

BURO HAPPOLD

University of Westminster: Neurodiversity, Architecture and Cities

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17.04.2023

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PAS 6463 "Design for the Mind – Neurodiversity and the Built Environment" 2022

- PAS = Publicly available specification;
- A PAS is a first step towards a formal standard;
- A PAS is produced quickly, with a technical author, steering group and a wider invited review panel;
- Covers most building types;

Thanks to:

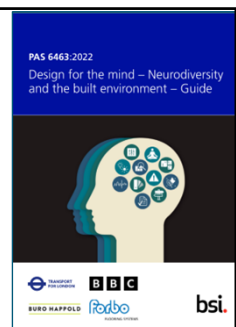
Sponsors: TfL, Buro Happold, Forbo Flooring and BBC Workplace;

6463 Steering group: includes people with lived+professional experience.

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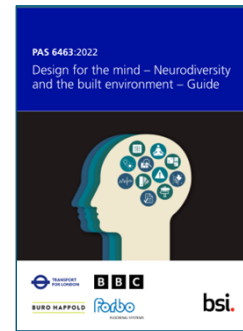
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Scope and Purpose

- Scope – buildings/environments for mainstream public use
- The PAS Guidance is intended to be beneficial for a broad spectrum of neurological **information and sensory processing differences**.
- Potential incorporation into a BS or ISO;



6463 = MIND



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Sensory and information processing differences

- The variation in neurocognitive profiles across the whole population;
- Humans don't come in a one-size-fits-all neurologically similar package (neurotypical);
- There are natural and normal genetic variations;
- **We are all neurodiverse.**



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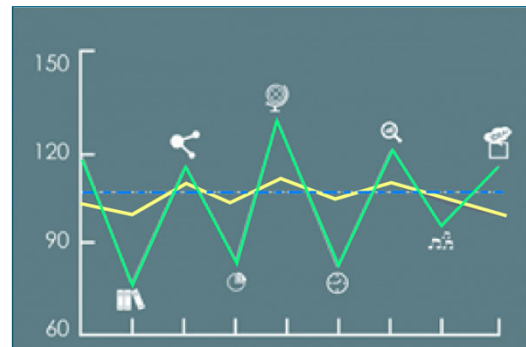
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4

We are all different!

- Think/process information;
- Learn new things;
- Communicate with others;
- Find their way from A to B;
- Experience the world.



Neurodiversity - everyone, the whole population;
Neurotypical - not a spikey profile;
Neurodivergent - not fitting the majority neurotypical model; and
Neurodegenerative – having a progressive condition such as dementia



Our brains are NOT in neat compartments

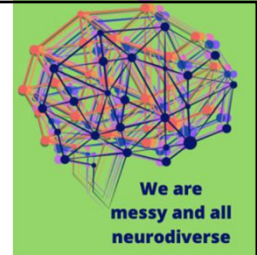
Why do you think we like putting people in boxes?

Dyslexia
DCD
ASC
ADHD

We are messy and all neurodiverse

© Prof Amanda Kirby

Many people who experience challenges in the built environment do ***not*** have a formal diagnosis for a sensory processing condition or difference:



- Undiagnosed;
- Neurotypical with “spikes in one or two areas;”
- other conditions are often unknowingly affected by elements of Buildings.

Examples include some migraine sufferers, people with vestibular conditions.

Sensory processing differences

- ↑
 - **Hypersensitivity** – extreme physical sensitivity, experience sensory overload* ;

Sensory overload can affect **heart rate, breathing, blood pressure, confusion, anxiety, mental distress, and behaviour.**

70% of people with diagnosed neurodivergent conditions are believed to be hyper-sensitive.

- ↓
 - **Hyposensitivity** – under sensitive , seeking additional sensory stimulation.

