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"Auto-": A Design Strategy For The Autistic Child

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"Auto-": A Design Strategy For The Autistic Child

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“Auto-” A Design Strategy For The Autistic Child
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Abstract

Autism is a disorder with early onset affecting neural processing and development. The most apparent symptoms relate to social elusion and sensory processing. An autistic person may not process certain sensory inputs, such as light and sound, in a "normal" way, which becomes overwhelming and in some cases underwhelming. They may evade social interaction or have delayed development of social skills.

While there have been psychiatric journals which have set diagnostic methods, there is ongoing debate on the ability to truly diagnose Autism. Research of the disorder is always a comparative case study—the "normal" to "abnormal." If the "normal" changes, so does the "abnormal," which causes gray areas in the clinical diagnosis of Autism. The diagnostic methods are abnormal behaviors to watch for, most importantly in the early years of life, as an early diagnosis and therapy greatly helps a autistic person's possibility of skill development.

Even with gray areas, from 2000 to 2017, the reported occurrence has increased from 1 in 166 to 1 in 68, according to the CDC. It is possible the spike can be accredited to advances in research and awareness, but there is also a strong argument that autism is becoming more prevalent. In 2013, the clinical definition of Autism was redefined as ASD, Autism Spectrum Disorder which linked similar symptoms among autism, asperger's syndrome, and similar pervasive developmental disorders, which further broadened the diagnosable condition and may have contributed to the increase.

There is no cure for ASD, but rather therapies, individualized education plans, and medication in hopes to control symptoms. Recognition of the disorder at a young age is optimal for skill development necessary for being self sufficient. Symptoms have been observed from birth, and therapy/treatment begins immediately to socialize and encourage mental and cognitive development of the child. The early years of an autistic child's life are vital to developing social independency in the built environment.
THESIS STATEMENT:
Analysis of the sensory qualities and social interactions related to autism and the architecture of autism result in the best-option therapeutic elementary school for children in Atlanta, ages preschool to fifth grade, living with Autism.
Why Autism?
Research has shown the prevalence of Autism has increased drastically since the 1990s, now, 1 in every 68 children in the United States has some form of Autism. Global averages are generally consistent, but it should be noted there is no globalized set of diagnostics for Autism, which makes a comparative analysis nearly obsolete. Specific to the United states, there is an estimated 3.5 million people of all ages living with Autism.

The Center for Disease control published a Community Report with specifics of several state’s Autism prevalence, including Georgia, in 2014. Results shows 1 in 64 children within Metropolitan Atlanta have some type of Autism Spectrum Disorder, a more frequent occurrence than the national average.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1908</td>
<td>Eugen Bleuler</td>
<td>Uses the word “autism” symptoms characterized as “withdrawn from reality”</td>
</tr>
<tr>
<td>1943</td>
<td>Leo Kanner</td>
<td>Uses the word “autistic” to describe children with social and communication disorders</td>
</tr>
<tr>
<td>1944</td>
<td>Hans Asperger</td>
<td>Describing similar children who have “generally intact language and cognitive abilities”</td>
</tr>
<tr>
<td>1950s-1960s</td>
<td>Bruno Bettelheim</td>
<td>Proposes “Refrigerator Mother Theory” to argue for autism as a psychological disorder</td>
</tr>
<tr>
<td>1964</td>
<td>Bernard Rimland</td>
<td>Disproves Bettelheim’s theory, and asserts Autism as a biological disorder</td>
</tr>
<tr>
<td>1980</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
<td>First set of published diagnostics for Autism under the term “Pervasive Developmental Disorders”</td>
</tr>
<tr>
<td>1987</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
<td>Renamed “Autistic Disorder”, thirteen new diagnostic criteria</td>
</tr>
<tr>
<td>1991</td>
<td>Catherine Lord, Michael Rutter, Ann LeCoteur</td>
<td>“Autistic Diagnostic Interview”, first tool for identifying children with Autism</td>
</tr>
<tr>
<td>1994</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
<td>Second revision and refinement of diagnostic criteria</td>
</tr>
<tr>
<td>2013</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
<td>Third revision, renaming the group of related disorders “ASD”, narrowing diagnosis categories to social communication/interaction and restricted/repetitive behavior</td>
</tr>
</tbody>
</table>
The Greek root, auto-, or self, influenced Bleuler’s language in a study of schizophrenic adults, and, in turn, set a platform for researching autism. He describes symptoms as “autistic”, in the sense they appear to live in their own world, seldom engaging with others. In the 1940s, Kanner sees similar characteristics in a study of infants, those being autistic traits like repetitive behaviors, communication issues, and lacking social relations. Hans Asperger makes an argument for “autistic psychopathy”, a separate disorder which manifest similarly to that studied by Kanner and Bleuler, but has little effect on language and communication. “Autistic psychopathy” is later renamed “Asperger Syndrome”, or “a shutting off of relations between self and the outside world”.

