

To the resilient youth in foster care who inspired this work.

Thank you to my mentors, friends, family, and Professor Susan for your unwavering guidance and support throughout this project.

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Section 1 Project Proposal

1.1 Project Description and Client's Profile

Mission

The project serves as a Laboratory school in Arcadia, California for foster youth in care. The school will aid to the academic and emotional needs this demographic needs to excel in their education during secondary school and inspire and give them the tools needed to pursue higher education.

Value

The value of this project is to provide an equal opportunity to education for this marginalized group. The design will bring students together with shared experience. The level and quality of education influences many life outcomes and a lot of youth in care have reported their desire and value for education but are challenged to face more obstacles to obtain their high school degrees and pursue a higher education compared to the general population other students in America.

Vision

The vision for this project is to addresses the poor statistics of the relationship between foster youth and the quality of their educational experiences. Changing these numbers and poor outcomes for youth in care through the power of education. The project design will help youth in care graduate from high school and leave with newfound excitement and potential in their futures.

How they view themselves in the market

In the market, Starlight Learning Center will be a competitively academic high school offering students a quality STEM education while also providing the emotional needs in the design of the school available for students throughout their school days.

1.1 Project Description and Client's Profile

Why does this matter?

This specific population and their obstacles matter because studies show most cases of youth in care feel they didn't have fair access to quality education which then resulted in **poor future outcomes** with their income, career, and other possibilities of incarceration, drug abuse, and homelessness.

S FosterClub Every 2 minutes ER CARF 52% boys 48% girls 427,910 269.509 now in foster care enter in a given year 10 top reasons kids enter care: 1% Caretaker inability to cope 3% Physical abuse average age 1% Unable to manage child behavior 0% Inadequate housing 45% 30% 5% 4% 35% of children experience two or nore placements 15 How children leave foster care: 20.4 months 6% 63% stay in care less than 18 months 9% 22% 9% > 20,789youth 51% age out (emancipate 111,820 children and youth waiting to be adopted AFC.ARS #23. 2016. www.c



Target Market

- Educators
- Youth in Care (14-18 years old)
- Counselors
- Social Workers
- Foster Care Liaison
- Guardian Liaison



Starlight Learning Center





1.2 Client's Brand Profile - Users



Maya James, 17 Student

Maya Johnson, a 17-year-old senior, has been in the foster care system since she was 14 years old. Despite the challenges she's faced, she is determined to excel academically and secure a scholarship for veterinary school.

Every morning, Maya looks forward to her classes and socializing. She often stays after school to work on her projects. However, she sometimes struggles with feelings of isolation and uncertainty about her future.

Maya frequently connects with her peers and hosts study groups after classes. Her goal is to grow to be more confident and is driven by the desire to forge a new path for her future.



Dr. White, 46 Principal

As principal, Dr. White makes sure her school is an environment where every student feels supported, both academically and emotionally, despite their challenging backgrounds. Dr. White has implemented a rigorous academic curriculum, with social and emotional learning (SEL) programs to thrive. She works hard to secure the resources needed to meet both academic and emotional needs, to address the trauma students being into the classroom while maintaining high academic standards.



Officer Dylan, 29 Resource Officer

Officer Dylan serves as the school resource officer, tasked with maintaining safety and security while fostering a positive relationship with the students. He understands that many students have had negative experiences with authority figures due to their experiences in foster care. Officer Dylan ensures that students feel safe without feeling policed. He often offers quidance to students who may need someone to talk to but don't feel comfortable with school staff or therapists. He's trained in restorative justice practices is another trusted authoritative figure to handle any crisis situations, minimizing further emotional harm. His approach is to be both a protector and a mentor, ensuring that the school remains a safe space for growth and learning.



Ms. Franklin, 58 Resource Librarian

Ms. Franklin views the library as more than just a place for books-it's a sanctuary for students seeking knowledge, peace, and support. Many of the foster children at the school come from homes where access to educational resources was limited, and Ms. Franklin is committed to bridging that gap. She curates a diverse collection of academic materials, including textbooks, research journals, and digital resources to support the school's rigorous curriculum. She teaches students research skills, digital literacy, and how to evaluate sources, providing students resources for students with varied reading levels and educational backgrounds. She hosts workshops on how to use online databases and offers a quiet space for students to study after school.

1.2 Client's Brand Profile - Competitors

Program Name	BASIS INDEPENDENT™ McLEAN	Real Provide And	THE LAB SCHOOL
Location	McLean, VA	Washington, D.C.	Washington, D.C.
Description	BASIS Independent McLean is an age 2–grade 12 private school providing students an internationally bench- marked curriculum. The BASIS Curricu- lum prioritizes foundational knowledge through a diverse selection of courses such as fine arts, engineering, logic, history, differentiated mathematics, Mandarin, and more.	The LAB School is a lower, middle, and upper school. They welcome students at any point in their educa- tional journey. The Lab School's three divisions provide robust and enriching educational programs to students with learning differences. Lab students have the opportunity to progress at their own pace.	Benjamin Banneker Academic High School is a specialized public institu- tion of secondary education in which students in grades 9-12 are engaged in rigorous and varied academic experi- ences.
What They Offer	Our high school curriculum features diverse and challenging coursework based on the best education systems around the worldAP coursework be- gins in 9th gradeSeniors participate in daily college counseling, specialized capstone courses, and advanced inde- pendent research	The upper school students are im- mersed in rigorous academic classes and arts-centered learning, students use their own unique view of the world to arrive at unique solutions. Programs like our year-long, junior-year intern- ship, global travel, and Model UN offer students scores of opportunities to explore their interests, embrace lead- ership options, take risks, and develop new areas of interest.	The environment of the school is designed to provide students with a highly structured college preparatory program. The curriculum of the school affords opportunities for developing knowledge, talents, and skills needed for success in postsecondary experi- ences. The primary purpose of Benja- min Banneker Academic High School is to serve those students of the District of Columbia who desire a highly struc- tured four-year academic program of study beginning at the ninth grade.
Additional Notes	 #1 high school for STEM in Virginia #1 Best College Prep Private High- school in Virginia 100% Graduation Rate 6:1 Student Teacher Ratio 	 International Learning experiences Small classroom sizes Emphasis on learning through art Commitment to DEI & Belonging Partnership with American University 	 Advanced Placement, Honors Courses, and International Bacca- laureat School is racially diverse Dual Enrollment Sports & Extra curriculars



The school's name embraces inclusivity by referring to the high school as a "learning center". The star logo, with its ends open, radiates light on the welcoming font, illuminating the school name.

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Section 2 Summary of Research

2.1 Journal Reviews

Journal Article 1

Barriers to academic achievement for Foster Youth: The story behind the statistics.

Morton, B. M. (2015). Barriers to academic achievement for Foster Youth: The story behind the statistics. Journal of Research in Childhood Education, 29(4), 476–491. https://doi.org/10.1080/02568543.2015.1073817

Identify

The author of "Barriers to academic achievement for Foster Youth" investigated the perceptions of former and current youth in foster care in Oregon about barriers they encountered in their K-12 education. They categorized these barriers as three main areas, special education, mobility, and transition. To conduct research, they chose 11 former and current youth in foster care from an interested participant pool from the Oregon Youth Foster Care Connection nonprofit organization. Interviews were conducted and recorded with consent to collect their findings. Their findings show three common themes during the interviews, the foster care system, the school system, and emotional factors. The pool expressed losing trust in people from their experiences in the foster care system. They also showed common experiences of high mobility and Individualized Education Programs (IEPs), which brought out frustration with not being involved in their own decision making for themselves and their education. From their K-12 education experience, emotional barriers included feelings of disempowerment, self-defeating attitudes, and anger.

Reaction

From the article, I sympathize with emotional barriers youth in care have been facing during their educational experiences. Reading the personal experiences from the interviews helped me have a better understanding of these barriers they have faced. It's a privilege to have a quality education and a consistent support system, and youth in care are often overlooked because of issues of high mobility and behavioral challenges. I wish for educational systems to work with these kids more and for there to be more flexibility because they have to keep restarting, which is exhausting and defeating.

Application

From the article, and the emotions that come with this, I learned how important it is to create a positive environment when these negative emotions are commonly shared amongst this group of youth. Creating an uplifting environment can offer hope and trust for the users in my design. I want the space to be empowering, using diffused lighting, upward forms, and light colors. Creating an overall positive environment for the users can address some of the academic barriers found from this literature.

2.1 Journal Reviews

Journal Article 2

Are children and adolescents in foster care at greater risk of mental health problems than their counterparts? A meta-analysis. Dubois-Comtois, K., Bussières, E.-L., Cyr, C., St-Onge, J., Baudry, C., Milot, T., & Labbé, A.-P. (2021). Are children and adolescents in foster care at greater risk of mental health problems than their counterparts? A meta-analysis. Children and Youth Services Review, 127, 106100. https://doi.org/10.1016/j.childyouth.2021.106100

Identify

This article asks the question if "youth in care are at greater risk of mental health problems compared to their counterparts?" Researchers and reviewers composed a meta-analysis of studies with similar criteria to access youth in care and their psychopathology. Although the reason for the youth being removed from the home is for their safety and well-being, the findings from this study found that the reason why they were removed from the home, and the choices made for the new placement leaves youth in care open to more mental health problems. While being at a greater risk of mental health problems to their counterparts, foster youths have showed similar rates of mental health problems as clinically referred children.

Reaction

This study helps me visualize the depth and seriousness of the mental health challenges youth in care struggle with. There's a lot of hurt when reading about the findings show how traumatizing and damaging this is for a child to experience, and the consequences it takes on mental health. From every point in transition, whether the child is in kinship or not, the trauma for being placed in foster care, the duration a child is in care for, the number of placements the child was moved, and the caregiver's level of commitment to the child are all detrimental to the child's mental health and well-being.

Application

After reading this meta-analysis, the mental health of youth in care is at risk from their traumatizing experiences. This reading applies to the design, because it tells me there is a need for healing in the space. Every child's case is personal to them and understanding the diverse backgrounds can help inform the design. Studying and incorporating Trauma-Informed Design can help support the healing needed in the active environment. There are different things associated with Trauma-Informed Design like incorporating distraction imagery, and designing for refuge could help support the needs for the users in the various spaces.

2.1 Journal Reviews

Journal Article 3

Demographics, policy, and foster care rates; a predictive analytics approach.

Russell, J., & Macgill, S. (2015). Demographics, policy, and foster care rates; a predictive analytics approach. Children and Youth Services Review, 58, 118–126. https://doi.org/10.1016/j.childyouth.2015.09.009

Identify

This article investigates, "what factors most efficiently predict foster care entry rates across States...What factors most efficiently predict the amount of time children spend in foster care across states?" Researchers collected data from the 2010 census data and 2010 AFCARS. They further took this information and put them into Classification and Registration Trees (CARTs) to look for patterns in the data. The results from this study found a variety of variables determined the entry rates and duration in foster care like, demographics, community values, poverty, policy on older youth, performance measures, expenditure levels.

Reaction

My reaction when community values was a variable in guestion in left me disappointed. It feels racially motivated when I learned "Less-diverse states have the second highest average foster care entry rates. The results indicate that states with smaller minority populations remove children at higher rates than more diverse states." Of course. the child was removed for a reason and for their safety and well-being, but this also reminds me how important a support system and a community can make all the difference in every case because this factors into foster care entry rates and duration.

Application

Understanding the different variables that contribute to the amount of time in care foster youth experience, helps me understand who I'm designing for. In my design I need to take into account the different demographics and background information behind youth in care to make their school experience feel safe. Youth in care carry so much weight with them, understanding and learning how to design for their needs is a crucial part to be successful. They need a supportive and safe environment that they can rely on every day because there's a lot of uncertainty in their outside lives. The design should offer consistency and make the space feel easy. Following principles of universal design, and the biophilic design principle of complexity and order can help users understand and organize the space effortlessly.





Precedent Study 1: The Marie Reed Community Learning Center, Washington DC









Precedent Study 1: The Marie Reed Community Learning Center, Washington DC

Describe

The Marie Reed Community Learning Center in Washington DC was designed by Quinn Evans Architects in August 2017. This 153,000 square foot learning center was revived from the previous 1970's elementary school. The major design factors include transforming the brutalist outdated building into a series of classroom neighborhoods and common spaces and using sustainable features like, "a smart ventilation system, LED lighting, recycled and low-VOC materials, low-flow water fixtures, and landscape bioretention areas." to create a LEED Gold Certified Building. The learning center offers programs primarily to school-aged children however, do also include some programs for teens and adults. Their vision is to provide an elementary school program and serve as a holistic community resource in the DC area.

