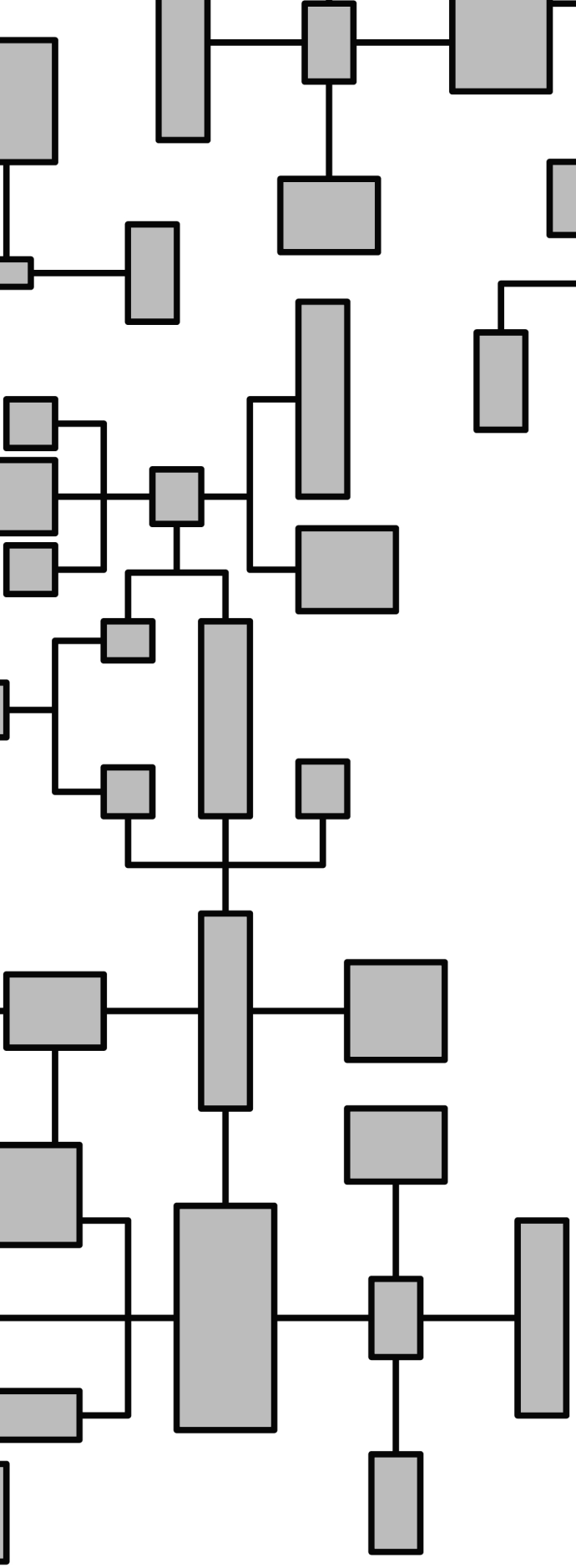


JUNCTURE

THE PROCESS OF TRANSITION

ABSTRACT

Care for the mentally ill has been a concern since the colonial settlement of the United States. Urbanization forced the government to react to the overwhelming task of caring for the mentally ill. The mentally ill are often defined by their cognitive ability in order to group like needs into a classroom. In our current system we have individuals with cognitive impairments that are overlooked by the system every year. These cases literally fall through the cracks of a system which narrows its focus and financial assistance after secondary education. Individuals with chronic cases, who stand little chance of holding a job, or living without full time assistance are taken in by the state, who meets their needs throughout life. Cognitively impaired individuals that are classified as high functioning are often able to merge within society and overcome their disabilities with little assistance after high school. Unfortunately, large majorities of the cognitively impaired no longer qualify for state programs after secondary education, yet lack vital life training, social, and work skills necessary for independent life. The majority of the mildly cognitively impaired have the capacity to achieve meaningful roles in society, with a few more years of social and occupational training. Based off my research I am led to believe a community based program that operates much like a college for training in life skills, career options, and social interaction is the tool needed for this transformation. My goal is to explore how a facility of this type would manifest itself as an integrated part of its community, encouraging interaction as a means of social training, while also maintaining a sense of privacy that will not overload members. Behavioral therapy see's the role of environment as one of the key factors to a system's chances of success. I am also curious how the architectural language used can alleviate some of the environmental stress associated with dealing with a developmental disorder, and support the process of transition from dependency on the system toward independence. The tools for this transformation include: campus-like living conditions that encourage interaction, the teaching of trades based on individual ability, community involvement, and a final goal of integration into the surrounding community. The facility as imagined will have a focus on sustaining itself financially, environmentally, and socially within the community.

"Autism itself is not the enemy... the barriers to development that are included with autism are the enemy. The retardation that springs from a lack of development is the enemy. The sensory problems that are often themselves the barriers are the enemy. These things are not part of who the child is... they are barriers to who the child is meant to be, according to the developmental blueprint. Work with the child's strengths to overcome the weaknesses, and work within the autism, not against it, to overcome the developmental barriers."

- Frank Klein

ABSTRACT

BACKGROUND

In the United States one percent of the population of children ages 3-17 have an autism spectrum disorder. The prevalence rate is 1 in 110 births and it is the fastest growing developmental disability with a 1,148% growth rate. As the third most common developmental disability, autism related costs are $60 billion annually. In 10 years, the annual cost will be between $200 and $400 billion. As compared to the 13% population increase in the 1990s, autism increased by 172%. The government's current strategies are struggling to further the potential of this growing yet underserved population.

According to the psychological understanding of autism, the term typically used as autism is traditionally known as infantile autism. Over the years this condition has lost the infantile status as the condition is now known to continue throughout the entire lifespan. Males with autism outnumber females 3 or 4 to 1. Females that have both mental retardation and autism are typically more severely impaired than men, whereas when no mental retardation exists females typically show less severe impairment. Many children who display autistic-like conditions are not referred to as autistic because the term is reserved for those who suffer from a more extreme version of the disorder. This is important to mention, because in essence everyone shares certain qualities with autistic individuals. The four symptoms of autism may all exist with a varying degree of severity, or may only be manifest in a few categories with more intensity. The following are the four symptoms: Social Isolation, Mental Retardation, Language Deficits, and Stereotyped Behavior. Social isolation refers to withdrawal from social contact; this symptom has been referred to as "extreme autistic aloneness". This does not mean that there is no emotion in the child, even when social isolation is extreme; it simply means that the child will not display his emotions properly. In order to better understand this symptom there are three types exemplified in social isolation. The first is known as the Aloof Type; this type attempts to avoid all social contact and will reject advances to initiate contact. The Aloof Type will converse in order to achieve something they want or need, but conversation is essentially just utilitarian. The second type is the Passive type. The Passive type does not initiate contact, will respond to interaction, but requires the structure and direction

of the conversation be controlled by the advancing party. Lastly the Active-but-odd type of social isolation will initiate interaction, but does so in an odd or one sided way. These conversations are naïve in nature, or tend to not follow the normal order and etiquette rules that govern normal conversation. It is important to define these categories because different types of interaction exemplify different attitudes towards movement, play, work, and decision making above and beyond simply conversation.

Children with autism may also have mental retardation, with 76-89% having an IQ of less than 70. Mild Retardation is equated with having an IQ between 55 and 70, and includes most individuals within the autism spectrum that suffer from retardation. As young children these mild cases typically develop the ability to do most normal activities, they just take longer to master new skills. (Throughout adulthood this includes the ability to perform most tasks, but it means that extra time will be needed to master these functions.) Individuals with autism may differ cognitively with those who just display mental retardation. Autistic individuals do better on tests of sensorimotor ability, such as finding hidden figures, than on tests of social understanding or language. Some rare cases of autism display an area of super intelligence. These individuals are labeled as having Savant Syndrome. Those within the autism spectrum who display no language deficit or mental retardation are known as having Asperger's Syndrome.

Autism is known to carry with it language deficits. Autistic individuals who speak meaningfully by age 5 typically do not suffer from mental retardation, but more than half do not speak as a child at all. Those who do speak babble, whine, scream, or show echolalia, a mechanical echoing back of things heard. The severity of language deficit is an excellent indicator to the severity of the autistic condition. This category of autism is key to understanding the conditions throughout adulthood. Much of being a productive adult requires mastery and manipulation of language in order to express ones needs or desires. For individuals who see and are enacted upon by the world in a different way it is imperative that they progress in language in order to be able to succeed in adapting to our language driven world.

The last category for autistic individuals is that of stereotyped behavior. Stereotypical behavior includes any action that has a limited

number of movements, yet is repeated endlessly, ritualistically and without any specific goal. Actions such as twirling, tiptoeing, flapping the hands, rocking, and tensing of specific muscles groups are known to be self-stimulation and are typically used as a coping mechanism. Although these soothing techniques are typically healthy explorations of an individual's own body or the surrounding world; they sometimes manifest themselves in a maladaptive way, such as banging ones head, and must be curbed. These maladaptive behaviors are typically associated with individuals suffering from mental retardation and who have limited language use, the outbursts are attempts to communicate desires, such as escape from aversive or boring situations, attention from others or some other tangible reinforcement. Stereotypical behavior may also become apparent through an obsession with a favorite toy/object. The autistic individual will spend hours every day clinging to this object and tend to focus on a part of the object instead of the whole thing, like a specific wheel on a toy car. These stereotypical behaviors extend to a general resistance to any change in surrounding or routines. Changes in schedule need to be discussed days before they occur in order to not overwhelm an individual and cause resistance to the change even when a positive change. Autistic individuals also show difficulty in trouble-shooting problems, planning initiatives, controlling impulses, maintaining attention, monitoring their performance and inhibiting inappropriate behaviors. Another example of stereotypical behavior is that autistic individuals tend not to have a Theory of Mind. Theory of Mind refers to the ability to appreciate the existence of purely mental states, such as beliefs or desires and therefore cannot predict or understand behavior based on such states. This includes the ability to imagine one's self in another's position, such as understanding their point of view, or realizing that their decision process is based off the information they known.

There are many theories as to the cause of autism, and the current theories only represent the last 50 years of beliefs. The classification of Autism was first coined in 1911 by Eugen Bleuler, a Swiss psychiatrist who was originally describing the adult condition of a schizophrenic. Until recently, the condition was believed to have been caused by bad parenting during vital times of development, such as when the children needed contact that was denied to them. At that time autistic individuals where typically institutionalized shortly after diagnosis and remained institutionalized for the

remainder of their life. As can be imagined, this caused a lot of guilt for parents of autistic children. The strongest theory toward autistic causation is the theory of Fragile X Syndrome. According to this theory a condition is a response to a weak spot in an individual's chromosome chain that can be linked to genetic factors. Cases of autism have been linked to variations on all chromosomes except number 14. While genetic continuity can be found in patients with autism, this does not rule out non-biological factors. There are several birth complications that also seem to be correlated with autism. These complications include bleeding after the first trimester, the use of medication during pregnancy, autoimmune mechanisms, and pregnancies in older mothers. The actual correlation between these complications is not yet understood, as to whether they are the cause or simply a symptom of an onset of autism. Neurological research has attempted to explain autism not by explaining the origin, but rather the way that it manifests itself in the brain. Neuroscientists have found that many autistic brains show a variation in the number of dendrites and dendrite length in neurons. This research is inconclusive at best, and most scientists admit that they don't know the exact implications of autism on a brain. Researchers have found abnormalities in the cerebellum and the limbic system, in which the neurons appear to be smaller and more tightly packed. The most conclusive research they have found is that 23.6% of autistic patients have reduced EEG activity in the frontal and temporal regions of the brain.

There are different perspectives within the field of psychology and each one brings with it a unique perspective. The first is that of behavioral psychology. Behaviorism is also known as the Learning Perspective and is known for its use of classical conditioning to modify attitudes or reactions to specific stimuli. Essentially this perspective of psychology considers every thought, action, belief, or impulse as a behavior that can either be reinforced or restricted. This model has met with great success toward autistic individuals as learning principles are used in training and behavior management. Behaviorism uses classical conditioning through a process known as shaping to produce desired results. Shaping is the reinforcing of successive approximations of desirable behaviors. These theories are very useful in work or classroom setting, in which positive moments are encouraged. Behaviorism also uses a process known as chaining or scaffolding, in which the individual is taught a process of steps which are added upon as the previous step is mastered.

Another important aspect of behavioral psychology is the use of stimuli control, in which external cues are used to determine which reactions are appropriate for a specific situation. An example of this would be a change in action within a church or library, as opposed to a gymnasium. Behaviorism utilizes chaining with autistic individuals in order to break a process down to achievable steps, then through substantial feedback and reinforcement the correct process is learned. The benefits of behavioral therapy include that certain actions are curved out by not being reinforced, which helps develop spontaneous as well as appropriate responses. Behavioral techniques also make the individual appear to be more "socially acceptable". In contrast the problems with using the behavioral perspective include that the environment must reinforce desired actions, and if it is not rewarded then it will often stop being done. For this reason the focus of reinforcement is making it an internal rewarding system, in which the patient is able to realize an action and reinforce himself if it is proper. The biggest problem with the behavioral perspective is that individuals often do not truly understand the concept; they just know what the right response is. An example of this was used in the Abnormal Psychology textbook in which a student was asked what he had eaten for breakfast and the student responded that he had eaten eggs, toast, and milk; though the student had not actually had breakfast that morning.

Cognitive therapy is used in correlation with behavioral theories in order to supplement activities of the mind. As an internal perspective Cognitivism works with self-instruction in order to help individuals better understand the concepts of what they are taught. Cognitivism also works with self-reinforcement and the ability to follow each step through self-regulatory speech. Self-regulatory speech includes things like asking one's self a series of questions. The following is an example of these questions used in the textbook:

"What does the supervisor want me to do?"
"I am supposed to wipe the counters, check the supplies,
and restock the supplies."
"Okay, I need to wipe the counter, etc"
"I did that right." – self-reinforcing.

Cognitive therapy teaches correspondence training, in which students are rewarded for completing tasks they have promised

to do, and for explaining the process used in completing it. The important system of self-management and self-monitoring involves training individuals to regulate their own behavior and be able to decide whether their performance is adequate. In order for this system to work individual's duties or expectations must be clearly defined. Cognition also incorporates self-control, and the delaying of gratifying impulses. With this training impulsive behavior that is typically associated with stereotypical autistic behavior is curbed. Through the cognitive perspective problem solving techniques are taught, in which an individual is taught to identify what a problem is, develop possible solutions, choose the best of these solutions, implement it, and then decide whether the solution was effective.

The pharmacological theory believes that behaviors and mannerism can be managed through the use of medication. Currently 50-67% of people with developmental disorders utilize medication to help with their condition. For autistic individuals Fenfluramine has been found to improve stereotypical and ritualistic behaviors and social interaction, it also significantly improves over activity, inattention, and distractibility. These drugs are being used with greater intensity, but it is important to note that they bring with them severe chances for side effects, and have been known to modify behaviors, making recipients feel like a different person on them. The current medications also have little to no effect on social isolation issues, such as speech, communication, and language deficits, which are typically the strongest factors affecting an individual's overcoming of their condition.

The last perspective of psychology that tailors itself to autistic individuals is that of the Psychotherapy perspective. Psychotherapy includes counseling with a psychotherapist, in which the client builds a relationship with their psychologist and is helped through difficult portions of life. This perspective is relied upon heavily for supporting adults who have entered the workforce but still need support through direct interaction or group membership. Psychotherapy has also been found to be very helpful for families in the process of rearing or letting go of a child with autism.

ENVIRONMENT

The next step in understanding the condition of autism is to 'negotiate' how our environment impacts us, and how we can use environmental psychology to effect change. Environmental psychology focuses on the interaction between human beings and their environment. Some key notes from environmental psychology include that we as natural creatures, need to have windows, particularly operational ones that bring in light as well as views and sounds. Humans prefer to have our spaces divided in order to allow us control over who enters our space. Personal space and territory is vital, especially in a public setting. These "Defensible Spaces" allow for feelings of ownership and control over a space that negates the effects of crowding. Rooms with closer to equal width and length also appear to be less crowded. Noise is known to increase environmental stress, but it is the control and predictability of noise that most effects a spaces stress production. Background or white-noise has been found to subdue extreme peaks in noise. For autistic individuals light, cool colors such as blue and green are useful for creating a calming experience, and bright colors like orange produce an active environment that increases creativity. Environmental psychology has also found that a spaces lighting can affect the mood portrayed within a space. Daylight cannot be truly duplicated and as such needs to exist in any space that a person will spend a majority of their time. Incandescent bulbs produce a calming effect and are better than fluorescents for autistic students. Fluorescent light also produces a flickering effect that has been known to really bother autistic individuals who are susceptible to movement and or intense light.

"We begin to see, therefore, the importance of selection our environment with the greatest of care, because environment is the mental feeding ground out of which the food that goes into our minds is extracted."

- Napoleon Hill

Environmental psychology discusses the implication of place identity and place attachment. Place identity refers to the symbolic importance a certain space can hold for those who enter it. Place attachment includes the exchange of emotional transference we put on a place as well as the acceptable attitudes within that space. Together place identity and attachment form our environmental consciousness, in which a particular space, such as a church can be generalized by anyone within our society to be a place of worship without them having previous knowledge about the space. This is important to note for designing spaces for autistic individuals, because as mentioned before the cognitive perspective teaches a self-monitoring of acceptable behaviors. If a space is to be a successful training facility it will have to display elements that are consistent with our society's environmental consciousness, in order for the spaces identity to teach visual cues as to acceptable behavior.

CONSIDERATIONS

Over the last few decades great strides have been taken to increase the quality of life for individuals with autism. A forerunner of this movement is ARC, the association for retarded citizens, this organization stresses five principles that every citizen should be granted. These principles include, free and appropriate education that address the needs of its students and works with them in a manner proper to their ability, an individualization of these education resources that addresses the uniqueness of each individual regardless of their classification, timely progress reviews that check whether or not the current path of progression remains appropriate, community integration to help an individual work toward becoming a part of society and being able to fulfill life roles as opposed to being separated, and the guarantee of basic human rights. This group was instrumental in the creation of the IEP or individualized education program in which a person's education is individually tailored to their needs and goals. The ARC stresses the Normalization Principle written about by Wolfensberger, where the mentally ill are not to be completely segregated, for that isolation will not strengthen them but rather encourage abnormal behavior. According to the Normalization Principle the mentally ill are not to be removed from typical societal contact, such as having separate hospitals, places of residence, jobs, or general chances at life. Living spaces should be homelike and not feel institutional, and living spaces need to bestow like qualities to those that exist everywhere else in the world. This movement began the call for deinstitutionalization, in which non-severe cases of mental illness where met with some success. Unfortunately deinstitutionalization was not planned ahead properly and in many cases patients were removed from the ward with only a days notice, and sent out into society to fend for themselves. In order to protect these individuals, laws were passed as to the criteria for being able to live in a group home, and inversely not have to live in a controlled environment. Individuals who want to live in a group home or similarly structured campus may have severe mental retardation and/or autism, but they cannot have severe physical or self-injurious behavior, as they would require certain amenities or surveillance. The ARC is an attempt to empower individuals with disabilities to be able to achieve the best possible life. Baistow (1995) cites the definition offered by Adams in 1990 as to what personal empowerment is as "the process by which individuals, groups and/or communities

become able to take control of their circumstances and achieve goals, thereby being able to work towards maximizing the quality of their lives." It was found that during the process of empowerment most autistic individuals lose their jobs because of social, not vocational deficiencies.

