INTELLIGENT ARCHITECTURE \ ISSUE FIFTEEN

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INTRODUCTION:

Architecture and Inclusion by guest contributor Jean Hewitt, Associate and Inclusive Environments specialist at Buro Happold.

I am particularly delighted to be asked to introduce this latest edition of iA by Scott Brownrigg. For me, inclusive design and accessibility have always been seen as a journey not a destination, needing refinement as circumstances change, research emerges and our knowledge of human interaction with the built environment grows – therefore journals like this are invaluable.

The content in this issue provides evidence of a much-needed step change in our approach to neurodiversity and inclusion, and also pushes boundaries to explore key untackled or less understood areas of design development that very much need to be on everyone's agenda, such as women safety in external spaces. Every step taken that benefits a specific part of society inevitably also improves the built environment for a much wider audience too. For example, an environment that is sensory friendly, often gives more choice and control back to the user of the space; a place that instils a feeling of safety in women will undoubtedly help anyone who may feel vulnerable at times. Such measures together address some of the remaining inequality that people experience.

The first article is particularly aligned to the guidance set out in BSI PAS6463 Design for the Mind – Neurodiversity and the Built Environment published late last year, which took the painstaking dedication of a steering group of volunteer experts with lived and professional experience nearly two years to develop. I was honoured to be BSI's appointed technical author pulling the document together (with the help of other specialists at Buro Happold and influenced in places by welcomed research input from some of my MSc students at UCL), so I am particularly excited to see many of the suggestions and considerations in PAS6463 already being applied in such a successful way, despite this

being relatively early days for the guidance. Whether we consider ourselves to be neurotypical, have a neurodivergent trait (diagnosed or not) or are experiencing a neurodegenerative condition such as dementia, good design can make the difference between a space that is tolerated and one that is found comforting or exhilarating, calm or stimulating, depending on your preferences.

All of the pieces in this journal place people at the heart of the design process – recognising the rich diversity of people. How refreshing it would be if, with similar insights and attention to detail on all projects, everyone might be allowed to flourish – nurtured and respected through carefully designed and managed environments that respect our differences, whatever they may be - from the youngest physical and emotional needs of a young baby to the physical and cognitive changes we experience in older age, and everything in between.

For decades, we have endeavoured to capture the diversity of human physical needs through anthropometrics. Happily, we now recognise the importance of an environment for our mental wellbeing and our capacity for thought, emotion and behaviour. We do not operate in isolation from our environment, physically, mentally or emotionally and the articles in this research journal are great examples of the difference the design of an environment can make.

Jean Hewitt, MSc, NRAC, CIWFM
Associate and Inclusive environments specialist at Buro Happold

Technical Author of BSI PAS6463 Design for the Mind – Neurodiversity and the Built Environment 2022, which is free to download (https://www.bsigroup.com/en-GB/standards/pas-6463/)

Hon Associate Professor at The Bartlett, on the MSc Health Wellbeing and Sustainable Buildings Programme, leading the "Designing Inclusive Places" module (Health, Wellbeing and Sustainable Buildings MSc | Prospective Students Graduate (ucl.ac.uk)

UK Government Disability and Access Ambassador for the Built Environment (List of Disability and Access Ambassadors - GOV.UK (www.gov.uk)

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DESIGN PROCESS:
Neurodiversity and the Design of Modern Workspace

Here Directors Ed Hayden and Beatriz Gonzalez explore how to create workspaces that enhance everyone's opportunity to thrive.

Neurodiversity is the term used to describe the variation in neurocognitive profiles across the whole population and the guidance in PAS6463:2022 Design for the Mind-

Neurodiversity and the built environment- Guide- How to create a sensory inclusive environment is about us all. It is not about one condition, difficulty or difference. The term recognises the variety in the way we speak, think, move, act and communicate; that human brains are diverse and vary. Each one of us has a unique set of different connections with our billions of nerve cells. As a consequence, the way we interact with our environment can vary from person to person.