In the 1950s and 1960s, “The Refrigerator Mother” theory circulated, construed by Bruno Bettelheim. His theory suggested autism is consequential of a mother being “cold”. “Cold”, as a condemning term, describes emotionally/physically distant and unavailable mothers. His research was disproved by Bernard Rimland, but opened the discussion of autism as a psychological or biological disorder.

Rimland’s biological approach argues in favor of Kanner’s research, how could the disorder be psychological if seen in infants? Rimlands says autistic characteristics closely resemble organic brain damage, refocusing the study of autism on neurological abnormalities.
Chestatee Elementary serves as a local case study subjected to the bare minimum a government school provides. The school, first built in the 60's by local craftsmen and volunteers, has been added onto over the years to combat the growing student body.
Chestatee Elementary’s exterior circulation exposed the necessary segregation of children with developmental disorders and typically developing children. Because the separation is necessary for the supervision and safety of children with autism, an all-inclusive school without segregation is not possible. Therefore, a school which caters only to children with autism is a better option for creating a communal environment.
Way finding within the school shows many long corridors with highly reflective surfaces under artificial fluorescent. This can be a very disorientating condition for a child with autism. Fragmentation of halls makes wayfinding difficult because it reduces the child's bearing and ability to understand their surroundings or what is coming next.

- Long corridors with poor lighting conditions
- Fragmented way finding
- Entry Conditions
- Child in wheelchair must go out of their way at level change
INTERIOR CONDITIONS OF SPACES SPECIFIC TO THE EDUCATIONAL AND THERAPEUTIC NEEDS OF STUDENTS WITH AUTISM

Classrooms specified for students with autism are essentially white boxes. The interior intervention is curated by special education therapists who work in the classroom daily. Low budgets among public schools show how these professionals must become creative to build an environment which suites the needs of therapeutic education.
Collaborative Therapy
Horse shoe shaped table keeps children focus on the teacher/therapist and the activity at hand. This type of furniture is prioritized over individual desks in order for therapists to maintain control of all students, as therapy can often become hands on.

Compartmentalized Therapy Space
Therapists use partitions to differentiate spaces by their activities, this minimizes distraction for students.

Eloping Prevention
Chestatee has faced the issue of children running away from the school. Two strategies are pictured for preventing what the therapist refer to as "eloping"/running away. The first is industrial Velcro on the doors which delays the child's elopement. The second strategy is using a baby-gate at the classroom door, which is against the fire code and dangerous should the school need to be quickly evacuated.

Sensory Room
The sensory room is clad in cushioned surfaces and a variety of tools to help exercise the children's senses, such as a trampoline for vestibular sensations and varying material of toys for tactile stimulation.

Sensory Obstacle Course
The course is set up in a separate sensory room. The activity helps to exercise the senses while reinforcing routine and the ability to plan ones next move.

Compartmentalized Sensory Space
These spaces are intended to be a small escape space for one or two students to retreat to when they become overwhelmed by their surroundings. At Chestatee, these are simply storage closets which have been emptied of boxes and filled with small toys, mats, and a swing.
Autism and the Senses
AUTISM AND THE SENSES

An autistic child may be overwhelmed by bright lights, easily distracted by noise, fearful of ramps/stairs, etc. This is caused by atypical sensory processing patterns. The child receives sensory input, but the brain cannot process the input in a “normal” way. Sensory sensitive environments/therapies aim to minimize overstimulation or exercise sensory processing.

