PROBES

I. SCALE



PROMPT: Consider at what scale an appropriate response might be made to the issues raised in the topic review. Map the topic at the scale of a room, building, or city.

RESPONSE: This map takes into account four blocks surrounding a community school site and looks at some sustainable design features and neighborhood connections.



Collaboration Task Chair

Supports multiple uses and teaching styles

Can be used in various locations throughout the design: classrooms and other learning environments, co-working and collaboration spaces, library

Supports user wellbeing by encouraging activity, promoting flexible spaces, using safe materials, ergonomic seat design, adjustable elements that allow for customized experience

PROMPT: Consider at what scale an appropriate response might be made to the issues raised in the topic review. Design an object at a small scale at which the topic might be addressed.

RESPONSE: This chair design promotes collaboration, flexibility, and comfort and can be used in various environments in a community school.

II. MATERIAL

Linen

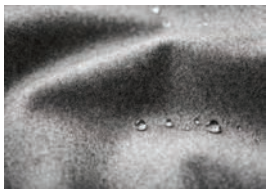
Moss & Other Greenery

Certified Wood

Atmospheric Qualities of a Sustainably Designed Interior

LIGHT
COMFORTABLE
FRESH
HEALTHY
NATURAL
OPEN
WELCOMING
ENERGIZING
RESPONSIBLE
SMART
GREEN

Cotton



Wool

Straw

Cork

Bamboo

Glass

Hemp

PROMPT: Consider what would be an appropriate material response to the issues raised in the topic review.

RESPONSE: The materials shown were selected when considering what would contribute to atmospheric qualities of an interior space designed with a focus on sustainability. Natural and certified materials and those with the potential for recycling and reuse became the focus.