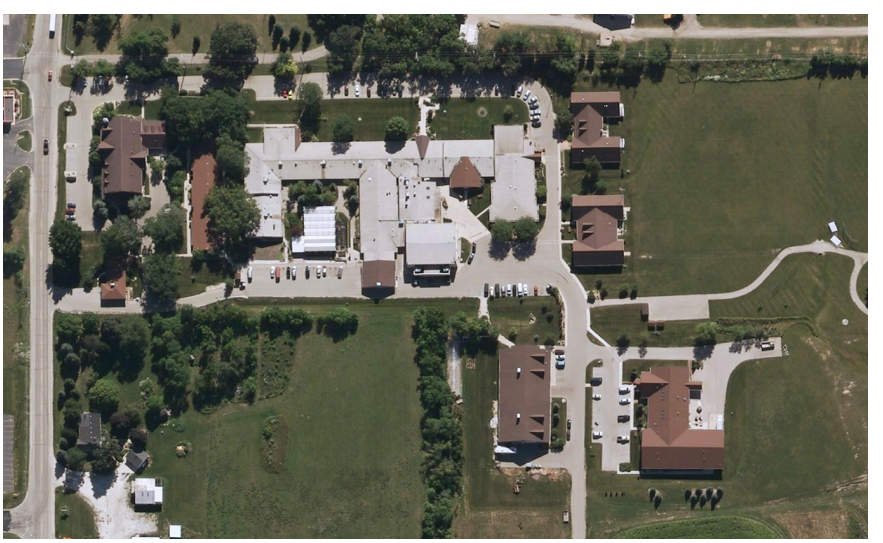
In any building there will be people specifically designed for, and it is these users that the architecture needs to address. In an ideal world every user would find the space meaningful, and every building would address everyone's needs. Unfortunately we do not live in an ideal world, so due to financial limitations or just the fact that something designed for one user must in definition not be designed for another, we are forced to choose who will and who will not get a say in the final design. It is the intention of this thesis to acknowledge that administration and teachers are only a part of the client. For the sake of this thesis the needs of the disabled will be the primary force, something these users are not typically given. The first needs addressed are biological requirements, which account for whether or not a space is hospitable, provides for purposeful behavior, and allows or restricts access properly. Hospitable spaces do not just nurture the human body, with ideal temperatures, size requirements and humidity; they must also nurture the mind. The mind needs for its surroundings to produce a recognizable sense of place, through meaningful associations and clear perceptual, spacial, and temporal identity. The specific user group needs to be addressed in the cost management of the building, this does not just mean financial costs, but also long-term result costs. These costs account for things like what cost to the feeling of privacy does encouraging interaction cause, or what innate qualities does a potential component carry with it in terms of positive and negative attributes.

The process of discovery used in this project was that of observation, inquiry, and precedent analysis. Through discussions with disabled individuals, those who work with them, and those who love and care for them, needs and components will be addressed in order to producing a successful environment that incubates change. This process requireds an examination of the different "pieces" of the puzzle, which it then attempts to connect based on research and intuition. The thesis relies on the techniques of addressing components then placing them appropriately from a larger scale down to specific pieces.

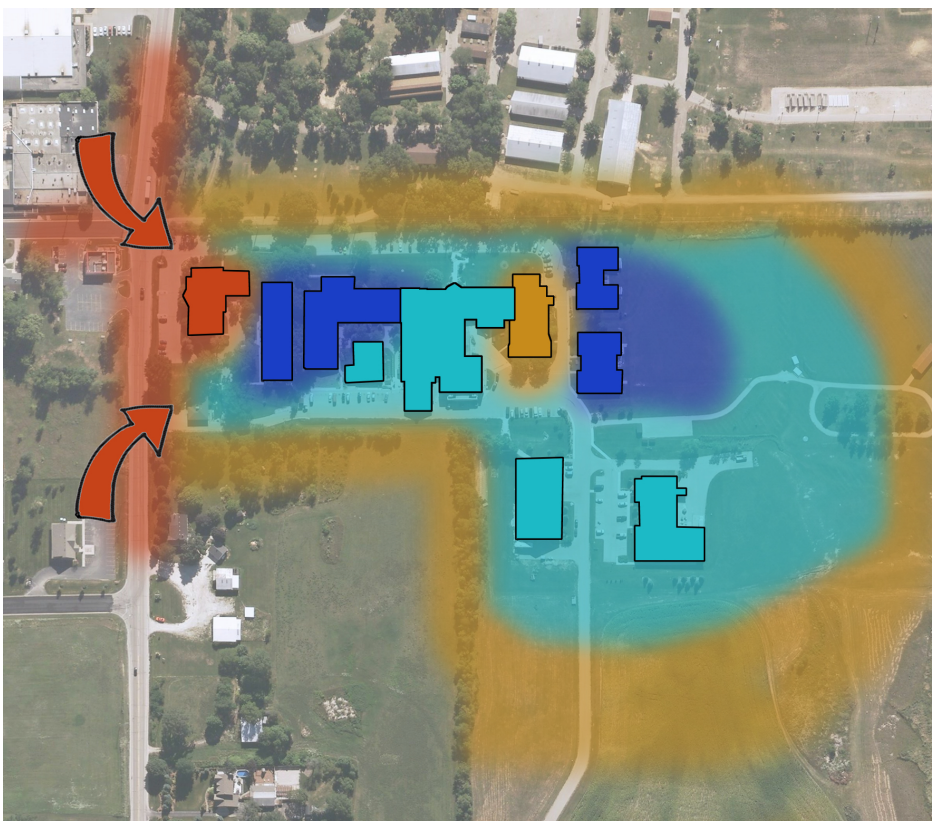
SHEPHERDS MINISTRIES COLLEGE FOR THE IMPAIRED

"Shepherds Ministries has been life-changing for our family. It has given our boys hope and a place to grow and develop that is Christ-centered, loving and supportive."

The Shepherds Ministries is a residential campus that aids in the process of transition for mentally disabled individuals through a focus on teaching life skills, trade skills and social interaction. The Shepherds Home is the country's leading three year post-secondary education program. The facility was started in 1964, and has since then expanded drastically from its original 36 students. Over the years additions and new building have been added to its campus, and they have found that of all the spaces it is the unique eclecticism of spaces that gives its campus diversity. With each residential building having a different layout and room size students are able to find a tailored fit to their needs. Adaptability and individualization is stressed throughout the Shepherds Ministries campus.



The campus of Shepherds Ministries is located in Union Grove, Wisconsin. Geographically the campus is 20 minutes from a large city in both the east and west direction. This suburban context was strategically derived for the positive benefits of a smaller town context, that can still attract students from a larger population pool. The campus encourages student interaction within the community and realizes the benefits direct contact with the public has on training social skills. Students utilize their surrounding community through shopping trips, job co-ops, and special olympics events.



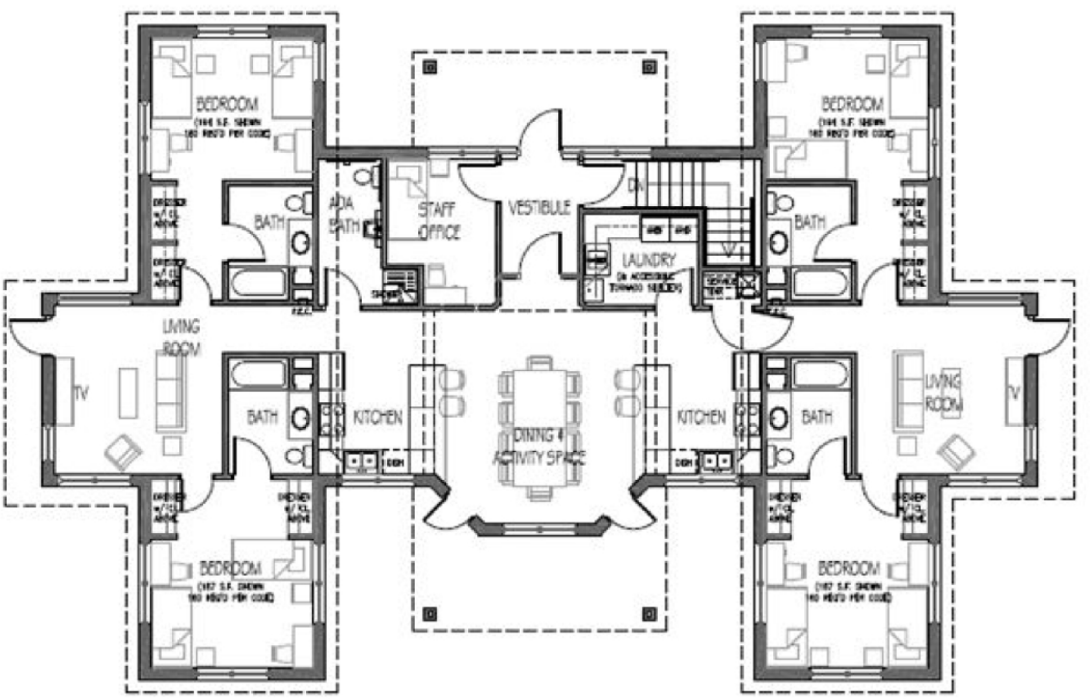
The layout of the campus was designed to create a private campus atmosphere, which is expressed through its use of a barrier of trees and interior focused buildings. The public 'face' of Shepherds Ministries is its administration building, which essentially acts as the buffer zone between the campus and its surroundings. Social skills are seen as a priority for students and as such are taught as an integral part of the curriculum and are practiced with students and teachers within the protective shell of the campus.

Shepherds Ministries offeres many career paths for its students, including horticulture, industrial assembly, maintenance, janitorial duties, and culinary arts. The campus has made a commitment to prepare its students to leave with the ability to find meaningful employment in their search for appropriate independence.

"It is impossible to have a great life unless it is a meaningful life. And it is very difficult to have a meaningful life without meaningful work."

- Jim Collins

As the Shepherds Ministry added buildings to its campus it has done so with a focus on creating home-like atmospheres that do not have the institutional feel that individuals so often associate with mental disability facilities. Following this philosophy classrooms (like the one seen below) use natural materials like wood, and rich earth tones. The school has also found that 8 students per classroom is the ideal number for maximizing interaction while still limiting crowding and distraction. The dorm buildings and their layout were designed to work and feel like the group homes that students will transition to after completion of the program. These strategies emphasize the goal of Shepherds Ministries teaching philosophy, that the environment in which a student learns a skill should be similar to the environment in which the student will need to apply that skill.



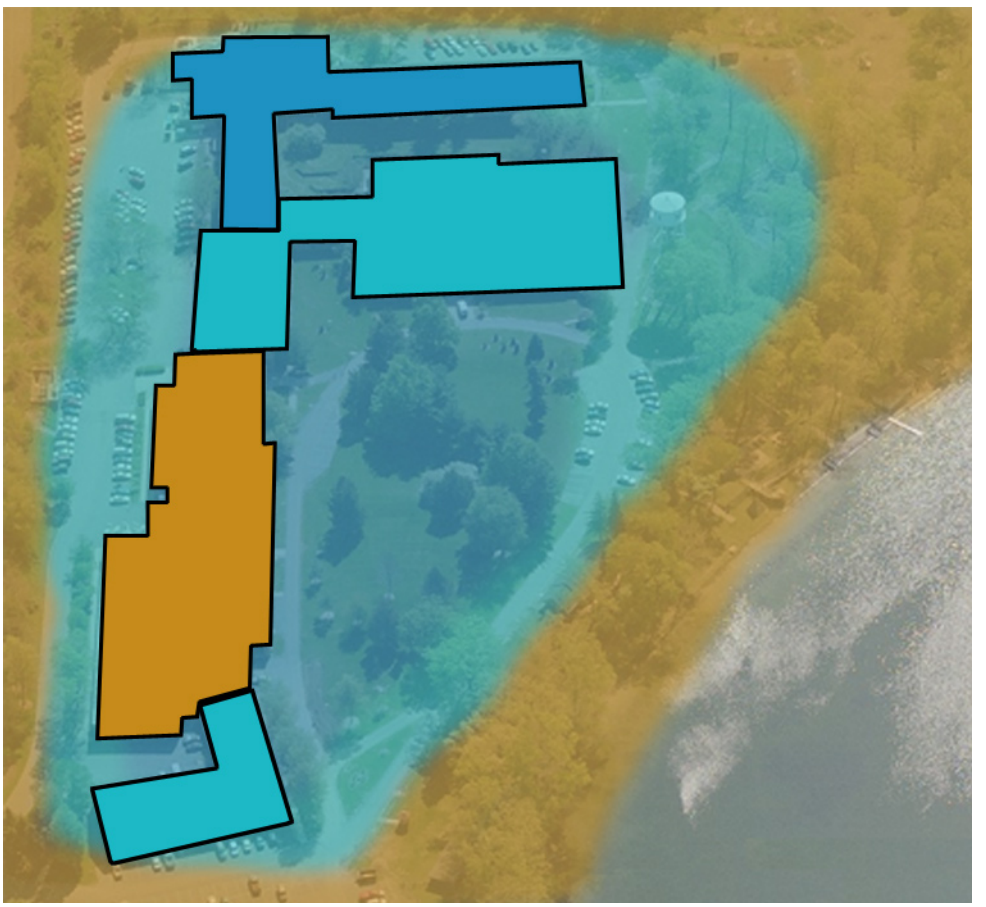
Floor plan for a new dorm building, to be completed in 2010.

MCTI MICHIGAN CAREER AND TECHNICAL INSTITUTE

The MCTI School is the Michigan Career and Technical Institute; through vocational and technical training the MCTI School has helped Michigan citizens with disabilities find employment since 1944. It is one of only eight comprehensive rehabilitation training centers in the United States. Career paths are chosen based on the markets demand for those services. The school finds potential markets for employment and prepares its students to fulfill these roles. The school focuses not just on teaching a trade, but also on teaching their students to be able to integrate into the society that employs them. This dual focus on trade and social skills assume that a certain level of life skill development will either exist at entrance to the program, or will naturally be learned through the process of living within the community. Students with varying forms of disabilities may all qualify to learn at MCTI. This aspect of the campus serves as an anit-precedent for this thesis. The unique nature of care that differing disabilities require do not lend themselves to a single overarching campus philosophy. As described by Professor Dauphin at the University of Detroit Mercy, this is like comparing apples and oranges.

"Each student is an individual who has dignity and worth, and who should be treated with respect"

- MCTI philosophy statement



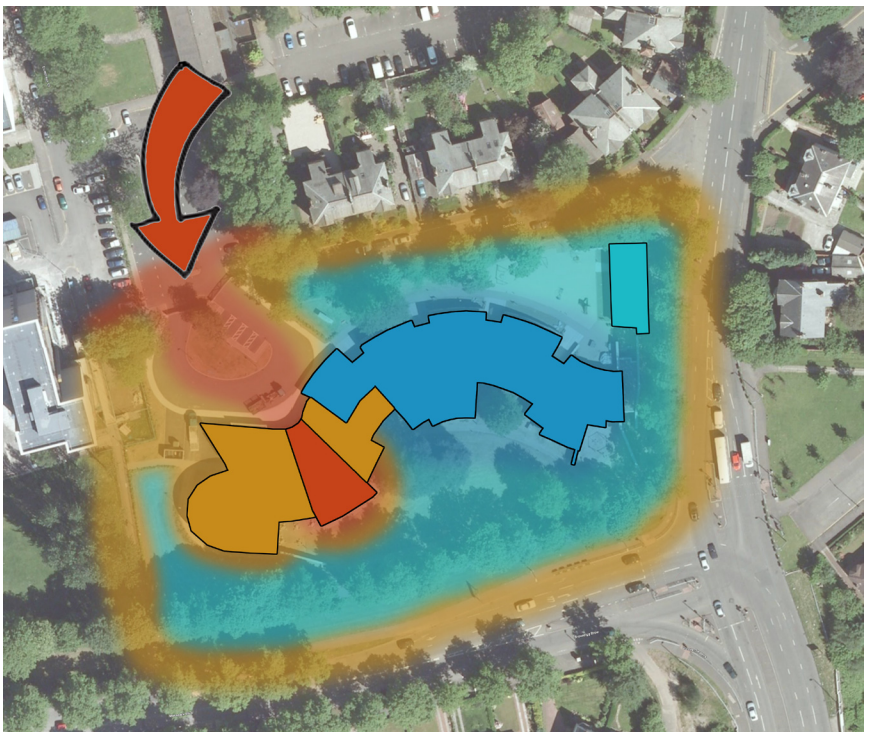
The MCTI campus has been placed in a rural setting and the campus has been surrounded by a buffer zone of park spaces that are enclosed within a row of trees. The master plan has been designed with an L-shaped layout that creates an interior focus, enclosed by a lake. The campus essentially works as a separate community and does not provide services to encourage the public to interact within the grounds.

The main focus of this precedent is its commitment to the trade school aspect of the thesis. The education center offers a diverse selection of employment training including: automotive technology, cabinetmaking/millwork, culinary arts, custodial services, electronics, graphic communications, grounds maintenance, machine technology, and retail marketing. MCTI addresses issues about gaining and retaining employment for the cognitively impaired. Through its active pursual of information about current employment oppurtunities, MCTI prepares graduates for job markets that are in need. The campus also helps students obtain their high school diploma or GED, through extended classes within the community. The buildings on the MCTI campus include traditional dorm room style living arrangements, as well as housing units for students with families. As opposed to the Shepherds Ministries campus, the buildings at MCTI and their material choices have more of a typical academic/ institutional feel.

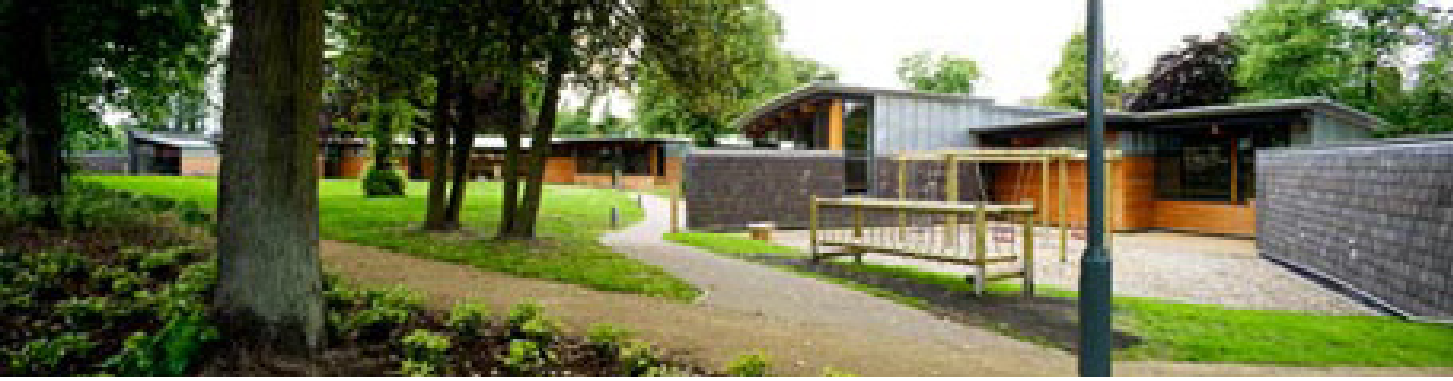
Due to its unique location near a lake, the MCTI campus allows for the integration of nature into its campus atmosphere. The facility offers boating equipment as well as oppurtunities for recreational swimming and fishing. This bonus component of the campus has proven to be benificial to students, not just for relaxation, but also socialization among peers.

