

DESIGN WITH AUTISM IN MIND

Architecture and Interior design is not just about what looks good, it's about how an interior space makes someone feel.

According to the National Autistic Society there are around 700,000 people on the autistic spectrum in the UK, that's more than 1 in 100, which means that greater consideration should be given to the impact of a building and its interior design on the occupants, especially those that facilitate children and adults with learning difficulties.

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People who are on the autistic spectrum have difficulty processing sensory information from their environment, which means that their living or working environments can have a profound effect on how they feel and respond to others.

Autism is an extremely complex condition, there is a well-known saying "If you've met one child with autism, you've met only one child with autism". A person with autism may have senses which are under or over active, or both, at different times. Such sensory differences can affect their behaviour and have a profound effect on their personal lives and how they react to their surroundings and other people.

Therefore, the key to successful design for those living with autism seems to revolve around the idea of the sensory environment and its relationship with autistic behaviour. However, as autism is a spectrum disorder, autism friendly design requires a conceptual framework rather than a list of hard and fast rules



SENSITIVITIES

Sensitivities arise when someone struggles to deal with everyday sensory information. Too much information can cause stress, anxiety and even the feeling of physical pain, which can result in challenging behaviour and withdrawal. There are two classifications of sensitivity in those living with autism:



HYPOSENSITIVE

Under sensitive – This is where a person finds it difficult to respond to sensory information and where the sensory channel is not open enough, resulting in the brain being deprived of sensory input. They may not be able to interpret colour very well; their central vision could be blurred but they may have sharp peripheral vision. They may have poor depth of perception or balance so may make sudden or jerky movements. They may not be able to hear as well or be responsive to loud sounds, so may seek out loud noises for comfort. Some children and adults may not understand social boundaries and compensate by carrying out physical activities such as climbing, running around or banging their head.

HYPERSENSITIVE

Over sensitive – This is where someone is very sensitive to stimuli and there is too much stimuli for the brain to cope with. They may experience distorted vision; bright lights may appear to jump around or they may be sensitive to too much light so require black out rooms to rest and relax. Patterns in clothes or decorative surfaces may be distracting and cause a lack of concentration. Loud noises may be painful and result in self-soothing techniques such as rocking or the flapping of hands. Someone who is experiencing hypersensitive tendencies may find it easier to focus on detail rather than the whole picture.

PROPRIOCEPTIVE DYSFUNCTION

The proprioceptive system is located in our muscles and joints. It provides us with a sense of body awareness and detects and controls force and pressure. Proprioceptive dysfunction in children and adults with autism is shown through clumsiness, a tendency to fall, a lack of awareness of body position in space, odd body posturing and difficulty manipulating small objects. Children and adults alike may often jerk themselves to give themselves meaning in a consistently changing sensory world. Such self-stimulating behaviours may also include head-banging or throwing oneself on the floor. Proprioceptive dysfunction and the associated behaviours would obviously benefit from a soft finishing to the floor, such as carpet, to lessen the chance of physical pain.

A CONCEPTUAL FRAMEWORK

Architect Chris Beaver states that “to know how a building is going to perform requires a profound knowledge of who will use it and how it will be used”. This can be a changing dynamic; those with and without autism may be using the space and occupants with very different needs and ways of responding to their environment may change over time. This is where the conceptual framework comes into play and forms the basis of Dr Magda Mostafa Autism ASPECTSS Design Index which explains the importance of; Acoustics, Spatial Sequencing, Escape, Compartmentalisation, Transition Spaces, Sensory Zoning and Safety, as a design development tool.

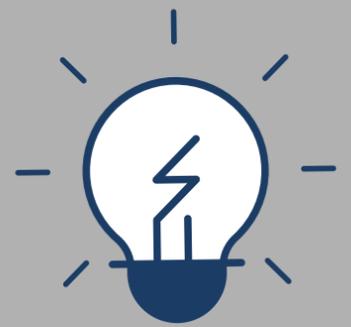
THE GREENHOUSE EFFECT

It should be noted that Mostafa also makes a point that an environment shouldn't create a greenhouse effect. This is where those with autism have to learn how to navigate less controlled environments in order to avoid "the greenhouse effect," in which they are too protected from stimuli. Therefore, her sensory design theory segments areas into high and low stimulus zones with transition areas to navigate from one sensory area to another.

DESIGN ELEMENTS

Obviously, there are many elements of design that need to be taken into consideration;

- lighting,
- building layout,
- furniture and fittings,
- heating,
- colour and
- decoration,



but for the purpose of this guide we will be focusing on how the flooring can positively impact an environment for those on the spectrum.

Taking Dr Mostafa's Autism ASPECTSS Design Index and her sensory design theory into consideration we will highlight how a Danfloor carpet could assist with creating an environment which is sympathetic to someone who is living with Autism.

ACOUSTICS

Acoustics has been acknowledged as one of the most influential features of the sensory environment upon autistic behaviour. Some research suggests that by reducing noise levels and echoes in educational settings for children with autism, attention spans, response times and behavioural temperament can be improved.



In fact, Mostafa found that an individual's attention span could be tripled and a decrease of 60% in response time and self-stimulatory behaviour in an acoustically sound environment.

Mostafa proposes that the acoustical environments, for those on the spectrum, should be controlled to minimise background noise, echoes and sound reverberation.

