AUTISM CENTER
THESIS
2021
Ar. Guru prasath

INTODUCTION

The research environmental related to 18 design investigating and ASPECTS™ basic spatial design that index, mental health design and neuroscience architecture regarding the design of light, color, material usage as a sensory cue for people living with autism. The thesis will guideline of develop an architectural innovative design for design people living with autism as well as non-autistic users: that allowing them to adapt to space easily.

What is Autism?

(AW-TIZ-UHM) from Greek AUTOS SELF

A variable developmental disorder that appears by age three and is characterized by impairment of the ability to form **normal social relationships**, by impairment of the ability to **communicate with others**, and by **stereotyped behavior patterns.**

Problem Statement

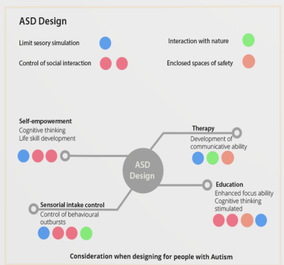
In our society, there is a lack of education and resources available to help people understand autism. causing negative stigma. Does an architect or designer have ASD in mind when they do representa a design? non-autistic Today's people architecture and lacks concern to people living with autism, causing stress to their families and schools. The existing built environment such schools, grocery stores and most public spaces are not capable of accommodating for people living with autism unless the space is specifically designed for them. Indeed, It is important to design a space that in accommodating for people living with autism and non-autistic users. **Autism is not a problem.**

AUTISM IS NOT A PROBLEM !

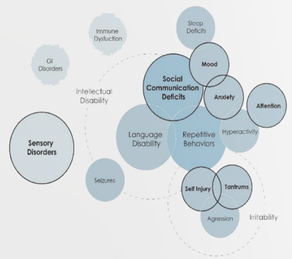
Less servere ⟷ More servere

ASPERGUER SYNDROME	ATYPICAL AUTISM Pervasive developmental disorder not otherwise specified (PDD-NOS)	CDD Childhood Disintegrative Disorder	AUTISTIC SYNDROME
Similar to Autistic dinorder except little i mparment of verbal communicatoin -Impaired non-verbal communication -Impaired social interaction -Repetitive Interests	Some characteristics of autism disorder are met while others are not - Impaired verbal communication - Impaired non-verbal communication - Impaired social interaction -Repetitive Interests	Normal skills are developed then some are lost between ages 2-10 - Impaired verbal communication - Impaired non-verbal communication - Impaired social interaction -Repetitive Interests	- Impaired verbal communication - Impaired non-verbal communication - Impaired social interaction -Repetitive Interests

The spectrum of Autism disorders

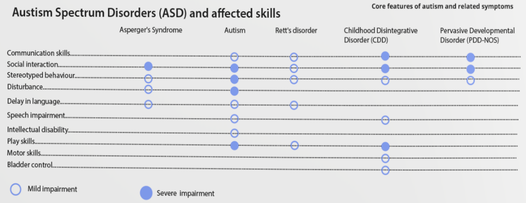


Consideration when designing for people with Autism



Core features of autism and related symptoms

Autism Spectrum Disorders (ASD) and affected skills



SCOPE

People living with autism observe the world different from neurotypical people (normal brain development people). That does **not** mean should be **separated people living with ASD** from neurotypical people in **our society**. Architect and designer should create a new design guideline for a space that capable of accommodating people with ASD and non-autistic user. This new design guideline could be a **solution to negative influences from society affect people living with ASD in their human right. daily life, Job opportunity and human rights.**

Purpose of Study

In favor of furthering the extent of intense behavioral treatment and research programs, such as the Lovaas Model for ABA, the purpose of this study intends to provide ample opportunities to meet the growing needs of autistic children in the southeastern region of the India through the analytical application of architecture and the built environment. The project aims to address the major voids in current autism understanding and acceptance while initiating a cohesive dialogue between the general public and the autistic community. Furthermore, the study proposes architecture as a means of perceptive change through which the facility is designed as a responsive organism to the multiplicities of continual autism research and treatment methodology.

In relation to severely limited tactile resources, the scope of autistic behavioral reform also diminishes. Applied Behavior Analysis programs and similar models rely heavily upon rigorous teaching techniques and therapy sessions where children are engaged in a one-on-one learning environment in order to produce long-term results. Following the Lovaas Model for effective behavioral reform, the architecture should not only advance parental and community involvement but facilitate positive and constructive relationships throughout a child's treatment.

Variables to be considered include but are not limited to the following:
(1) changes in autism behavior treatment in relation to methodology and theory.
(2) age of the child.
(3) prospective treatment period.
(4) acceptance and involvement of general public to specific treatment methods.
(5) participation of parents.
(6) local and state funding.
(7) advancements in medical research.
(8) availability of aides and trained professionals.
(9) increase or decrease of diagnosed autism cases per year.
(10) political decrees or legislative mandates effecting treatment autonomy.
(11) effectiveness or rate of patients described as "recovered".

LIMITATIONS

Studying the mind-set of autistic in itself is a very vast subject hence this topic limits itself to the study and research of their behavioural aspects in educational environments and environments which help them in rehabilitation. It attempts to define **quiet spaces, intervention areas, open spaces, transition spaces, circulation spaces, mult sensory areas and inclusive education spaces for the autistic.** It also attempts to underst their perception of **spaces through 5 senses**.