HAZELWOOD SCHOOL FOR THE MULTIPLE SENSORY IMPAIRED

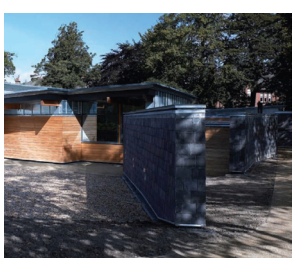
The Hazelwood School explores how architecture can be used to help ease the process of learning and therefore the process of transition, for students who are mentally and/or physically handicapped. For the building's 60 students who range in age from 4 to 19 the designing firm, gm+ad, realized that they wanted to produce an environment specifically designed for their unique students, while stepping away from the institutional feel of a traditional school layout. The interior of the school has aimed at maximizing independence and providing the optimum learning environment that ensures a secure and highly stimulating educational experience. Since completion the school has won multiple awards, including an International Architecture Award, and has truly emphasized the firm's commitment to collaboration and research driven design.

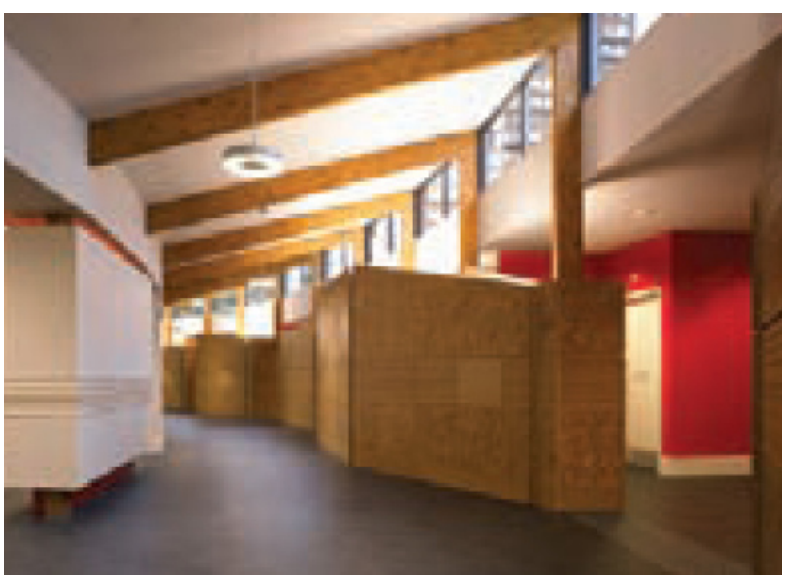


Hazelwood School is located geographically within a highly residential, quiet portion of Glasgow, Scotland, at the edge of Bellahouston Park and the Dumbreck conservation area. As a elementary through highschool facility issues of security and accessibility limit the amount of public interaction that can be allowed to enter. Because of this and the excessive noise that the surrounding streets produce the school grounds are surrounded by a row of trees. The building itself is arranged along a single curvilinear hallway, and the classrooms are nestled around the curve. The decision to use a curved hallway was obtained based on interviews and research that minimizing view distance within an interior reduces environmental stress. The unique form also divides the school between uses and age groups while still allowing it to express the linear progression of a student's education through the school over time. The exterior of the school was clad with naturally weathering larch boarding and roofing slates, and circulation paths around the school and gardens use loose gravel, recycled rubber, timber decking and concrete. These materials help define exterior spaces through contrast in visual, auditory, tactile, and olfactory senses. Coupled with strategically placed external gardens a student can explore and locate themselves within the campus without reliance on any one sense.



Highlighted circulation spine.





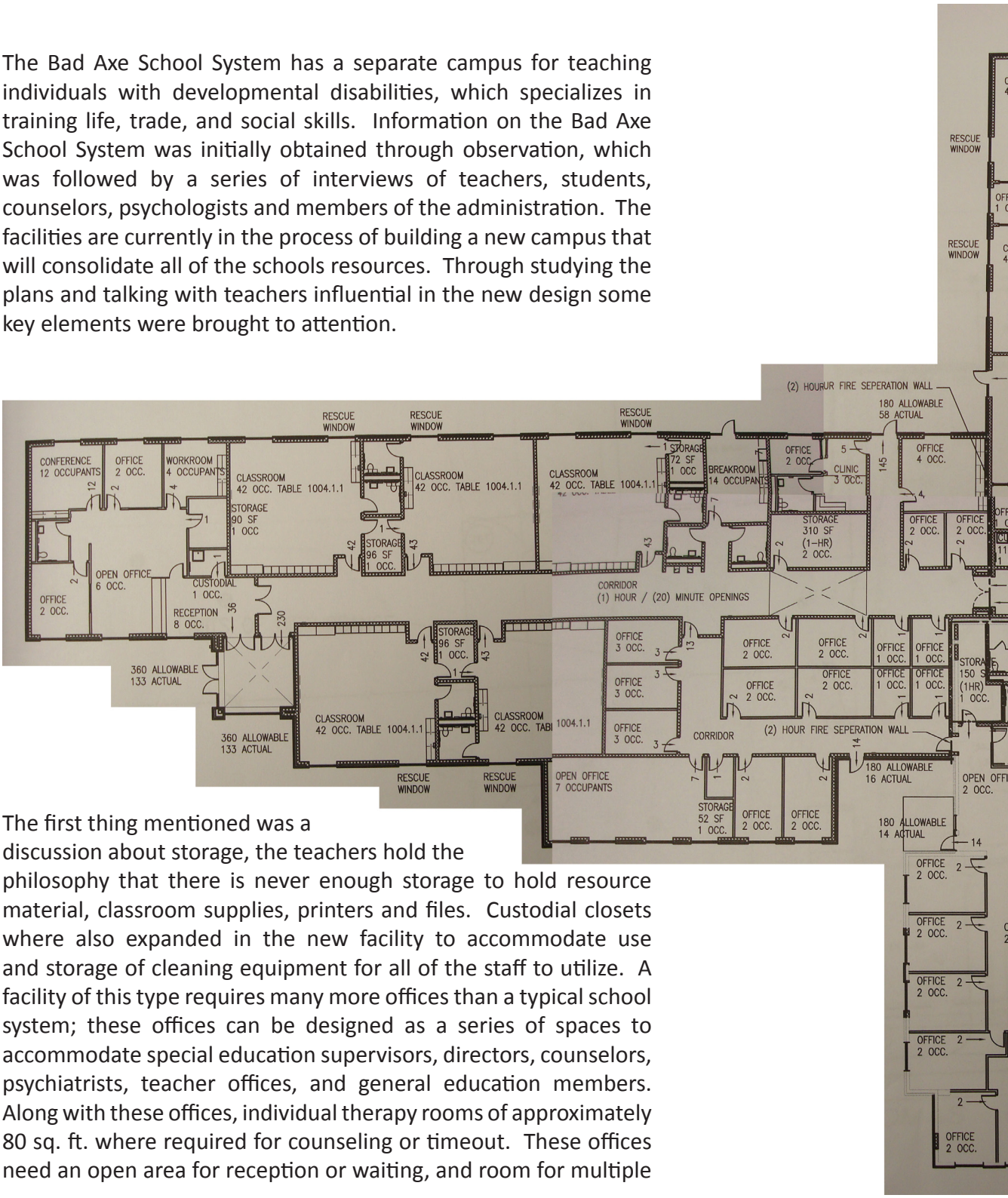
View down the circulation spine.

The interior of the Hazelwood School was designed to help students maximize their independence while providing a secure and highly stimulation educational experience. Classroom position was determined to minimize distraction from surrounding streets and to maximize natural light. In order to accomplish this rooms on the north facing where angled up to allow for an extended horizontal clearstory. South facing facades were treated with sun blocking overhangs and lower floor to ceiling heights. The spaces between the circulation spine and the more private individual classrooms were designed to create a feeling of transition by flooding the hallways with natural light in contrast to the transition spaces, in which ceiling heights step down. This attention to how natural light can be distinguished from artificial light, even by those who are visual impaired, was extended to how the ceiling was treated at threshold spaces. To emphasis the location of exterior doors, the roof pulls back and allows for a distinquishable buffer zone of natural light. Exterior cladding materials are carried into these buffer zones to re-emphasize the emerging exit. The architects at gm+ad understood the added audio stress that an active school produces; they resisted this through the creative use of cork board sound dividers as well as the application of sound dampening floor and ceiling coverings with acoustic driven paint finishes on non-parallel walls. The cork boards were also seen to add opportunities to display student work, as well as express comfort through a soft and a unique tactile sensation.

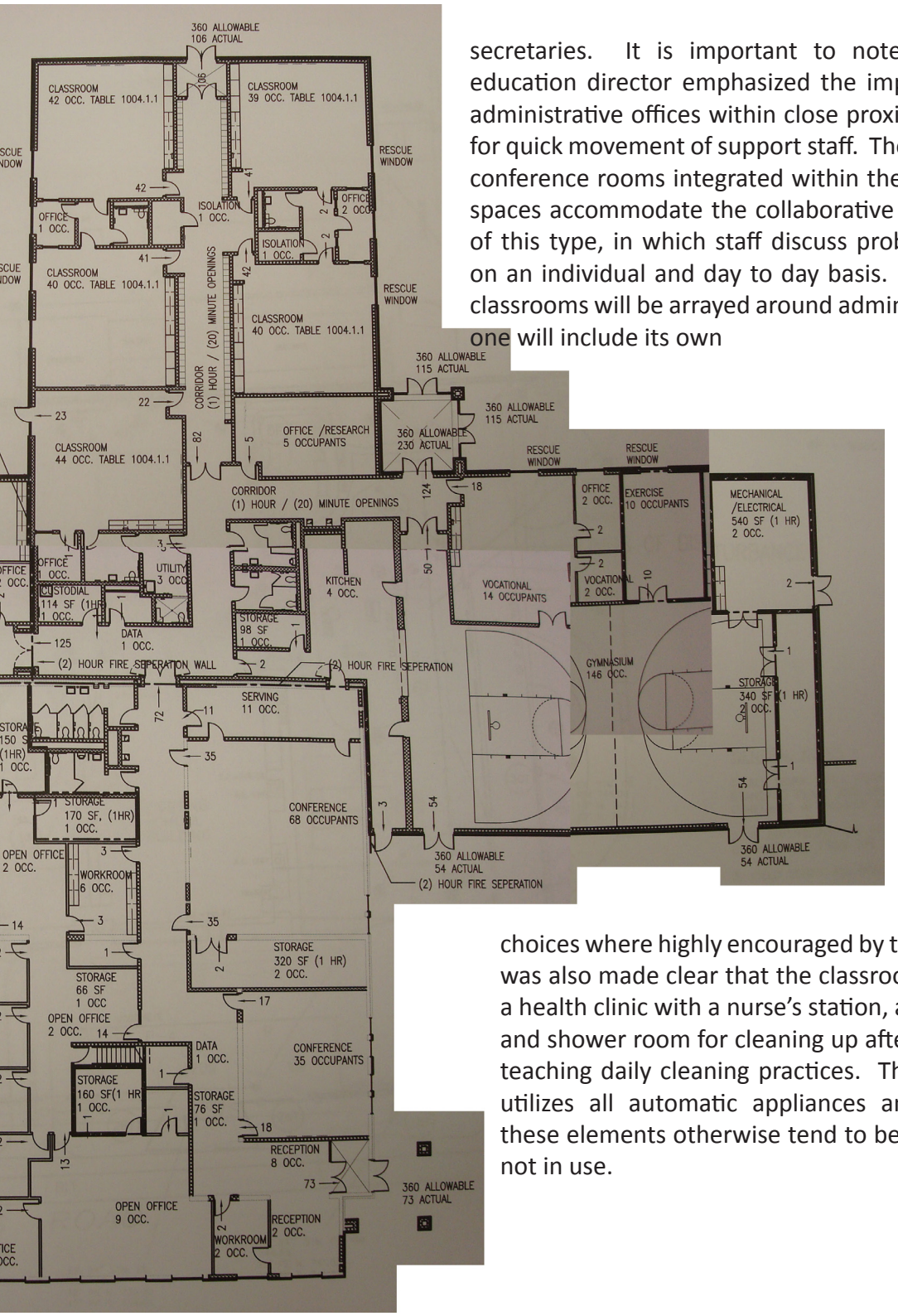
Concept rendering of the ceiling treatment at exterior doors and the shorter, darker transition spaces between classrooms and the hallway.

RESEARCH

The Bad Axe School System has a separate campus for teaching individuals with developmental disabilities, which specializes in training life, trade, and social skills. Information on the Bad Axe School System was initially obtained through observation, which was followed by a series of interviews of teachers, students, counselors, psychologists and members of the administration. The facilities are currently in the process of building a new campus that will consolidate all of the schools resources. Through studying the plans and talking with teachers influential in the new design some key elements were brought to attention.



The first thing mentioned was a discussion about storage, the teachers hold the philosophy that there is never enough storage to hold resource material, classroom supplies, printers and files. Custodial closets where also expanded in the new facility to accommodate use and storage of cleaning equipment for all of the staff to utilize. A facility of this type requires many more offices than a typical school system; these offices can be designed as a series of spaces to accommodate special education supervisors, directors, counselors, psychiatrists, teacher offices, and general education members. Along with these offices, individual therapy rooms of approximately 80 sq. ft. where required for counseling or timeout. These offices need an open area for reception or waiting, and room for multiple

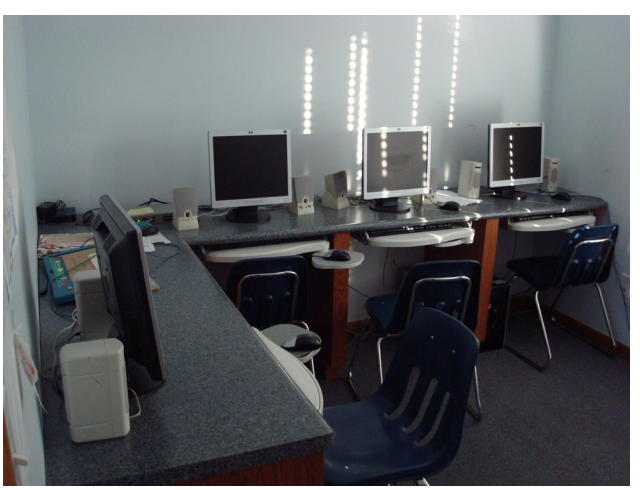


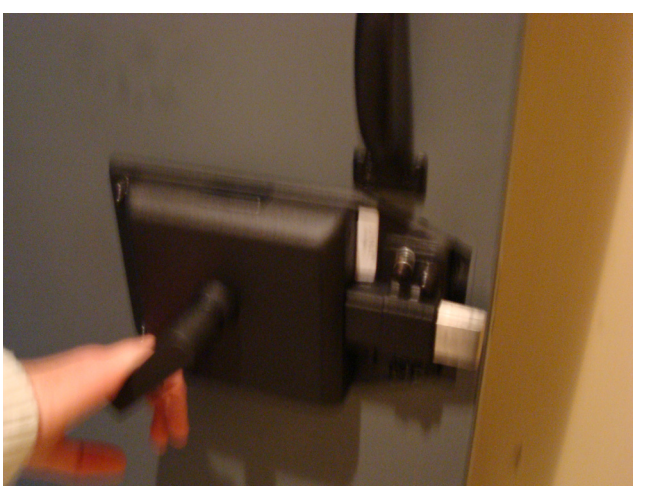
secretaries. It is important to note that the special education director emphasized the importance of having administrative offices within close proximity to the classes for quick movement of support staff. There were also many conference rooms integrated within the classrooms, these spaces accommodate the collaborative nature of a facility of this type, in which staff discuss problems or strategies on an individual and day to day basis. In the new facility classrooms will be arrayed around administration, and each one will include its own bathroom. These choices where highly encouraged by the teaching staff. It was also made clear that the classroom facility required a health clinic with a nurse's station, as well as a laundry and shower room for cleaning up after messy lessons or teaching daily cleaning practices. The new facility also utilizes all automatic appliances and lights, because these elements otherwise tend to be left on even when not in use.

The life skills coach at the facility teaches students from ages 18 to 26. She expressed the importance of teaching life skills as a vital aspect in obtaining independence. In order for the training process to be effective a facility requires all of the elements that a normal person would have to utilize in their everyday life. The current facility that the school system uses for life skills training is designed to look and function similar to a typical home, and all appliances were included in order to teach proper use. The life skills area includes a kitchen, bedroom, bathroom, living room, and dining area. The counters where made lower than normal, and the halls wider in order to accommodate wheelchairs. Typical staff to student ratio is two or three students per teacher for hands on projects and five to six students per teacher for independent tasks such as working with money skills. The basic teaching philosophy is to break everything down into steps and use a scaffolding technique for teaching new skills.

The occupation/ exercise space was divided into multiple rooms to accommodate different pieces of equipment, as well as to limit distraction. These separate rooms contain spaces dedicated to sensory integration. Sensory integration is the working on of all senses in order to help the individual locate themselves, components as well as whole, within a volume of space. These rooms are vital for students working on coordination training or requiring suspension therapy. Part of the occupation therapy spaces include credit card machines and cash registers for practicing on. There are also schools that have large enough facilities to create an outdoor Safetyville. A Safetyville is a life size or half sized replica of a real world area, where they teach navigation and proper street safety procedures.

A typical classroom for teaching basic academic principle like English, math, science, or social studies was broken into three sections. The three spaces allow for specific uses, so students learn acceptable behavior based on specific positions within the room. The desks where placed in an array around the outside with dividers. These cubicles are where work such as individual reading, writing, and other task based work occurs. The majority of the floor space was occupied by tables where lecturing and classroom discussion take place. There was also a community area in one corner of the room that included couches, beanbags, and a table for students to use in case they need to step back and refocus or are participating in activities such as games or story time. Areas were defined within each room so that students could have personal space to retreat to. For security reasons bells went off when doors were opened and closed. Windows used where found to increase attitude but views of exterior activity have been found to be distracting. Computers where utilized in the classrooms for accustoming one's self with technology as well as social networking. Social interaction is taught in these spaces, but it is not a generalizable concept, each case is seen to be specific. Communication aids are used with the lessons, but it was stressed that audio and visual stimulation may cause sensory overload and negate the lesson. For background noises, natural sounds where found to be better for an entire class than playing music which may help one student but overload another. To counter these conflicts desensitization is taught as a process of identifying one's feelings and creating a coping strategy for them. Material choices used where comfortable to the touch, and not covered in excessive patterns or bright colors. Furniture did not weigh too much for a teacher to move yet was solid enough that students can not constantly pick them up or fidget with them.





Near each classroom where timeout rooms for dealing with students who have either become over stimulated or need some time to calm down. Many of the students within the Bad Axe facility have more severe disabilities than the targeted demographic of this thesis, but it is still worth noting that facilities that deal with young or severe cases of autism will need these timeout rooms to be designed with materials that are easily cleanable, as well as equipped with externally locking door mechanisms. These locking mechanisms must be specially ordered so they only remain locked as long as a faculty member holds back the spring or else they will not meet fire codes. The timeout rooms for severe cases need to have one way mirrors, floor drainage, and an interior clock, so students on timeout know how long they have to remain in the room. Speakers and cameras were found to be invaluable within a classroom for helping teachers figure out what exactly set a student off, or for categorizing and comparing successful teaching strategies.