Reaction

What I liked from this building was the strong emphasis on the relationship between community and well-being. That a shared quality educational experience creates a healthy community. They utilized visual transparency between classrooms to create an openness in the environment. I think a strategically planned amount of openness in the space can help create a sense of trust and freedom in the learning center. The transformation from the previous center to the completed design is strong. Inserting skylights to maximize daylight throughout the space makes the community learning center feel free-spirited.

Application

I can take away a handful of aspects from this community learning center into the design of my project. The first one, about transforming the previous outdated building into a better suited design for the center. Like how I envision my design, they focused on the idea of the center being welcoming and achieved this by adding in large windows for a new entry. I also want to take away the feeling of openness the learning environment embodies. The openness in this precedent study makes the space feel grand in between the levels and easily diffuses the natural lighting. Using transparent panels encourages camaraderie between users and also addresses the acoustical needs to separate noise from the classrooms and public spaces.

Precedent Study 2: The Benjamin Banneker Academic High School, Washington DC











Precedent Study 2: The Benjamin Banneker Academic High School, Washington DC

Describe

The Benjamin Banneker Academic High School in Washington DC was designed by Perkins Eastman DC in July 2021. The size of this project is 175,000 square feet. Their users are first-generation students to attend college and designing for a high-achieving environment and mitigating their stress levels. The High school has earned LEED Platinum and is Net-Zero ready in terms of sustainability. Benjamin Banneker's mission is to develop, equip, and ensure their students for the welfare of the community. This is an academically competitive high school that prepares their students to make a transition into a four year college or university.

Reaction

This school stood out to me because of its mission to mitigate stress through design. From personal experience, the environment in school buildings can easily feel daunting and hostile. The design of this building combats this with a central atrium with stacked spaces around it allowing for study, socialization, and collaboration. Ultimately promoting an academically driven and friendly environment. Looking at the perspectives, the school feels open and light hearted. The use of skylights and natural light contribute to this, giving the spaces an inspired and easy feeling.

Application

The use of wood aids as a landmark for wayfinding. This helps organize the different levels making it easy for users to understand and divide the space. Spaces connecting to the open atrium centers the building and design, that also supports wayfinding. Learning from this, I want to apply a similar organization to my space because it helps make the space easy for the users to live in. Including this organization of wayfinding into my design application can mitigate the stress of students like this precedent did.

Precedent Study 3: The Smithfield Elementary School, North Richland TX

KINDERGARTEN











Precedent Study 3: The Smithfield Elementary School, North Richland TX

Describe

The Smithfield Elementary School in North Richland Texas was designed by HKS Architects in August 2021. They took the program and the students into the design considerations to create a "holistic interior design solution and 'ethos' of the school". HKS Architects created an educational experience of sanctuary for a neurodiverse population and inclusive of all abilities. The sensory and well-being hub the school offers to the students was created using evidence-based design, "Scaled and interactive spaces, visuals and textures found in nature, restorative microenvironments for respite, tunable and multi-functional spaces and zones allow students to discover, play and restore within their individual comfort levels." They also wanted to provide a healthy and safe environment through using the safety guidelines of the International Crime Prevention through Environmental Design Association.

Reaction

Although made for elementary school children. I believe this design's wellness and community aspects can be applied to other older ages too. Several strategies were incorporated to help this design become a learning experience. For example, their use of active / respite zones, the evidence-based design sensory and well-being hub, combining the safety guidelines from the International Crime Prevention through the Environmental Design Association, the feature of the outdoor sensory path, and the innovative library can all positively contribute to a school's learning experience. Learning about sensory needs, I was surprised by the different strategies to approach the well-being of students. Designing for different sensory needs will make the experience easy for students to learn in.

Application

From this elementary school, I learned the importance of flexibility in spaces so it can accommodate students of all ages and abilities like using "digital displays, flexible seating, and adaptable lighting for different activities". I also want to take away the use of materials from this project. I learned about materials that address both sensory and acoustical needs. For example, cork can be used for tactile needs and bring down noise levels. Looking at materials that are both sustainable and good for "cognitive restoration". The school's use of active and respite zones, and multifunctional spaces, would be beneficial for my project's design because it can instill a sense of control for the students' needs throughout the school day.

2.3 Concluding Discussion Questions

What are the attributes of an Uplifting environment?

Article: A happy ambience: Incorporating BA and flow in library design. Bossaller, J., Oprean, D., Urban, A., & Riedel, N. (2020). A happy ambience: Incorporating BA and flow in library design. The Journal of Academic Librarianship, 46(6), 102228. https://doi.org/10.1016/j.acalib.2020.102228

This journal analyzes the two concepts of ba and flow in a widely used academic setting, the library. From the journal, "Ba is, in essence, an ideal space in which the self, or eqo, falls away as one is absorbed in communion with other people; it is a space of truth and focus... Related to the concept of ba is flow, which is a state of absorption and intense concentration." (Bossaller et al., 2020). The writers believe ba and flow have a relationship with happiness because it promotes "free from both external distraction and internal conflict." (Bossaller et al., 2020). I learned from this work that in a library, a challenge faced by users is information and cognitive overload, which then results in stress. One of the attributes of an uplifting environment the article suggests is the appearance of high ceilings. They write, "There are psychological effects of high ceilings as well: Meyers-Levy and Zhu (2007) found that people studying in rooms with high ceilings exhibited more abstract thinking while those in rooms with low ceilings exhibited detailed thinking, while Vartanian et al. (2015) found that people were more likely to feel fear in rooms with lower ceilings." (Bossaller et al., 2020). Noise and sound also has an impact on an uplifting environment, "Places where people go to study or concentrate, on the other hand, should be constructed to minimize sound. Baffling in the ceiling or walls might minimize sound from bouncing around a room." (Bossaller et al., 2020). Color is also a design attribute that creates an uplifting environment, "Similarly, Küller et al. (2006) found that a colorful work environment produced more positive feelings than a dull environment." (Bossaller et al., 2020). Building light into the environment also has a key role in creating an uplifting environment, where the interior "should have high levels of diffused light. Light can also be used to bring attention to details, or manipulated with other architectural elements to create a sense of "mystery and awe" (Roth & Clark, 2013, p. 86). There have been a number of studies that suggest that people are better able to concentrate inside rooms that have good natural light. Natural light regulates the body's production of cortisol and melatonin..." (Bossaller et al., 2020). The use of high ceilings, minimizing noise, application of color psychology, and high levels of diffused natural light are design attributes of an uplifting environment in an academic setting.

What are the attributes of a healing environment?

Article: Healing by design.

Stichler, J. F. (2008). Healing by design. JONA: The Journal of Nursing Administration, 38(12), 505–509. https://doi.org/10.1097/nna.0b013e31818ebfa6

From the Journal of Nursing Administration, Stichler analyzes the different design attributes of healing for patient's, family, and staff. We are introduced to the 9-element philosophy, "Planetree" how this philosophy is applied to healthcare settings. We learn, "The Planetree elements can also be used to guide design decisions in any healthcare facility. Planetree design honors the person as a holistic being with an integration of mind, body, and spirit, so the design itself must reflect these 3 elements." (Stichler, 2008). Although this article is more focused on healthcare spaces, Stichler offers design attributes for healing the mind, body, and spirit, which should be taken into consideration for my design. For example, patients that experience stress and anxiety from their health conditions may find the design attribute of views to the outside reducing in their symptoms. The design attribute of control in the interior environment is also important for healing the mind. Allowing users to control temperature, the amount of light coming in, and organizing their own belongings in the space can help heal the mind because the design offers create comfort and ease. Creating support spaces for friends and families in proximity to the patient, can support the emotional tasks patients live with. The journal tells us that when healing the body, the design attributes should start from the moment the users walk in. This model environment allows users to interoperate a more comforting environment. Design attributes like natural lighting, natural materials, and clear signage and circulation also allows users healing of the body. Lastly, designs to heal the spirit, the Planetree philosophy suggests providing meditative, respite areas, indoor/outdoor gardens. Sound is important for healing the spirit, allowing users to also choose what works for them. Addressing acoustical solutions in the interior environment allowing for soft noise is beneficial to achieving a spiritually healing environment.

2.3 Concluding Discussion Questions

What are the attributes of a safe environment?

Article: Design charrette as methodology for student learning assessment relative to building safety and security.

Emily, A. M. (2013). Design charrette as methodology for student learning assessment relative to building safety and security. Journal of Interior Design, 38(2), 35–48. https://doi.org/10.1111/joid.12005

This journal accesses the learning of implementing design attributes of safety into the interior design of healthcare, corporate, and education spaces. Participating interior design students are tested in a charette style of how many ways they can create a safe environment without risking harm or injury of its users depending on the type of space. This assessed the depth in the students' understanding of safety and security in design. Although this was a study analyzing their understandings, this helped me learn different ways to plan safety and security into the design of my school. In Figure 4, "Enhanced safety and security design strategies applied to post-charrette educational scenarios", a pie chart showed the strategies for safety and security in the educational scenario consisting of, high performance materials and finishes, sightlines, wayfinding, security systems/technology, and secure entry/locks. The study found that the students planning the educational scenario "... placed high importance on controlled environments designed for high visibility, obvious paths of travel, limited access points, secured doors, and careful attention to surface ornamentation, and materials as they relate to the safety of students and teachers." (Emily, 2013). These design attributes help plan the safety and security of educational settings in cases of any threats, injuries, and risk for all members in the school.

Figure 4. Enhanced safety and security design strategies applied to post-charrette educational scenarios.



2.4 Design Approach



Uplifting

The design will be an uplifting environment to combat the negativity and uncertainty outside of school. One way to achieve this is by mitigating stress from information and cognitive overload in the academic environment. Incorporating high **ceilings** into the design will create less of a shut-in feeling and minimize fear. (Bossaller et al., 2020). Taking away from my precedent studies and journal reviews, **diffused light** plays a key role in creating an uplifting environment. "should have high levels of diffused light.. to create a sense of "mystery and awe"...people are better able to concentrate inside rooms that have good natural light. Natural light regulates the body's production of cortisol and melatonin..." (Bossaller et al., 2020). A site analysis with a sun path analyzing where the natural light penetrates the interior spaces will help make decisions into planning and shaping the interior. Using the elements and principles of design like **upward** forms and vertical lines are visualized of being uplifting in a space.



Everything from the reason why the youth was placed in foster care to the time during is a traumatizing experience. The design will offer moments throughout the school that allow for healing of the mind, body, and spirit. Incorporating biophilic principles like visual connection with nature can lower stress and anxiety levels. Allowing users to control the interior environment is also important for healing, for example, having control over the amount of light the classroom projects. Creating support spaces for individuals like places of **respite** where the architecture and acoustical solutions allow for intimacy is beneficial for the healing process. The welcome area should especially emphasize comfort and healing to the mind, body, and spirit because this is the first thing users see when they walk into the design. (Stichler, 2008).



Flexibility

The design will offer ease to the users of the school. Youth in care are often misplaced in terms of academic courses and levels. A lot of emotional and outside variables are brought into the learning environment. With this there is a range of neurodiversity that needs to be addressed in the school environment. The educational experience should feel easy and instill the confidence they need to finish high school. In the project, this would be designing for different sensory needs in the learning environment that is forgiving and accommodates for everyone. Balancing areas for active and respite and designing spaces that are **multi**purpose full can help support the neurodiversity in the school. (HKS Architects, 2022). The design of my project will recognize there are **multiple paths for** achievement, making the learning experience feel easy.



Easy

Youth in care often experience uncertainty outside of school (Russell & Macgill, 2015). To address this, my design focuses on creating consistency through the principles of wayfinding. By ensuring equitable resource distribution and thoughtful planning, students will be able to naviaate the school with clear expectations, using familiar elements like districts. nodes, paths, edges, and landmarks (Perkins Eastman. 2024). Consistency in materials on different surfaces, and lighting will further enhance the sense of stability and promote overall well-being throughout the school environment. The school will provide the users with legibility and **coherence** because of the application of consistency in the design.