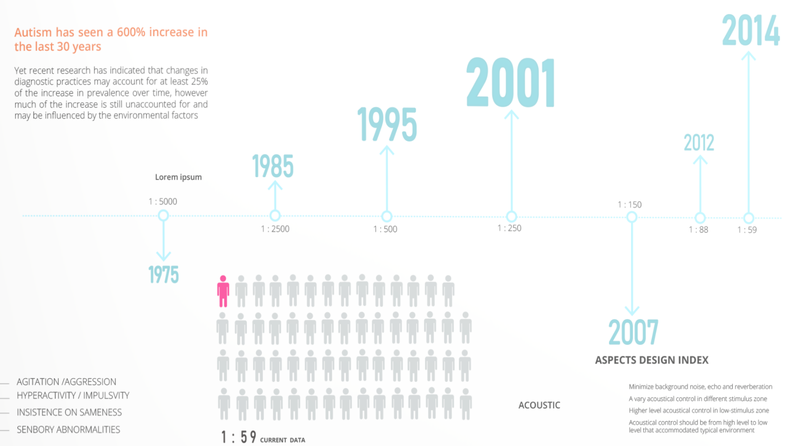
Facts and Statistics

The knowledge and understanding of the genesis and cure for autism has continued to elude the medicinal and psychotherapeutic community ever since its original diagnosis by psychiatrist Leo Kanner in 1943. Its reputation as a rogue neurobiological disorder, one which is characterized by varying degrees of impairment in **communication skills and social abilities**, has left a myriad of disproven theories and unanswered questions in its wake, proving itself a force of ambiguous descent and inconclusive findings. Presently, autism diagnosis resides within a grouping of developmental disorders known as **Autism Spectrum Disorders (ASD)** that include **Asperger's Syndrome** (a milder form of autism), **Rett Syndrome**, **PDD-NOS (Pervasive Developmental Disorder, Not Otherwise Specified)**, and **Childhood Disintegrative Disorder (CDD)**. Symptoms within the ASD range from mild to severe and are typically determined within the first three years of a child's life.

As a permanent mental disease, autism has not only become a major challenge for current research, entailing important implications for future practice, but one of an epidemic proportion. According to the Centers for Disease Control, autism currently affects as many as (Center for Disease Control and Prevention).

Autism has seen a 600% increase in the last 30 years

Yet recent research has indicated that changes in diagnostic practices may account for at least 25% of the increase in prevalence over time, however much of the increase is still unaccounted for and may be influenced by the environmental factors



Impairments in ASD

- RESTRICTED / REPETITIVE BEHAVIOR
  - AGITATION /AGGRESSION
  - HYPERACTIVITY / IMPULSIVITY
  - INSISTENCE ON SAMENESS
  - SENBORY ABNORMALITIES
- SOCIAL INTERACTION
  - DOES NOT UNDERSTAND FACIAL EXPERSSION AND GESTURE
  - ADVOID EYE CONTACT
  - LANGUAGE IMPAIRMENT
  - DOES NOT UNDERSTAND OTHER PEOPLE EMOTION AND MEANING
- UNUSUAL SENSORY PERCEPTION
  - LOUD NOISES
  - HYPER OR HYPO SENSITIVE TO TOUCH & PRESSURE
  - BRIGHT LIGHT
  - BUZZ SOUND FROM LIGHT FIXTURE
- MENTAL HEALTH & PHYSICAL DIFFICULITIES
  - AXIETETY
  - DEPRESSION
  - CLUMSINESS
  - MAY HAVE ATTENTION - DEFICIT/ HYPERACTIVITY DISORDER (ADHD)

HOW MANY CHILDREN WITH AUTISM IN INDIA

Children with Autism in India

Boys with Autism in India

Teenager with Autism 16 year or older have not looked foe work in India

NATURE

Nature is a stimulus to people with ASD and improve engaging, their motor skill with all senses

ASPECTS DESIGN INDEX

- ACOUSTIC
  - Minimize background noise, echo and reverberation
  - A vary acoustical control in different stimulus zone
  - Higher level acoustical control in low-stimulus zone
  - Acoustical control should be from high level to low level that accommodated typical environment
- SPATIAL SEQUENCING
  - Affinity of people with ASD to routine and predicability
  - Organizing the spaces in logical order
  - Simple and straightfoward circulation
  - Minimal disruption and distraction
- ESCAPE SPACE
  - Provide a space to people with ASD from over-stimulation
  - Small separate space from the room
  - Provide a neutral sensory environment with minimal stimulation
  - User can customized the sensory input
- COMPARTMENTELIZATION
  - Limit the sensory environmment of each space in the building
  - Clearly define the function of space and consequent sensory quality
  - Different coler fleering, level or variances lighting in between each space Provide sue the expecting result with minimal ambiguity
- TRANSITIONS
  - The bridging in between spatial sequencing and sensory zoning Readjust a senses of user as they move from one space to next space Distinat aede to indicate for different space
- SENSORY ZONING
  - Design the space with quality stimulation for people with ASD Grouping spaces for people with ASD that not overwhelming them
- SAFTY
  - Advoid a sharp edges and corners Reed more concern to the safety in design

madurai district

Madurai district is one of the 38 districts of the state of Tamil Nadu in southeastern India. It is bounded on the North by the districts of Dindigul, Thiruchirapalli and on the East by Sivagangai and onthe West by Theni and South by Virudhunagar.The city of Maduraiserves as the district headquarters.

Geographical location

North
Latitude : Between 9°30.00 & 10°30.00

East
Latitude : Between 77°00.00 & 78°30.00

SUN PATH:

Area : 3710sq.km

soiltype : Red soil, Black clayey soil and Alluvial soil

Seismic zones : least active regional

Climate :

The driest month is January, with 16 mm | 0.6 inch of rain. The greatest amount of precipitation occurs in October, with an average of 180 mm | 7.1 inch.

The average annual temperature is 31°C.

The driest month is April, with 0 mm of rain.

Most of the precipitation here falls in October. May is the warmest month of the year.

The temperature in May averages 38 °C. december is the coldest month, with temperatures averaging 22 °C.

Lorem ipsum

Melakuilkudi Location

The villege is located at west side of the Madhurai city extents at a distance of

- 11.7 km from Madurai railway station
- 12 km from central periyar busstand
- 22.4 km from Madurai Airport
- NH - 7 (kanyakumari) National Highway

Population

The village had around 1500 people and 300 residences.The majorn occupation of the people here is agricultural farming.