After school was over and the students had left a group of teachers volunteered their time to discuss and clarify questions in relation to their implications on the thesis facility. For the dorms it was mentioned that common spaces between rooms would be ideal, so residents could have a less private place for interaction with fellow students than their rooms. For the classrooms, the teachers discussed how great it would be for all of the technology to work together with touch screen panels, so that only one interface would need to be taught to the students, and icons could be used to display information as well as letters. They then mentioned that expandable quite spaces or designated headphones coupled with comfortable seating within the classrooms would be a great way to allow students a temporary escape from over stimulation. The teachers also identified that lessons would be quicker and more successful if a facility had a large pool of replicated elements used in lessons, so that anything taught could be directly followed by opportunities for everyone to practice. Safety and controlled egress where large components of the Bad Axe school's layout, but their relationship to this thesis was discouraged because by the time a student would attend a facility such as this thesis project they will understand more abstract concepts such that safety concerns of students wandering into danger or requiring someone to escort them about the facility will not need to be addressed.

Kip Farmer

Design + Autism
Designautism@kipfarmer.com

Kip Farmer from Evansville, Indiana is an award winning and well published interior designer who decided in 2008 to create Design + Autism, a design and lecturing firm that focuses on spreading knowledge about autism based design solutions. This passion was the response to Kip's own son's struggle with autism and a desire to better the lives and environments of all members within the autistic community. Kip was gracious enough to share some of his expertise through our discussions. Our introduction was quickly followed by Kip stressing that sensory issues are the heart of designing for autistic individuals. These sensory issues, when addressed improperly result in a student being either over or under stimulated by his/her environment. These overloads can be derived from flickering, excessive, or inadequate lighting conditions, poor color or pattern choices, auditory defenses, and the textural feel of material choices. The key concept when designing for autistic individuals is allowing a space to remain adaptable, since no two children or for that matter solutions are alike.

Kip defined a color pallet that used light hues of blue, green, and beige as being ideal for fostering a calm learning atmosphere. As he foresaw it these colors could move from dull to vibrant in order to help define spaces from private to public, to express a transition among steps within the program, or to allow self-monitoring. These colors are best expressed through solid application then patterns which can be distracting or confusing. It was seen vital to keep private spaces at the scale of a human in order to resist intimidating feelings derived by soaring openness. Classrooms should also express a practical height to exclude additive environmental stress, while spaces like circulation can open up as a challenging element where other tasks are not requiring the focus. The use of natural elements such as hardwoods and vegetation also produce a warm inviting experience that will benefit users. Furniture and materials should not feel hard and cold, but rather express comfort and when acceptable allow for self-soothing movement such as rocking or turning.

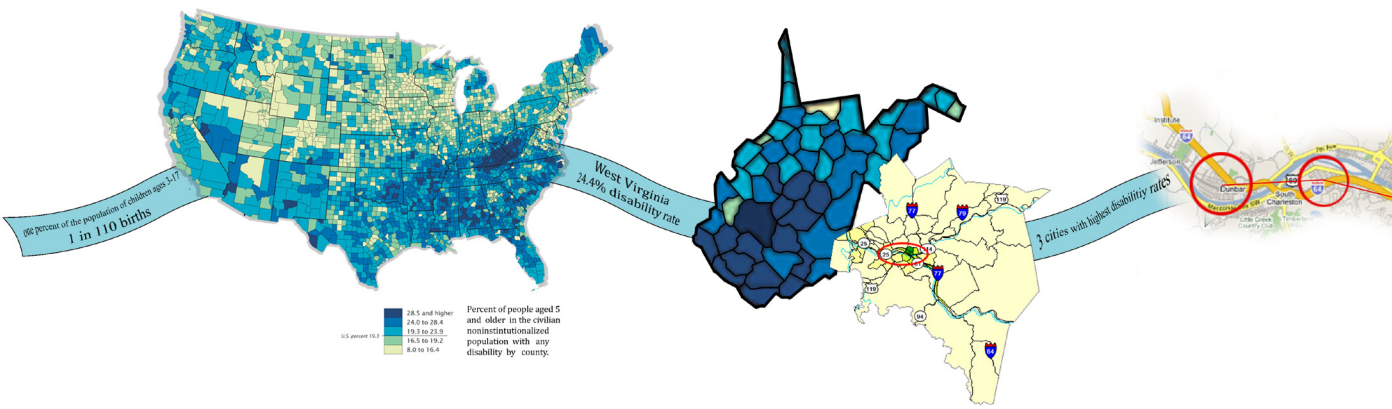
Kip strained that the progression between spaces should form symbolic as well as physical stepping stones that allow for a compartmentalization of spaces based on acceptable behavior or use. Way finding offers unique problems and opportunities for autistic individuals. Kip did not see the advantage of using fencing when compared to the distinct message of separation they produce; instead he suggested the use of creative landscaping and visual cues to define borders. These same visual cues where discussed as an important component to building signage. It has been found that using art or sculptured elements to landmark spaces or buildings instead of textual signage is more effective for autistic individuals. These sculptural forms can become manifest either through literal sculptures or the unique expression of a building's envelope. As a parent, Kip suggested the importance of separation training for autistic individuals, as well as their family and support structure. There is never a desire to discourage reinforcement, but in order to aim at independence students need to learn to operate independent of support systems. It is vital to include elements like media rooms and comfortable living spaces in which family members can still contact and encourage each other through audio, visual, and direct contact.

Dr. Temple Grandin

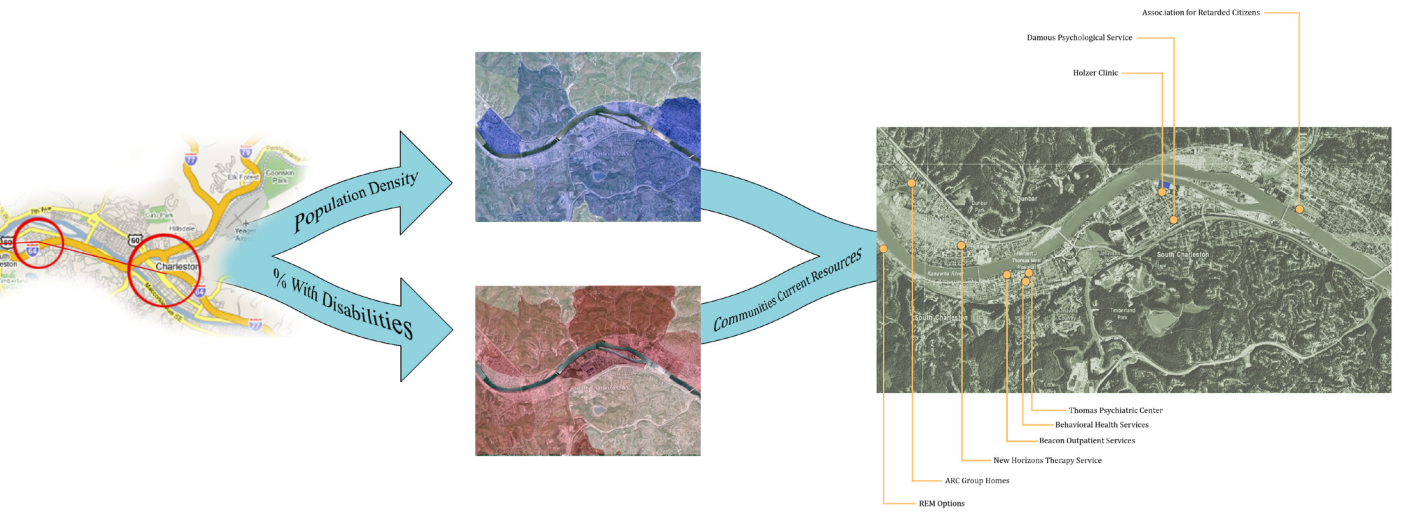
Professor of Animal Science at Arizona State University
www.grandin.com

Dr. Temple Grandin, a leading lecturer on autism, is one of the premier livestock enclosure and retention designers. Her unique insight as an autistic individual has enabled her to verbalize how an autistic person may perceive everyday experiences. As a part of Dr. Grandin's lecture series, she addresses the anxiety that typical school design produces within autistic students. She has supported ideas about soaring openness, human scale, nesting, and sensory issues previously mentioned in this paper. Dr. Grandin's unique insight is in explaining how her own brain works by thinking in pictures. When an autistic individual sees something, whether they translate it into a picture or categorize it another way they all place the information within schemas that go from specific to general, as opposed to a normal brain which typically moves from general to specific. It is important to mention this because as the brain distorts incoming information it requires lessons to be case specific and reinforced through repetition. These differences make multi tasking or covering more than one step of a process at a time extremely difficult. Dr. Grandin's understanding of an individual's sensory threshold can be surmised that overload precedes "spacing out" and certain common items bring with them an inherent tendency to cause this. Certain electronic equipment work like strobe lights for an autistic individual, such as typical 60 cycle fluorescent lights and computer screens which flicker. It was even mentioned that pure white paper can have too much contrast for certain autistic individuals. Many of these issues can be overcome through the process of desensitization, but these techniques take time and focus. The first time doing anything can be a frightening new experience and changes should be expected so as not to surprise individuals with a sudden new challenge. The most important message to Dr. Grandin was that every individual needs to address difficulties within their life, figure out what works, and implement these solutions in order to unlock the unlimited potential of any human being, regardless of their disability.

FINDING CONTEXT



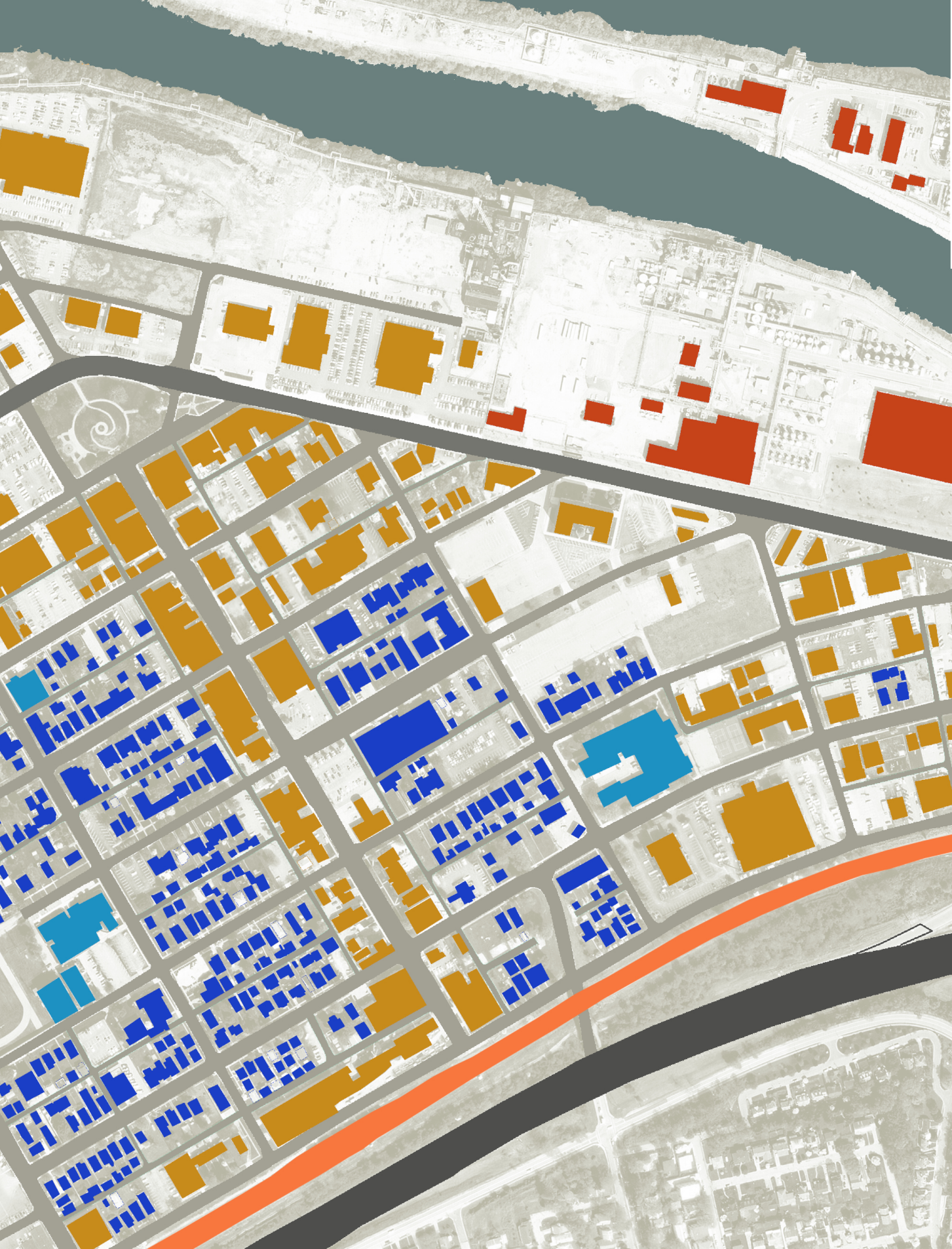
This thesis is an exploration into how campuses designed for specific groups of individuals with disabilities can service their surrounding communities. It is the intention of this thesis that the final project would serve as a template for the creation of similar campuses throughout the United States. Realizing the need that every community may have for a node of this type, it was decided to place the first one strategically within a community that has extreme need. This decision was made in order that the campus would have the highest possible chances to be a successful template. West Virginia was chosen as the state in which this project would be completed because it has an abnormally high disability rate of 24.4% and the highest state average of mental disabilities at 7.7% of their population. Within the state the county with the highest disability rates was Lincoln, but Kanawha county was selected for this thesis due to its high employment rates, lower than average poverty rates, and the highest population density in the state. For ages 5-15 the disability rate for Kanawha County is 6.8% which is significantly above average, and gives testament



to the increasing need this county will have for disability related services. The Kanawha River runs through this county and supports the majority of the population along its bank. Cities have grown along this river to the point of touching each other and essentially form one linear city. The city of South Charleston is geographically ideal for the implication of a autism campus. Sandwiched on both sides by Dunbar and the capital city, Charleston, South Charleston is an opportunity to function as a central node that can service the entire area. South Charleston is close in average family income to Charleston or Dunbar but has lower poverty rates than the other two cities by 4 and 2% respectively. It also maintains that high disability rate of 6.9% for ages 5-15, for which it was selected. The image on the far right shows the current service providers for mentally disabled individuals. These services include employment placement, group homes and psychology clinics. There are no campuses like this thesis project within the greater Kanawha area, so there is a need for training facility of this type.

SITE SELECTION

The city of South Charleston runs along the Kanawha River valley. It is aligned along two intersecting commercial strips, with residential areas nestled behind them. A site situated near the vertex of these two commercial districts, near the city park, would place itself within a short walk from many local shops and restaurants, which could serve to bring in community involvement, as well as employment opportunities. In this figure ground Red buildings signify industrial use and a chemical plant, orange buildings represent commercial buildings, light blue buildings are educational facilities, and dark blue are residential districts.



The site selected within South Charleston is the parcel of land represented in blue that lies along the Kanawha River. This land originally supported a chemical plant that was demolished in 2007. The vacant land is still owned by the Dow Chemical corporation wich extends to the east. The decision to place the thesis campus here was derived from a combination of size requirements, relationship to the downtown retail district, access to the public park, surrounding of potential employers, ease of access to main roads, and adjacency to one of the areas only psychology clinics and the river. The proximity of residential districts to the south and west also make this site a logical place for a transition campus, because group homes could utilize some of these buildings without being out of walking range of the campus.

1) GM Goodwrench Service Center

2) Holzer Psychology Clinic

3) Indian Burial Mound/ City Park

4) Advance Auto Parts

5) RITE AID

6) KIA Dealership

7) Dodge Dealership

8) DOW Chemical Offices

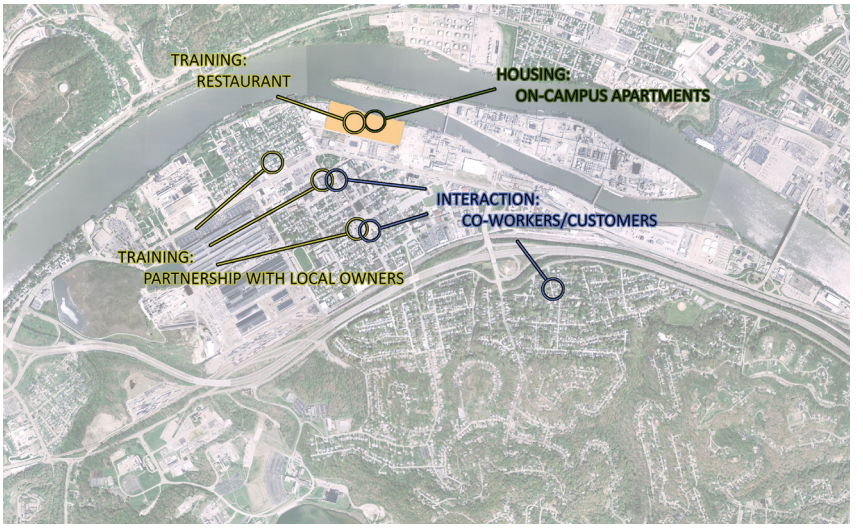
Panarama Looking Toward Site Location

Panarama of Retail Across the Street

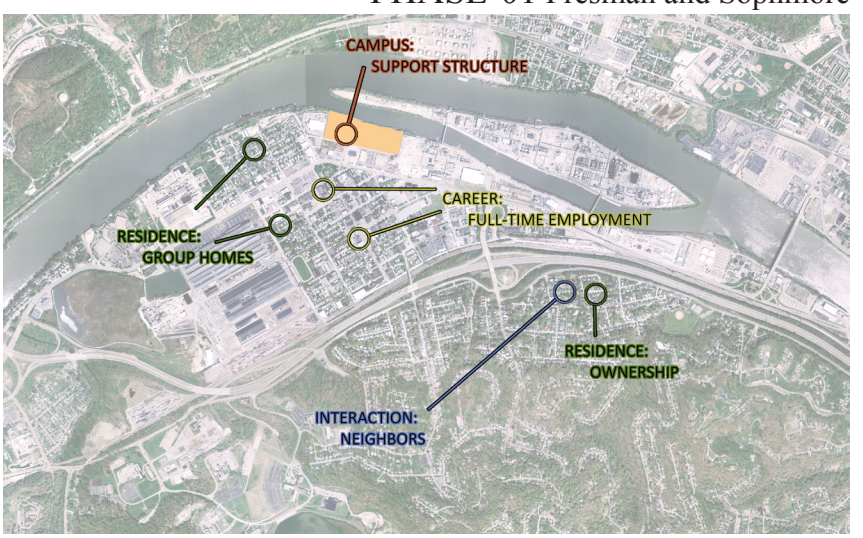
CAMPUS PHASING

The interaction between the community and this thesis was seen as a vital component to the campuses strategy of transition. The before mentioned campuses have set a template for the phases in which a student will scaffold himself toward independence. The example used in this phasing is the timeline of a student of the culinary arts. The culinary school on campus begins to prepare the student, by teaching the basics of working in a kitchen. Once the student feels comfortable that they have mastered these skills, he/she is encouraged to begin using those skills on campus by preparing food for the student cafeteria, then eventually the on campus restaurant. By having these opportunities to practice the learned trade within the safe environment of the campus external variables are minimized and comfortable, productive reinforcement occurs. As the student becomes more comfortable utilizing these new skills, he will eventually begin working in restaurants within the community. These shifts increase in duration and expected performance until the student has comfortably transitioned into a full time position.