Safe

Safety will be implemented into my school through high performance materials and finishes, sightlines, wayfinding, security systems/technology, and secure entry/ locks. To prevent any threat or harm in the school, the design will balance different levels of visibility and clear sightlines for everyone, and secured doors. (Emily, 2013).

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Section 2.1

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Section 3 Preliminary Programming

3.1 Preliminary Space Allocation and Occupancy Load Table

Spaces	Assembly	Quantity	OLF	OL	SF Total	Per Occupant	Occupants	Comments	Circulation (40%)
	T	1	T		Γ	Γ	Τ	Τ	1
Cafateria (A-2)		1	15	100	1500				600
Gymnasium (A-4: fixed concentrated seating)	-	1	See G4	100	700	7	100	Square Feet	280
(1, 1) = (A (A-2, A-3, A-4		Soo G5	200	15000	50	200	Squaro Foot	6000
Useker Deeme (A. 2)	& A-5)		500000	500	1000	50	500	oquare reet	0000
Locker Rooms (A-3)	-	4	50	20	1000				400
Librony (A. 2)	-	1	15	10	150				60
Library (A-S)			50	20	1000				400
Lobby / Entrance (B)		1	150	30	4500				1800
Library (B)	-	1	150	5	750				300
Administrative Office (B)	1	1	150	5	750				300
Faculty and Staff Office (B)	-	1	150	10	1500				600
Teachers Lounge (B)	1	1	150	10	1500				600
Principals Office (B)	1	1	150	2	300				120
Guidance Counselor's Office (B)		1	150	7	1050				420
IT Office (B)	В	1	150	3	450				180
Student Services (B)		1	150	15	2250				900
Maintenance and Custodial Office (B)		1	150	2	300				120
Meeting and Conference Room (B)		1	150	20	3000				1200
Security Office (B)		1	150	2	300				120
Health Center (B)		1	150	15	2250				900
Makers Space (B)		1	150	15	2250				900
	1	1	T	[1	1	I
Public Restrooms (E)	_				0				0
Staff Restrooms (E)					0		700		0
STEM Classrooms (E)	- E	5	20	15	300				120
Lecture Rooms (E)	-	2	20	30	600				240
Laboratories (E)		3	20	10	200				80
Storage Peom (S. 1)	<u>د</u>	1	200	2	600	[1	1	240
		<u> </u>	300		600	<u></u>	<u> </u>	<u> </u>	240
Mechanical Equitoment Room (U)	U	1	300	5	1500	300		SF per gross	600
							<u> </u>		
Total (categories)				753	43700				17480
Total (sqft)									61180

Code Sources	Occupant Load Factors					
IBC 2024	OC	Function of Space	OLF			
ADAAG ANSI A117.1	A-2	Assembly without fixed seats - Unconcentrated (tables and chairs)	15 net			
	A-3	Library - Reading rooms	50 net			
Construction Type	A-4	Increased Occupant Load 1004.4.1	7 square feet per occupant			
TBD	A-4	Concentrated Business Use Areas 1004.8	50 square feet per occupant			
	В	Business areas	150 gross			
Occupancy Classifications	E	Educational - Classroom area	20 net			
A-2, A-3, A-4, A-5, B, E, S, U	S	Accessory storage areas, mechanical equipment room	300 gross			
Total Occupant Load		Accessory storage areas, mechanical equipment room	300 gross			

733 people

Special Occupancy Requirements (Chapter 4 IBC 2024)

- Section 404 Atriums
- Section 428 Higher Education Laboratories

Means of Egress

1005.3.1 Stairways

Exceptions 1:

For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.2 inch (5.1mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

Result: 0.2*OL= stair width in inches 0.2*733=147" or 12.25'

Notes: Accessibility stairway width 48" Landing at the top and bottom need to be equal to 48"

1005.3.2 Other Egress Components

Exceptions 1: For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.15 inch (3.8mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

Result: Means of Egress Capacity Factor 0.15 0.15*733= 110" or 9.2'

Other Comments

- Doors Minimum Clear Width 32"
- Exit Configuration 1/3 diagonal
 - Alarm systems, emergency communication systems
 - 1/3 Diagonal Exit Locations

- Number of Exits: 3
- 1004.6 Fixed Seating
- Means of Egress Illumination 1008.3

Common Path of Travel							
Occupancy	Maximum Occupant Load of Space	With Automatic Sprinkler System (feet)					
A, E, M	49	75a					
В	49	100a					
S	29	100a					
U	49	75a					

Exit Acc	ess Travel Distance
Occupancy	With Automatic Sprinkler System (feet)
A, E, F-1, M, R, S-1	250b
В	300c
F-2, S-2, U	400c

	Corridor Fire-Resistance F	Rating
Occupancy	Occupant Load Served by Corridor	With Automatic Sprinkler System
A, B, E, F, M, S, U	Greater than 30	0

Common Path of Travel Notes:

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.

c. For a room or space used for assembly purposes having fixed seating, see Section 1030.8.

f. The length of common path of egress travel distance in a Group S-2 open parking garage shall not be more than 100 feet.

Exit Access Travel Distance Notes:

b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.

c. Buildings equipped throughout with an automatic sprinkler system in accordance with 903.3.1.1.

Plumbing Requirements – Based off Most Restrictive Classification

	Plumbing Systems							
No.	Classification	Description	Water Closets	Lavatories	Drinking Fountain	Other		
2	Business	Buildings for the transaction of business, nonmedical professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 20 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 40 for th first 80 and 1 per 80 for the remainder exceeding 80	1 per 100	1 Service Sink		

Finish Classifications

Interior Finish Classification Limitations									
Occupancy	Exits	Exit Access Corridors	Other Spaces						
Assembly - Existing >300 occupant load	А	A or B	A,B, or C						
Educational - Existing	А	A or B	A,B, or C						
Storage	A or B	A,B, or C	A,B, or C						

Required Separations (Chapter 5 IBC) - Not Applicable

	Operational Narrative								
Name of Space	Users	Activities	Environmental Needs (lighting, air, temperature, acoustics)	Lighting Needs (Key in Notes)	Design Needs (public/private, foot traffic)	Specialized FF&E (Furnishings, Finishes, Equiptment)	Other Comments		
	[Education	Spaces	1	T			
Labratories (Collaborative Instruction with Advanced Lab Equiptment)	Faculty, Students	Expeirements, Data Collection, Chemical Reactions, Research Projects	Ventilation, Comfortable Temperature, Moderate Acoustics	5,6,7	Private, Moderate Foot Traffic	Sink Stations, Safety Glass Shields, Emergency Eyewash Stations, First Aid Kits, Safety Signage, Eye Shower, Student Workstations, Instructor's Desk, Storage Units, Project Display Surfaces, Safety Fixtures, Interactive Whiteboard / Smartboard, Lab Equiptment			
Lecture Rooms (Lecture Instruction)	Faculty, Students, Guest Lecturers	Lecturing, Presentations, Demonstrations, Guest Lecturers	Ventilation, Comfortable Temperature, Quiet Atmosphere	6,7,8	Private, Moderate Foot Traffic	Auditorium Style Seating, Lectern / Podium, Mobile Cart, Storage Units, Project Display Surfaces, Safety Fixtures, Interactive Whiteboard / Smartboard			
Makers Space	Faculty, Students	Crafting, Collaborative Projects, Workshops, Tutorials, 3D Printing	Ventilation, Comfortable Temperature, Loud Atmosphere	5,6,7	Public, Moderate Foot Traffic	Workbenches, Tables, Storage, Seating, Task Lighting, Eyewash Station, Hand Tools, Power Tools, 3D Printers, Computers, Robotic Kits			
STEM Classrooms (Collaborative Instruction)	Faculty, Students	Project Based Learning, Coding, Robotics, Collaborative Group Work, Presentations, Demonstrations	Ventilation, Comfortable Temperature, Loud Atmosphere	6,7	Private, Moderate Foot Traffic	Student Workstations, Instructor's Desk, Storage Units, Project Display Surfaces, Safety Fixtures, Interactive Whiteboard / Smartboard,			
	Γ	I	Public Sp	baces	1		Γ		
Cafeteria	Staff, Students	Eating, Socializing, Events	Ventilation, Comfortable Temperature, Loud Atmosphere	1,2,3,4	Public, High Foot Traffic	Cafeteria Tables, Stackable Chairs, Serving Counters, Trash Bins, Recycling Bins, Food Warmers, Display Cases, Storage			
Gymnasium	Staff, Students	Recreational Activity, Events, Socializing	Ventilation, Cooler Temperature, Loud Atmosphere	9	Public, High Foot Traffic	Gymnasium Flooring, Sports Equiptment			
Health Center	Health Staff, Students	Consultations, Treatment and Management of Illness	Variable Lighting, Ventilation, Variable Temperature, Quiet Atmosphere	1	Private, Low Foot Traffic	Reception Desk, Waiting Room Seating, Storage, Examination Table, Handwashing Station, Task Lighting, Hand Sanitizer Dispensers, Light Medical Equpiptment,			
Library	Staff, Students	Studying, Meetings, Events, Socializing	Cooler Temperature, Quiet Atmosphere	1,5,8	Semi-Private, High Foot Traffic	Shelving, Seating, Computers			
Lobby/Entrance	All	Passive Space	Comfortable Temperature, Moderate Acoustics	1,8	Public, Moderate Foot Traffic	N/A			
Public Restrooms	All	Personal Hygiene	Ventilation, Comfortable Temperature, Moderate Acoustics	6	Public, Low Foot Traffic	Sinks, Toilets, Hand Dryers, Hand Sanitizer Dispensers			
Student Services	Staff, Students	Tutoring, Academic Support, Disability Services, Mental Health Services	Ventilation, Comfortable Temperature, Moderate Acoustics	1	Semi-Private, Moderate Foot Traffic	Reception Desk, Private Meeting Rooms, Informational Bulletin Boards, Computors, Printers, Scanners, Digital Displays, Storage, Sign-In Kiosks, Safety Equiptment, Soundproofing Materials, Shredders			

	Management and Operations							
Administrative Office	Administrative Staff	Reception, Communicating, Documenting, Record Keeping, Management	Comfortable Temperature, Moderate Acoustics	1,5	Private, Low Foot Traffic	Storage, Reception Desk, Waiting Seating, Ambient and Task Lighting, Desktops, Printers, Scanners,		
Factlty and Staff Office	Faculty, Staff	Planning, Communicating, Teaching, Management,	Comfortable Temperature, Moderate Acoustics	1,5	Private, Low Foot Traffic	Desks, Ergonomic Chairs, Storage, Task Lighting, Computers, Printers, Scanners		
Guidance Counselor's Office	Counseling Staff, Students	Academic Guidance, Social - Emotional Learning (SEL), Career Counseling, Record Keeping	Comfortable Temperature, Moderate Acoustics	1,5	Private, Low Foot Traffic	Desks, Ergonomic Chairs, Storage, Task Lighting, Computers, Printers, Scanners, Lounge Seating, Soundproofing, Waiting Seating, Sign-In Station		
IT Office	IT Staff	Technical Support, System Administration, Maintenance, Cybersecurity, Development, Enforcement	Comfortable Temperature, Moderate Acoustics	1,5	Private, Low Foot Traffic	Modular Work Stations, Technical Work Benches, Storage, Server Equiptment Racks, Monitors, Printers, Scanners, Networking and Hardware Equiptment, Server Room Equiptment		
Maintance and Custodial Office	Maintance and Custodial Staff	Maintance, Repairs, Cleaning, Management	Ventilation, Comfortable Temperature, Moderate Acoustics	1,5	Private, Low Foot Traffic	Storage for cleaning equiptment and supplies		
Meeting and Conference Room	Faculty, Staff	Socializing, Meeting, Collaboration, Celebrating	Comfortable Temperature, Quiet Atmosphere	1,8	Private, Low Foot Traffic	Conference Table, Audio/Visual Equiptment		
Principals Office	Principal	Meeting, Management, Disciplinary, Planning	Comfortable Temperature, Moderate Acoustics	1,5	Private, Low Foot Traffic	Executive Desk		
Security Office	Security Staff	Monitoring, Incident Response, Report Writing, Communicating, Policy Development	Comfortable Temperature, Moderate Acoustics	1,5	Private, Low Foot Traffic	Lockable Storage, Monitors / Display Walls, Intercom Systems, Camers and Monitors		
Teachers Lounge	Faculty, Staff	Informal Meetings, Professional Development, Socializing, Relaxation,	Comfortable Temperature, Moderate Acoustics	1	Private, Low Foot Traffic	Microwave, Refridgerator, Television, Printer, Copier, Seating, Tables, Storage		
	T	1	BOH Sp	aces	r			
Kitchen	Cafeteria Staff	Preparing, Cooking, Cleaning, Planning	Ventilation, Cooler Temperature for Refrigeration, Loud Atmosphere	4,5	Private, Moderate Foot Traffic	Kitchen equipment, Safety Equitpemt, Sinks, Fume Hoods, Stainless Steel Tables		
Mechanical Equitpment Room	Staff	Maintance, Management, Documentation	Comfortable Temperature, Moderate Acoustics	1	Private, Low Foot Traffic	Non-Slip Chemical Resitant Flooring, Safety Sinage, Mechanical Equiptment, Electrical Systems, Plumbing Systems, Safety Equiptment,		
Staff Restrooms	Staff	Personal Hygiene	Ventilation, Comfortable Temperature, Moderate Acoustics	6	Private, Low Foot Traffic	Sinks, Toilets, Hand Dryers, Hand Sanitizer Dispensers		
Storage Room	Faculty, Staff	Storing, Inventory, Organizing, Maintaining	Comfortable Temperature, Moderate Acoustics	1	Private, Low Foot Traffic	Storage Shelving and Units		