Soiltype

Red soil , I which is suitable to grow Mangroves, Sugarcane and Paddy farming.

Accessbility

- Railway station - 4.5 km (Thirupparakundram)
- Bus stand - 7.6 km (Thirupparakundram)
- National higway - 1.5 km (NH - 7)
- Hospital - 5.6 km (AIIMS hospital)
- post office - 5.5 km (nagamalai pudhukottai)
- Bank - 5.3 km (nagamalai pudhukottai)

Bank - 5.3 km
(nagamalai pudhukottai)

Bus stand - 7.6 km
(Thirupparakundram)

Anna university
regional campus

Landmark around the site

Landmark

Anna university Regional campus can be considered as one of the prominent **landmark** in the site (melakuilkudi) . National highway near by the site. Hotel , various brand shop like east side , eatery oulets.

Justification on this site :

Madurai district has more than **500 autistic children.**This creates an **urgency for an autism center** in the locality.

As autistic children have **sensory issue** the **noise pollution is a major drawback** in cities. The prosoed site is best **suited for autism center** as its way from all their **air pollution and surrounded by nature.**

There is a requirement of the center for Autistic children due to the alarming **rates of increase (1 in 59 children in India** are affected with autism to some
extent) of children affected with autism.

Melakkuilkudi is located with proper transportation available for connectivity thus the **proposed site in prefect in madurai district.**

The site is located opposite to an established college - Anna, university Regional campus , which can be great help and also future collaboration for awareness program.By training people in the surrounding village, employment opportunity can also be created.

The surrounding of the site are **farmlands**, children will be exposed to a **natural environment** which proves to be an **effective way for their rehabilitation.**

SURROUNDINGS

Site is surrounded by **farmlands** on all the sides. Residences are locatedat a distance of approximately 500m from the site. **Anna university Regional campus** at a distance of **800** meters.

INFERENCES

Some centers encourage the local school children to **visit their center** and **interact with autistic children**. With the presence of **Anna university Regional campus** very nearby, awareness about **autism can be spread** and an opportunity to let the autistic children **interact** with the real world.

Since the surroundings are farmlands there will unobstructed flow of wind into the site.

SUN PATH

E-W via South

INFERENCES

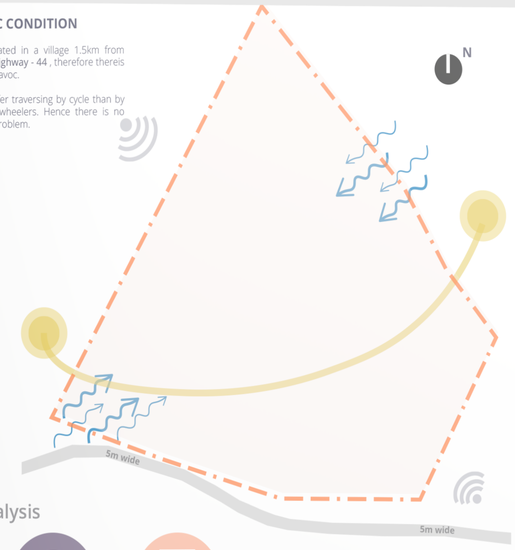
South, West and Southwest are the hottest sides, **least number of openings** must be provided ; if inevitable solariums can be provided to trap the heat from entering into the building.

North side provides **glare free lighting** which is an apt position for **classrooms and sensory room.**

TRAFFIC CONDITION

Site is located in a village 1.5km from **National highway - 44** , therefore thereis no traffic havoc.

Locals prefer traversing by cycle than by two/ four wheelers. Hence there is no pollution problem.



CONTOURS

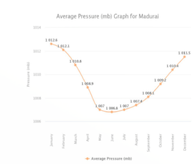
Site is a **flat land with no contours.**Only a few boulders are present at one corner of the site.

INFERENCES

One of the major inferences from the interviews with the psychologists is that if there are level differences it is better as it improves their fine motor skills. This way there is also proper vigilance on the children.

Since the land is flat, level differences must be created while designing the buildings.

CLIMATE



SWOT Analysis

S STRENGTH

Close proximity to main cities and towns

Noticeable site due to the increasing popularity of the surrounding Ayurvedic centres

Undisturbed site in a semi-urban setting

Presence of proper transit connectivity

W WEAKNESS

Presence of illegal inhabitation by lower income families

Absence of drainage lanes

O OPPORTUNITY

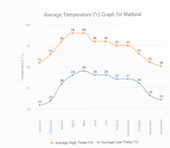
Pond present can be integrated with the therapeutic (sensory) garden

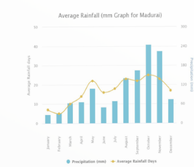
Illegal inhabitants can be provided with permanent housing on site along with employment in the coming up system

To grow more of the native variety of vegetation for landscaping as well as natural barriers

T THREAT

Canal passing through the site can be hazardous if not designed for safety.





May is the warmest month of the year. The temperature in May averages 31.0 °C | 87.8 °F. The lowest average temperatures in the year occur in December, when it is around 24.6 °C | 76.4 °F

ASD DESIGN PRINCIPLE

A series of design principles were created through the analysis of literature, precedent studies.

The principles are broken into three categories: **distractibility, tectonics and materiality, and spatial organization.** The principles of distractibility relate to the stimuli that **student** can receive within the building and a **way to control the various stimuli.**

Tectonics and **materiality** relates to the way the building is physically put together and the materials involved.

Spatial organization refers to how the spaces of the building are organized in relationship to each other and how someone moves through the space.

DISTRACTIBILTY

Acoustic

Parents and teachers ranked acoustics as the most influential feature of the sensory environment on autistic behavior.

Loud noises and **sounds** from things such as movement and systems should be mitigated through design.

