MY BACKGROUND

My late brother was autistic. I learnt many things about his sensitivities to bright light, unpredictable sounds, heat, obsession, sameness, low arousal, stimulation and calm.

I completed a research thesis paper on architecture for autism in 1989. Since then I have developed and implemented many of these concepts into various built projects.

As Donna Williams states:

‘as we all know autism is a complicated disorder that effects communication and the senses. We also know that ‘ one size fits all’ on the basis of a shared label ASD may not be effective in helping these individuals’
ARCHITECTURE

Architecture can best be described as the ‘art or practice of designing buildings for human use’. It takes account of Form, Function, Construction, Beauty, Convenience, Propriety, Delight, Utility, Durability, Strength, Proportion, Light and Freedom.

It can also be explained in the following way:

You employ stone, wood and concrete, and with these materials you build houses and palaces; that is construction. Ingenuity is at work. But suddenly you touch my heart, you do me good, I am happy and I say “This is beautiful “ That is architecture. Art enters in. (Le Corbusier)
The diversity in personal disposition and spatial interpretation from the users point of view challenges the architect to pay attention to the way the human mind-in all its various appearances-deals with the environment (Ziesal 2001)

Without efficient filtering and selectivity of attention people with autism find it difficult to make sense of the environment (Bogdashina 2003)

They have a different way of perceiving and thinking that impacts on their spatial experience, awareness and use of the environment
THE DESIGN PROCESS

In architecture the design of spaces can be loaded with the ideas of the designer. The disposition of the architect is interwoven with the whole design (Baumers & Heylighen).

Due to the distinct way people with autism perceive their environment and process incoming information they make sense of their world in a unique way (de Roeck 1997).

Autism and Architecture looks at some overarching concepts that aim to meet the needs of people with autism at a level of consciousness as well as in the practical realm.
OVER ARCHING CONCEPTS: DESIGNING FOR AUTISM

CALM AND ORDER: Reduce stimulation, back drop for therapy, still point, sameness

CLARITY AND SIMPLICITY: Symmetry, ease of use, rhythm, routine, sequence

PROPORTION: The Golden Proportion, abundant in nature, scale, harmony

RESTRAINT: Less rather than more, limit complexity of detail, calm architecture

THE SENSES: Good acoustics, even levels of natural light, texture, good ventilation, cool colours

OBSERVATION: Ability to observe children without intrusion, safety

CONTAINMENT: Places to escape from immediate demands but safe within enclosure

DISTINCTION: Simple clear forms, distinction between spaces for work and leisure and living

MATERIALS: Limit number, durable, good sound qualities calm, natural
# OVER ARCHING CONCEPTS: DESIGNING FOR AUTISM

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<th>Concept</th>
<th>Description</th>
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<tr>
<td>FLEXIBILITY</td>
<td>Every child is different, proximity, differences</td>
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<td>INCLUSIVE DESIGN</td>
<td>Allow inclusion in both directions, not too special</td>
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<td>PERCEPTION</td>
<td>Detail and the bigger picture, how the child with autism perceive’</td>
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<td>MOVEMENT</td>
<td>Generous circulation space, proximity, location, orientation</td>
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<td>HARMONY</td>
<td>A state recognised as the immediate prerequisite for beauty</td>
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<td>NUMBER</td>
<td>The correct application of number to create acoustically balanced spaces</td>
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<td>PROXEMICS</td>
<td>The amount of personal space around the body, greater for autism</td>
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CALM AND ORDER

People with autism are bombarded with sensory stimuli. They perceive everything without filtration and selection, this leads to the perception of the whole scene as a single entity with all the details perceived but not processed simultaneously (Bogdashina 2011). A more calm balanced approach to design may assist with this sensory overload.

The Cistercians reflected their austerity of their faith in their architecture. The plain simplicity of the stone walls, floors and roof vaults is uninterrupted by complex adornment and embellishments providing a calm sense of space.
CALM AND ORDER

Maintain a stable, ordered secure environment. The autistic child simply cannot function if there are too many daily changes. The autistic child is unable to bring order to his world. You must provide that order in his environment. Autistics might march to a different beat but that beat can be meaningful (Temple Grandin)
CALM AND ORDER

Simple ordered spaces with gentle light forms help to create meaningful tranquil spaces.