A spectrum is detectable in sensory processing issues, through cases with hypersensitivities and hypo-sensitivities. One autistic child may be weary of sloping ground, while another child may seek stimulation of the same type (vestibular), by running or spinning. The weary child displays a hypersensitivity, meaning the input is overwhelming and the child will attempt to evade, or show fear. The child who spins and runs displays a hypo-sensitivity, meaning the child is not satisfied with “normal” sensory experiences and seeks additional stimulation.

Hyper/hypo conditions have been observed in all senses, the most prevalent being visual, auditory, tactile, proprioceptive, vestibular, and olfactory. While the sensory condition is considered a disorder, many professionals refer to the sensory disorder as an “ability”.

“My bed was surrounded and totally encased by tiny spots which I called stars, like some kind of mystical glass coffin. I have since learned that they are actually air particles yet my vision was so hypersensitive that they often became a hypnotic foreground with the rest of ’the world’ fading away.”

Donna Williams, Nobody Nowhere: The Remarkable Autobiography of an Autistic Girl
VISION

Visual searching, recognition, and light

AUDITORY

Perception of sounds

TACTILE

Texture, temperature, pressure

PROPRIOCEPTIVE

Awareness of one's own body in space, motor control

VESTIBULAR

Sense of balance and motion

OLFACTORY

Scent recognition

What is the sense?

HYPER/Overstimulated

Acuity, quick recognition of embedded figures, dislike of bright lights

Unable to make a cognitive decision of what a sound is, triggers emotional/fight or flight response

Don’t like being touched, use of fingertips, easily over stimulated

HYPO/Under-stimulated

Sees outlines, seeks sensory experiences from lights/reflections

Seeks or creates sounds

Feel little pain, seeks pressure on one's body, self harming

Seeks sensory input through movement such as running or spinning

Lacking in ability to pick up scents, wants to smell everything
Visual

Vision has the ability to inform all of the other senses. An ability to see a source of smell or sound, a texture quality, to see the space around us in order to perceive it. To understand the specific issues with visual hypersensitivities, phenomena which activate other senses using the eyes must be considered. Research relating to vision and the autistic child focuses on two categories for observation, effects of light, and visual searching/recognition.

Qualities of light include temperature and direction. Luminance is both a quality of light and of color.

**LIGHT TEMPERATURE**

Direct light can cause sharp shadows/contrast which can be disorientating for the autistic child. Natural light should be dispersed to avoid high contrast in spaces. Direct sunlight also gives a view straight to the sun, which is harmful and could cause sensory overload very easily. Direct sunlight is avoided to reduce brightness, contrasts, and sun glare. Artificial light should be encased behind light diffusing material and designed so that the opposing surface will not have a visible glare.

**COLOR LUMINANCE**

When a color is pure, it appears very vivid. The perceived vividness can cause sensory overload when in large quantities. In small quantities, such as directional/way finding techniques, the vividness is helpful for emphasis.

If color is used in larger quantities, it is better to use tones of a color which cause less eye strain. Very light shades of a color increase in luminance and become a risk factor in sensory overload. Very dark tints pose a similar risk by brightness contrast of surrounding lights conditions.
Auditory issues with autism are not typically related to recognizing the presence of sounds, meaning there is little issue with actually hearing the sound. Perception of sound is the focus in reference to autistic sensitivities. Sounds become problematic when loud or repetitive, and can cause distraction for the child. A child may not understand what the noise is or where it originated. The neurological processing is irregular, which results in an emotional response to a sound which is perceived as unpleasant.

Auditory

aud-i-to-ry
relating to the sense of hearing

Flooring is typically the primary source of repetitive noises. Some spaces, like a gymnasium or cafeteria, will require hard surfaces. Flooring between a muted material, such as carpet, should gradually decrease in sound absorbency when nearing a low sound absorbency floored space.

When a sound is loud or intrusive, the source of the sound should not be out of sight. This will help the child recognize the source of the sound.

Sound should be received directly from the source, not as a deflected sound.