Having said that, the level of acoustical control should be determined by the function of the space. Activities requiring a high level of focus, which are likely to be taking place in a "low stimulus zone," should have a higher level of acoustical control with the likes of noise, echo and sound reverberation being minimised, than those areas of high stimulus.

ACOUSTICS

The use of sound and the acoustical environment can help transition an individual from one area to another and from one activity to the next.

The need to control acoustics is down to the space and choice of materials. Carpet is an ideal solution when it comes to the floor as it reduces the noise impact of foot traffic and will absorb a substantial amount of sound.

HEATING

Heating within facilities caring for those with autism has previously been a challenge.

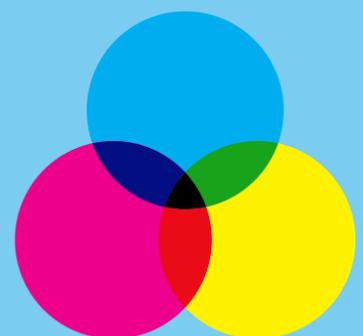
Traditional radiators were replaced with low surface temperature radiators with the arrival of stricter health and safety guidelines. Both means of heating have inviting gaps and the low surface heaters offer an ideal platform for jumping.



As a result, underfloor heating has become an ideal solution, offering an invisible heating system without any sharp edges. Therefore flooring solutions, that are used within buildings with underfloor heating, have to be compatible with such heating systems.

COLOUR

Colour is a very personal choice and different colours ignite different emotions and feelings within every single one of us. However, it is widely noted, when designing interiors with autism in mind that there are certain colours which can be considered as neutral, calming, disturbing and stimulating.



Anything which is too patterned, contains stripes or geometric shapes or is highly contrasting; like the use of black and white blocks of colour, can be extremely distracting to someone with autism and can lower attention span, increase response times or even cause stress, anxiety and pain. So, the use of more neutral and calming colours, within finishing products like carpets, paints and textiles, is often a safer option.

Geometric and repeating patterns can also reinforce obsessions related to the exact positioning of furniture and personal movements around a room and for this reason they should be avoided in flooring designs.

For those living within a care environment personalising rooms, using individual colours, can help with association and way-finding for autistic children and adults.

ZONING OF SPACE

It's important to design spaces in a logical order and in a way that encourages independence within a safe environment. A logical order can encourage and support routine and predictability.

Its important to provide space for respite from over stimulation. This could be a small, partitioned area in a quiet section, where noise and echoes are minimal. With the inclusion of soft carpet this can become a calm and relaxing area, allowing escape from over stimulation before transitioning back to another area.

The easy recognition of rooms and identifiable spaces can be easily achieved by carpet colours and the way spaces flow from one to another.



LIGHT REFLECTION

Glare and reflective surfaces can cause stress, anxiety and a lack of concentration in autistic children and adults. Reducing the use of hard shinny and reflective surfaces within an interior scheme can help ease visual distraction.

For example, yellow can have the highest luminance value and be overwhelming in some situations. All danfloor products come with Light Reflectance Values so you can see how much light is absorbed or reflected from the surface of our carpets.

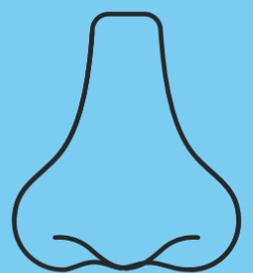


THE SENSES

Interior design needs to address all the senses on an equal basis. Consideration should be given to smell, touch, taste and sound in addition to the traditional dominant sense of sight. In people living with autism sight may not be the most dominant sense, which is why the other senses must be considered on an equal basis.

Carpets have exceptionally low levels of Volatile Organic Compounds, also know as VOC's, which omit a noticeable smell. Any smell associated with carpets is usually down to the adhesive used to fix it to the floor, which usually dissipates within a few days.

Any material which gives off a strong or persistent smell, for example leather, should be avoided.



WHY A DANFLOOR CARPET?

To design a building that will withstand challenging behaviours, be easy to clean, yet have a welcoming feel is a difficult brief. A Danfloor carpet has many innovative product features and is able to withstand such demanding environments.

Our range of carpets...

- Are compatible with underfloor heating
- Can be adhered straight to the floor with adhesive – no need for sharp grippers and underlay.
- Are easy to clean – include soil and stain resistant yarns and an antimicrobial yarn treatment.
- Have an Impervious membrane – a layer that provides impermeability to help with children and adults who experience incontinence.
- Are durable – can withstand challenging behaviour and heavy commercial cleaning
- Are soft – eases the impact of falls or challenging self-soothing behaviour where injuries may occur
- Where possible should have no visible joins to avoid the occasional tendency to pick.

THE BENEFITS OF AUTISM DESIGN

Buildings where children, or adults with autism, live and learn must be warm, friendly and welcoming environments.

A learning environment which is sympathetic to those with autism will not only boost the development of those on the spectrum, but may have a positive impact on all children, especially for those with ADHD, Dyslexia.

Over the years there has been an increase in the number of children on the spectrum within mainstream education. This can bring with it many challenges in terms of their ability to function and communicate within an environment which is not suited to their needs.

Many children with autism require assistance and one to one support to facilitate their participation within mainstream education environments. With more considered design principles this may result in easier integration with their environment and other people.

With a greater understanding of specialist design principles and the benefits they can bring, such principles can be applied not just to specialist schools and care environments but into homes and workplaces as well.