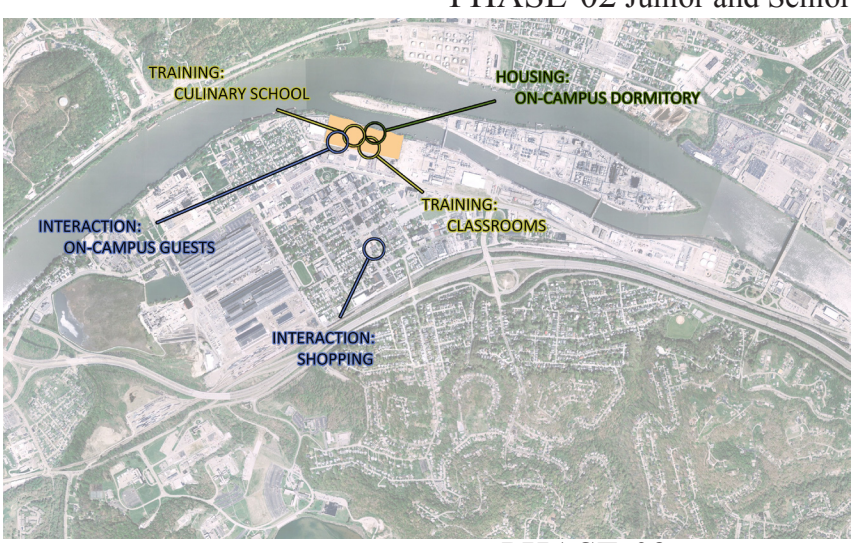
One important difference between the way that the precedents and this thesis work is that for this thesis social training is not seen as a skill that can be mastered only through interactions with peers and teachers. It is the opinion of this thesis that social training needs to operate much like that of other skills. Opportunities for social interaction are encouraged through the integration of public activities within the campus. By bringing the puplic to the site, students are able to manage the duration and intensity of their own interactions. These interactions will be the foundation for scaffolding a student into a position of positive reinforcement of successful social interactions, while maintaining a sense of comfort provided by the location of these interactions occuring within the secure grounds of the campus. In order for this to happen the campus must have defined areas of transition between public and private, as well as elements which will encourage the public to want to come to the campus. These elements must be in some way linked to the students, so they can perform the role of conversation topics.



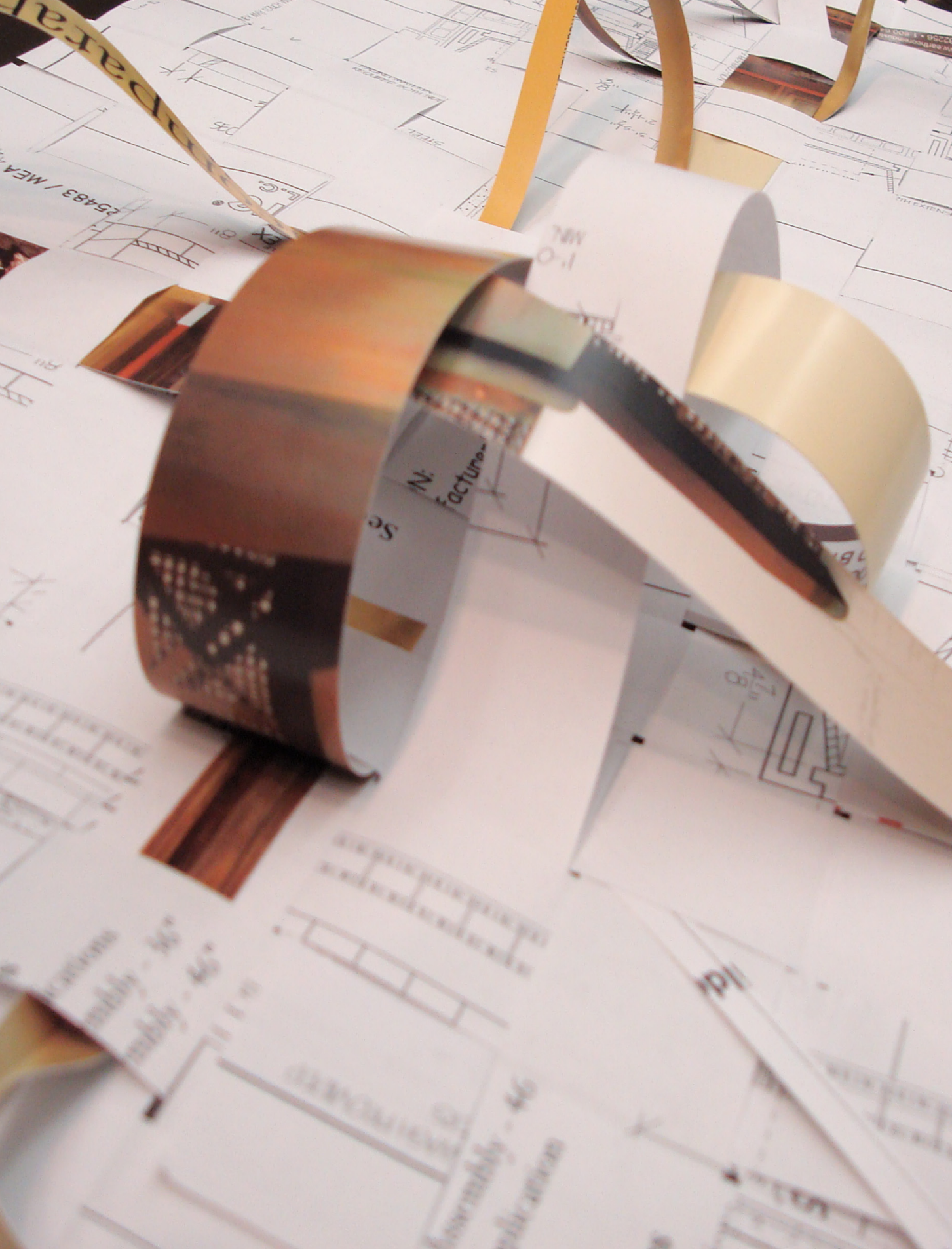
PHASE-01 Fresman and Sophmore



PHASE-02 Junior and Senior



PHASE-03 Post graduate



SKETCH PROBLEM

"Architects in the past have tended to concentrate their attention on the building as a static object. I believe dynamics are more important: the dynamics of people, their interaction with spaces and environmental condition."

- John Portman

The sketch problem is a dialogue about the need for the thesis campus to interact with and weave into its surrounding community. It discusses the importance of that connection, and iterates that in turn the community will have to come back to the facility and engage it directly in order to truly weave it into another functioning layer of the community.

PROGRAM

The goals of this thesis are manifest through the choice of program elements whcih were selected from a combination of the thesis precedents and research. The choice of program is a vital component to the success of this thesis. The buildings and their program form the foundation for how an individual will utilize their four years on the campus transitioning toward independence.

The campus will in a number of ways incourage interaction, while still being mindful of the necessity for feelings of privacy. As a residential facility the campus incorporates dorm, activity, student exercise, and cafeteria spaces that create opportunities for interaction among students. As the heart of the private spaces on campus the dorm building provides a safe haven for the students. This private sector is seperated from the public through variations in elevation, materiality, and the control of views. The residential components of this thesis are oppurtunities for students to learn self reliance. By learning to maintain ones personal space an individual developes a greater sense of confidence about his/her own abilities.

Public interaction is brought onto the campus through the use of retail, lecture, theatre, restaurant, and gymnasium spaces. The retail building is an opportunity for students to gain real world retail experience without the added stress of actually being in the real world. This is a response to the unpredictability of a customer's dialogue that simply cannot be reproduced in a classroom setting. The retail spaces will provide financial support to the campus through its sales of products created by students in the industrial spaces.

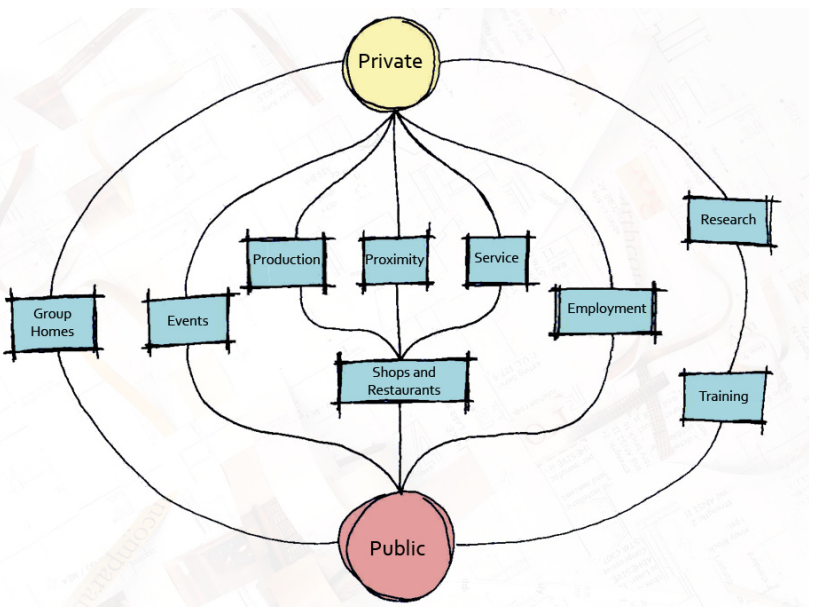
As a node for improving the lives of individuals with autism the campus incorporates lecture spaces for improving awarness and providing information about autism. The lecture spaces are designed for keeping area teachers properly informed to the newest and best strategies for teaching the cognitively impaired population through conferences and lecture series. These spaces also lend to brainstorming and informing sessions for all of the campus's support members.

A theatre will be utilized by students to put on plays, encourage involvement in the arts, hold graduation ceremonies and allow the students an on campus space for movie nights. This space could be rented out for community events and utilized by the research department to provide lectures for crowds of up to 500.

The restaurant provides real work experience for students of the culinary arts, as well as janitorial and service industry experience. The restaurant is designed as a fine dining experience and through its high standards of taste and presentation will provide students with an invaluable experience and reference for future employment. This space is also available for members of the community to hold events in, such as receptions or organization dinners.

The city of South Charleston holds sports in high regard and the gymnasium attempts to seize this opportunity for involvement. The basketball/ volleyball court, three racquetball courts and climbing wall will encourage interaction and lend to an important Special Olympic program for the community and students. The gymnasium also creates a place for necessary energy outlet.

The spaces between buildings are landscaped and maintained by students within the horticulture program. These beautiful buffer zones will provide opportunities for olfactory as well as visual pleasure for students and visitors.



Elements	Area (sq.ft.)	Quantity	Total Area
Dormitory			
Dorm Room	200	48	9600
Dorm Restroom	60	24	1440
Circulation/Common Space			+30%
		Total	**14352**
Activity			
Pool Table Clearance	252	4	1008
PingPong Clearance	210	4	840
Foosball Clearance	135	4	540
Circulation, Seating and Equipment storage			+100%
		Total	**4776**
Excercise			
Machine	40	40	1600
Swing Therapy	400	3	1200
Circulation			+15%
		Total	**3220**
Classrooms			
Classroom	800	12	9600
Restroom	50	12	600
Collaboration/Presentation	1200	2	2400
Circulation/exhibition			+30%
		Total	**16380**
Administration			
Conference Room	750	1	750
Restroom	180	4	720
Private Office	120	4	480
Reception	300	1	300
Waiting	750	1	750
Collaboration	600	1	600
Technology	200	1	200
Storage	250	20	5000
Office Space (per person)	200	50	10000
(rule of thumb includes circulation)		**Total**	**18800**

Elements	Area (sq.ft.)	Quantity	Total Area
Cafeteria			
Per Seat	35	80	2800
Restroom	200	2	400
Serving	300	5	1500
Kitchen	serving X2	1	3000
Admission/Waiting	1200	1	1200
Circulation/Serving Lines			+30%
		Total	**11570**
Culinary School			
Classroom	450	3	1350
Restroom	200	2	400
Storage	400	2	800
Office	200	2	400
Lounge	500	1	500
Cooking Station	120	8	960
Circulation			+15%
		Total	**5071**
Restaurant			
Per Seat	35	80	2800
Restroom	200	2	400
Server Station	75	2	150
Bar	500	1	500
Admission/Waiting	600	1	600
Kitchen	3000	1	3000
Circulation			+15%
		Total	**8567**
Adapting Real World Classrooms			
Rooms	1200	3	3600
Loading/Storage	2000	1	2000
		Total	**5600**

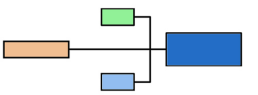
Elements	Area (sq.ft.)	Quantity	Total Area
Research			
Offices	120	4	480
Restroom	50	1	50
Research Room	350	2	700
Storage/printing	600	1	600
Admission/Waiting	600	1	600
Circulation			+15%
		Total	**2795**
Lecture			
Small Lecture Room	850	2	1700
Large Lecture Room	1400	1	1440
Circulation/Reception			+30%
		Total	**4082**
Theatre			
Per Seat	7	500	3500
Stage	1200	1	1200
Wing	700	2	1400
Loading Bay	300	1	300
Workshop	720	1	720
Storage Understage	1600	1	1600
		Total	**8720**
Library			
Stacks	2500	1	2500
Study Carrel	24	36	864
Computer Carrel	24	45	1200
Restroom	200	2	400
Help Desk	350	1	350
Office	250	1	250
Printing	275	1	275
Storage/Closet	100	2	200
Circulation/Group Seating			+30%
		Total	**7850**

Elements	Area (sq.ft.)	Quantity	Total Area
Gymnasium			
Court	4200	1	4200
Bleacher Per Seat	6	500	3000
Concession Stand	300	1	300
Locker Room	700	2	1400
Restroom	200	2	400
Lobby	1400	1	1400
Storage	500	2	500
Climbing Wall	650	1	650
Racquetball Court	800	2	1600
Circulation			+15%
		Total	**15468**
Industrial			
Entry	550	1	550
Large Industrial	6000	1	6000
Small Industrial	1800	3	5400
Locker Room	350	1	350
Restroom	200	2	400
Break Room	300	1	300
Circulation			+15%
		Total	**14950**
Retail			
Shop	1400	8	11200
Restroom	60	2	120
		Total	**11320**
Open-air Market			
Area	400	40	**16000**

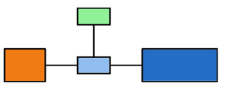
Campus Total **169,521** Sq.Ft.

ADJACENCIES

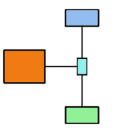
The **dormitory** needs to be adjacent to the activity and the cafeteria, while maintaining a direct route to the classrooms.



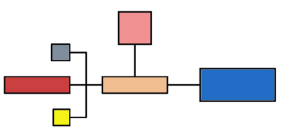
The **activity rooms** will be on the public side of the dormitory and adjacent to the cafeteria. Due to the active nature of this building it may express its connection to the more public gymnasium.



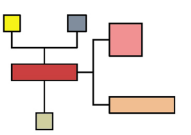
Exercise Spaces need to be at the same level of privacy as the activity room and cafeteria, and may also express their connection to the more public gymnasium



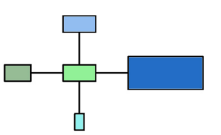
The **classrooms** must be on the public side of and in a direct route of the dormitory, adjacent to the adapting real world classes, and on the private side of the administration, lecture, and research spaces.



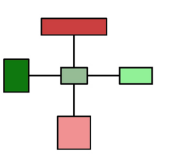
Administration will express its connection to the research, lecture, and information heart of campus, while remaining near the classes and adapting classrooms



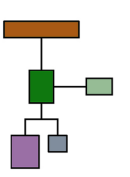
The **cafeteria** will form the transition space between the culinary school and private dorms, and maintain a connection to the exercise and activity spaces.



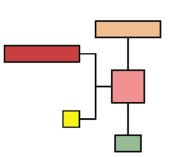
The **culinary school** needs to address its position as an intermediary between the restaurant and cafeteria. This space also needs to be accessible by administration and as a step toward real world training, may locate itself near the adapting classrooms.

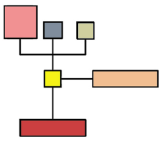


The **restaurant** is the most public of the food oriented spaces, and as such will be adjacent to the more private culinary school. To attract guests the restaurant will also need to be visible to the retail, theatre, and lecture spaces.

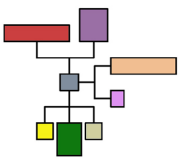


The **adapting real world classrooms** are at the same level of privacy as the other learning spaces: classrooms and culinary school. These rooms need to also be near administration and the research facility.

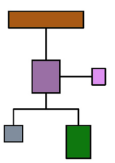




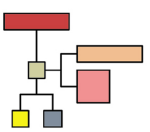
The **research** facility will be positioned to observe the classrooms, present new information in the lecture and library spaces, and work in collaboration with administration.



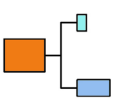
As the outlet for information gained the **lecture spaces** need to express their relationship with the classrooms, administration, research and the library.



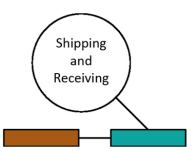
The **theatre** is one of the components that works like a public face for the campus and as such will maintain views of the other two highly public spaces: the restaurant and retail. It must also be near the lecture spaces so it can be used for large presentations.



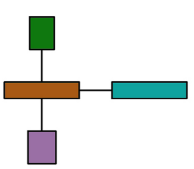
The **research library** will be a shared resource between the students and the public, as such it will express its adjacency to the more private classes, while still being accessible to the lecture, research, and administration.



The **gymnasium** is an open to the public facility during the day and as such needs to be accessible to all. It may also emphasize its connection to the activity and exercise spaces either through view or a path.



The **art of making** component will be a private extension to the retail which it should be adjacent to, to express its symbiotic relationship. There will also need to be room for loading and unloading products.