General Absorption

Repetitive Noises

Loud Noises
Olfactory

The sense of smell’s role in architecture is best described in the works of Pallasama. His interpretations point out three key roles of scent and the built environment. First, each space having a distinct scent, owning a scent of its own. Second, an idea closely related to the French “flaneur”, or stroller, the concept of experiencing scents as you move through connected spaces. In regards to Autism, a more behavior based method is used in an earlier, 2006 paper. The Journal of Autism and Developmental Disorder’s published the study, Describing the Sensory Abnormalities of Children and Adults with Autism, which uses surveys to compare sensory related behaviors. Those within the Autism group showed higher occurrence of smell abnormality, which is surveyed through the ‘unusual tendency to explore objects or people by smelling them’. Another study published in the American Journal for Occupational Therapy shows that the autistic child was able to differentiate smells better when there is a neutral smell test in between smells.

“Many autistic children like to smell things, and smell may provide more reliable information about their surroundings than either vision or hearing.”

-Temple Grandin, Thinking In Pictures, Expanded Edition: My Life With Autism
The autistic child has been observed to have unusual interest in touching certain textures or objects, scratching and tapping at the texture/object, and a tendency to aimlessly manipulate objects for the sensory stimulation (JADD).

Techniques for satisfying this tactile need involve bringing together a variety of differing textures, seen in the sensory path by PlayScapes Construction, and sensory mural by SensoryOne. Moving from a less tactile space to a more tactile space, increasing textural qualities can prepare the child for hands on activity, or provide outlet for the child who needs more tactile stimulation.
Proprioceptive

pro-prɪ-o-cep-tɪv
connected with the position and movement of the body

The autistic child can tend to be somewhat unaware of their body in space. Because of this, the child tends to lean on walls, run into objects, stumble more frequently than their peers, and push objects/others. (AJOT). The core issues with proprioception involve posture control and motor planning, which manifest as the aforementioned leaning, stumbling, etc. Motor planning essentially entails the ability to make decisions on appropriate movement through space. This renders sharp corners or very hard material, such as the typical concrete masonry units, potentially dangerous.

As seen in Chestatee Elementary, and discussed by Magda Mostafa's observation of compartmentalized space’s positive affect on the learning environment, partitioned spaces interrupt the child's spatial awareness. This allows the child to remain focused on the immediate task.

Both Chestatee and Mostafa also use or suggest use of “escape spaces”, which provide an opportunity to retreat from a situation where the child may be overwhelmed. At Chestatee Elementary, the escape spaces are re-purposed storage closets with various sensory stimulating toys. Marchi describes the spaces as "womb-like", which suggest a small, intimate scale. Escape spaces manifest differently depending on their programmatic adjacency, but the geometry tells the story of a sole individual’s need to retreat.

Curved transition spaces provide smooth turns for a child who may lean or need some support to prevent stumbling.

Compartmentalized space define tasks and aid in separating sensory zones.

Space branching from various programs where sensory overload is a risk provide escapes, or opportunities to retreat. Space is designed to neutralize and recalibrate the senses.
Vestibular

Vestibular issues with autism are often combated with therapeutic swings and devices used to teach balance. Children seeking supplementary sensory input can move, spin, or swing without feeling nauseated or dizzy (integrated treatment). The child may have an unusual desire to run, which can pose a risk for elopement. On the other side of the spectrum, the child may fear a standard 1:12 ramp, or a typical stair. When transitioning from a large volume space to a small volume space (or vice versa), the transition should occur gradually, in order for the autistic child to recalibrate and acclimate. Any changes in elevation also occur gradually, reducing slope to near imperceptibility.
Case Studies
The DLC represents a design strategy called the “neurotypical” approach. The intention is to recreate real-world scenarios. By creating such environments, children are able to develop skill-sets for the appropriate behavior and adapt those learned behaviors to life outside of school. This is referred to as skill generalization.
PARTITIONING

HIGH STIMULUS ZONES

COMMUNITY/PRIVATE/CIRCULATION
LMS Architects
2013
Supportive Housing for Autistic Adults
16,315 sq. ft.
Sonoma, California, USA
Top 10 for COTE Award 2015

LMS uses sustainable practices and materials. The design utilizes passive solar light, and materials which give the spaces even light distribution. Natural ventilation is used and fans are removed, since the repetitive motion can be negative for the autistic user. There are small, compartmentalized spaces used for escape zones and solitude, and simplified way-finding using one way circulation.
Respite Building

GA Architects
2010
Residential community for people living with autism

Building Elevation

Building Section

Floor Plan

PARTITIONING

HIGH STIMULUS ZONES

COMMUNITY/PRIVATE/CIRCULATION

Community
Private
Circulation
Sensory Analysis of Case Studies
Sensory analysis of case studies
Short range views to greenery in residential pods, long range views to areas with movement from community areas.