In most cases the **sense of calm** that comes with quieter spaces encourages **better behavior in students** and allows them to **focus on learning.**

Design Guideline

Sound breaks between rooms to revent noise from carrying over.

Avoid or break up large spaces to prevent echoes within rooms.

Lighting

The use of **direct fluorescent lighting** should be **avoided.**

Individuals with autism are very vulnerable to the sub-visible flicker, which can cause **headaches, eyestrain,** and **increased repetitive behavior.**

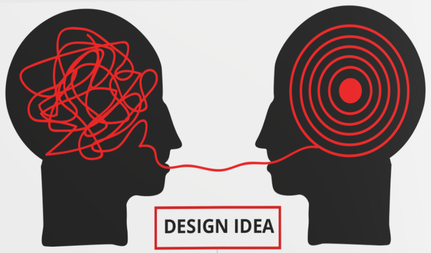
Natural light improves **academic performance, relaxes students, permits better concentration, and reduces hyperactivity in children**

Design Guidelines

Windows should be place higher to **avoid views to the ousticle ,but still allow light in**

Up lighting reduces the intensity and softens artifical lights

There is a need for an **abundance of natural light** thought means such as a light shelf , skylight, louversetc.



Colours & materiality

85% of autistic children see colors with far greater intensity than a neurotypical student. Because autistic individuals may have a significant increase in color differentiation, small changes in color can dramatically affect their behavior.

Grids and busy patterns should be minimized in areas that require **student to focus**, such as a classroom.

Cooler colors such as **blues, greys** and **purples** have a calming effect on students.

Design Guidelines

Cheerful colors, whether subtle or bold depending on user population, eliminate the users' and visitors' impression of institutionalism and create a better environment.

Different colors should be used to differentiate different areas of activity with a space and from space to space.

TECTONICS & MATERIALITY

Durability

Emotional disturbance issues, such as intermittent explosive disorder or bipolar, frequently cohabitate with ASD.The **materials** will also have to be **easy to clean as children with ASD** often have **trouble with bathroom procedures** and will sometimes soil themselves or vomit in class.

Safty

Children with autism occasionally have an altered sense of **spatial orientation, depth perception,** and **general proprioception, or the ability to sense stimuli** arising within the body regarding position, motion, and equilibrium.v

SPATIAL ORGANIZATION

Adaptability

Spaces should be allowed to change to the **children's needs** and to allow the students and teachers to **rearrange or subdivide the spaces as needed.**

Finishing, materials and **spatial organization** should be able to be manipulated not only by the **staff** but also by **students.**

The **environment** could also **change stimulus level** based on the activity, divide the space up into **multiple small areas of activity**.

Design Guidelines

Flexible rooms can accommodate a wide variety of activities and **adapt to the current needs of the school.**

Classrooms should have **movable walls** and **furniture** to allow spaces to be rearranged.

Predictability

Students with ASD will often feel nervous when navigating spaces that are unfamiliar to them so the arrangement of structures should be **easily understood** and encourage choices as well as **problem solving and discovery.**

The importance of **legibility, imaginability,** and **redundant** cueing come into play when those with ASD are navigating buildings.

Classrooms and **schools** should be easy to read with clear **signage, numbering,** and **configuration.**

Design Guidelines

Patterns and **materials** can be used to **help guide students** through a space by clearly defining **circulation paths**

Rooms should have easily identifiable markers such as **colors** and **patterns.**

Espace spaces

Students need spaces that provide areas of respite from the over **stimulation** in their environments.

Being able to experience an **outdoor environment** is also important as the **fresh air and nature** can have a calming effect on the students.

Creative outdoor areas can provide **students** and **adults** with special needs the opportunity to explore social contact, as well as provide places for tranquility.

Design Guidelines

Escape spaces should allow a degree of **customization for the user**. Walking paths and gardens on the school ground create **soothing outdoor environments** which help to **calm students down.**

Design idea

Programmatic Organization and Massing

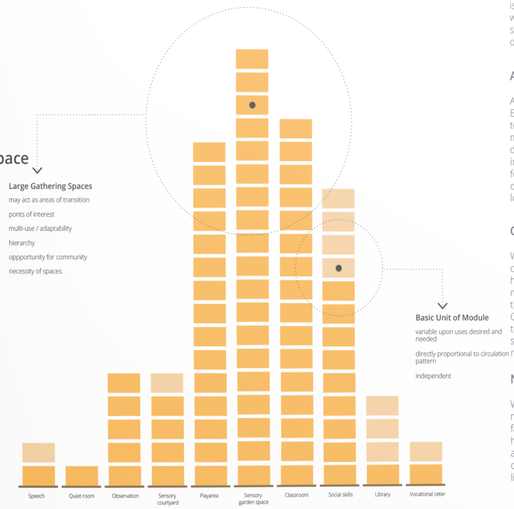
The design of Atlantic Elementary demonstrates how designing to the spatial and sensory needs of autistic students results in **better spaces for everyone.** The design approach focuses on a **schematic-level design** of the entire school with **greater detail focused** on a **classroom**, **interior courtyard**, **learning commons**, and the **dining hall**. In this way, the design explores a representative **low sensory space, high-sensory space, collaborative zone** and **exterior space.** The general layout of the school is organized around the **notion of sensory zoning.t**

SPATIAL PROGRAM

- Sensory garden space
- Quiet room
- Observation
- Classroom
- Playarea
- Library
- Cefeteria
- Social skills area
- Sensory courtyard
- Multi-purpose space

Open spaces

Like in every other building, **open spaces are also important for children. Open areas** gives the children an opportunity to be out there in the **sun, play with sand and other children, tumble, fall and exercise their muscles**. Lush green and **fresh air can be relaxing after tiring sessions** in the classrooms. Open spaces must be secure, with clear boundaries so that children can **enjoy independent play**. A fair **mix of open areas** and shaded areas is favorable.