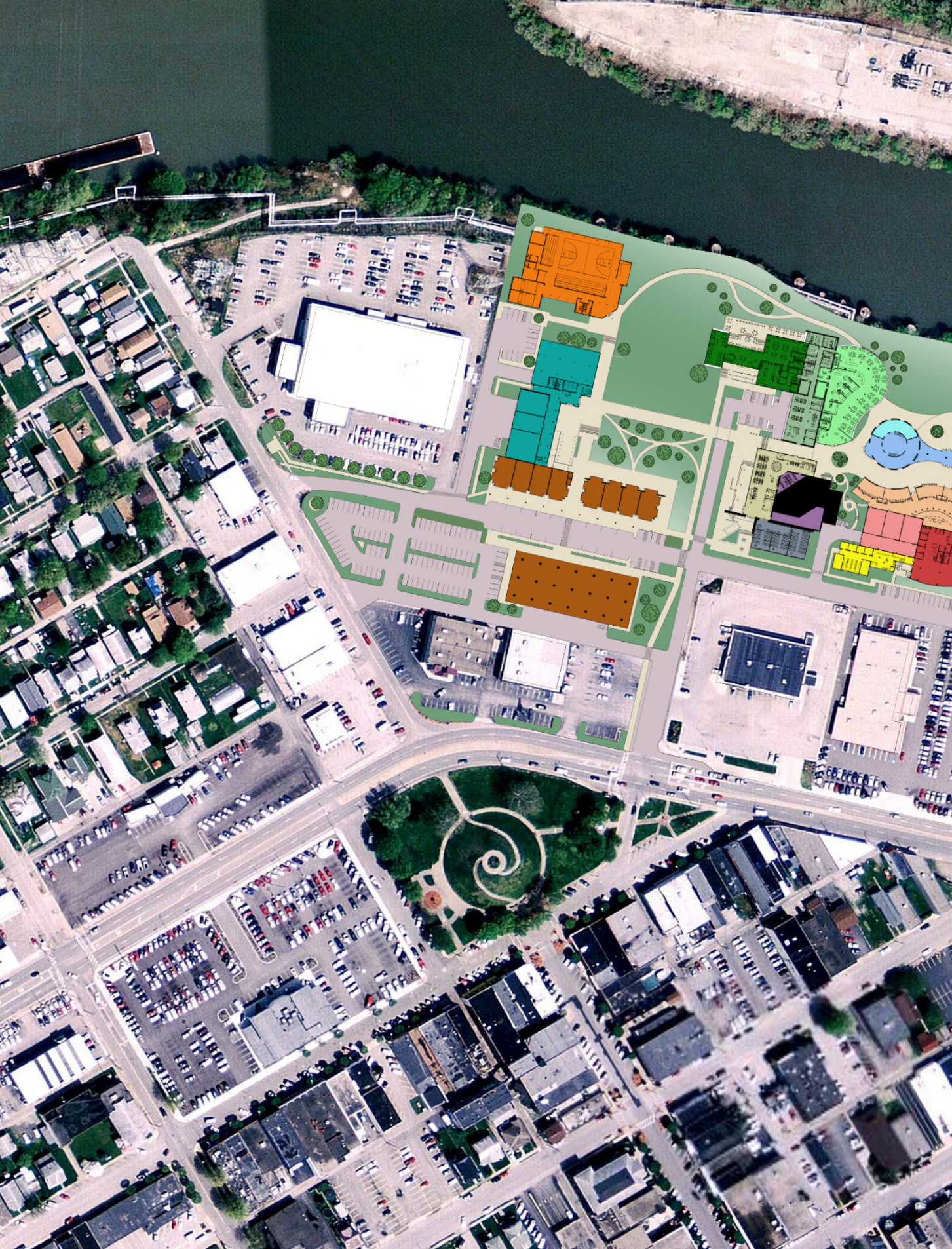


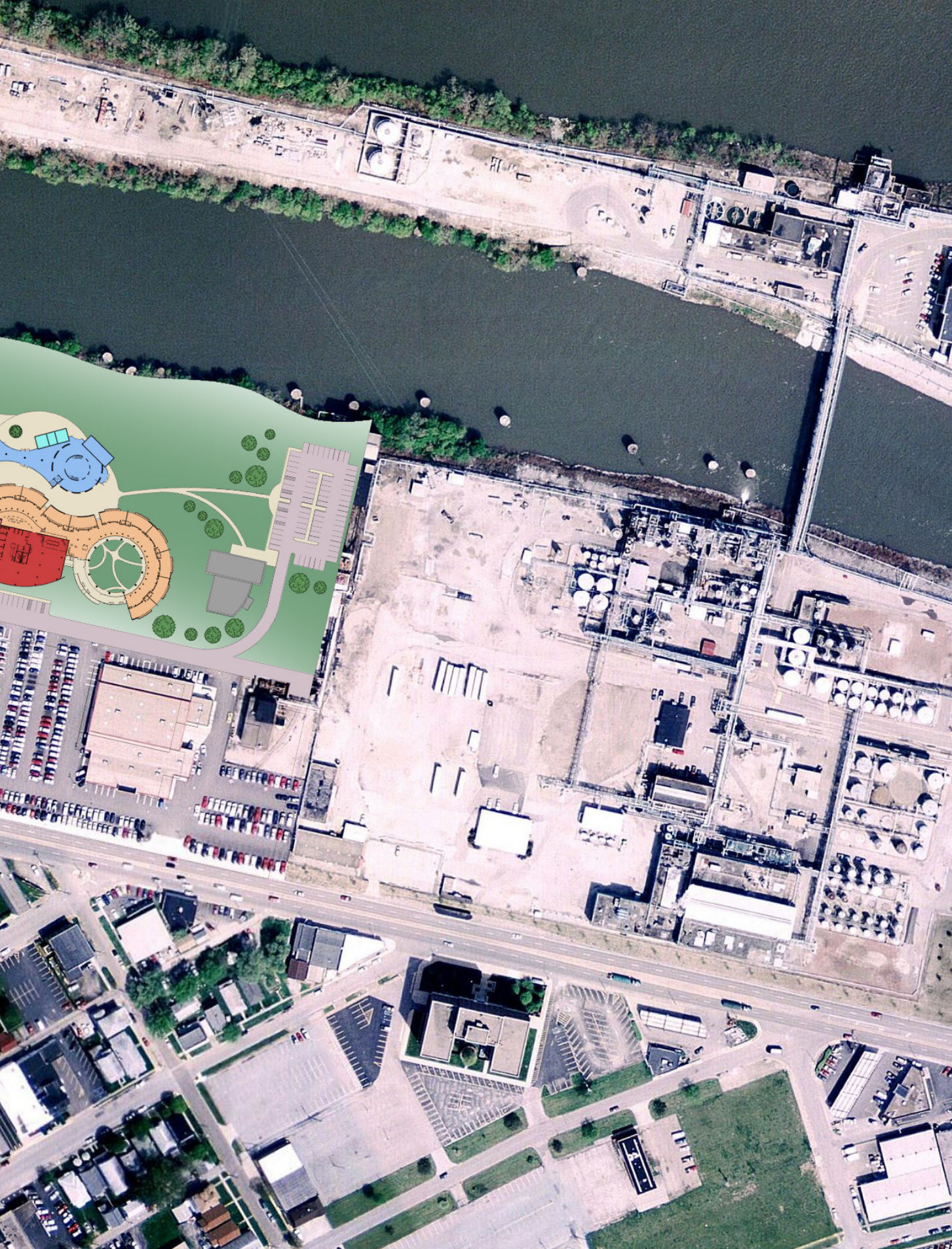
Retail spaces will be the public face of the art of making, and should form a relationship with the theatre and restaurant.

Exercise Space
Cafeteria
Activity Room
Dormitory
Resource Library
Theatre
Retail Spaces
Administration
Art of Making
Classrooms
Adapting Real World
Culinary School
Lecture Space
Research Facility
Restaurant
Gymnasium

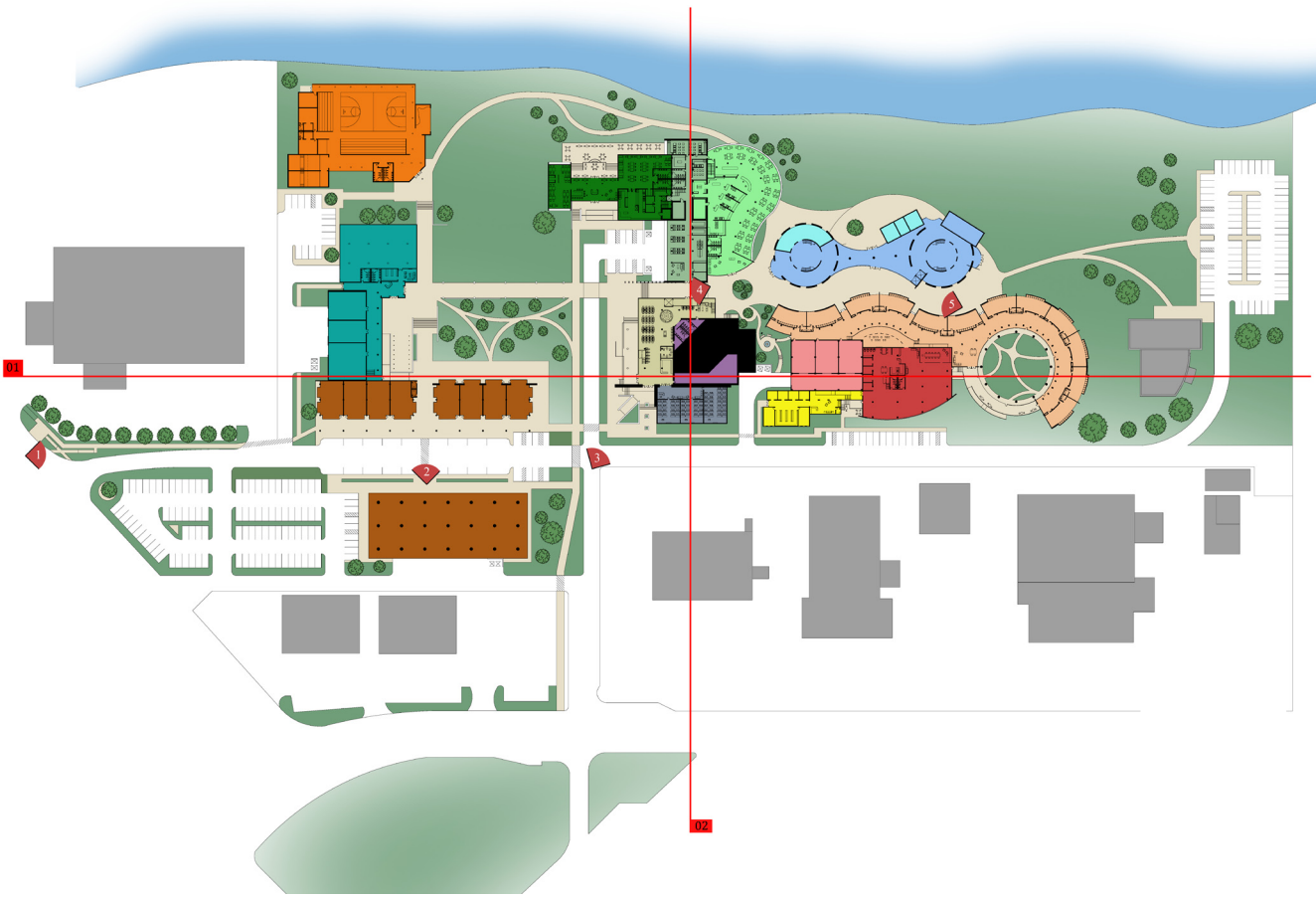
FUNCTIONAL ARRANGEMENT

Utilizing the program and thier adjacencies a study of possible funcional arangements on the site was undertaken. This is a collage of that study. Each possible arrangement was then analyzed as to how they created public, private and transitional space.





FINAL PROPOSAL



Exercise Space
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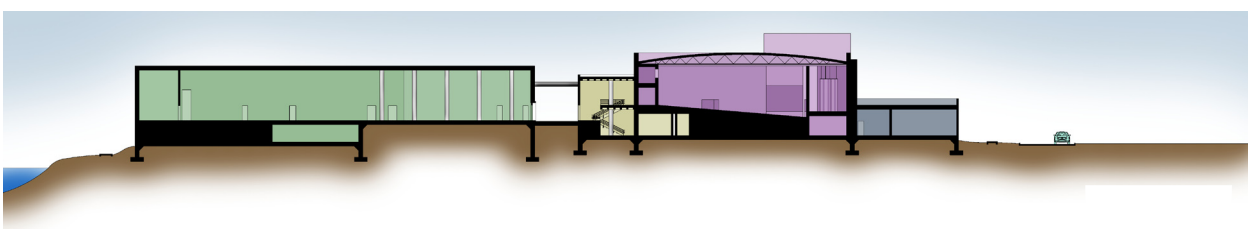
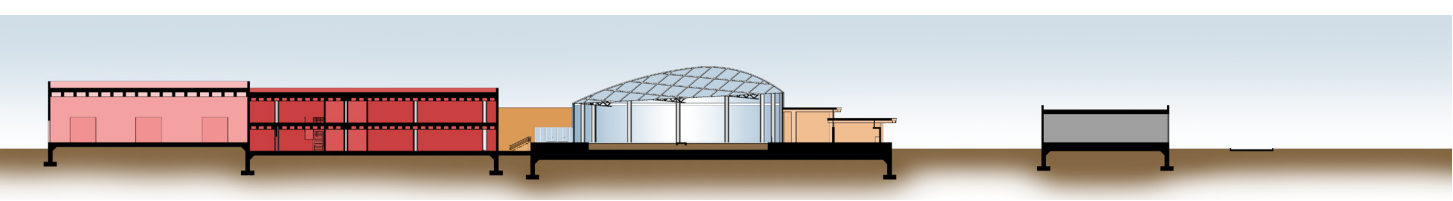
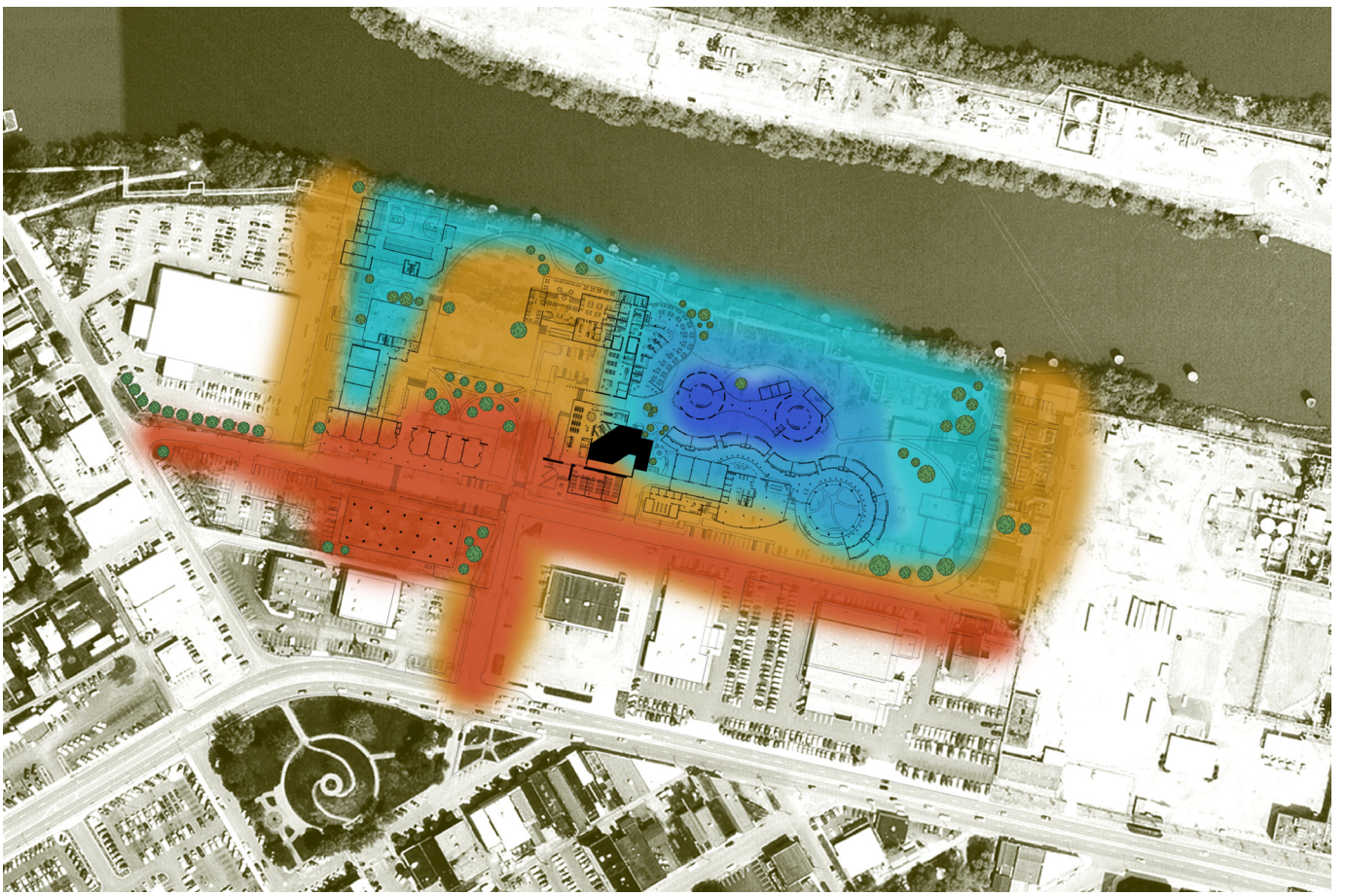


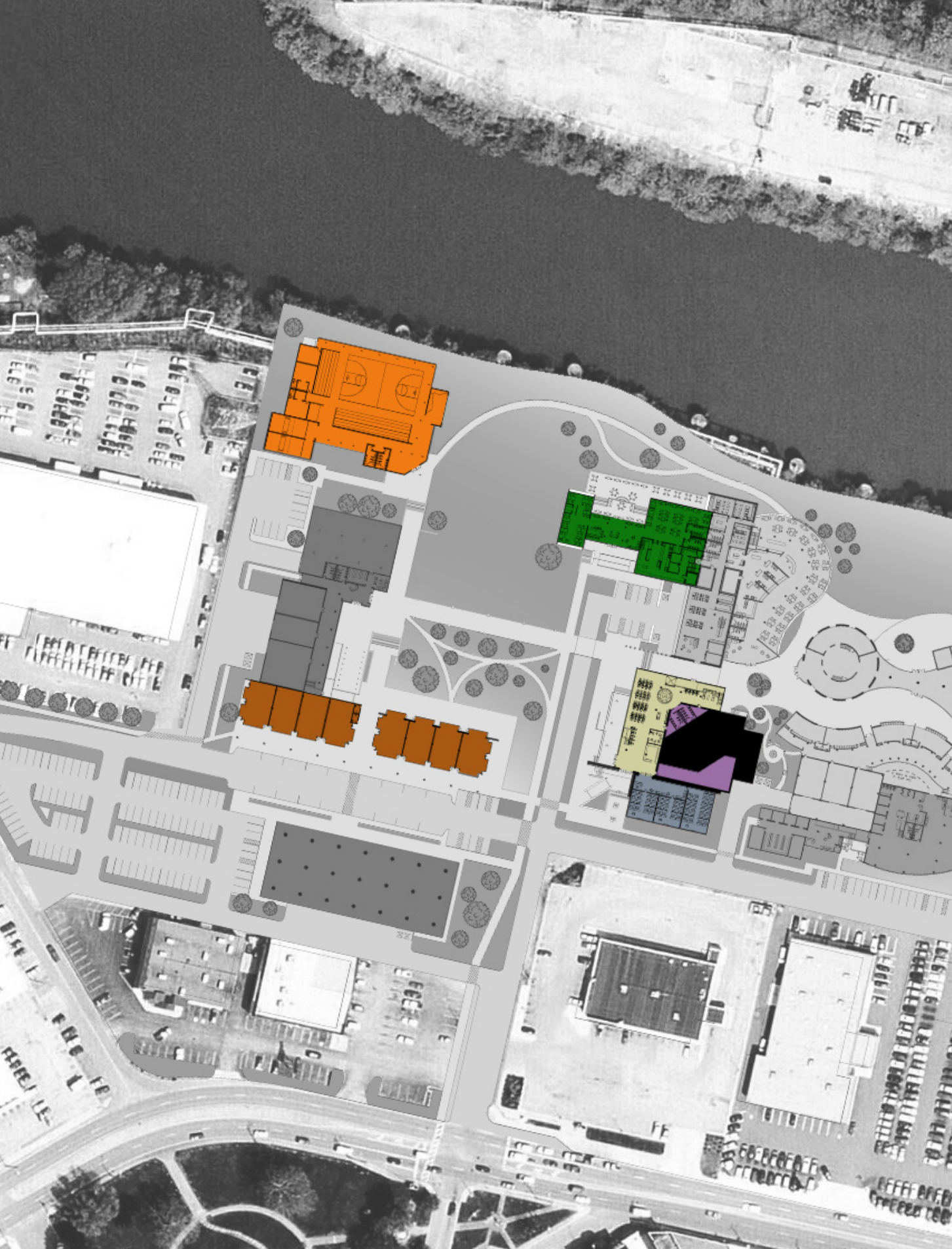
Section-02



Section-01

The master plan for the thesis campus has been designed based off a series of transitions spaces. These buffer zones create a gradient on the campus between public and private. Red represents the most extreme public interaction and inversely dark blue represents the most private. This gradient allows students the opportunity to work on social skills through interaction, as well as provides members of the community with knowledge about the campus, what it does, and how they can help. The landscaping on campus addresses these buffer zones and help support them through the use of natural elements that limit line of site.