Notes: Lighting Needs Key

- 1- 2x2 Recessed OR Pendant Direct/Indirect
- 2- Islands and Booths Direct Pendants Warm
- 3- Open to Slab (if needed) Direct Pendants- Warm
- 4- Under Cabinet LED Tapes White
- 5- Task Lights Direct/Indirect

- 6- Classrooms Recessed
- 7- Classrooms Pendants
- 8- Sconces Direct/Indirect
- 9- High Bay/Warehouse/Industrial Lights Direct

7:00 am - Before School

Maya James wakes up early in the morning before the school rush starts. Today is a big day; she has a presentation in her advanced physics class that she's been working on for weeks, and she's eager to show what she's capable of.

After a quick breakfast—she grabs her bag, and heads out the door of her foster home. **The commute to school is short**, just enough time for her to settle her nerves and remind herself of the goals she's been pushing toward.

8:00 am - First Period: Advanced Physics (Lecture Room)

Maya walks into school in time for first period and greets Officer Dylan and Dr. White who always stands at the front door every morning. She enters the classroom with her usual **mix of excitement and a touch of anxiety**.

It's Maya's turn to present, and her heart races as she stands at the front of the lecture room. Her project is on renewable energy systems, and she's been working with a team to design a prototype for an efficient solar-powered battery.

Despite her nerves, Maya speaks clearly and confidently, detailing her research and design process. The class applauds after Maya successfully presented and defended her project. Maya feels a sense of pride, but also a little unsure. Did she really explain everything well? Could she have done better?

When the bell rings, Maya feels a mix of relief and lingering doubt. She quickly brushes it aside. There's no time to dwell on that now.

9:30 am - Second Period: Calculus (STEM Classrooms)

Maya loves numbers—always has. Today, they're working on multivariable functions in the STEM classroom since the students are **collaborating and working together.**

During a group problem-solving session, she's paired with Lila and Jamal, two classmates she's become close with over the past year. The three of them work well together, bouncing ideas off each other, and **Maya enjoys the camaraderie**. It's moments like this that make her feel like **she truly belongs here— as a valued member of this tight-knit, driven group.**



11:00 am - Third Period: Environmental Science (Laboratory)

Maya's Environmental science aligns with her deep concern about climate change, and she's passionate about finding sustainable solutions to pressing global issues. Today, the class is studying water conservation, and Maya is working with a small group on a project to design a rainwater harvesting system for urban environments.

During group discussions, Maya takes charge, suggesting new ideas and helping her teammates organize their research. For a brief moment, **the loneliness she sometimes feels disappears, replaced by the excitement of working with others toward a common goal**. Her group made a plan after school to continue working on their project's prototype in the Makers Space.

12:30 pm - Lunch (Cafeteria)

Today at lunch, Maya sat in the cafeteria with a group of friends she's made in the robotics club. They start discussing the upcoming regional robotics competition.

Maya listens, adding her own thoughts when she feels confident. She's planning to work on the programming side of the competition, helping to fine-tune the robot's Al. The conversation moves from robotics to college plans, and Maya can't help but feel a little anxious. She's nervous about the college application process, and makes a mental note to make a meeting with her guidance counselor and with student services to help guide her.

1:30 pm - Study Hall (Library)

During Maya's study hall, she goes to the library to work on her individual project for the STEM fair, a robot designed to help with waste management. She's been tinkering with it for months, and today she's determined to get it just right. She needs some extra resources and guidance of research so she seeks Ms. Franklin's help.

Her friends Lila and Jamal stop by to check on her progress, offering suggestions and helping Maya troubleshoot a wiring issue. As they work together, Maya feels a sense of **belonging** she doesn't always experience in other parts of her life.

2:30 pm- After School (Makers Space)

After her study hall, Maya meets up with her Environmental science group to continue progressing their project in the Makers Space. The Makers Space offers all of the materials and possibilities for their rainwater harvesting system solution.

3:00 pm - Home for the Day

Maya leaves the school day feeling both exhausted and accomplished. She packs up her things, takes one last look at her project, and heads out. Her mind is filled with questions about her future, about whether she's truly cut out for the path she's dreaming of. **She feels the familiar weight of uncertainty** tug at her. **The isolation she sometimes feels fades as she connects with others**, helping them solve problems and share knowledge. The **confidence she's working so hard to build is starting to take root**.

3.4 Programmatic Diagrams

Circulation Diagrams



- > creates sharp paths of travel
- + circulation mimics star shape
- + overlapping parnways + levels

Hierarchies Diagram



Key

- Private Semi-Private
- Public





3.

- > different zones/ layers
- + ficxibic lover lapping | multipur posetuli
- > central atrium

- stars as nodes

+ creates central zone


Education Adjacency Matrix Diagram



Education Bubble Diagram



Education Blocking Diagram







Management & Operations Bubble Diagram



Management & Operations Adjacency Matrix Diagram



Management & Operations Blocking Diagram





All Zone Blocking Diagram



Site #1: 201 M Street NE (DC)



Site Description:

SF: 170,000 SF / 4-levels

Private or Public Place: Public

Transportation Needs:

- 10 bus stops within a 10min walk
- The closest metro station is a 1min walk away (NoMa-Gallaudet U New York Ave
- Parking within the building

Pros

- High Ceilings
- Good transportation means
- K-12 schools already in existing area

Cons

- Building adapted for retail (currently an REI)
- Loud Surroundings

Site #1: 201 M Street NE (DC)



Site #1: 201 M Street NE (DC)



Site #2: 1000 N Glebe Road (VA)



Site Description:

SF: 160,000 SF / 9-story

Private or Public Place: Public

Transportation Needs:

- The closest bus stop is a 2min walk away (N Glebe Road & 11 St N)
- The closest metro station is a 7min walk away (Ballston-MU Metro Station)
- Parking Garage in the building

Pros

- Good Transportation means surrounding site
- Building designed for Higher Education use
- LEED Gold Certified Building
- Accessible to parks and local food
- Building can hold tenants for the non-used spaces, helping with yearly budget

Cons

Larger SF but divided among more floors

Site #2: 1000 N Glebe Road (VA)



Site #2: 1000 N Glebe Road (VA)



Site #3: 4001 Campbell Ave (VA)



Site Description:

SF: 52,000 SF / 4-levels

Private or Public Place: Public

Transportation Needs:

- The closest bus stop is a 1min walk away (S Randolph St SB at Campbell Ave FS)
- 3 Parking lots within 4 minute walk

Pros

- In an area with already existing K-12 schools
- Good transportation means

Cons

- Not a lot of positive views coming in around the site since the site is attached to other retail stores
- Not a lot of natural light coming in
- The upper levels lessen in SF compared to the lower levels
- Existing building is made for retail use

Site #3: 4001 Campbell Ave (VA)



Site #3: 4001 Campbell Ave (VA)





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Section 4 Project Programming

Arcadia, California

Arcadia, California is valued for it's exceptional public school system. This residential area is diverse, and conveniently next to Los Angeles. There is a lot of opportunity for discovery within this community like at the Los Angeles County Arboretum and Arcadia County Park.

(Myreen, 2021)

Demographics

- There are currently more than 38,000 children in foster care in Los Angeles County, one of the highest numbers in the nation. (Foster Care & Adoption)
- Educational Attainment (2022): 15% have no degree, 13% has a highschool degree or equivilent, 41% has some college associates degree, bachelors degree or higher (Demographics).
- Race and Ethnicity (2022): 48% Hispanic, 28% White, 12% Asian, 8% Black, 3% 2+ Races (Demographics).

Significance

From the site and community analysis, this project aligns with the site's demographics and cultural context, effectively addressing educational challenges and the needs of youth in care.





Exterior Site Analysis



Interior Site Analysis



Building History & Materials

Building History

- Originally constructed as Uline Arena & Ice House Building in 1941
- Throughout the mid-20th century, the arena hosted basketball teams, the Washington Presidents ice hockey team, and concerts
- By 1994, the arena unceremoniously became a waste transfer station for Waste Management and, by the 2000s, a cavernous parking garage
- Then was transformed into a mixed-use development with REI as its first tenant

(D.C.'s historic Washington)

Exterior Materials

Concrete Structure with Brick Cladding

(D.C.'s historic Washington)