Durability

Materials used in buildings for a**utistic users** must be **highly durability**. Sometimes durability might come with reduced **aesthetic quality**. In such cases, we could use materials which have a **decent durability** and which can be easily **replaced or repaired if damaged. Furniture, doors, windows,bathroom fixtures, fences, floor boards, carpets** etc.

Visual Cues

Human beings are capable of taking in l**arge amounts on information.** But we do not remember everything. What sticks firmly in our heads are those things which are significantly different. How do we navigate back to a place visited by us many years ago? We use our instincts and we try to look for particular elements from our memories as we move.

Design program solution

Acoustics

We have already seen that due to sensory instability, autistic people suffer from various kinds of issues. Processing sound seems to be a vital problem in many children. When we look at visual or tactile issues, we can always manage an environment which are neither under stimulating nor over stimulating. But good acoustics can be achieved only after careful technical considerations.

Accessibility

Autistic children are not always physically disabled. Even then all the crucial places in the building have to be accessible by all. Ramps, railings and grab bars must be provided in order to allow physically disabled to access the building freely and independently. It is important to provide with toilets for the disabled. Toilets with facilities to change diapers is also important because it usually take a long time to potty train autistic children

Colour

When choosing colours for the building, one must choose wisely. It has been discussed earlier as to how certain colours have the tendency to affect moods. They can seriously stimulate the senses of the children thereby agitating or depressing them. Colours such as pink, purple, grey and green seem to be least stimulating to the senses. It is true that some children are under stimulated and would require stimulation in their everyday lives.

Natural Light and Ventilation

We have seen previously of the importance of natural light. It is stressed upon again as a primary factor for consideration because apart from its healing qualities, it also saves up on electricity. The amount of natural light entering the building can be controlled and it must be made sure that the lighting condition is soft

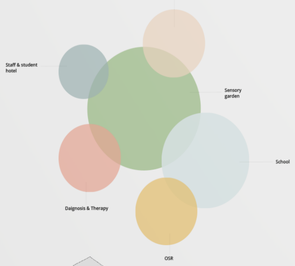
Escape Spaces

Escape spaces would generally be spaces which are secluded from noise, people and visual stimulants, in order to calm the child. Such places can be very helpful for autistic children, especially for the ones who have to bang their in order to calm themselves. This also gives the architect tthe chance to create interesting spaces because escape spaces need not be a small, dark and isolated room.

Program data

SITE ZONING & MASSING

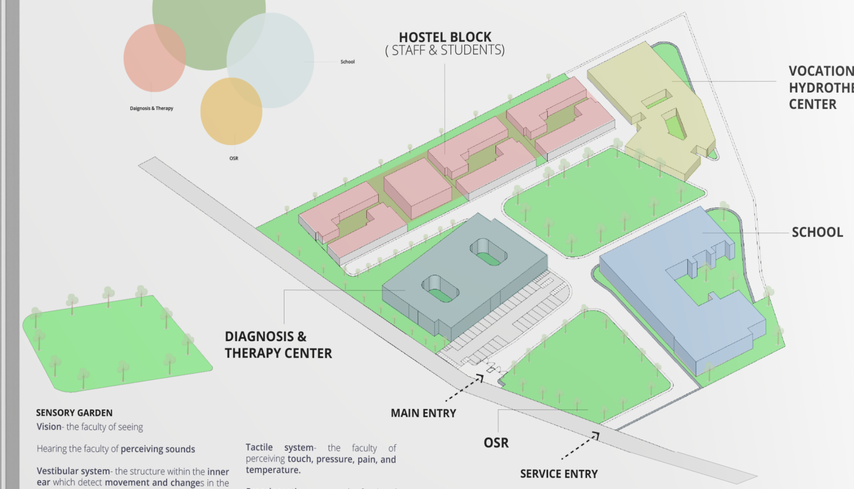
AUTISM CENTER



Site Zoning

These series od **space formulate zones** such as **public to private ,indoor to outdoor** .Therefore , I developed a range of keywords which developed an architectural response to the site.

ROAD - 5000 SQM



Tentative requirements

ADMINISTRATION	- 292 SQ.M
DIAGNOSIS CENTER & THERAPY CENTER	- 3340 SQ.M
SCHOOL	- 4000 SQ.M
VOCATIONAL SKILL & HYDROTHERAY CENTER	- 1771 SQ.M
ASSITED LIVING	- 1644 SQ.M
STAFF QUARTERS	- 688 SQ.M
SENSORY GARDEN	- 2800 SQ.M

SENSORY GARDEN

Vision- the faculty of seeing

Hearing the faculty of **perceiving sounds**

Vestibular system- the structure within the **inner ear** which detect **movement and change**s in the positions of the head

Olfaction (sense of smell)- faculty for perceiving **odors and scents Gustation (sense of taste)**- faculty for perceiving the sensation of a soluble substance in the **mouth and throat** by contact with that substance

Tactile system- the faculty of perceiving **touch, pressure, pain, and temperature.**

Proprioceptive system- the faculty of perceiving stimuli produced within and organism, especially relating to the **movement and position of the body**.

SITE MASSING

SITE	- 25177 SQM
BUILTUP AREA	- 15114
MAXIMUM FSI	- 2
SET BACK	- 7m
OSR	- 2519
MAXIMUM ROAD WIDTH	- 9m
MINIMUM ROAD WIDTH	- 7M
GREEN SPACE	- 7902 SQM

Melakkuilkudi is located with proper transportation available for connectivity thus the proposed site in prefect in madurai district.

The site is located opposite to an establised college - Anna, university Regional campus ,which can be great help and also future collaboration for awareness program.

The surrounding of the site are farmlands, children will be exposed to a natural environment which proves to be an effective way for their rehabilitation.