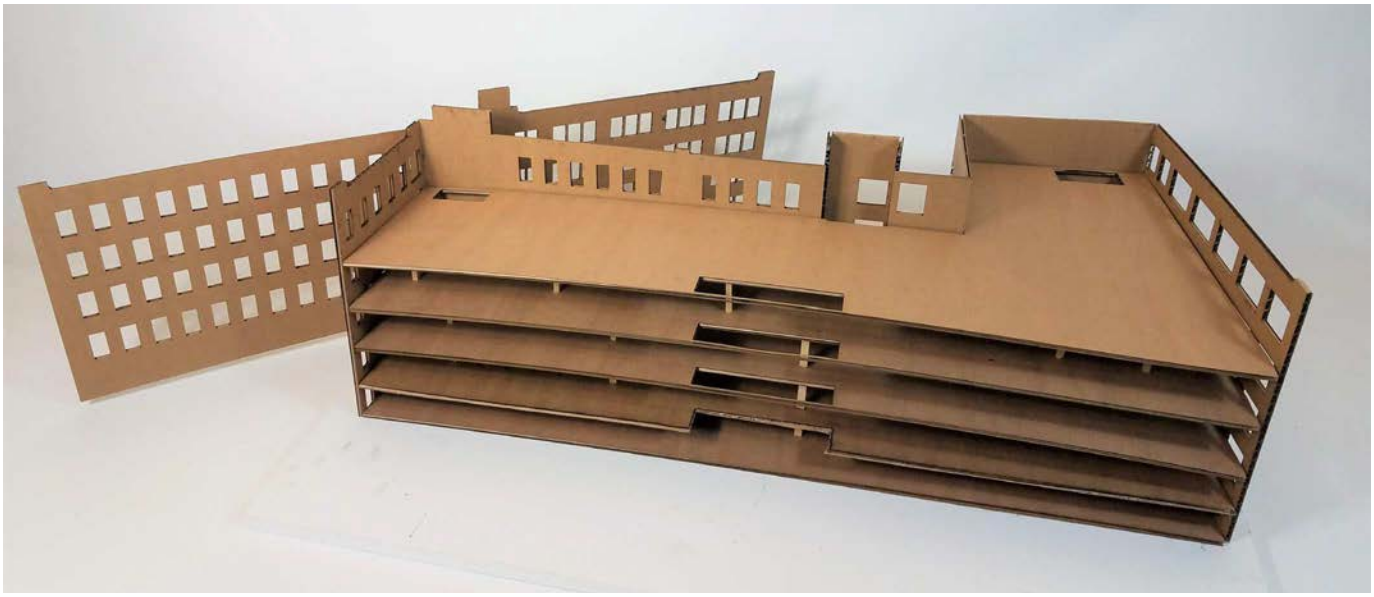
III. EXPERIENCE

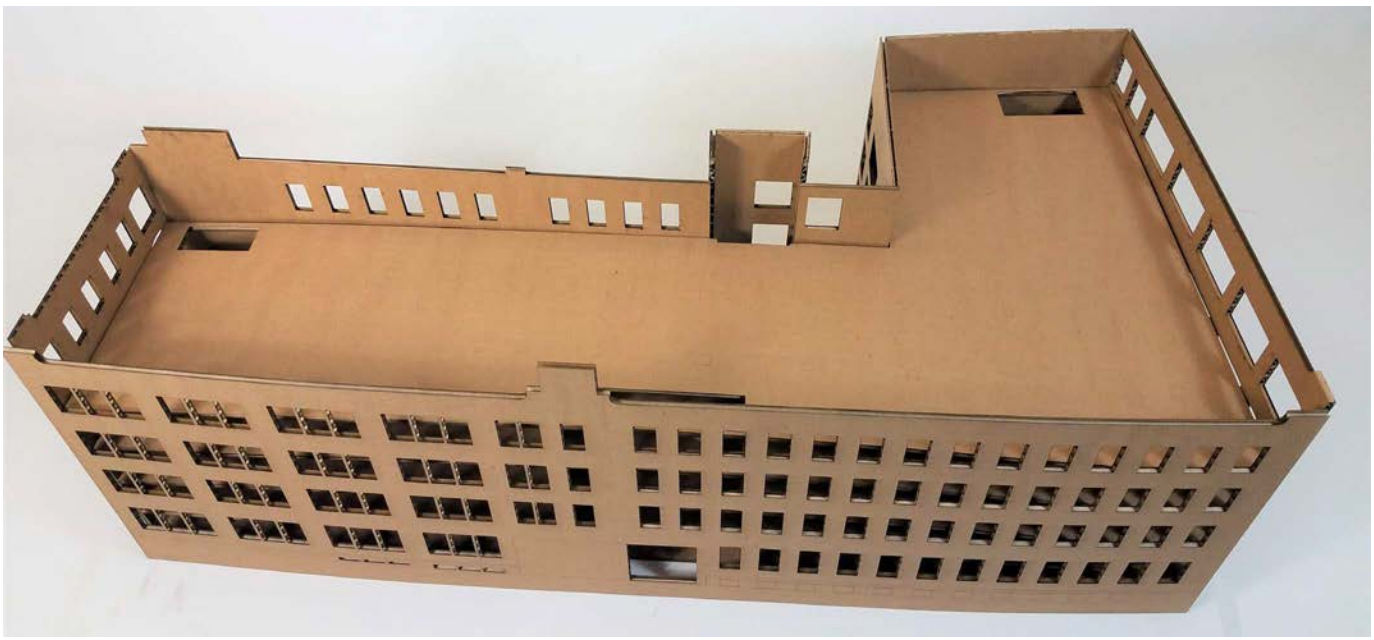
What do they DO?				
Get off school bus	Enter school through security and metal detectors	Arrive at homeroom to check-in and receive healthy breakfast	Proceed to first period history class	First period history class, quiz and lecture
What do they SEE?				
Friends also arriving, people on the street, traffic	Other students arriving, security guard, security equipment	Typical classroom with desks, chalkboard, other students, teacher	Students passing through the halls, flickering lights, lockers along walls	Typical classroom with desks, chalkboard, projector and screen, other students, teacher
What do they SAY?				
Greet friends	Continue talking to friends	Check-in with teacher, greet friends and talk	Greet friends in passing	Greet friends, respond to attendance
What do they HEAR?				
Traffic, people talking, students shouting, music playing	Shouting security guard, students talking, equipment beeping	Teacher, other students, morning anouncements over PA	Conversations ongoing, bell ringing	Teacher lecturing, heating system turning on/off
What do they THINK & FEEL (-)?				
Stress/anticipation about starting the day	Stress about going through security	Anxious about finishing math homework during lunch	Anxious about upcoming quiz in history	Discomfort at desk, anxiety about quiz, boredom during lecture
What do they THINK & FEEL (+)?				
Excitement at seeing friends	Excitement at seeing friends	Excitement at seeing friends, happy to have breakfast	Feeling relief from school breakfast	Relief when quiz is over, excitement for music class

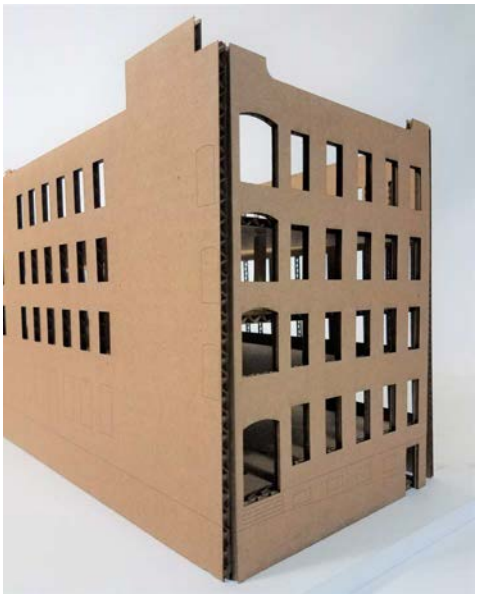
PROMPT: Consider who is impacted by the topic and consider how their experiences form their perceptions and attitudes about the topic.

RESPONSE: The exercise involved developing a journey map of a typical student's day at school taking into account both positive and negative emotions and their various sensory experiences.

STUDY MODEL PHOTOS







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How can we reframe our role in the world?
The answer is by addressing the real challenges of our time.
Instead of doing a little with a lot, we must do much more with much less.

Bryan Bell, AIA