Largest noise pollution coming from adjacent street, community spaces between private residential spaces and noise source.
Short range views to space “enclosed” by community

Largest noise pollution coming from adjacent street, welcome center and gardens acting as buffer between noise source and community.

Located in a majorly rural area, noise pollution from roads is not a significant issue, rather the building’s program reflects an organization of space by levels of noise put off during programmed activities.
Largest smell pollution coming from adjacent street
Natural Ventilation opportunities keep air fresh and moving through spaces.

Smell pollution from roads is not a significant issue, rather the building’s program works to distance overpowerful smells from other learning environments.

Materials use subdued tones and wood with a grain that is low contrast.

The DLC uses a strategy which mimics real-world scenarios in order to build skill development for the future. Other spaces utilize color to define and separate program.
Heavy use of rounded walls for interior spaces

Strategy using defined thresholds, previews of larger, and retreat spaces branching from both thresholds and main spaces.

Level changes of site create entry on second floor, such extreme level changes are considered difficult to cope with for an autistic student.
Visually connecting spaces provides bearing for the child to be aware of their position in the space.
Program and Space Planning
Sensory zoning is a unique strategy for organizing the programmatic layout of a building, spaces should be organized “in accordance with their sensory quality”(Mostafa), meaning attention is paid to the level of stimulus rather than the spaces function. Magda Mostafa’s ASPECTS suggest spaces with similar sensory qualities be in proximity, while promoting a daily routine. She also observed a need for “escape spaces”, which provide an opportunity for the autistic child to retreat when nearing sensory overload.

Low stimulus spaces do not have a neutralized quality, but use sensory phenomenas to create a focused, still environment for listening.

High stimulus spaces have programs which involve high levels of sensory input. The dominant sense varies between spaces, such as music and auditory, art and tactile, PE and vestibular. One sense may take priority, but all senses are considered.

Circulation space then becomes a tool for the autistic child to adjust and prepare for the oncoming sensory experience.
TOTAL SQUARE FOOTAGE: 152,903

HIGH STIMULUS: 81,870 sq. ft.
- Music 2,000 sq. ft.
- Cafeteria 1,000 sq. ft.
- Kitchen/Food Service 1,600 sq. ft.
- Restrooms 2,520 sq. ft.
- Art 1,000 sq. ft.
- Sensory Gardens 2,400 sq. ft.
- Theater 1,500 sq. ft.
- Entry 2,000 sq. ft.
- Bus Loading/Drop Off 7,000 sq. ft.
- Car Loading/Drop Off 2,500 sq. ft.

LOW STIMULUS: 81,870 sq. ft.
- Media Center 1,995 sq. ft.
- General Education Classrooms 26,280 sq. ft.
- Administration 9,550 sq. ft.

CIRCULATION: 16,708 sq. ft.
- Cafeteria 1,000 sq. ft.
- Restrooms 2,520 sq. ft.
- Sensory Gardens 2,400 sq. ft.

NEUTRALIZING: 5,000 sq. ft.
- Art 1,000 sq. ft.
- Sensory Gardens 2,400 sq. ft.
- Theater 1,500 sq. ft.
- Entry 2,000 sq. ft.
- Bus Loading/Drop Off 7,000 sq. ft.
- Car Loading/Drop Off 2,500 sq. ft.

ELOPEMENT BUFFER: 43,560 sq. ft.
- Music 2,000 sq. ft.
- Cafeteria 1,000 sq. ft.
- Kitchen/Food Service 1,600 sq. ft.
- Restrooms 2,520 sq. ft.
- Art 1,000 sq. ft.
- Sensory Gardens 2,400 sq. ft.
- Theater 1,500 sq. ft.
- Entry 2,000 sq. ft.
- Bus Loading/Drop Off 7,000 sq. ft.
- Car Loading/Drop Off 2,500 sq. ft.