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BUILTUP AREA	- 15114
MAXIMUM FSI	- 2
SET BACK	- 7m
OSR	- 2519
MAXIMUM ROAD WIDTH	- 9m
MINIMUM ROAD WIDTH	- 7M
GREEN SPACE	- 7902 SQM

Master plan

CENTER FOR AUTISM

scale : 1 : 200

Hostel

Accommodations and supports are designed to minimize obstacles to learning or participating in school activities. The type of accommodations and supports your child receives will depend on your child's needs and the goals set in the individualized Education Program

Daignosis

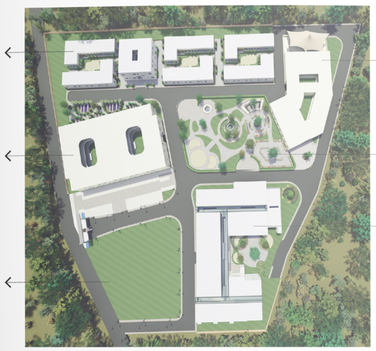
Talk to someone for advice. If you or your child, family or friends, or students, the next step is to talk to someone about it. there are autism assessments. An autism assessment is where a team of autism specialists check if you or your child are autistic.

Therapy

A number of therapies can help people with autism improve their abilities and reduce their symptoms. Starting therapy early — during preschool or before — improves the chances for your child's success, but it's never too late for treatment.

OSR

OSR is estimated by dividing the total open space



Vocational training

Vocational training is one of the most important sessions in the education of an autistic kid. It is the specialized training and practical learning sessions for the kids to acquire some practical tool and essential

Hydrotherapy

hydrotherapy on social interactions and behaviors in the treatment of children with ASDs.

sensory garden

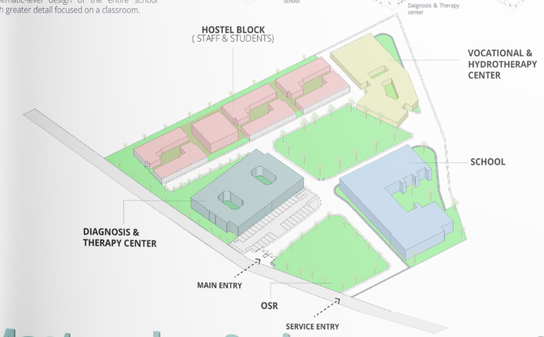
A sensory garden stimulates all sensesc sight, touch, smell and sound, all through the use of different plants and materials. These gardens are ideal for children to experience their senses in a safe and stimulating environment.

School

when designing for a group of autism Sensory challenges found predominantly in those with autism,the organization of function in a building with respect to one another is of great importance. This functional organization or Zoning, has great impact on the comfort.

Design proposal

The design of Atlantic Elementary demonstrates how designing to the spatial and sensory needs of autistic students results in better spaces for everyone. The design approach focuses on a schematic-level design of the entire school with greater detail focused on a classroom.



Master plan & view

CENTER FOR AUTISM

School
when designing for a group of student Sensory challenges found predominantly in those with autism,the organization of function in a building with respect to one another is of great importance. This functional organization or Zoning, has great impact on the comfort.

The classroom houses a variety of different programs and is organized similarly to the building, with a large central area that organizes the additional program located along the edges. Each function or activity is allocated to a different area which can be physically and visually separated from the remainder of the classroom by low partitions, ceiling heights, or different flooring materials and colors.

Form development

Ground floor Plan

scale : 1 : 200

Section AA'

Acoustics

Parents and teachers ranked acoustics as the most influential feature of the sensory environment on autistic behavior.

Loud noises and **sounds** from things such as movement and systems should be mitigated through design.

In most cases the **sense of calm** that comes with quieter spaces encourages **better behavior in students** and allows them to **focus on learning.**

Design Guidelines;

Carpets on the floor reduce the impact of foot traffic and absorb sound

Rough and textured finishes can break up sound waves and reduce noise reverberations

Classrooms should be placed an appropriate distance from road to reduce he noise from traffic and sound barriers should be used to mitigate the noise

Lighting

The use of **direct fluorescent lighting** should be **avoided.**

Individuals with autism are very vulnerable to the sub-visible flicker, which can cause **headaches, eyestrain,** and **increased repetitive behavior.**

Natural light improves **academic performance, relaxes students, permits better concentration, and reduces hyperactivity in children.**

Design Guidelines;

Natural light should be provided in all rooms and used as much as possible

Lights in classrooms should be equipped with dimmers to allow greater control over the lighting

Florescent lights should never be used

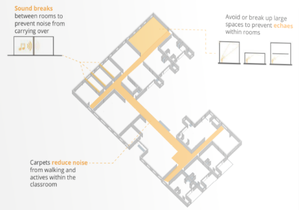
Colours and materiality

85% of autistic children see colors with far greater intensity than a neurotypical student.44 Because autistic individuals may have a significant increase in color differentiation, small changes in color can dramatically affect their behavior.

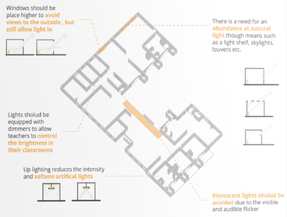
Grids and busy patterns should be minimized in areas that require **student to focus**, such as a classroom.

Cooler colours such as **blues** , **greys** and **purples** have a calming effect on students.

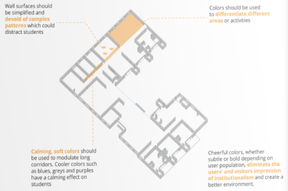
ACOUSTIC



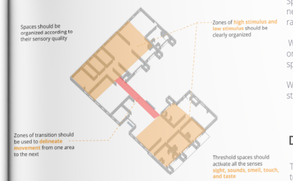
LIGHTING



COLOURS & MATERIALITY



TRANSITIONS



PREDICTABILITY

ECSPACE SPACES

Transitions

Spaces should flow as seamlessly as possible from one activity to the next and should be organized in accordance to their sensory quality rather than the typical architectural approach of functional zoning.