Total Building SF

172,110 SF



REI Exterior facing East



Uline Arena 1931

Building History & Materials











4th Floor facing East Windows



4th Floor facing Core



REI Interior Facing North East

Analysis of Architecture

Ceiling Heights, Fenestration (Window) Patterns



Analysis of Architecture

Fenestration (Window) Patterns

North Elevation



Analysis of Interior

Level 1: SF= 50,190



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60

Analysis of Interior

Level 2: SF= 50,190



Analysis of Interior

Level 3: SF= 40,229



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Analysis of Interior

Level 4: SF= 31,501



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Analysis of Interior

Column / Bay Patterns, Core, Entry / Exits



4.2 Revised Space Allocation and Occupancy

Cardenia (A-2) Cardeni	Spaces	Assembly	Quantity	OLF	OL	SF Total	Per Occupant	Occupants	Comments	Circulation (40%)
Catheria (k-2) Catheri										
Cardencian (A2)										
Aynone (0.4) for clockentrated senting (Cymassium (0.4) (concentrated recentrated (recentrated frequentions) + event space (0.4) 1 See 64 100 700 7 100 Square Feet 388 Suppression (0.4) (concentrated recentrated (recentrated (Cafeteria (A-2)	_	1	. 15	324	4865				1946
Gymmain 0, 4, uncacentrated 7 encention 1, event space) See GS 300 1500 50 300 Square Feet 6000 Wornerstocker Room (A-3) 1 300 1 446 3924 Win Locker Room (A-3) 1 50 13 733 724 3924 Sicher (A-2) 1 50 13 733 724 7244 Sicher (A-2) 1 50 13 667 724 7244 Sicher (A-2) 1 60 50 130 667 724 7244 Sicher (A-2) 1 60 50 130 667 724 7244 Sicher (A-2) 1 50	Gymnasium (A-4; fixed concentrated seating)	_	1	See G4	100	700	7	100	Square Feet	280
Equipment Room 1 460 1784 Meris Loder Room (A.3) 1 50 14 738 2026.2 Meris Loder Room (A.3) 1 10 72 104 2026.2 Meris Loder Room (A.3) 1 10 72 104 0 461.6 Meris Loder Room (A.3) New Second Control (A.3) New Second Control (A.3) New Second Control (A.3) 0 461.6 Meris Loder Room (A.3) New Second Control (A.3) New Second Control (A.3) New Second Control (A.3) 0 461.6 Meris Loder Room (A.3) New Second Control (A.3) <td>Gymnasium (A-4; unconcentrated / recreational + event space)</td> <td></td> <td></td> <td>See G5</td> <td>300</td> <td>15000</td> <td>50</td> <td>300</td> <td>Square Feet</td> <td>6000</td>	Gymnasium (A-4; unconcentrated / recreational + event space)			See G5	300	15000	50	300	Square Feet	6000
Numeric locker from (A-3) Numeric locker from (A-3) Image: locker from (A-3) Image	Equiptment Room		1	300	1	446				178.4
Mexis Locate Room (A-3) I 50 13 67 I 24.8 Sinchen (A-2) I 15 73 1104 441.6 I 15 73 1104 441.6 A (A-2, A-3, A-4) I 15 73 1104 441.6 A (A-2, A-3, A-4) I 15 73 1104 441.6 Mexist Locate Roll I 15 73 1104 441.6 Mexist Locate Roll I 15	Women's Locker Room (A-3)		1	50	14	738				295.2
Nichen (A-2) 3 15 73 1104 441.6 A (A-2, A-3, A-4) A 5 73 1104 441.6 A (A-2, A-3, A-4) A A A A A Ubrary (A-3) A A A A A Ubrary (A-3) A A A A A Lecture Holt (A-3) A B 3 1524 B B Loboy / Entrance (B) A A Coloby (B) B	Men's Locker Room (A-3)		1	50	13	687				274.8
A(k-2, k-3, k-4) A(k-2, k-3, k-4) Most restrictive was used due to non-typical small stacking may most densely occupied by long stays used; A-3 classification densely occupied densely	Kitchen (A-2)	-	1	15	73	1104				441.6
A(A2,A3,A4) A(A2,A3,A4) A(B A(B) A(B A(B) A(B A(B)										
Image: head of the second se										
Library (A-3) Image: Comparison of the second		A (A-2, A-3, A-4)								
Library (A-3) Image: Constraint of the second									Most restrictive	
Lbray (A-3) Image: Construct on the state of the state o									was used due to	
Library (A-3) Image: Section of the secti									non-typical small	
Library (A-3) Low densely occupied profung stays user; A-3 dissification, Reter to BC Table Library (A-3) 1 50 30 1524 - 0.04.5 609.6 Leture Hall (A-3) 1 50 30 1524 - 0.04.5 609.6 Lobry (Fatrance (B) 1 150 12 1330 - - 609.2 Sports Lobry (B) Bis Room (B) 1 150 12 1939 - - 609.2 Administrative Office (B) 1 150 12 1939 - - 609.2 Tackers Storms (CB) 1 150 792 - - 609.3 Tackers Storms (CB) 1 150 9 1436 - 1124.2 Guidance Consoler's Office (B) 1 150 1 284.4 - 1124.2 Student Centre (B) 1 150 1 284.4 - 1124.2 Student Centre (B) 1 150 1 285									stacking area; most	
Library (A-3) I 50 30 1524 A classification, Refer to IBC Table Library (A-3) 1 50 62 3130 0 004.5 009.6 Library (A-3) 1 50 62 3130 0 024.5 009.6 Library (A-3) 1 150 62 3130 0 0 0692.5 Library (A-3) 1 150 11 1770 0 0692.5 Sports Lobby (B) 1 150 12 1939 0 0 0756.6 Bite Room (B) 1 150 12 1939 0 0 3746.5 Tacchers Lounge (B) 1 150 1 202.5 0 0 3748.5 Tacchers Lounge (B) 1 150 1 284 0 0 112.4 Guidance Counselor's Office (B) 1 150 1 284 0 112.4 Suber Coffice (B) 1 150 1 285 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>densely occupied</td> <td></td>									densely occupied	
Library (A-3) Library (A-3) A-3 classification. Refer to (BC Table 1 A-3 classification. Refer to (BC Table 1 A-3 classification. Refer to (BC Table 1 Luby / Entrance (B) 1 50 62 3130 122 Luby / Entrance (B) 1 50 62 3130 125 Sports Lobby (B) 1 150 12 1393 162 62 Sports Lobby (B) 1 150 12 1939 100 7756 Sports Lobby (B) 1 150 12 1939 10 316.8 Facily and Start Office (B) 1 150 6 972 131.8 136.8 Facily and Start Office (B) 1 150 1 281 131.8 136.8 Guidance Counselor's Office (B) 1 150 1 281 131.8 131.8 Guidance Counselor's Office (B) 1 150 1 281 131.8 131.8 Studet Centre (B) 1 150 1 281 131.8 131.2									for long stays used;	
Library (A-3) Refer to IBC Table Library (A-3) 1 50 30 1524 10045 6696 Lecture Hall (A-3) 1 50 62 3130 1252 Lobby / Entrance (B) 1 150 12 1939 6996 Sports Lobby (B) 1 150 12 1939 692 1330 Sports Lobby / Entrance (B) 1 150 12 1939 692 692 Sports Lobby (B) 1 150 1 150 752 692 3168 Faculty and Staff Office (B) 1 150 6 937 6 374.8 Principats Office (B) 1 150 1 281 112.4 112.4 Guidance Counselor's Office (B) 1 150 1 281 112.4 112.4 Sports Lobby (E) 1 150 1 203 6 112.4 Sports Lobby (E) 1 150 1 205 6 12.2 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A-3 classification.</td> <td></td>									A-3 classification.	
Library (A-3) Lacture Hall (A-3) Image: Constraint of the second									Refer to IBC Table	
Lecture Hall (A-3) 1 50 62 3130 0 1252 Lobby / Entrance (B) 1 500 62 3130 0 0 1252 Sports Lobby (B) 1 150 12 1339 0 0 0 7756 Bike Room (B) 1 150 1 150 1 150 0 0 0 0 190 Administrative Office (B) 1 150 5 792 0 0 316.8 Faculty and Staff Office (B) 1 150 6 937 0 0 374.8 Fincipias Office (B) 1 150 6 937 0 0 374.8 Guidance Counselo's Office (B) 1 150 2 449 0 0 112.4 Guidance Room (B) 1 150 1 255 0 0 1379.2 Sourds Office (B) 1 150 1 256 3460	Library (A-3)		1	50	30	1524			1004.5	609.6
Lobby / Entrance (B) Sports Lobby (B) 1 150 11 1730 692 Bike Room (B) 1 150 12 1939 775.6 Bike Room (B) 1 150 3 475 1039 Administrative Office (B) 1 150 5 792 316.8 Faculty and Staff Office (B) 1 150 6 337 347.8 Finicipals Office (B) 1 150 1 281 374.8 Guidance Counselor's Office (B) 1 150 2 403 374.8 To fice (B) 1 150 2 403 374.8 374.8 Yomens Athletic Office (B) 1 150 1 281 3161.2 374.8 Maintenance and Custodial Office (B) 1 150 1 203 3161.2 3161.2 Studen Center (B) 1 150 1 203 3169 3179.2 Security Office (B) 1 150 1 298 3179.2	Lecture Hall (A-3)		1	. 50	62	3130				1252
Lobby/Entrance (B) 1 150 11 1730 662 Sports Lobby(B) 1 150 12 1939 0 672 Administrative Office (B) 1 150 5 792 0 0 316.8 Faculty and Staff Office (B) 1 150 5 792 0 0 316.8 Faculty and Staff Office (B) 1 150 5 792 0 0 375.6 Guidance Counselor's Office (B) 1 150 6 937 0 0 374.4 Toffice (B) 1 150 1 281 0 112.4 Guidance Counselor's Office (B) 1 150 1 281 0 112.4 Mens Athletic Office (B) 1 150 1 283 0 1170.2 1170.2 Student Center (B) 1 150 1 284.9 0 1170.2 1170.2 1170.2 1170.2 1170.2 1170.2 1170.2		_								
Sports Lobby (B) 1 150 12 1939 0 7756 Bike Room (B) 1 150 3 475 1 130 Faculty and Staff Office (B) 1 150 5 772 1 1318 Faculty and Staff Office (B) 1 150 9 1436 1 1313 Frincipals Office (B) 1 150 9 1436 1 1313 Guidance Counselor's Office (B) 1 150 1 2403 1 1124 Guidance Counselor's Office (B) 1 150 1 203 1 1124 Yomens Athletic Office (B) 1 150 1 203 1 1124 Maintenance and Custodial Office (B) 1 150 1 203 1 1124 Maintenance and Custodial Office (B) 1 150 1 203 1 1124 Makers Space Tech (B) 1 150 1 298 1 1122	Lobby / Entrance (B)		1	150	11	1730				692
Bike Room (B) 1 150 3 475 190 Administrative Office (B) 1 150 5 792 3168 Faculty and Staff Office (B) 1 150 6 937 3168 Fachers Lounge (B) 1 150 6 937 3168 3168 Fachers Lounge (B) 1 150 6 937 3168 3168 Fachers Lounge (B) 1 150 1 281 3168 3168 Guidance Counselor's Office (B) 1 150 2 403 3161 3162 Womens Athletic Office (B) 1 150 1 203 3161 3122 Maintsance and Custofial Office (B) 1 150 1 205 3948 3161 3162 Matters Space Tech (B) 1 150 1 298 3181 3663 3121 Nuses Office (B) 1 150 1 150 1 366 3163 Nuses S	Sports Lobby (B)		1	150	12	1939				775.6
Administrative Office (B) 1 150 5 792 0 316.8 Faculty and Staff Office (B) 1 150 9 1436 0 574.4 Principals Office (B) 1 150 6 937 0 374.8 Guidance Counselor's Office (B) 1 150 1 281 0 112.4 Guidance Counselor's Office (B) 1 150 1 281 0 112.4 Yomens Athletic Office (B) 1 150 1 203 0 181.2 Maintenance and Custodial Office (B) 1 150 1 203 0 181.2 Security Office (B) 1 150 1 203 0 181.2 Nurses Office (B) 1 150 1 203 0 187.6 Materns and Custodial Office (B) 1 150 3 469 0 187.2 Nurses Office (B) 1 150 1 298 0 198.2 199.2 Nurses Office (B) 1 150 10 1538 0	Bike Room (B)		1	150	3	475				190
Faculty and Staff Office (B) I	Administrative Office (B)		1	150	5	792				316.8
Teachers Lounge (B) 1 150 6 937 0 374.8 Principals Office (B) 1 150 1 281 112.4 Guidance Counselor's Office (B) 1 150 2 403 0 161.2 If Office (B) 1 150 2 403 0 0 161.2 Womens Athletic Office (B) 1 150 1 203 0 0 179.6 Mens Athletic Office (B) 1 150 1 203 0 0 179.6 Maintenance and Custodial Office (B) 1 150 1 255 0 0 102 Security Office (B) 1 150 3 469 0 187.6 Makers Space Tech (B) 1 150 1 298 0 119.2 12.2 Makers Space Art (B) 1 150 1 150 138 0 0 615.2 Makers Space Gaming (B) 1 150 10 1525 0 0 610.2 Makers Space Gaming (B) 1 <td>Faculty and Staff Office (B)</td> <td></td> <td>1</td> <td>150</td> <td>9</td> <td>1436</td> <td></td> <td></td> <td></td> <td>574.4</td>	Faculty and Staff Office (B)		1	150	9	1436				574.4
Principals Office (B) 1 1 1 281 1 112.4 Guidance Counselor's Office (B) 1 1 150 2 403	Teachers Lounge (B)		1	150	6	937				374.8
Guidance Counselor's Office (B) I 150 2 403 I 1612 IT Office (B) I 150 2 449 Image: Consenting of the consentene consenting of the consenting of the consentene co	Principals Office (B)		1	150	1	281				112.4
IT Office (B) Vomens Athletic Office (B) 1 150 2 449 1 179.6 Mens Athletic Office (B) Mens Athletic Office (B) 1 150 1 203 0 <	Guidance Counselor's Office (B)		1	150	2	403				161.2
Womens Athletic Office (B) B 1 150 1 203 81.2 Mens Athletic Office (B) Student Center (B) 1 150 1 255 1 102 Maintenance and Custodial Office (B) 1 150 26 3948 1 160 187.2 Meeting and Conference Room (B) 1 150 3 469 1 187.6 Security Office (B) 1 150 1 298 1 187.6 Makers Space Tech (B) 1 150 1 298 1 192.2 Makers Space Tech (B) 1 150 1 298 1 192.2 Makers Space Tech (B) 1 150 14 2146 187.6 119.2 Makers Space Gaming (B) 1 150 10 1525 10 161.2 Makers Space Gaming (B) 1 150 10 1525 10 161.0 Makers Space	IT Office (B)		1	150	2	449				179.6
Mens Athletic Office (B) 1 1 255 1 102 Student Center (B) 1 150 3 469 1579.2 Maintenance and Custodial Office (B) 1 150 3 469 160 187.6 Meeting and Conference Room (B) 1 150 3 469 160 187.6 Security Office (B) 1 150 1 298 192 192 Nurses Office (B) 1 150 14 2146 192 192 Makers Space Tech (B) 1 150 10 1538 10 685.4 Makers Space Art (B) 1 150 10 1525 10 610 Makers Space Gaming (B) 1 150 6 901 10 360.4 Velic Restrooms (E) 1 150 6 901 10 360.4 Staff Restrooms (E) 1 0 0 0 0 0 StEM Classroom Medium (E) 1 20	Womens Athletic Office (B)	В	1	150	1	203				81.2
Student Center (B) 1 150 26 3948 1 1579.2 Maintenance and Custodial Office (B) 1 150 3 469 1 187.6 Meeting and Conference Room (B) 1 150 8 1318 1 187.6 Security Office (B) 1 150 1 298 1 19.2 Nurses Office (B) 1 150 1 298 1 19.2 Makers Space Tech (B) 1 150 14 2146 165.2 161.2 Makers Space Art (B) 1 150 10 1525 160 615.2 Makers Space Casing (B) 1 150 10 1525 160 610.4 Makers Space Space Art (B) 1 150 6 901 160.4 60.4 Makers Space S	Mens Athletic Office (B)		1	150	1	255	1			102
Maintenance and Custodial Office (B) 1 150 3 469 187.6 Meeting and Conference Room (B) 1 150 8 1318 10 527.2 Security Office (B) 1 150 1 298 1 19.2 Nurses Office (B) 1 150 1 298 1 19.2 Makers Space Tech (B) 1 150 14 2146 10 858.4 Makers Space Art (B) 1 150 10 1538 10 161.2 Makers Space Gaming (B) 1 150 10 1525 10 1610 Makers Space Gaming (B) 1 150 10 1525 10 1610 Makers Space Gaming (B) 1 150 0 1525 10 360.4 Public Restrooms (E) 1 150 0 10 10 10 0 00 00 Staff Restroom Large (E) 2 20 48 968 10 387.2 <td>Student Center (B)</td> <td></td> <td>1</td> <td>150</td> <td>26</td> <td>3948</td> <td></td> <td></td> <td></td> <td>1579.2</td>	Student Center (B)		1	150	26	3948				1579.2
Meeting and Conference Room (B) 1 150 8 1318 0 527.2 Security Office (B) 1 150 1 298 0 119.2 Nurses Office (B) 1 150 1 298 0 0 119.2 Makers Space Tech (B) 1 150 14 2146 0 0 6615.2 Makers Space Art (B) 1 150 10 1525 0 0 610 Makers Space Gaming (B) 1 150 6 901 0 0 360.4 Public Restrooms (E) 1 150 6 901 0 <td< td=""><td>Maintenance and Custodial Office (B)</td><td></td><td>1</td><td>150</td><td>3</td><td>469</td><td>1</td><td></td><td></td><td>187.6</td></td<>	Maintenance and Custodial Office (B)		1	150	3	469	1			187.6
Security Office (B) 1 1 298 1 119.2 Nurses Office (B) 1 150 1 298 1 119.2 Makers Space Tech (B) 1 150 14 2146 0 858.4 Makers Space Tech (B) 1 150 10 1538 0 615.2 Makers Space Gaming (B) 1 150 10 1525 0 610 Makers Space Gaming (B) 1 150 6 901 0 360.4 Public Restrooms (E) 1 150 6 901 0 387.2 387.2 387.2 387.2 387.2 387.2 1 10 170 170 170 170 1 170 170 170 170 170 170 170 170 <	Meeting and Conference Room (B)		1	150	8	1318				527.2
Nurses Office (B) 1 150 14 2146 0 858.4 Makers Space Tech (B) 1 150 10 1538 0 0 615.2 Makers Space Art (B) 1 150 10 1525 0 0 610 Makers Space Gaming (B) 1 150 6 901 0 360.4 Public Restrooms (E) 0	Security Office (B)		1	. 150	1	298				119.2
Makers Space Tech (B) 1 150 10 1538 615.2 Makers Space Art (B) 1 150 10 1525 610 610 Makers Space Gaming (B) 1 150 6 901 610 610 610 Public Restrooms (E) 1 150 6 901 360.4 Staff Restrooms (E) 0	Nurses Office (B)		1	150	14	2146				858.4
Makers Space Art (B) 1 150 10 1525 0 610 Makers Space Gaming (B) 1 150 6 901 0 360.4 Public Restrooms (E) 0 0 00 0	Makers Space Tech (B)		1	150	10	1538				615.2
Makers Space Gaming (B) 1 150 6 901 0 360.4 Public Restrooms (E) 0 <t< td=""><td>Makers Space Art (B)</td><td></td><td>1</td><td>150</td><td>10</td><td>1525</td><td></td><td></td><td></td><td>610</td></t<>	Makers Space Art (B)		1	150	10	1525				610
Public Restrooms (E) 0	Makers Space Gaming (B)	1	1	150	6	901				360.4
Public Restrooms (E) 0							•	•	•	•
Staff Restrooms (E) 0 700 0 STEM Classroom Large (E) 2 20 48 968 387.2 STEM Classroom Medium (E) 1 20 21 425 10 10	Public Restrooms (E)					0				0
STEM Classroom Large (E) 2 20 48 968 387.2 STEM Classroom Medium (E) 1 20 21 425 1 377.0	Staff Restrooms (E)	7				0		700		0
STEM Classroom Medium (E) 1 20 21 425 170	STEM Classroom Large (E)	7	2	20	48	968				387.2
	STEM Classroom Medium (E)	7	1	. 20	21	425				170