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4 Developing the Brief

- Strategy and Commitment;
- Stakeholder Engagement;
- Link to Plan of work by the Royal Institute of British Architects (RIBA);

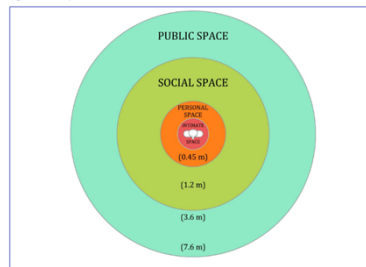
Table 1 – RIBA Plan of Work

| Stage of project | Design for the mind activities |
|---|---|
| Strategic Definition (RIBA Stage 0) | <ul style="list-style-type: none"> • Establish and document commitment to delivering accessible, sensory-friendly and inclusive environment • Identify someone on the management team to champion neurodiversity and inclusion. • Provide awareness to the design team about sensory and/or information processing differences and the principal areas of interest. • Confirm design team has understanding and knowledge of neurodiversity and disability. |
| Preparation and Brief (RIBA Stage 1) | <ul style="list-style-type: none"> • Integrate the principles of Accessibility and Inclusive Design in the project brief. • Clearly state the requirement to follow this PAS as applicable to the environment. • Check access and inclusive design technical expertise secured with understanding of neurodiversity and sensory and/or information processing differences • Establish user/consultation group(s) for early engagement to include people with lived experience |

5 Site and Building Layout

- Facade – Shape, reflection and glare, heat gain;
- Legibility and coherence (incl orientation);
- Reflective materials;
- Sightlines, views, windows & solar control.

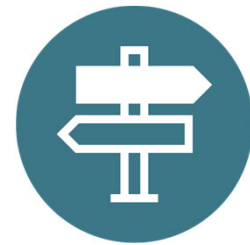
Figure 1 – Interpersonal distances



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6 Wayfinding



- Advance info and preview;
- Attentional bias;
- Use of colour and shape;
- Technology;
- Appropriate signage.

Signs are used to indicate direction, confirm and offer reassurance that users are on the right path and clearly identify the destination.

Direct



Confirm



Identify



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7 External spaces and access to nature



We have an innate affinity with nature through use of natural materials (Biophilia).

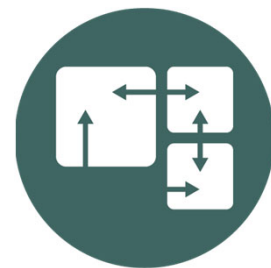
- Access to green space;
- Views outside;
- Use of natural materials inside;
- Images of nature.



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8 Internal Layouts

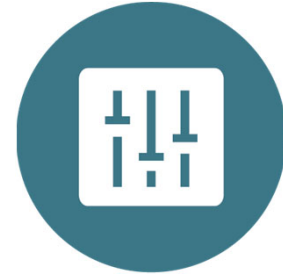
- Transitions;
- Layout and symmetry;
- Familiarity, clarity, orientation;
- Control over where to sit, when practicable.



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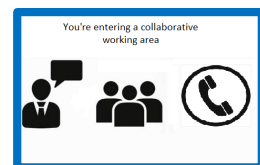
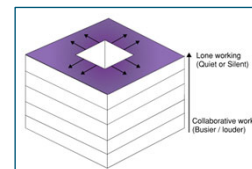
9 Mechanical, Electrical and Plumbing (MEP)

- Sense of smell (olfactory) - off-gassing, cleaning substances, perfumes etc.
- Switches and controls – giving us control over individual environments

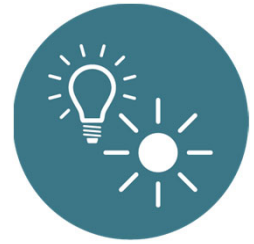


10 Acoustics

- Ability to adjust to variation in noise levels;
- Acoustic layout and zoning – offers different options;
- Criteria taken from other standards, including Building Bulletins for schools;
- Input from Ecophon, steering group and BH Acoustics.