With transitions between areas of high stimulus to areas of low stimulus or from one activity space to the next, there should be a threshold space which allow the student to recalibrate their senses.

Without the transition space, the shock of going from an area of low stimulus to high stimulus could send students into fits.

Design Guidelines;

Transition spaces should activate all the senses- sight, sounds, smell, touch, and taste

Spaces could be anything from a node to a shift in circulation to a full sensory room which allows the student to reorient themselves.

Predictability

Students with ASD will often feel nervous when navigating spaces that are unfamiliar to them so the arrangement of structures should be **easily understood** and encourage choices as well as **problem solving and discovery.**

The importance of **legibility, imaginability,** and **redundant** cueing come into play when those with ASD are navigating buildings.

Classrooms and **schools** should be easy to read with clear **signage, numbering, and configuration.**

Design Guidelines;

Patterns and materials can be used to help guide students through a space by clearly defining circulation paths

Children should be allowed to view into spaces from a safe vantage point.

Escape Spaces

Students need spaces that provide areas of respite from the over **stimulation** in their environments.

Being able to experience an **outdoor environment** is also important as the **fresh air and nature** can have a calming effect on the students.

Creative outdoor areas can provide **students and adults** with special needs the opportunity to explore social contact, as well as provide places for tranquility.

Design Guidelines;

The spaces should provide a neutral sensory environment with minimal stimulation

Escape spaces should allow a degree of customization for the user

Elevation

First floor Plan

scale : 1 : 200

Section BB'

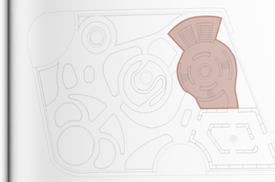
SENSORY LANDSCAPE DESIGN

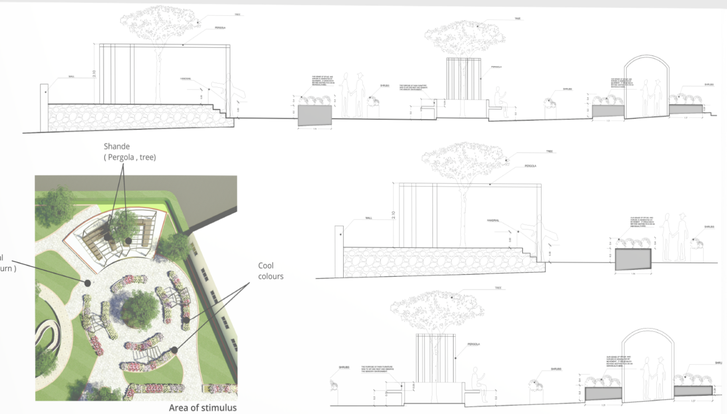
CONCEPT

According to the design criteria obtained from the literature review, the mass form of the building is designed to encompass the **outer space**, namely the sensory garden. It serves as **visual control, facilitates access to security and safety, and way-finding.**

The mass of the building and the outer space is divided into three **areas / zones,** namely t the **HIPER area for hypersensitive children,** the **HIPO area for sensitive areas,** and the **MIXED area for both types of children.** It aims to create a conducive environment for children so that they can receive **optimal therapy and learning**

VISUAL HYPER GARDEN





CONCEPT OF FORM

ACTIVITY:

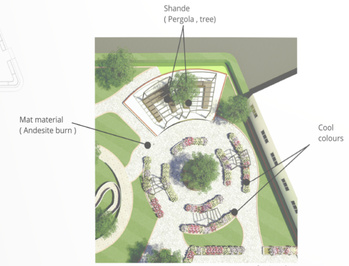
The therapist accompanies the child to observe the existing **vegetation,** either directly by **walking around the garden,** or **sitting in the middle of the garden.**

CRITERIA:

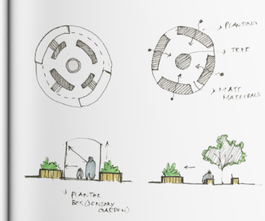
A **shape** that can provide supervision from **outside the garden** and **inside the garden.**

CONCEPT:

The **circular shape** provides a comprehensive view to **every corner of the garden**



Area of stimulus therapy



Smell

All plants and **materials** will release different scents in your **sensory garden.** Good plants for this include **honeysuckle, lavender, and mint.** When planning the perfect scents for your sensory garden, choose **smells** that will complement each other; **try and pair more subtle scents** with a **few stronger scents**, to keep it **interesting to the senses.**

Area of stimulus therapy

TACTIE HYPER PARK

CONCEPT OF FORM

ACTIVITY:

1) The therapist accompanies the child to walk along a **path in an area**, and around it there are plants with a **smooth and soft texture,** as well as a shallow pool as a variation for **tactile stimuli.**

2) The **therapist** can allow the **child to explore the area**, or can accompany him.

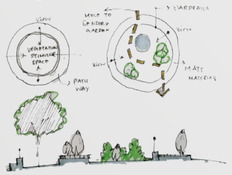
CRITERIA:

1) A form that can provide supervision from outside the park and inside the park. 2) Areas that provide opportunities for **children to play.**

exploration but covered.

CONCEPT:

The circular shape provides an overall view into the area of the **walkway around it**. The area is demarcated with parterre to prevent the child from leaving the area without the **therapist's knowledge.**



Sight

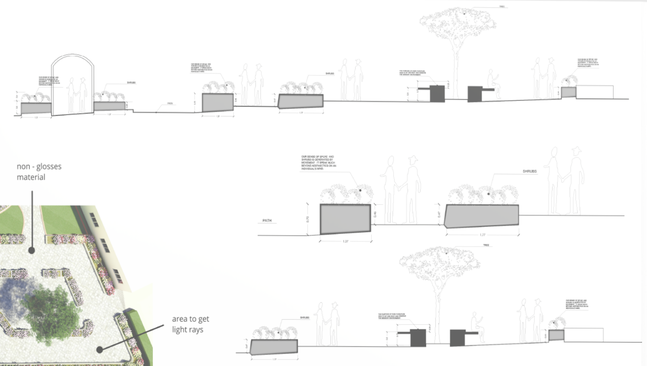
When designing a sensory garden, it is good to be **creative** with the **colours incorporated into the garden,** for visual stimulation. Colour can come from **plants, stones, gravel, and even bricks.** The balance of this colour is extremely important; take care that you don't introduce too many **bright colours into one space.**

Depending on the size of your sensory garden, you may want to include signs. Half of the autism population are non-verbal, and so communicating the intention of certain areas of the garden can be beneficial to these individuals.