TOILET: 2,520 sq. ft.
- Sensory Gardens 2,400 sq. ft.
- Theater 1,500 sq. ft.
- Entry 2,000 sq. ft.
- Bus Loading/Drop Off 7,000 sq. ft.
- Car Loading/Drop Off 2,500 sq. ft.

Sensory Gardens 2,400 sq. ft.
- Theater 1,500 sq. ft.
- Entry 2,000 sq. ft.
- Bus Loading/Drop Off 7,000 sq. ft.
- Car Loading/Drop Off 2,500 sq. ft.

Playground 7,200 sq. ft.
- Physical Education 5,000 sq. ft.
Site Analysis
SITE SELECTION

1. **Acreage**
   - 8.6 Acres

2. **Immediate Land Uses**
   - Residential, some commercial

3. **Population of Children**
   - Population under 18: 22.6%, 234,274 people
   - Population under 18 with ASD: 1 in 64, 3,660

4. **Proximity to Major City/City of Commerce**
   - Immediate access to Atlanta’s commerce

Approximately 3,660 children living with autism in the Atlanta area.

Population: 1,023,336

- Percent Under 5 Years Old: 6.2%
- 63,447 UNDER 5 YEARS
- Person Under 18 Years Old: 22.6%
- 234,274 UNDER 18 YEARS
DOCUMENTATION OF EXISTING CONDITIONS

PINE STREET NE

1/128"=1'0"

N

PIEDMONT AVENUE

A

B

C

D

E

F

G

H

N

1/128"=1'0"
DOCUMENTATION OF EXISTING CONDITIONS

- Interstate 75/85
- Highland Avenue NE
- Ralph McGill Boulevard NE
- Piedmont Avenue NE
- Pine Street NE
- Angier Avenue NE
- Renaissance Parkway NE
- Candler Street NE
- Chastain Park Plaza NE

Street Identification

- Bicycle Path
- Bus Route and Stops

Topographical Section
**SENSORY ANALYSIS OF SITE**

- Long range view to cityscape
- Short range view to Renaissance Park
- Noise pollution from directly adjacent roadways, Pine St (North) and Piedmont Ave (West)
- Adjacent roadways, Pine St (North) and Piedmont Ave (West) pose largest risk for smell pollution
- Site slopes downward to low point against directly adjacent residential lots

These views should be utilized at entry points but minimized when inside the building to prevent distraction.

Direction of sunlight provides opportunity to provide bearings for understanding orientation.

Tactile language of site and surrounding.
DESIGN PROCESS THROUGH SENSES
Gymnasium and cafeteria grouped due to intensity of possible radiating smells.

Dissection and separation of high stimulus program from low stimulus program.

Entries orientated to views away from site, while internal views of building offer visual connection for students.

Rotation of classrooms away from intrusive smells and sounds from roadway.

Circulation/outdoor space placed to southern side of classrooms to give students bearing with the sun, open air therapy gardens central in building for contained exploration and group therapy, rounded transitions for children who may need help with body position.

Long range view to cityscape.

Short range view to Renaissance Park.

Rotation of classrooms away from intrusive smells and sounds from roadway.

Open air exploration/therapy space.

Transition between level change has options and occurs gradually with minimal elevation change.

Interior views to adjacent spaces.

Music education, gym, and cafeteria pose highest risk for invasive noise.

Gymnasium and cafeteria grouped due to intensity of possible radiating smells.
Documentation of Design
Sensory zoning is a unique strategy for organizing the programmatic layout of a building, spaces should be organized “in accordance with their sensory quality” (Mostafa), meaning attention is paid to the level of stimulus rather than the spaces function. Magda Mostafa’s ASPECTS suggest spaces with similar sensory qualities be in proximity, while promoting a daily routine. She also observed a need for “escape spaces”, which provide an opportunity for the autistic child to retreat when nearing sensory overload.

Low stimulus spaces do not have a neutralized quality, but use sensory phenomenas to create a focused, still environment for listening. High stimulus spaces have programs which involve high levels of sensory input. The dominant sense varies between spaces, such as music and auditory, art and tactile, P.E and vestibular. One sense may take priority, but all senses are considered.

Circulation space then becomes a tool for the autistic child to adjust and prepare for the oncoming sensory experience.