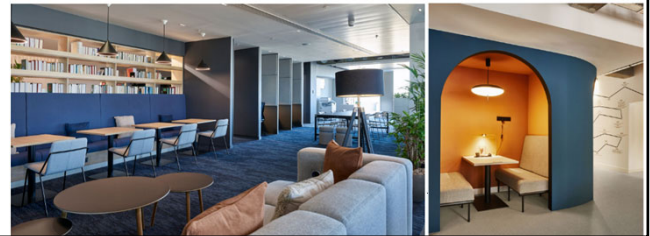


11 Lighting



- Daylight, glare and shadows;
- Photophobia and flicker rates – fluorescent and LED where component compatibility arises;
- Lighting types and levels- adjustability in light level and colour temperature;
- Illumination ratios $\leq 1:3$ for comfort;

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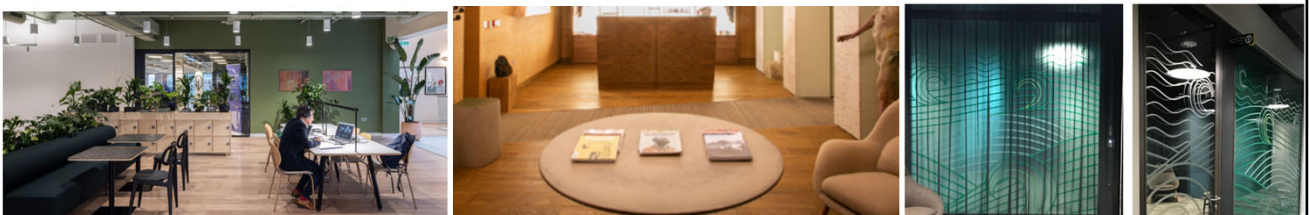


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12 Surface Finishes



- Colours – muted rather than vivid;
- Floor and wall patterns and configuration of tiling;
- Biophilic patterns tend to be less intrusive.



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13 Fixtures, Fittings and Furniture

- Positioning – symmetrical, proximation;
- Low noise – eg soft close cupboards and WC lids, quiet flush, low-noise hand driers;
- Furniture with rounded corners;
- Use of natural materials;
- Familiarity and ease of operation.



14 Quiet/Restorative spaces

- Quiet space rather than a sensory room;
- Can provide sensory stimulation but under user's control;
- Identifying/creating quieter areas or rooms;
- How big (BS8300 4.8m², WELL v2 min 7m²)
- Key features – more in depth acoustics, lighting, colour, features;
- Flexibility for use as temporary quiet space;
- Annex B has support checklist tables.



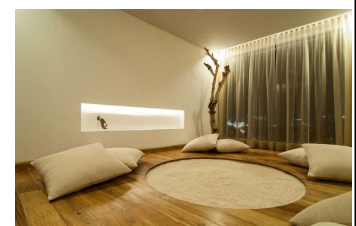
Annex B (informative) Checklist for achieving flexibility in quiet restorative spaces

Annex B provides key considerations for providing variety, flexibility and control hypersensitivity and hypersensitivity needs.

When designing quiet and restorative spaces, refer to Table B.1 for a checklist of considerations and Table B.2 for a sensory sensitivity summary.

Table B.1 – Checklist of considerations for quiet and restorative spaces

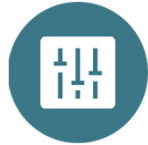
| Design feature | Implementing variety, flexibility and control in quiet/restorative spaces |
|----------------|---|
| Sound | Provide optional sounds on an individual basis Provide earplugs or noise cancelling devices Provide individual pod/capsules where people are able to select desired soundscape |
| Lighting | Provide shades to control daylight and outside views Provide a variety of artificial lights for personal control (without disturbance of others) Provide artificial lighting controls, including dimmers and cold |
| Space layout | Provide individual pod/capsules for increased optional privacy |
| Colour | Create visual separation if introducing colours or textures that |



Summary



An environment that has **clarity**;



Where some choice and **control** is given to users.



A **calm** space to escape to when it's too much.