Stimulus therapy

Tactile Hyper garden

VISUAL HIPO PARK



CONCEPT OF FORM

ACTIVITY:

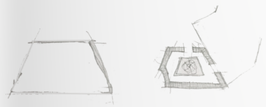
The therapist accompanies the child to observe the existing **vegetation,** either directly by walking around the garden, or sitting in the **middle of the garden.**

CRITERIA:

The shape of the area that can attract the child's attention focus,

CONCEPT:

The triangular shape provides focus and directs the **child's visual attention at a certain angle.**



Area to get sunlight

Area to get sunlight

Visual Hipo park

Daignosis
Talk to someone for advice. If you or your child have signs of autism, the next step is to talk to someone about it. Have an autism assessment. An autism assessment is where a team of autism specialists check if you or your child are autistic.

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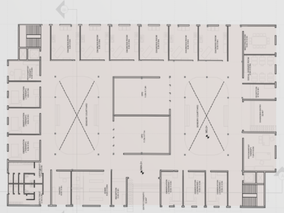
A number of therapies can help people with autism improve their abilities and reduce their symptoms. Starting therapy early – during preschool or before – improves the chances for your child's success, but it's never too late for treatment

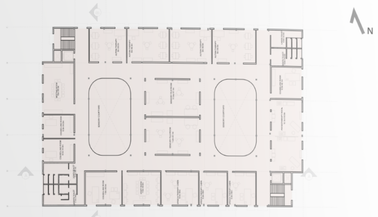
Form development



Ground floor Plan

scale : 1 : 200

Section AA'



First floor Plan

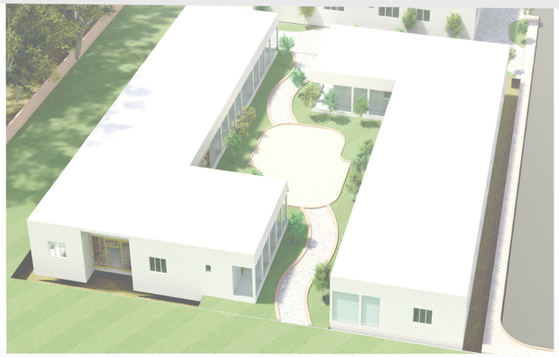
scale : 1 : 200

Section BB'

Daignosis & Therapy center

Hostel
Accommodations and supports are designed to minimize obstacles to learning or participating in the educational environment. The accommodations and supports your child receives will depend on your child's needs and the goals set in the Individualized Education Program

Form development



Ground floor Plan

scale : 1 : 100

Section AA'

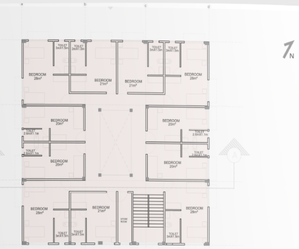
Elevation A

Student Hostel

Staff Quarters

Accommodations and supports are designed to minimize obstacles to teaching and particiting in the Autism educational environment. The accommodations and supports your child receives will depend on your child's needs and the goals set in the Individualized Education Program

Form development



First floor Plan

scale : 1 : 100

Elevation

Elevation

Ground floor Plan

scale : 1 : 100

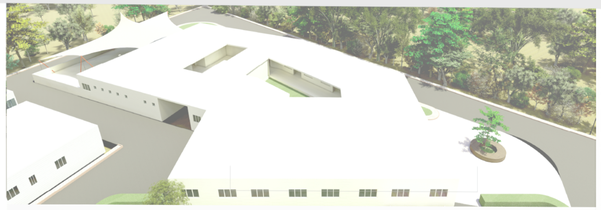
Section AA'

Vocational training

Vocational training is one of the most important sessions in the education of an autistic kid. It is the specialized training and practical grooming sessions for the kids to excel in their fields of skill and interest

Hydrotherapy

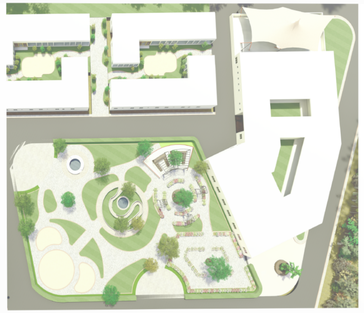
Hydrotherapy on social interactions and behaviors in the treatment of children with ASDs.



Elevation A

Ground floor Plan

scale : 1 : 200



Section AA'

CONCLUSION

This paper has focused on providing a critique of the existing literature with respecting the design of educational environments for Autistic children, drawing out a number of key design criteria. It has then focused on a number of designs to assess in practice the implementation of those criteria and to discover where possible further innovative approaches may exist. There is clearly a requirement for an architect to be aware of the issues contained within the critique of the literature study. Where these issues are not addressed they will have a detrimental effect on the ability of the child to learn or function effectively within their environment. The opportunity exists to create designs which rather than the provision of a neutral container provides environments for learning.

Lastly, the literature which exists with respect to designing for autistic children is not readily available to designers. Educational professionals and architects would both benefit if design guidance were available in a concise and accessible form. Furthermore, design program involving the betterment of autistic children by investigating the creation of the classroom environment as learning tool,' would bring in tremendous change in their intervention

THANK YOU :)