HIGH STIMULUS:
- Media Center: 81,870 sq. ft.
- Music: 2,000 sq. ft.
- Kitchen/Food Service: 1,995 sq. ft.
- Art: 1,000 sq. ft.
- Physical Education: 5,000 sq. ft.
- Administration: 9,550 sq. ft.
- Cafeteria: 1,000 sq. ft.
- Restrooms: 2,520 sq. ft.
- Sensory Gardens: 2,400 sq. ft.
- Theater: 1,500 sq. ft.
- Entry: 2,000 sq. ft.
- Bus Loading/Drop Off: 7,000 sq. ft.
- Car Loading/Drop Off: 2,500 sq. ft.
- Parking: 13,000 sq. ft.
- General Education Classrooms: 26,280 sq. ft.

TOTAL SQUARE FOOTAGE: 196,463 SQ. FT.

LOW STIMULUS:
- Media/Library: 81,870 sq. ft.
- Circulation: 16,708 sq. ft.
- Neutralizing: 5,000 sq. ft.
- Elopement Buffer: 43,560 sq. ft.

TOTAL: 152,903

55,695 SQ. FT.
INTERIOR
75,500 SQ. FT.
EXTERIOR
5,000 SQ. FT.
SENSORY NEUTRAL SPACE: 16,708 SQ. FT.
CIRCULATION: 196,463 SQ. FT.
TOTAL: 43,560 SQ. FT.
ELOPEMENT BUFFER
View From Main Entry (Piedmont Ave.)
Interior sensory gardens provide space for exploration, retreating, and socializing.
Operable doors turn classrooms into an open air space, views provided into higher years classrooms with protective barrier to prevent kicking windows, clerestory and indention at rear of classroom provide a variety of spatial experiences.
Exterior Breakout Spaces Adjacent to Classrooms

Classroom With Open Closed for Educating

Classroom With Open Doors for Collaboration and Interaction
Photographs of Massing Model
Presentation Boards
Historical Progression in the Study of Autism

Diagnosis and therapy greatly help an autistic person's life. They may evade social interaction or have delayed development. There are various theories suggested autism is consequential of a mother's behavior. "Autistic psychopathy" is later renamed "Asperger Syndrome," or "a shutting off of relations between self and others." Theory suggested autism is consequential of a mother's behavior, but today, autism is considered a neurological disorder.

There is no cure for ASD, but rather therapies, which further broadened the diagnosable condition and study of autism on neurological abnormalities. The most apparent symptoms characterized as communication/interaction and restricted/repetitive behavior. The Diagnostic and Statistical Manual of Mental Disorders (DSM) was published in 1964, which defined autism as a psychological disorder. Autism is a neurological disorder that affects how individuals perceive and respond to their environment. The autistic brain processes sensory information differently, leading to unique experiences and challenges.

The prevalence of autism is estimated to be 1 in 110 individuals. This rise in diagnosis could be due to increased awareness and the DSM's recent reclassification of autism spectrum disorders (ASD) into five subtypes: Autistic Disorder, Asperger's Disorder, Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), Childhood Disintegrative Disorder, and Rett's Disorder. However, the diagnostic criteria have also been refined to ensure more accurate identification of autism spectrum conditions.

Autism and the Senses

Autism is often described as a "sensory-processing" disorder, where individuals may experience heightened or reduced sensitivity to stimuli such as sound, light, and touch. Understanding these sensory experiences is crucial for designing effective environments that accommodate autistic individuals.

Sensory processing in autism may be uneven across different sensory systems, with atypical processing in several domains. For instance, exposure to bright light can be overwhelming for some autistic individuals, yet they may also have heightened sensitivity to certain textures or sounds. For this reason, designing spaces that provide predictable sensory input can be beneficial.

In autistic children, atypical sensory processing can manifest in several ways. For instance, they may perceive the world differently from their peers, finding some aspects of sensory input overwhelming while others are perceived as causing discomfort. Recognizing and responding to these differences in sensory processing can help create more accommodating environments.