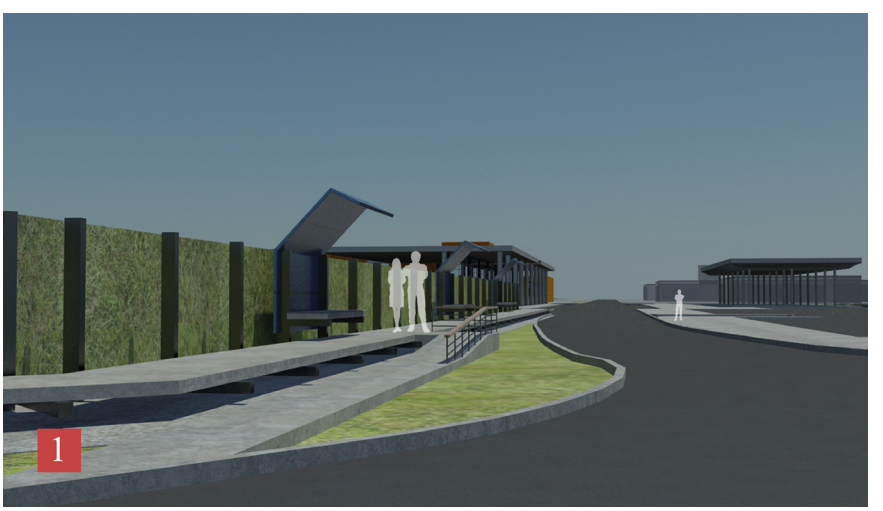


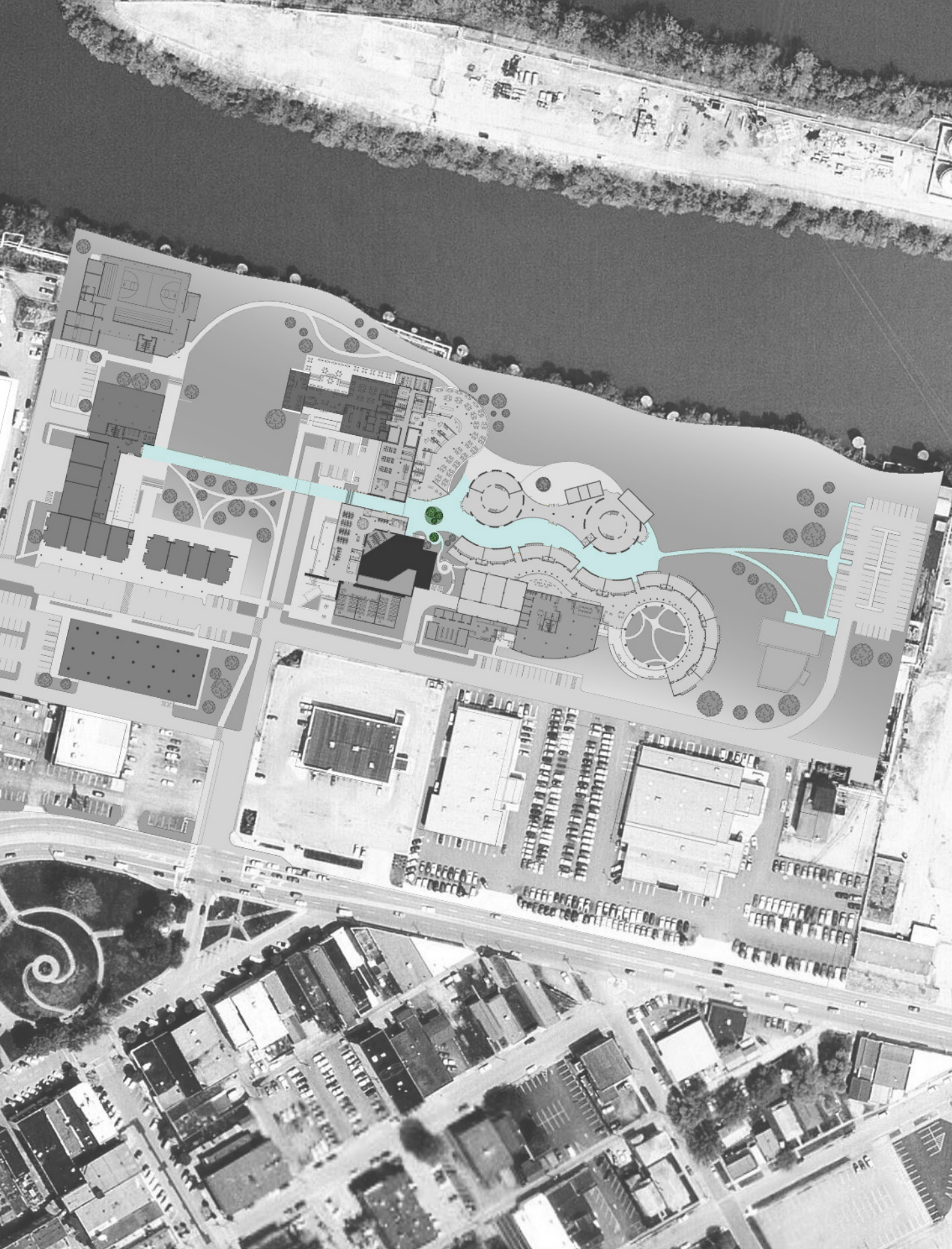


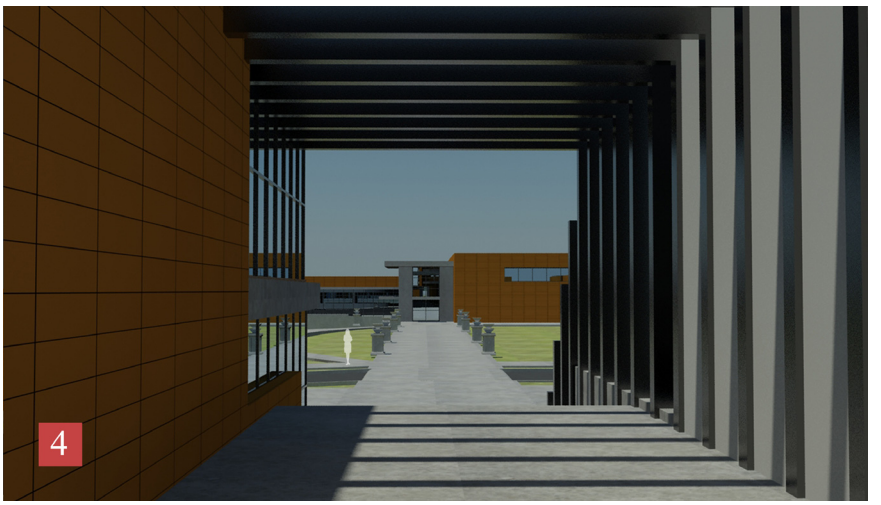
The extents of the public square on the site have been defined by the gymnasium, restaurant, retail and theatre spaces. These four elements are the components that will attract visitors to come and aid in the process of learning. It is important to mention that though the public will gain from the opportunities to eat good food, enjoy a show, shop, catch a sporting event or just enjoy the campus grounds, their usage of these buildings is giving the students the opportunity to practice their trade skills as well as social skills. The green spaces in the public square includes the guardens represented in the image to the left, as well open field space for picnics, activities and a place to display sculptures made by students in the industrial space.

In oder for the campus to successfully integrate public applications this thesis has addressed the issue of enticing potential customers from the surrounding community. The neighborhood to the west is within walking distance of the site and this connection is encouraged with a sculpted sidewalk that reaches out to the community. A wall of greenery was also added to the north of the sidewalk to focus views to the campus, as well as block out unappealing views of the parking lot beyond.

The city park to the south, and the commercial districts beyond have been connected to the thesis campus by adding a pedestrian path, paving the roads that head to the site, and adding greenscaping along the way.

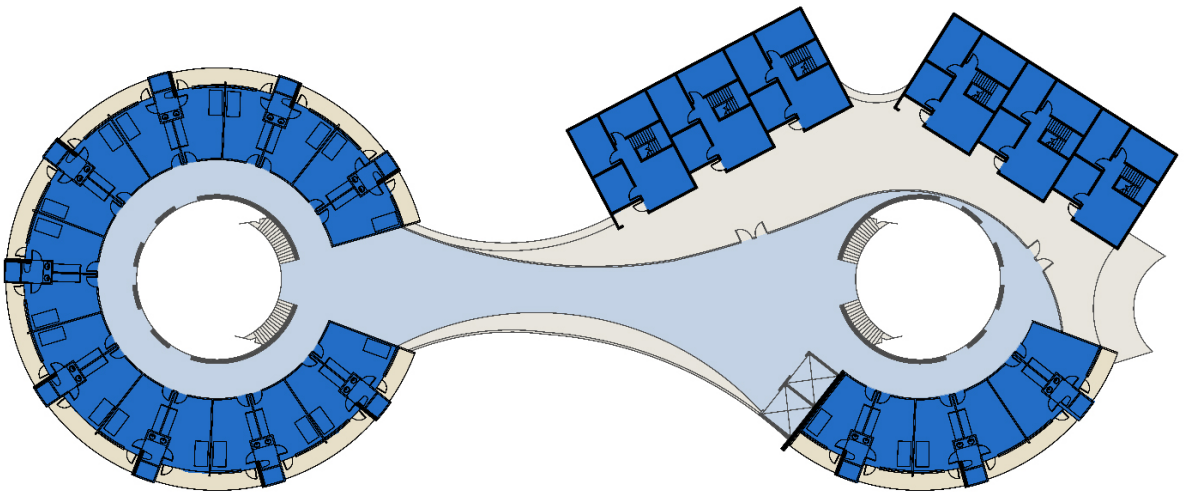




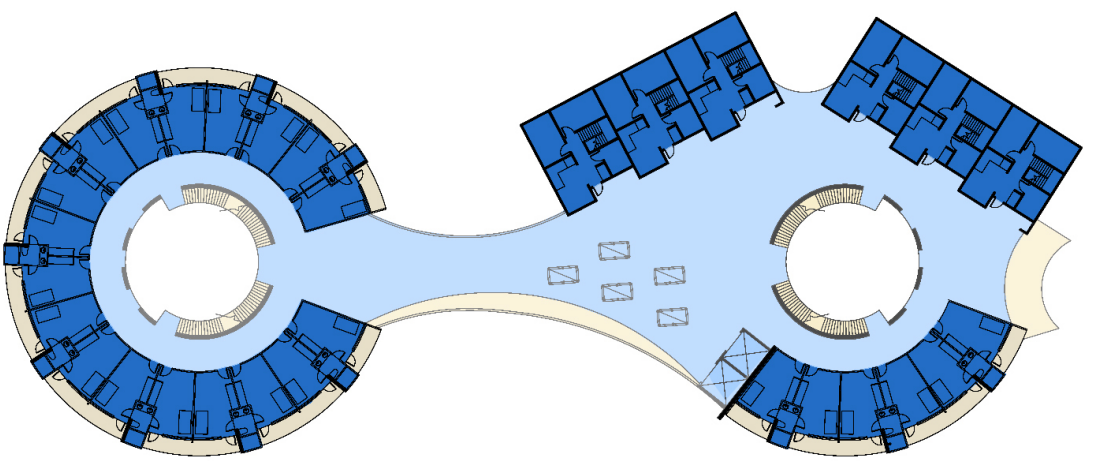


The main corridor for movement across this campus was designed to start in the curving, cloistering space between the dorms and the classrooms. In this space the path is wide, with buildings on both sides and an interior focus created by having the green spaces in the middle. As the path negotiates its way through the buffer zone it is first constricted on both sides and covered. Upon leaving this space the path steps down to reveal itself to the public and extends in a straight line across campus. These decisions where made so that the path could imitate that of a normal city street. Then path ends at the art of making building, representing a route the student would take on his way to work in a real world setting.

The dorms, located within the most private space, are designed for an occupancy load of 130 residents, 50 of which will be the incoming freshmen, 50 for the sophomores and an additional 30 spaces for residual residents and overflow. The decision to have 50 incoming students per year is based on a population of 38,214 people between the ages of 5 and 20 years old within Kanawha County. Of those individuals 3,793 have some form of disability, which when divided by 15 (the number of years between 5 and 20), equates to 253 individuals with a disability leaving highschool every year. Information about the 13 categories of developmental disorder classification and their percentages was obtained from Dr. Nantais at the University of Detroit Mercy. Within these classifications roughly 30% typically fall within the autism spectrum. Using this information, as well as the fact that only about half of these individuals are believed to qualify for or need to utilize the thesis campus, a number of 38 incoming students was derived. The final number of openings for incoming students was increased to 50 to account for years when higher percentages of needing individuals would graduate, as well as leaving room to account for the alarming increase in autism rates we have been experiencing over the past 50 years. The first floor is a typical dorm room layout with shared bathrooms between the single or double occupancy rooms. The second floor incorporates an apartment style layout with shared living, dining, and food preparation elements. The male and female dorms are connected by a circulation atrium that seves as the activity spaces. The Dorm rooms are connected into suits through the sharing of a single restroom between two rooms. Each room also shares an exterior porch with their suite mates on the otherside. This constant connection is an endeavor to produce a more unified student body, for socialization training as well as a strengthened support system.

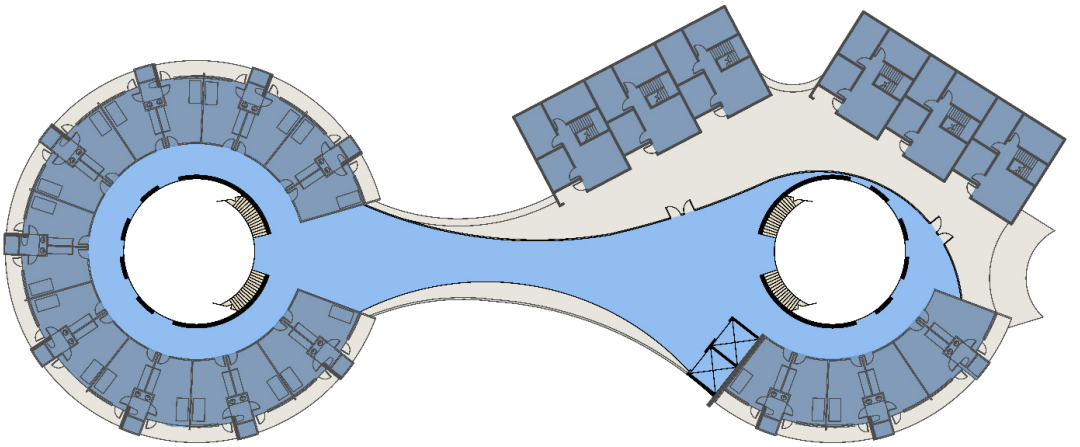


3rd Floor

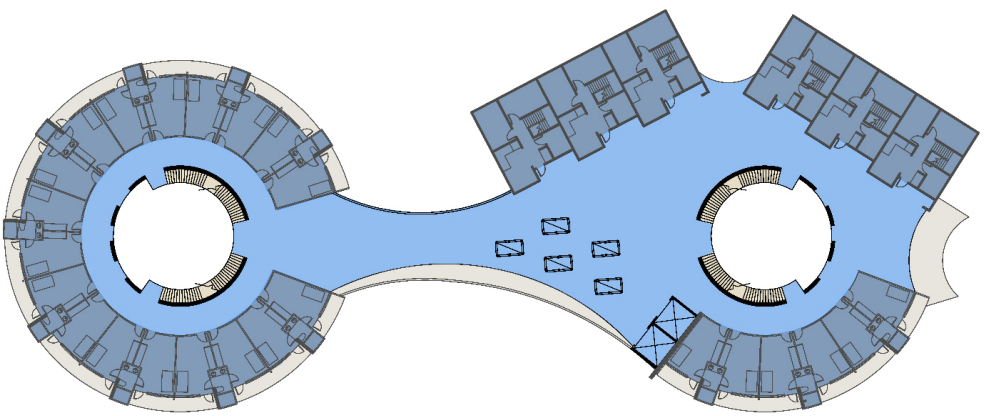


2nd Floor

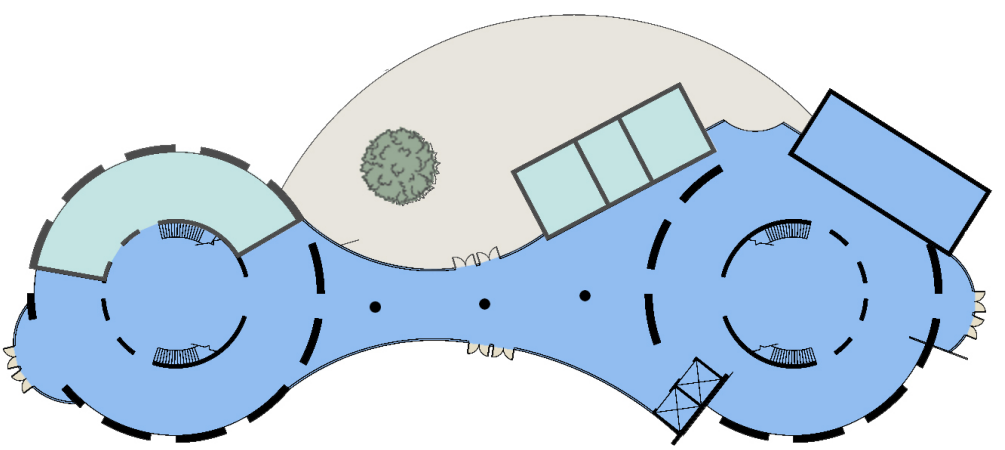
The activity spaces fullfill the role of circulation for the dorm building. These spaces are also the main areas for student with student interaction. The activity spaces incorporate games and activities as well as relaxation elements.