4.2 Revised Space Allocation and Occupancy

STEM Classroom Small (E)		2	20	34	692				276.8
Lecture Room (E)		1	20	33	667				266.8
Lecture Room (E)		1	20	30	613				245.2
Laboratorie Large (E)		1	20	18	360				144
Laboratorie Medium (E)		1	20	15	303				121.2
Laboratorie Small (E)		2	20	21	422				168.8
Storage Room (S-1)	S	1	300	3	924				369.6
Incidental Use (U)	U	1	300	1	577	300	S	SF per gross	230.8
Total (categories)				1272	55188				
Total Circulation									22075.2
Total SF									77263.2

Code Sources

- IBC 2024
- ADAAG
- ANSI A117.1

Construction Type

• Type II-A

Occupancy Classifications

A-2, A-3, A-4, B, E, S, U

Total Occupant Load

1272

Means of Egress

Required Exits: 3 Exits

Occupant Load Factors						
OC	Function of Space	OLF				
A-2	Assembly without fixed seats -	15 net				
	Unconcentrated (tables and chairs)					
A-3	Library - Reading rooms	50 net				
A-4	Increased Occupant Load 1004.4.1	7 square feet per occupant				
A-4	Concentrated Business Use Areas 1004.8	50 square feet per occupant				
В	Business areas	150 gross				
E	Educational - Classroom area	20 net				
c	Accessory storage areas, mechanical	200 groop				
5	equipment room	300 81088				
U	Accessory storage areas, mechanical	200 groce				
	equipment room	300 gl088				

Special Occupancy Requirements

Required Separations

- Section 402.4.2.1 Tenant Separations: TBD
- Section 410 Stages, Platforms, and Technical Production
 Areas
- Section 428 Higher Education Laboratories

Common Path of Travel							
Occupancy	Maximum Occupant Load of Space	With Automatic Sprinkler System (feet)					
A, E, M	49	75a					
В	49	100a					
S	29	100a					
U	49	75a					

Exit Access Travel Distance					
Occupancy With Automatic Sprinkler System (feet					
A, E, F-1, M, R, S-1	250b				
В	300c				
F-2, S-2, U	400c				

	Corridor Fire-Resistance Rating					
Occupancy	Occupant Load Served by Corridor With Automatic Sprinkler System					
A, B, E, F, M, S, U	Greater than 30	0				

None Required

Plumbing Systems								
No.	Classification	Description	Water Closets	Lavatories	Drinking Fountain	Other		
2	Business	Buildings for the transaction of business, nonmedical professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 20 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 40 for th first 80 and 1 per 80 for the remainder exceeding 80	1 per 100	1 Service Sink		
	Results							
			27		13	1		

Interior Finish Classification Limitations							
Occupancy	Exits	Exit Access Corridors	Other Spaces				
Assembly - Existing >300 occupant load	А	A or B	A,B, or C				
Educational - Existing	A	A or B	A,B, or C				
Storage	A or B	A,B, or C	A,B, or C				

Means of Egress

1005.3.1 Stairways

Exceptions 1:

For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.2 inch (5.1mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

Result: 0.2*OL= stair width in inches 0.2*733=147" or 12.25'

Notes: Accessibility stairway width 48" Landing at the top and bottom need to be equal to 48"

1005.3.2 Other Egress Components

Exceptions 1: For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.15 inch (3.8mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

Result: Means of Egress Capacity Factor 0.15 0.15*733= 110" or 9.2'

Floor Finish Classification

804.2 Classification

Interior floor finish and floor covering materials required by Section 804.4.2 to be of Class I or II materials shall be classified in accordance with ASTM E648 or NFPA 253. The classification referred to herein corresponds to the classifications determined by AFTM E648 or NFPA 253 as follows: Class I, 0.45 watts/cm² or greater; Class II, 0.22 watts/cm² or greater.

	Inches of Capacity per Seat Served					
Total Number of Seats in the Smoke- Protected Assembly Seating	Stepped aisles with handrails within 30 inches	Stepped aisles without handrails within 30 inches	Level aisles or ramped aisles not steeper than 1 in 10 in slope	Ramped aisles steeper than 1 in 10 in slope		
Equal to or less than 5,000	0.2	0.25	0.15	0.165		
10,000	0.13	0.163	0.1	0.11		
15,000	0.096	0.12	0.07	0.077		
20,000	0.076	0.095	0.056	0.062		
Equal to or greater than 25,000	0.06	0.075	0.044	0.048		










Level 1



Level 3





Process Blocking Plan 3

Level 1







Level 4











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(16)

-(18)

-(1)

-(14)

-(15)

-(16)

-(17)

-(18)

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LEVEL 4

SUNLIGHT

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Section 4 Work Cited

Section 4.1

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Section 4.2

Section 4.3

Section 5 Concept and Parti Development

5.1 Design Problem Statement, Design Solution and Concept Statement

Design Problem Statement

The laboratory school's design for grade 9 - 12 presents architectural and space planning challenges that must be addressed to optimize efficiency. The building stands 60 feet tall with a curved roof, altering ceiling heights between the third and fourth floors. Its substantial volume impacts the human scale. Additionally, the school's shared occupancy with commercial tenants raises the importance of student safety throughout the building.

Design Solution

The design and characteristics of Starlight Learning Center will be tailored and designed to an inviting human scale. Strategic lighting to define different zones, and suspended ceiling systems to help control the variences in slab heights throughout the building. Lastly, to address the shared occupancy with commercial tenants, secure access points and designated circulation paths will ensure student safety.

Concept Statement

Inspired by Chiron the Centaurus star constellation, the interior architecture and design of the school will create experiences that uplifts and empowers. Although youth in the foster care system have been wounded by their past, the students of Starlight Learning Center will be skilled in STEM related fields, ultimately inspiring them to continue their endeavors in education and guide them towards better future outcomes in all aspects of their lives. The constellation's dual nature (human + horse) reflects how foster youth often balance past hardships with future potential.