Hans Van Der Laan
CLARITY AND SIMPLICITY

The whole place was a mass of corridors; a puzzle in which you had to choose the right door. I liked the banisters, which led to hallways with red doors running off them. I was constantly going into strange classrooms and sitting down before being escorted out and pointed in the direction of my own class. (Donna Williams)

A simple ordered plan assists users as to the location of spaces therefore reducing unnecessary stress. The Pantheon is simple in its symmetry clarity and order in the classical tradition.
CLARITY AND SIMPLICITY

For children with autism to recognise things these things must be exactly the same as when they initially experienced them only then will they know what to do (Donna Williams)

A plan for a school we designed for children with autism in the UK. Each space is based on the golden spiral and each classroom is located off a golden spiral courtyard which provides a fixed point of orientation and source of reference for location.
CLARITY AND SIMPLICITY

Clarity of thought and concept is one of the most worthy ingredients in architecture.

The Farnsworth House displays its architectural integrity in one glance.
Ancient proportional systems resonate with something within the human mind or heart which recognises beauty in a very direct and intuitive manner. When we see a natural form such as a sunflower we automatically see its beauty. These proportional systems are derived from nature and are abundant in nature.

Vitruvius wrote: Our ancestors took their models from nature and by imitating them they were led by divine facts.
PROPORTION

The nautilus shell the golden spiral
PROPORTION

The Greeks developed this theme given from nature through mathematical equation providing a proportion that humans intuitively find pleasing. It is known as the Golden Proportion. The Parthenon is defined by the golden proportion.

Understanding architectural scale implies the unconscious measuring of the object or the building with ones body and of projecting ones body scheme into the space in question. We feel pleasure and protection when the body discovers its resonance in space. (Pallasmaa)
The Fibonacci Proportion is a series of numbers that is close to the Golden Proportion which can be applied to music and architecture. This series can be applied to the plan and section of a building and if applied will provide an intuitive balance to the space and the acoustics to the space. A spiral is created that forms the basis for the volume and plan of the building.
The Fibonacci Proportion is a series of numbers 0 1 1 2 3 5 8 13. This studio we designed derives its plan, section and elevation totally from the series.
FLEXIBILITY

It's important that spaces are as flexible as possible within the need to maintain sameness.

Spaces for this residential unit for children with autism surround a central storage and kitchen pod.

Each space can be divided off using hidden pocket sliding doors.

Simon Humphreys
RESTRAINT

The same residential unit uses a restrained pallet of materials to simplify and clarify the building.

Simon Humphreys
RESTRAINT

People with autism are extremely sensitive to sensory stimuli and because of the fact they have difficulties filtering foreground and background information they are often capable of perceiving details that are unnoticed by others.

Using a limited pallet of materials and restrained detailing will provide for a less distracting more restful solution.
RESTRAINT

The elimination of superficial details provides for a more calm simple background and can assist easier transition between spaces and thresholds.
RESTRAINT
THE SENSES

The Eyes of The Skin (Pallasmaa) looks to the other senses and how they are used to articulate and understand our environment.

There is a very strong tendency in vision to grasp and fixate, to dominate secure and control.

Touch is the parent of our eye's, ears, noise and mouth and seems to be recognised by the age old evaluation of touch as 'the mother of the senses'

The eye is the organ of distance and separation whereas touch approaches and caresses. During overpowering emotional experiences we tend to close off the distancing sense of vision

The most persistent memory of space is often smell

Natural sandblasted limestone is the dominant material used for the autism centre in Saudi Arabia due its tactile, odour and acoustic properties as well as calm naturalness which allows our vision to penetrate its surface and enable us to touch and react to its texture.
THE SENSES

Natural stone is used for all external vertical and horizontal planes as well as for internal public areas of the centre allowing a smooth transition from outside to inside.
THE SENSES