3rd Floor

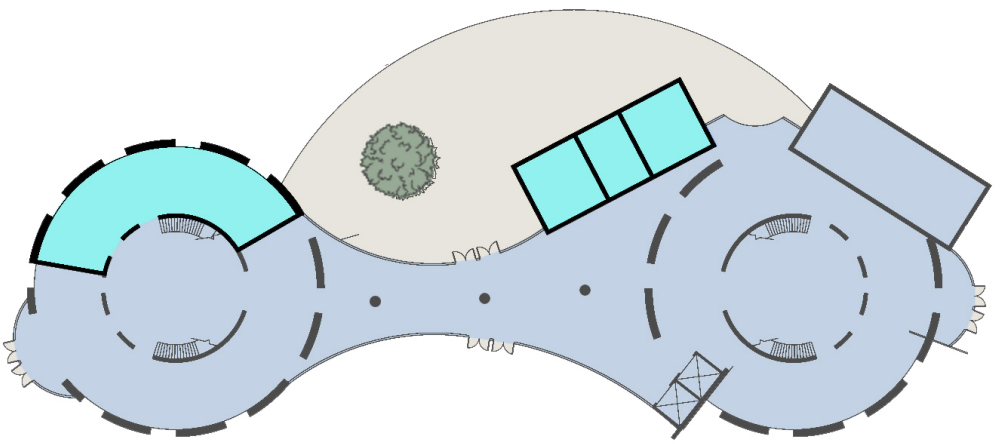


2nd Floor

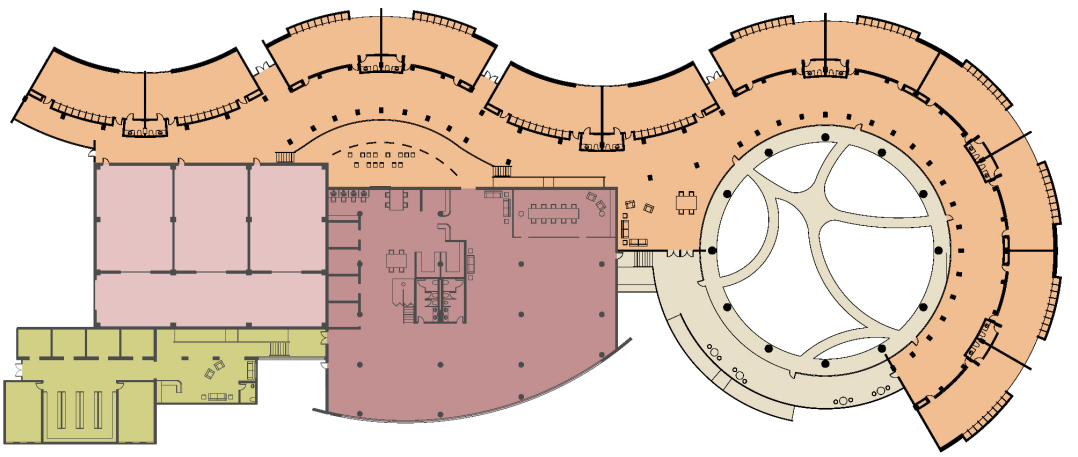


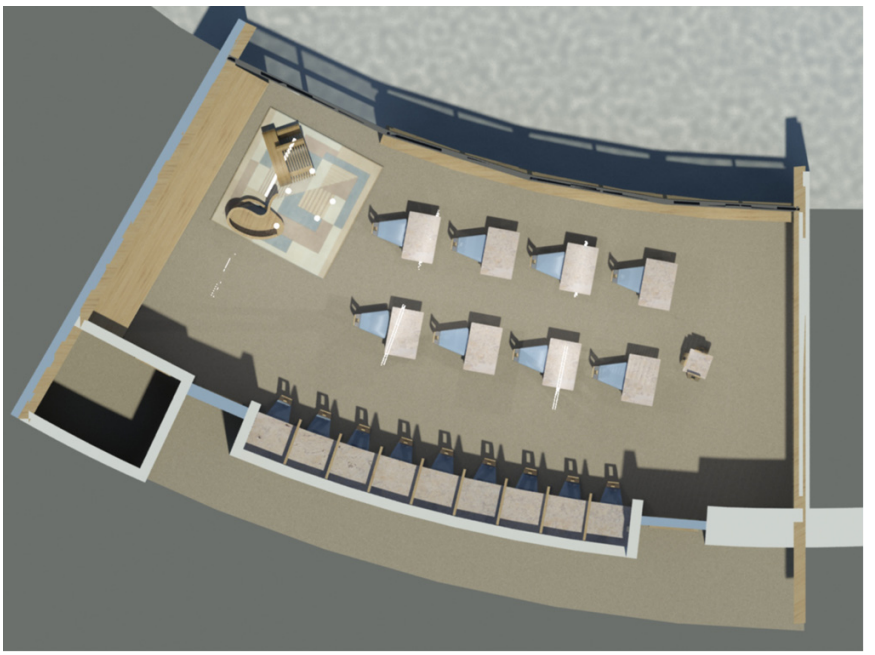
1st Floor

Because the gymnasium is a shared space with the public, the inclusion of exercise spaces with the dorms has proven vital. These spaces allow students to utilize exercise equipment, borrow sports equipment for use outside, and incorporate 3 swing therapy rooms.



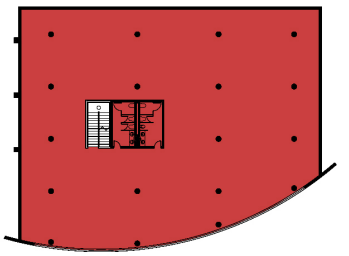
Using an occupancy load of 50 students per year of study for the four year program equates to a total student population of 200 individuals. Considering that more than half of these individuals will not require the use of a classroom all at the same time, (due to specialized training within the culinary school, usage in the real world class rooms, different class schedules, and utilization of industrial or co-op programs) the classrooms are designed for a peak load of 96 students, at 8 students per classroom. These 12 classrooms are sized at roughly 800 sq.ft. each, based on the Shepherds Home resource that a size of 20' x 40' was an ideally sized classroom space.



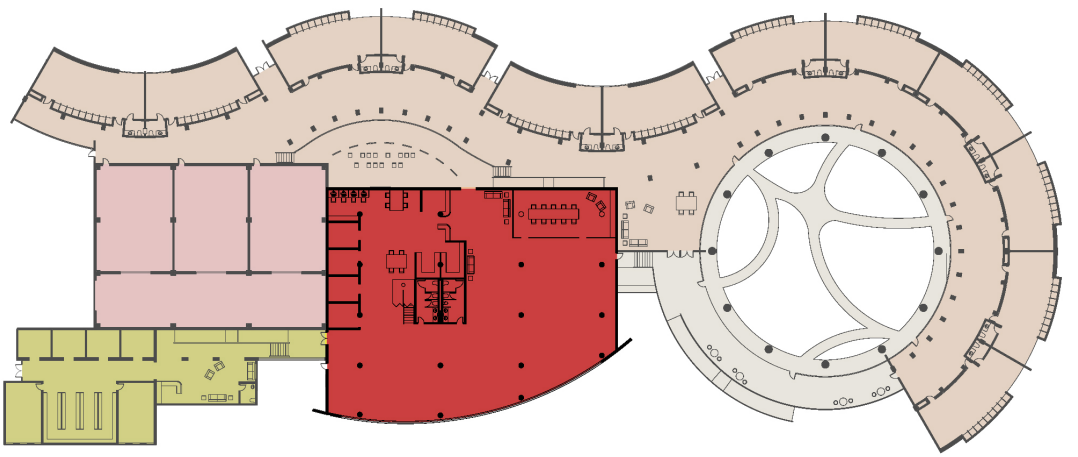


The individual classrooms are designed to have three components, work carrels, lecture desks, and a comfortable escape in the back for games or quiet reading. The clestory lighting allows natural light to flood the room but does not produce visual distractions. In the back of the rooms there are floor to ceiling windows, where movement outside may be a welcome distraction. The floors are made of compressed rubber pellets that give the space a cushiony bounce while still maintaining standards of cleanliness. Along the exterior, under the clestory, there is a wall covered with acoustic carpet. This wall incorporates cork boards for students to display their work or express themselves.

The administration spaces work as a more public component within the classroom building. This space is the transition between the research space and the classrooms. Its position at the heart of the building emphasizes the pivital role teachers have in advancing their students. As the spaces within this building move toward a position of public embrace the architectural language expresses this move through material lighting and elevation changes. The image to the right dipicts a buffer zone that exists between the classroom corridor and the administartion. This buffer zone steps down and opens to a space for collaboration between teachers as well as relaxation or presentation areas for students. The space allows students to maintain privacy within the surrounding hallway, while still giving the option of interacting with those who are seperate and within the buffer zone. The choice to have the private space on the elevated side expresses the position of authority this project endows on its student population.

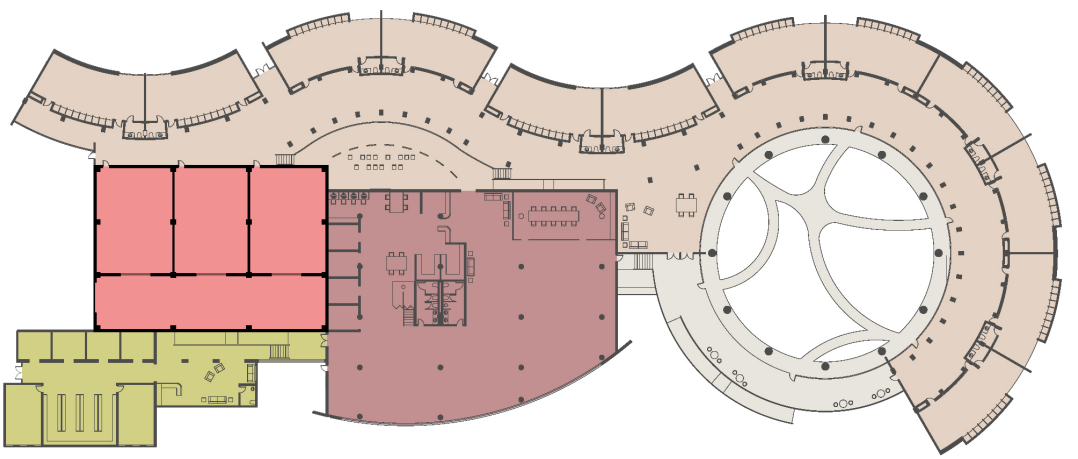


2nd Floor

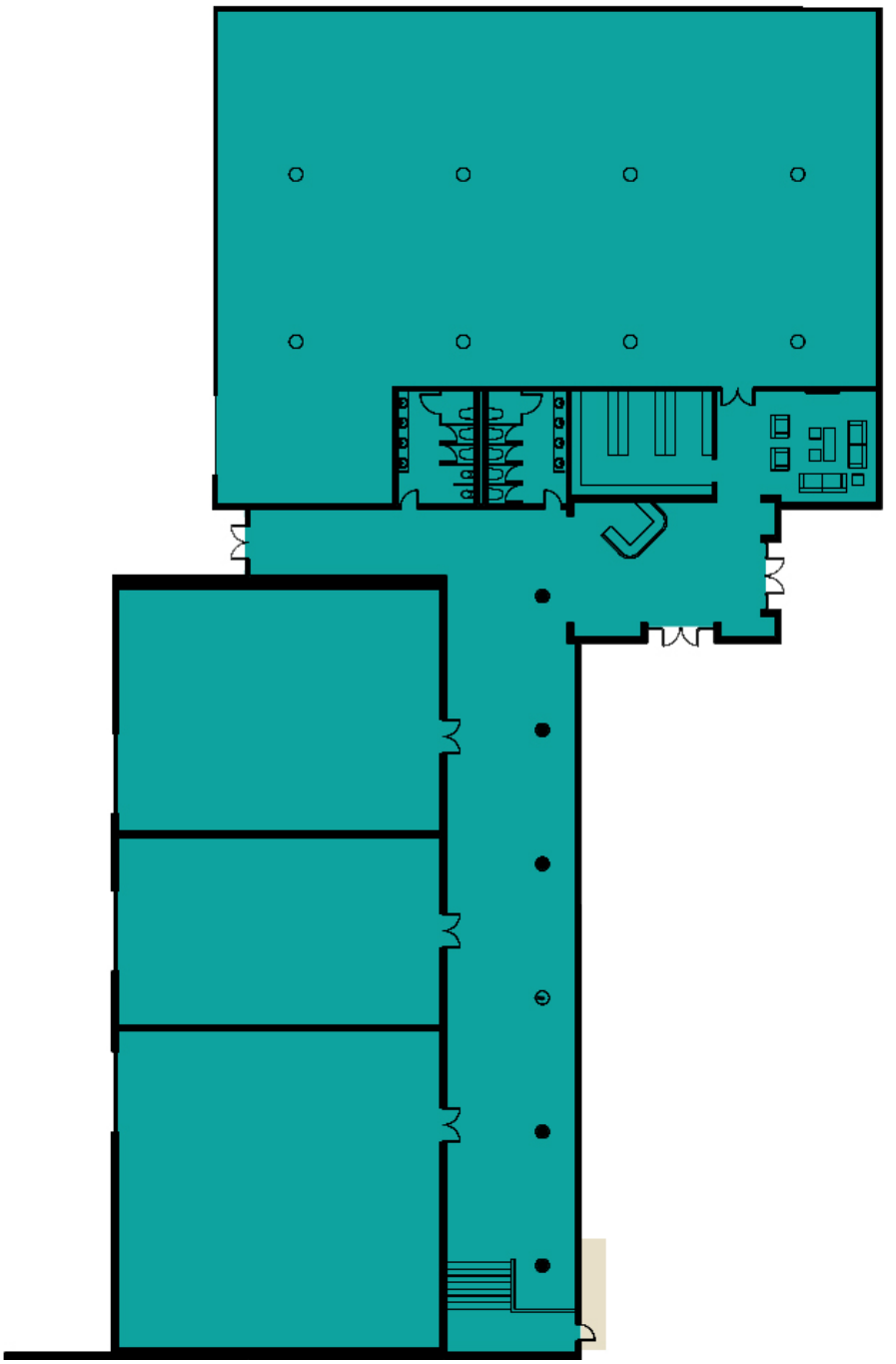


1st Floor

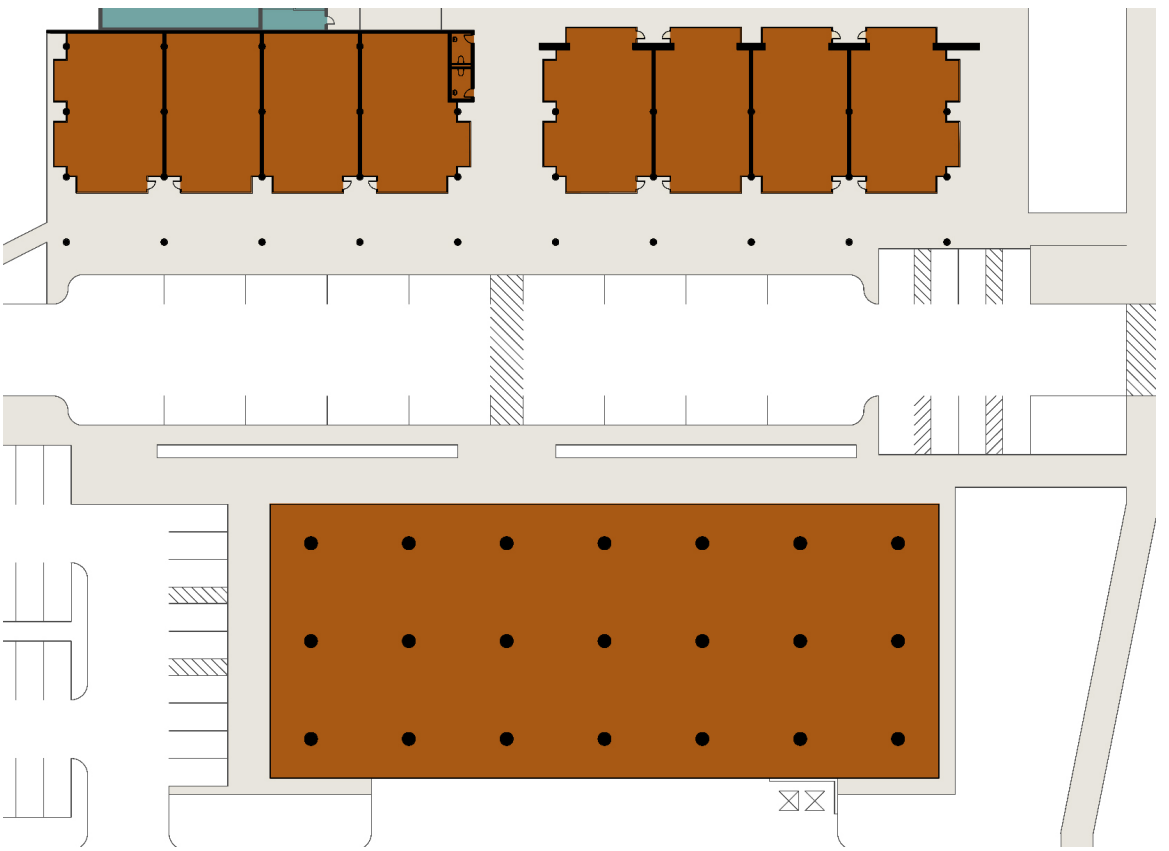
The real world classrooms are a space where mock up components of real world items can be stored and practiced on. The theory behind this space is that if for example and individual wanted to work at a cash register for a store in the community, he/she could first learn on the same equipment with the protective confines of the school. With an exterior loading bay and a lot of storage this space should be able to house or obtain a majority of the components the students may need to become acquainted with.



The industrial, also known as the art of making building, is an opportunity for students to learn skills in assembly as well as arts and crafts. Both wood and metal working shops could be incorporated into this space. Items produced here may be on contract with a larger company, or sold within the retail space.



The retail component of the thesis creates opportunities for interaction between student workers and customers, a chance to display products produced by students, and also gives student workers invaluable experience in customer service and financial responsibilities. Across the street is an open-air farmers market where as it is imagined once a week students from the horticulture program can sell produce that has been either grown on campus as part of a co-op with local farmers. This fresh produce will also be served in the cafeteria and restaurant.



CONCLUSION

This thesis looks into how a campus can be designed to help improve an individual's rate of transition from living with their parents and being dependent on them, to obtaining meaningful employment and being able to live with minimal assistance. This community based thesis campus rethinks the way we treat individuals with disabilities. The thesis boldly encourages the public to explore and interact with the campus and its residents. It is this interaction that will create a happier, more successful experience for everyone involved. The thesis also looks into how we can use the scientific method as a template for improving our own learning techniques. In the scientific method there is a control group, followed by multiple other groups that change only one variable in the process of discovery. This thesis works within the pretense that any additional stimuli can have a bearing on a process's result. By controlling the number of additional stimuli the scaffolding process of learning attempts to add the fewest stimuli to every new application of a previously learned process. The template set up by this campus should be extrapolated by future projects working within similar fields. The thesis would suggest to these designers to look into how a student can progress their learning simply by modifying the environment in which it takes place. These environments at first teach a focus on the task, and then begin to teach repetition of the task while being distracted by increasing exterior stimuli, until its final stage of acting as the same space would in the real world.

The thesis that was just discussed needs to be aware of its own limitations as a thesis project. In order for a facility like the one described to actually work in a successful manner it would require a level of collaboration with the community and actual incoming students from the conceptual stage to the conclusion. Though the thesis looks at itself from an urban down to detail scale the strength of any project in relation to individuals with autism will prove itself in the details. These details address issues of feeling and how our senses can be utilized to create schemas that affect our happiness, productivity, and expected behaviors.