5.2 Concept images



5.3 Parti Development



5.4 Goals and Objectives

Goals	Objectives
Uplifting	 Mitigating stress from information and cognitive overload in the academic environment Incorporating high ceilings into the design will create less of a shut-in feeling and minimize fear Diffused light A site analysis with a sun path analyzing where the natural light penetrates the interior spaces will help make decisions into planning and shaping the interior. Using upward forms and vertical lines are visualized of being uplifting in a space
Healing	 Allow users to control the interior environment Creating support spaces for respite where the architecture and acoustical solutions allow for intimacy Creating a welcome area that emphasize comfort and healing to the mind, body, and spirit
Flexibility	 Designing for different sensory needs in the learning environment that is forgiving and accommodates for everyone Balancing areas for active and respite and designing spaces that are multipurpose full Allowing multiple paths for achievement to enhance the learning environment
Easy	 Creating clear expectations through navigation by using familiar elements like districts, nodes, paths, edges, and landmarks Consistency in materials on different surfaces, and lighting to further enhance the sense of stability and promote overall well-being throughout the school Provide the users with legibility and coherence
Safety	 Planning high performance materials and finishes Prevent any harm through sightlines, wayfinding, security systems/technology, and secure entry/locks Offer different levels of visibility for everyone

Section 5 Work Cited

Section 5.2

- Centaurus Constellation Myths and facts. Under the Night Sky. (2021, August 31). https://www.underthenightsky.com/constellations/
 centaurus/
- Star Name Registry. Name a Star. (n.d.). https://star-name-registry.com/constellations/centaurus

Section 6 Schematic/Design Development

Floorplan Option 1

Level 1









Level 1









Level 4



97

Schematic RCP

Level 1







Elevation of Classrooms & Library





Elevation of Dedicated Hyper & Hypo Sensory Spaces



Section of Stairs Facing East



Section Facing North



Axonometric



6.3 Schematic Sketches

Perspective of Welcome Lobby



6.3 Schematic Sketches

Perspective of Cafeteria



6.3 Schematic Sketches

Perspective of Library



Section 7 Final Design Solution


7. Makers Space Art



Design Approach Legend



Space Legend Level 2

18. Faculty & Staff Office19. Principal's Office20. Guidance Counselors Office21. Administration Office22. Meeting & Conference Room23. Teacher's Lounge24. AV Room

Resilient Flooring Chalk Dust

Design Approach Legend







Space Legend Level 4

32.Lecture Room33.Laboratory34.STEM Classroom35.Library36.Outdoor Balcony

Floor Finishes







Artificial Turf Grand Slam Green

Design Approach Legend









8' AFF

9' AFF

10' AFF

12' AFF

17' 5" AFF



7.2 Lighting Schedule

Final Lighting Schedule					
Product Name	Product Image	Manufacturer	Type of Light	Quantity	Location
Metalux Multi-Mount Selectable Panel 2x2	$\langle \rangle$	Cooper Lighting Solutions	Ambient	71	All
Metalux Multi-Mount Selectable Panel 2x4	$\langle \rangle$	Cooper Lighting Solutions	Ambient	46	All
Halo HLB Slim Low-Glare Canless LED Downlights 6"	· · ·	Cooper Lighting Solutions	Ambient	58	All
Fiber Optic Ceiling Panel Light		Custom	Ambient	Custom	Level 3 & 4
Halo 830S Sustainable LED Track Luminaire	000	Cooper Lighting Solutions	Task	14	Level 1
Arro 4	1	Lumenwerx	Ambient	8	Level 1
Ridge Up and Down Pendant Light]	Visa Lighting	Task	38	Level 1 & 2 & 3
Metalux Steeler LED High Bay		Cooper Lighting Solutions	Ambient	36	Level 2
LA2 Slim Beams	1	LightArt	Ambient	81	Level 3
SEQUENCE MINI Downlight & Horizontal Pendants		Visa Lighting	Ambient	80	All
iO LED CovSelect Architectural LED Cove Lighting	14	Cooper Lighting Solutions	Ambient	15	Level 4
NeoRay Covera	\sim	Cooper Lighting Solutions	Task	6	Level 4

Final Furniture Schedule				
Product Name	Product Image	Manufacturer	Quantity	Location
A Bench	A A A A A A A A A A A A A A A A A A A	Davis	2	Level 1
Cantina		Davis	10	Level 1 & 2
Sachet Guest Chair	100	Davis	9	Level 1 & 2
Q6 Laptop Table	T	Davis	15	Level 1 & 3
Mackinac Desking System		Steelcase	3	Level 1 & 2
Hue Credenza		Davis	6	Level 1
AM Storage Cascade		Smith System	4	Level 1
AM Seating Chair	r in the second se	Steelcase	12	Level 1
AM Seating Stool	● ↓ 状	Smith System	8	Level 1
Potential Backless Stool	A A A A A A A A A A A A A A A A A A A	Smith System	2	Level 1
AM Table Planner Studio	NI	Smith System	6	Level 1
Breck Lounge Swivel Chair		Hightower	3	Level 1 & 3

AM Desking System Dual Sided	7-79	Steelcase	12	Level 1 & 4
AM Office Chair with Headrest	N.	Steelcase	19	Level 1 & 2 & 4
Linq Chair	MÉ	Davis	6	Level 1
AM Campfire Table	1	Steelcase	1	Level 1
Prat Table		Davis	2	Level 1
MEZ Rectangular Top		Davis	2	Level 1
FourSure Barstool Height	A	Hightower	8	Level 1
Orangebox Chair		Steelcase	4	Level 1
AM Storage Cabinet Bivi		Steelcase	6	Level 1
K2 Swivel	Y	Hightower	2	Level 1
Minispace 5064	¥	Figueras Seating	311	Level 1
AM Desking Ology		Steelcase	3	Level 1 & 3

AM Office Chair Amia1	¥.	Steelcase	2	Level 1
Currency Worksurface P Shape		Steelcase	8	Level 2
Orangebox Seating Chair Cubb		Steelcase	14	Level 2
AM Seating Series 2 AirBack	J.	Steelcase	24	Level 2 & 4
AM Desking System Height Adjustable Worksurface		Steelcase	7	Level 2
Carolina Knack Recliners		OFS	4	Level 2
AM Seating Lounge Chair		Coalesse	4	Level 2
Capas Round Table	3	Davis	8	Level 2 & 3
Karman Highback	¥ć.	Steelcase	9	Level 2 & 4
Orangebox Seating Boarder HighSitDouble Unit		Steelcase	7	Level 2 & 3
Elbrook Rectangle Table	11	Steelcase	8	Level 2
AM Seating Education Shortcut 1 Chair	*	Steelcase	23	Level 2

Elbrook Round Table	Ţ	Steelcase	2	Level 2
AM Table Conference Work Height	T	Coalesse	1	Level 2
Quad Chair & Ottoman	1. S	Davis	3	Level 3
Prism Honeycomb Ottoman		Hightower	11	Level 3 & 4
Kilo Large		Hightower	2	Level 3
Tote Chair		Davis	4	Level 3
Inform Occasional Rectangle Table		Davis	1	Level 3
Q6 Bench		Davis	1	Level 3
Kona	9	Hightower	1	Level 3
Storage Shelf Happy Day	24	Blu Dot	1	Level 3
AM Storage Flowform Mobile		Smith System	8	Level 3
Arlo HighBack	PT.	Hightower	8	Level 3

FourCast 2 Four Chair		Hightower	2	Level 3
Nest System Table Bar Height		Hightower	3	Level 3
Nest Chair Bar Height		Hightower	6	Level 3
AM Seating Healthcare Tava		Steelcase	4	Level 3
AM Empath Recliner	12	Steelcase	2	Level 3
Sieste Lounge Chair		Steelcase	4	Level 3
Inform Double Top Table		Davis	2	Level 3
Tenton Standing Bar Table	TI	Hightower	4	Level 3
FourSure 105 Barstool Seat		Hightower	24	Level 3
Runways		Hightower	3	Level 3
Stainless Steel Chef Table		Duke Industries	6	Level 3
FourLikes Straight Low Back Sofas		Hightower	10	Level 3
FourEating Table		Hightower	5	Level 3 & 4

Picknik Table	FA	Extremis	32	Level 3 & 4
Flower S	X	OGO Furniture 48		Level 3 & 4
Puf Pool	.	OGO Furniture	32	Level 3 & 4
Prism Triple Bench with Back	-	Hightower	1	Level 4
Prism Single Bench		Hightower	1	Level 4
Podium & Desk	<u>.</u>	Paragon Furniture Inc	11	Level 4
Theorm Adjustable Chair	-	Smith System	11	Level 4
ADA Pier Lab Table with Services		LABSCAPE	8	Level 4
AM Table Elemental Student Desk	TIP	Smith System 60		Level 4
Groove Stack Chair		Smith System	120	Level 4
AM Desking Silhouette Student Single	$\not \vdash \checkmark$	Smith System	60	Level 4
AM Cascade Tower Mega		Smith System	7	Level 4
Element Double Desk Open Center		OFS	1	Level 4
Turnstone Campfire Lounge Half		Steelcase	3	Level 4
B-Free Occasioanl Table		Steelcase	3	Level 4
Turnstone Campfire Skate Table		Steelcase	3	Level 4
Verb Active Media Round		Steelcase	4	Level 4
Plastic Laminate Z Door Locker	÷	Southwest Solutions Group	151	Level 4

Final Finish Schedule					
Finish Name	Finish Image	Manufacturer	Application	Location	
Bisque		Laminart	Surfaces	Level 1	
Driftwood		Interface	Flooring	Level 4	
Light Play		Interface	Flooring	Level 3	
Dunes		Siena	Surfaces	Level 3 & 4	
Eastern Oak		Laminart	Ceiling, Flooring, Walls, Stairs	All	
Grand Slam Green		Hero Flooring	Flooring	Level 3 & 4	
Mipolam Planet Chalk Dust		Gerflor	Flooring	All	
Marmoleum Piano		Forbo Flooring Systems	Flooring	All	
Kirei		Mura Wallcovering	Wallcovering	Level 1	
Meteor 2045		Carnegie	Wall	Level 1	
Meteor 2047		Carnegie	Wall	Level 1	
Meteor 2046		Carnegie	Wall	Level 1	

Mariposa Ochre	Wolf Gordon	Upholstery	Level 3
Chartreuse Multitone	Momentum	Upholstery	Level 1
Sunset	Interface	Flooring	Level 1
Orenda Plaid 2	Carnegie	Upholstery	Level 3
Vizor - S	Samelson Chatelane Coral	Upholstery	Level 3 & 4
Vary - S	Samelson Chatelane Coral	Upholstery	Level 3 & 4
Feral Fern	Nevamar	Upholstery	Level 3
Gelato	Anzea	Upholstery	Level 3
Fall to Pieces	P/Kaufmann Contract	Upholstery	Level 3
Westwood	Wolf Gordon	Upholstery	Level 3
Fino	Momentum	Upholstery	Level 3
Desert	CF Stinson	Upholstery	Level 3
Majesty	Wilsonart	Laminate	Level 4
Dharma	Mondo Contract Flooring	Flooring	Level 1
Elysees Print	Carnegie	Upholstery	Level 4

7.4 Design Build Drawings and Details

Healing Respite Pod



7.4 Design Build Drawings and Details

Flexibility

Learning Stairs



7.4 Design Build Drawings and Details

Safety

2- Hour Fire Rated Stair



Axonometric

Section 8 Mentor Review

8.1 Mentor Reviews

Mentor Review 1 10/11/24

In this introductory meeting with my team of Stephany and Soha, we met our mentors, Antonio, Viviane, and Maria. We each shared our projects, and the progress made so far. Topics included curriculums, neurodiversity, and trauma-informed design. A personal recommendation for me was to start looking at the curriculums of the schools of the precedent studies I've found and determine what my curriculum was going to offer. Is it going to be more STEM or more liberal arts? I was challenged to "make my own curriculum" which further starts to think about programmatic spaces, but this also determines the clients and what the school is going to offer these students. I was also told to research more on neurodiversity to address trauma and healing. Sometimes youth in care aren't able to adapt to the environment as well because of their trauma. I was suggested like a Montessori idea for the school or an area to have that learning and feeling. And how to design neurodiversity for students not to overwhelm students in the school. One last note for my design was to work of the differences of visibility of the school for the safety and lighting purposes. It was emphasized that natural light is beneficial for all, especially children in a school. As a group, we also talked about the term trauma- informed design. Our mentors answered this as it's hard to give one answer because it encapsulates so much and everyone's trauma is so personal and their experiences. They said using action words like "community...safe" can help define trauma-informed for the purpose we're using it. And to use this in the application of everything, it's a holistic and psychological thing, and to use it as one aspect informing the other. The word "beacon" and "a coming out" came to their mind when thinking about trauma-informed design.