The Key is light and light illuminates shapes and shapes have emotional power (Le Corbusier)

Deep shadows and darkness are essential because they dim the sharpness of vision make depth and distance ambiguous and invite unconscious peripheral vision and tactile fantasy

How light is introduced into a space is important, too much variety and repetition could create visual complexity

Le Corbusier
Sometimes I heard and understood and other times sounds and speech reached my brain like an unbearable noise of an onrushing freight train. Noise and confusion at large gatherings of people overwhelmed my senses

( Temple Grandin )

Sight is directional whereas sound is omni-directional buildings do not react to our gaze but they do return our sounds back to our ears

The most essential auditory experience created by architecture is tranquillity (Pallasmaa)

The impact noise of rain on a roof can affect and create distraction and confusion for people with autism. This school we designed has a grass roof which due to its mass eliminates this noise.
THE SENSES

Every touching experience of architecture is multi sensory (Pallasmaa)

There lies the problem for autism.

Architecture therefore needs to address each sense on an equal basis as people with autism respond with different senses to make sense of their world and environment.

The tactile uniformity of materials with gentle light and shade provides a sensual peaceful setting.

Hans Van Der Laan
‘all of us need a private space. Autistic children need their secret places too, in which they can hide and retreat to their own world. After all autism is a withiness disability and autistic children need the security of their own hideaways. I had mine it was a place for me to think and recharge myself’ (Temple Grandin)

A design for a Performing Arts Centre for autism in the Hudson Valley different external spaces allows for individuals to wander and ‘hide’ within safe boundaries whilst still being able to be discreetly observed by staff

Simon Humphreys
CONTAINMENT

It is important that the individual with autism is secure and protected but allowed to wander freely within safe known boundaries. This also provides peace for the carer equipped with this knowledge. How this safe place is provided is the essence.
CONTAINMENT

A natural enclosure
DISTINCTION

Simple clear forms are understandable.

It is helpful that there is distinction between work and leisure for people with autism in order that they understand expectations placed upon them. This Centre for Autism in the UAE individualizes each accommodation component and then unifies the overall with an embracing single structure providing clarity and simplicity.
DISTINCTION

Organic forms distinguish use and allow a gentle flow around a central form.
MATERIALS

Along side the prevailing architecture of the eye there is the architecture of the muscle and skin. This is the material of architecture.

A limited pallet of natural materials for tranquillity which are robust and seamless should provide a gentle stimuli for people with autism.

John Pawson
MATERIALS

To be able to use the same materials does allow a soothing response to the senses
PERCEPTION

It has been suggested that at a perceptual level people with autism have a strong drive for coherence. If one detail is changed the whole scene is different.

As an individual with autism perceives in a different way to most a space should present itself in an understandable, clear and fixed manner.

John Pawson
MOVEMENT

Perhaps one of the most influential aspects of architecture is how we experience moving around a building from space to space. This movement raises all manner of stimuli, transitional moments and meaningful thresholds for people with autism.

Gentle rhythmic circulation spaces will allow calm movement.
MOVEMENT

The movement spaces for the Autism Centre in Saudi Arabia seeks to remove detail and provide a gentle flow.
MOVEMENT

Moving around a courtyard provides a constant still location point

John Pawson
MOVEMENT

Moving up and around buildings can place demands on autism therefore a seamless transition can be of benefit.
MOVEMENT

Through the Little Door and the Glass Door Barrier (Temple Granden)

The architect Mies Van Der Rohe examines here the plan that orders space with walls without the need for doors.
HARMONY

For any space to be harmonious it should facilitate not only need but also connect with the outside environment providing a smooth transition.
PROXEMICS

Proxemics is the measure of personal space surrounding the personal body. For autism this is much greater.

This is a food hall for the centre for autism in Saudi Arabia where large amounts of space are provided between each bench.

Simon Humphreys
FINAL WORDS

The concepts presented aim to demonstrate a framework for designing projects for individuals with autism

It is not what you put into the design rather it is what you do not that has the most effect

John Pawson