The role of sensory processing in autism is complex and requires a comprehensive approach to understand and accommodate the unique needs of autistic individuals. By focusing on the individual's unique sensory experiences, we can work towards creating more supportive and inclusive spaces that promote well-being and enhance overall quality of life for those with autism.
Precedent analysis

Site Analysis

APPROXIMATELY 3,660 CHILDREN LIVING WITH AUTISM IN THE ATLANTA AREA

Site Analysis

Approximately 3,660 children living with autism in the Atlanta area.
Sensory zoning is a unique strategy for organizing the programmatic layout of a building, spaces should be organized “in accordance with their sensory quality” (Mostafa), meaning attention is paid to the level of stimulus rather than the spaces function. Magda Mostafa’s ASPECTS suggest spaces with similar sensory qualities be in proximity, while promoting a daily routine. She also observed a need for “escape spaces”, which provide an opportunity for the autistic child to retreat when nearing sensory overload.

Low stimulus spaces do not have a neutralized quality, but use sensory phenomenas to create a focused, still environment for listening.

High stimulus spaces have programs which involve high levels of sensory input. The dominant sense varies between spaces, such as music and auditory, art and tactile, P.E and vestibular. One sense may take priority, but all senses are considered.

Circulation space then becomes a tool for the autistic child to adjust and prepare for the oncoming sensory experience.

**HIGH STIMULUS:**
- Media Center: 81,870 sq. ft.
- Music: 2,000 sq. ft.
- Kitchen/Food Service: 1,600 sq. ft.
- Art: 1,000 sq. ft.
- Physical Education: 5,000 sq. ft.
- Administration: 9,550 sq. ft.
- Cafeteria: 1,000 sq. ft.
- Restrooms: 2,520 sq. ft.
- Sensory Gardens: 2,400 sq. ft.
- Theater: 1,500 sq. ft.
- Entry: 2,000 sq. ft.
- Bus Loading/Drop Off: 7,000 sq. ft.
- Car Loading/Drop Off: 2,500 sq. ft.
- Parking: 13,000 sq. ft.
- Playground: 7,200 sq. ft.
- General Education Classrooms: 26,280 sq. ft.

**LOW STIMULUS:**
- Circulation: 16,708 sq. ft.
- Neutralizing: 5,000 sq. ft.
- Elopement Buffer: 43,560 sq. ft.

**TOTAL SQUARE FOOTAGE:**
- 152,903 sq. ft.

**INTERIOR:**
- Sensory Neutral Space: 16,708 sq. ft.
- Circulation: 196,463 sq. ft.
- Total: 43,560 sq. ft.

**EXTERIOR:**
- Sensory Neutral Space: 16,708 sq. ft.
- Circulation: 196,463 sq. ft.
- Total: 43,560 sq. ft.
Reflection
This thesis intended to continue the conversation and exploration of designing for people with Autism. Autism has continually proven to be not only difficult to identify and diagnose, but also difficult to rationalize into a clear and singular set of needs with regards to the built environment that can prove to be affective. Every single child is different. While the thesis may suit one child’s idea of a better life, it may pose issues for another child with autism. It is an ongoing challenge to meet every single need of a population with infinite variation, but one to be approached with the attitude of embracing the astonishing qualities associated with autism. Despite being a sector of design with mass amounts of criticism and unsurety, continual exploration and communication about the disorder are vital to the hope of finding a way to provide the best possible life for people with autism.
Special dedication and thank you to Janice Pagel, for her lifelong dedication to bettering the lives of children with autism and other developmental disorders through patience, understanding, and compassion.

“Autists are the ultimate square pegs, and the problem with pounding a square peg into a round hole is not that the hammering is hard work. It's that you're destroying the peg.”

-Phil Collins
Sources


http://www.autismuk.com/home-page leo-kanner/
http://www.orthomolecular.org/hof/pics/rimland.jpg
Glossary of Terms

**Hypersensitivities** a biological condition involving a need for less sensory input

**Hyposensitivities** a biological condition involving a desire for more sensory input

**Recalibration** removal of sensory input, a neutral sensory state

**Visual** relating to seeing or sight

**Auditory** relating to the sense of hearing

**Tactile** of or connected with the sense of touch

**Olfactory** relating to the sense of smell

**Vestibular** relating to a vestibule, particularly that of the inner ear, or more generally to the sense of balance

**Proprioceptive** connected with the position and movement of the body