Mentor Review 2 10/25/24 & 10/28/24 & 11/5/24

For our Mentor Review 2, Stephany, Soha, and I met with our Mentor Maria on 10/25/24 to review the first draft of our project books. We each discussed our project description, client profile, target market, users, how our client brand compares to its competitors, logo, brand images, summarization of research, and design approach. Overall, Maria said the format of my book reads well. The first recommendation given to me was about my Client Brand Profile, the two photos of people were very similar and were reading off as repetitive, so the suggestion was to choose one. The second recommendation moving forward was to think more about my book graphically, bringing in soft colors into my book using headers, and footers, so something is hosting the white background. But also ensure it's not overpowering the information or other graphics in the book.

For my second meeting for Mentor Review 2, Stephany, Soha, and I met with our Mentor Viviane on 10/28/24 to review the first draft of our project book. We discussed with Viviane the project book formatting, graphics, and fonts. We all need to clarify the standard of the formatting of the book needs to be. Some personal recommendations Viviane gave for my project book was to be careful of white space and balance the text/graphics out more. We also discussed the difference between using the font for my brand and logo compared to using Times New Roman. I think Times New Roman is an appropriate font for my project because my project is very academic and educational. However, should I use the font that matches my logo to create and push my brand this way? I was encouraged to play with sizes and styles. I was also told to format the title bigger than the content and to double-check spacing in between text/graphics. We also discussed how to incorporate the brand colors into my logo. Taking the colors from my client brand profile photos, and adding them into a gradient into the star was my solution for this idea. The colors are gender inclusive and appropriate for older youth (14 years-18years).

For my third meeting for Mentor Review 2, Soha and I met with Antonio on 11/5/24 to review the first draft of our project book. Antonio emphasized the importance of hierarchy in the book, he said my 2.4 Design Approach was a good example of this between graphics and bolding the important text. Another thing that was recommended to me was to match the font to be all the same, or to choose another Sans Serif font to keep it consistent. He also suggested I color code my table of contents to match the sections of my book. A challenge we encountered for my brand and book was how do you make a brand young, welcoming, and bright, but in a mature way. What I took away overall from the second round of mentor meetings was I need to keep playing with the graphics and style of my book and to keep trying different combinations.

8.1 Mentor Reviews

Mentor Review 3 11/19/24 & 11/22/24 & 11/25/24

For our third Mentor Review, Soha and I met with our Capstone mentor Antonio on 11/19/24 to review the topics of our Space Allocation tables, preliminary codes, operational narrative, and programmatic diagrams. One of the recommendations given to me about my operational narrative was to further break up the spaces into four categories, Offices, Public Services, BOH, and Management and operations. Then to further show these four categories in my programmatic diagrams. In addition, to rename the "Health Center" to "Nurses Office". He also recommended to add dividing lines into my Student Narrative just to clean and organize the chart more, and graphically to think about making it look like a schedule or planner for the project book. Looking at my current programmatic diagrams, he said to be careful of the BOH spaces being planned along the outside thinking of it in a site plan because that means it's occupying more daylight, and he suggested it being moved more to the core of the diagrams.

For our third Mentor Review, Soha and I met with out Capstone mentor Viviane on 11/22/24 to review the topics of our Space Allocation tables, preliminary codes, operational narrative, and programmatic diagrams. A specific topic I was seeking advice on was about the lighting needs in my operational narrative. She helped Soha and I make a general lighting key that we can number throughout our operational narrative for more in-depth light needs throughout each space. And recommended us to lighting websites to start to find direct/indirect, recessed, pendent, and acoustical pendent lights. We also started looking at the pool if capstone building shells. We were sorting through which buildings were transportation accessible and in an already existing neighborhood. She advised we stay away from more downtown neighborhoods where people only come in and out for work since we want more of an existing community. Some questions we came upon looking at buildings were how much of the space we could us and if we can modify to add on space. She also mentioned my programmatic diagrams were looking good and at a good point so far.

For our third Mentor Review, Soha, Stephany, and I met with our Capstone Mentor Maria on 11/25/24 to review the topics of our Space Allocation tables, preliminary codes, operational narrative, and programmatic diagrams. She liked the direction of color I was utilizing to communicate the organization and brand of my project book. She recommended that I don't need to go super in-depth with the preliminary codes and I can add in a graphic relating to the Means of Egress section of the preliminary codes. She also said for my programmatic diagrams to keep the progression of circulation ideas all in the book. And that I probably don't need to include every bubble and blocking diagram, but the strongest ones. She also gave us some advice for choosing buildings, she said to make sure the square footage aligns and to choose a large commercial building or one that has a lot of floors. She also said to see what the column grids look like in the building and if there's one that aligns more than the other, it's easier to work with columns that are already aligned.

Mentor Review 1 1/29/25

For our first Mentor Review, Soha and I met with Antonio on 1/29/25 at 3:00 pm and went over our three different schematic plans for our projects so far. I'm asking for advice on how to divide the building since the total square footage is over twice the amount my program allocated. Then that brings in the question of keeping student safety ensured if other tenants are going to be utilizing the rest of the building my school isn't occupying. Antonio suggested I research University student centers because they have a lot of shared spaces with a gym and general space with anyone who can come in. Also learning how to create buffers throughout the school using other functional spaces to ensure student safety. He gave me some great advice about imagining a student walking through the building throughout the day to reflect on how practical the blocking is. Some questions that arose were do I want the students going through all of the 4 floors or do I want them circulating between two? Also to make sure where security is, we don't want students to have to keep walking in and out of security throughout their school day. From this, I'm going to keep experimenting with the programmatic blocks and keep rearranging them to get a logical plan.

8.1 Mentor Reviews

Mentor Review 2 2/15/25 & 2/17/25

For our second Mentor Review, Soha and I met with our capstone mentor, Viviane on 2/15/25 at 12:00 pm. I shared my iterations of schematic floorplans following my concept and parti and chose the one I liked the most. From there we walked through each space together of the floorplans and started drawing the spaces. One of the biggest challenges from today is how to divide the space between the school and the other commercial tenants, and then learning how to work with the space I have to plan the school in it. Initially, I had very large corridors and a lot of my programed spaces from my first iteration of the space allocation chart I found to be much larger than I needed it. We created this shared elevator core, how the exits from each space worked with this, and highlighted the space I am occupying. Then we space planned out each floor with more public spaces on the first floor, student support spaces occupying the second and third floor, and the education class-rooms on the fourth floor. A question I have left is trying to design to the human scale as well. The building is very tall with ceilings ranging from 12'-19' tall.

For our second Mentor Review, mentors Maria and Antonio joined Stephany, Soha, and I in studio class on 2/17/25 at 12:30 pm where we went over our schematic design pin up including floorplan and reflected ceiling plan iterations. From my schematic floorplans I was told to be careful with the long diagonal corridors. Although the wall I had is holding the shape of the parti and concept I had, I can still represent that organization through my ceiling, furniture, and materiality choices. From my schematic RCP I was also directed to look at the lighting types along with the materiality beside it, Looking at both at the same time will help make choices between narrowing down what I'm using and seeing what material compliments with the lighting type. I was also suggested that I could do an open ceiling thats black with lighting to mimic the stars in the sky, and hover drop ceilings over the different program spaces. I was also told think about the changes in the ceiling heights because I have some pretty tall spaces like the auditorium and this sculptural planetarium that are going to require high ceilings. That's going to cut into the floors above so to think about it vertically as well.

Mentor Review 3 3/6/25 & 3/10/25 & 3/20/25

For our third Mentor Review, I met with Maria on 3/6/25 to discuss the graphic direction and visual aesthetics of my book, as well as how to clearly articulate my design problem, solution, and concept statement. I was aiming to create stronger consistency between what I'm communicating in my design problem and solution statements, and she helped me brainstorm ways to align them more effectively—while still staying true to the project. From a visual standpoint, Maria suggested a few clean design tweaks. She recommended moving the page numbers from the bottom center to the bottom right corner for better flow and readability. She also advised adjusting the opacity of my brand colors to 50% so they support the layout without overpowering the actual content.

For our third Mentor Review, Soha and I met with Antonio on 3/10/25 to review our floorplans. One of his first suggestions was to relocate one of the lecture rooms so that it sits adjacent to the other. He also emphasized the importance of alignment—recommending I align the 4th-floor huddle rooms with the building's columns to clean up the layout. Antonio also challenged me to vertically stack the lounge seating on both the first and second floors. Seeing this in section would provide a stronger sense of consistency and spatial rhythm. I brought up some difficulties I was having with organizing the auditorium layout—specifically the backstage, stage, and audience seating configuration. He suggested I reference drawings of the Kennedy Center Auditorium by Steven Holl to help guide my planning and spatial arrangement.

For our third Mentor Review, I met with Viviane on 3/20/25 to further develop my floorplans and RCPs. We focused on the east side of the level 1 floorplan, where we expanded the auditorium to better accommodate the columns and overall shape of the planned room. We also reconfigured the front entrance doors so they open directly into the lobby seating area, creating a more direct path. Viviane helped me design a build-out around the stair area to integrate seating furniture. She also shared several resources for education-focused furniture—Davis Furniture, OFS, KI, Andreu World, and Hightower Design—which I'll be using to start my furniture plan. For my RCP's, I learned how to design ceiling layouts that align with the furniture placement below. We used a mix of open ceilings and drop ceilings with 2x2 and 2x4 ACT panels. I also learned how to draw in knife edges to achieve a clean look. To finish off, I started incorporating a mix of lighting fixtures and acoustic ceiling baffles.

8.2 Reflective Analysis of Goals & Objectives



8.3 Conclusion

Reflecting on my capstone project and the past year, I've discovered new interests that have deeply shaped my design philosophy. Designing for youth in foster care is a cause close to my heart and has reaffirmed my passion for creating environments that support overlooked and vulnerable populations. These students often face significant barriers to education, and designing a school that meets their academic and emotional needs is essential to helping them thrive.

My five guiding design principles *uplifting*, *healing*, *flexibility*, *ease*, and *safety* all work together to foster a supportive, high-achieving environment that lightens students' external burdens and encourages growth. This year-long process taught me the importance of student choice and personalization in creating meaningful educational experiences. It's not solely up to students to overcome systemic barriers, the built environment must support them and champion their success.

This project also sparked new interests, including designing for neurodiversity and exploring the technical aspects of learning environments. I've come to see how thoughtful design can balance stimulation, respite, and safety to support all learners.

The mentorship I've received has been invaluable, and I'll carry the dedication and insights from this experience into every future project I take on. This journey has been both professionally and personally rewarding, and I'm grateful to everyone who helped me reach the finish line.



Section 9: Appendix



4/22/25



4/26/25



4/26/25

4/27/25

4/28/25



4/29/25

4/29/25

4/30/25



4/30/25



Uplifting - Library View

A grand, curved ceiling rises from the ground to the building's full height, symbolizing upward growth and potential. Fiber optic lights embedded in the ceiling create a starry sky effect, evoking feelings of hope and inspiration. The space beneath supports both collaborative and independent work, allowing users to learn and connect under an uplifting, celestial form.



Healing - 4th Floor Common Area

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A scenic digital purple sky-scape transforms the atmosphere as users move alongside the display, promoting emotional healing. The adaptable environment, featuring adjustable lighting and sound-absorbing materials, supports both social interaction and independent reflection. Balancing prospect and refuge, views to the outdoor balconies provide a strong visual connection to nature, with natural light flooding the interior to enhance comfort and well-being.



Flexibility - Learning Stairs

The learning stairs offers students choice and autonomy in how they engage with the space, supporting three fundamental behaviors: socializing, collaboration, and studying. This flexibility fosters a sense of contentment and fulfillment throughout the school day. The space also accommodates different levels of neurodiversity through thoughtfully selected furniture, fixtures, and equipment, providing multiple pathways to achievement regardless of ability or identity.



Easy - Student Center

Clear wayfinding elements: districts, nodes, paths, edges, and landmarks, enhance legibility and coherence, helping users navigate the space with ease and confidence. Thoughtfully planned lounge furniture supports both comfort and flexibility, accommodating groups from one to six people for working or collaborating.



Safety - Makers Space Tech

High-performance finishes and materials, along with varying levels of visibility through curtains and clear sightlines, create a balanced and secure environment. In the VR rooms, a controller has the ability to monitor and guide users as they experiment with virtual reality, ensuring both safety and engagement.