The requirements placed on modern office space have evolved significantly in recent years to better accommodate neurodiversity in the workplace. There is a greater emphasis
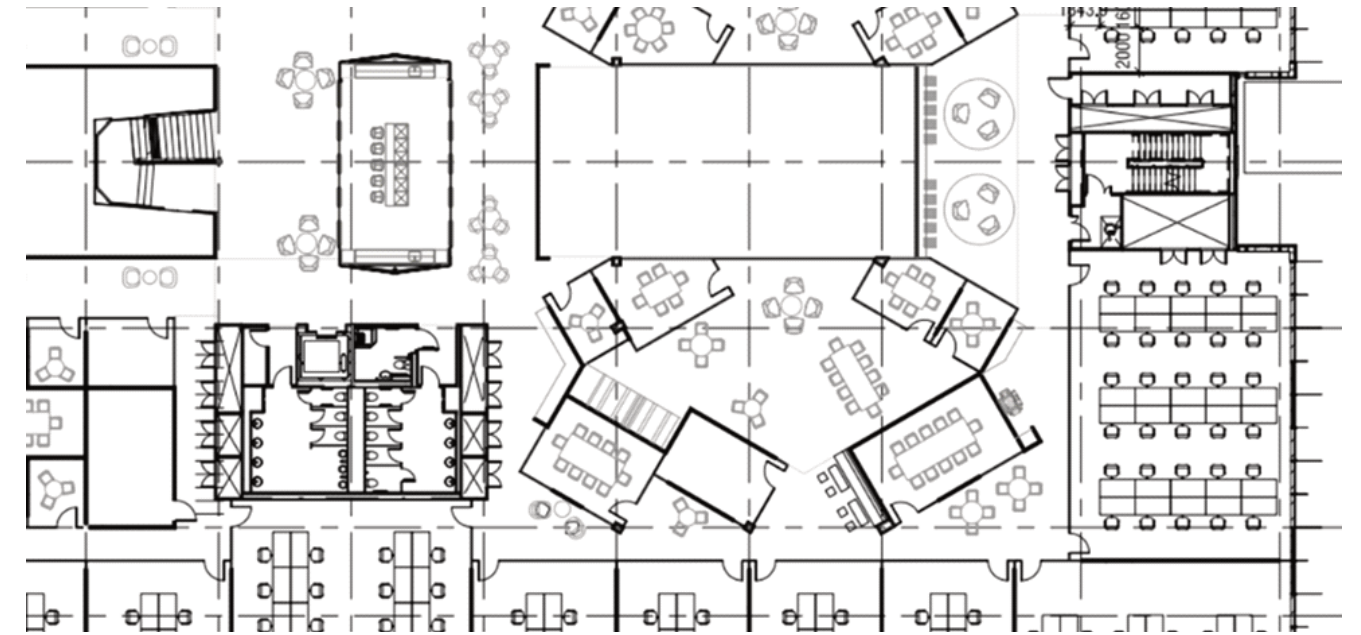
ABOVE
Arm, Cambridge. A 'neighbourhood' of working spaces are designed to support groups of individual teams. These teams work from focused work rooms. These wrap around the collective team huddle spaces

on creating flexible and inclusive working areas that can accommodate the needs of a diverse workforce. This is particularly important when it comes to addressing the needs of neurodivergent individuals, who have sensory information and processing differences, many of whom experience hypersensitivity to some elements in the built environment. We have developed a series of projects which should enable everyone to thrive, and here we explore some of the key design considerations incorporated.

Neurodiversity refers to the natural variation in the human brain and nervous system – collectively we are all neurodiverse. Neurodiversity is an important consideration in the design of modern office space, as it has the potential to affect an individual's ability to perform their job effectively.

One of the key challenges in designing for neurodiversity is creating a workspace that is both inclusive and accommodating for all neurocognitive profiles, ensuring that the workspace is conducive to collaboration and productivity for all.

One way that modern office space design is responding appropriately to neurodiversity in the workplace, is through the use of flexible design. A key consideration in the design of modern office space is the creation of an adaptable work environment. This allows individuals to work in a way that is comfortable and conducive to their specific preferences or needs. For example, an office space may include a variety of different types of workspace, such as quiet zones for those who require a peaceful environment to focus, and collaborative spaces for people who thrive in a more social setting.

This can be achieved by creating a workspace that can be easily reconfigured to meet the needs of individual employees, as well as the changing needs of the organisation. This can include the use of modular furniture, movable walls, and other design elements that allow for easy reconfiguration of the workspace.

Another important factor in the design of modern office space is the option to use technology to support different requirements. This can include the use of assistive technology, such as text-to-speech software or tools that assist with organisation and task management. Technology has the potential to greatly assist some neurodivergent people. For example, text-to-speech software can help individuals with dyslexia to more easily read and comprehend written material, while video conferencing tools can assist individuals who do not flourish in face-to-face communications.

In addition to these technological solutions, modern office space design is also incorporating sensory-friendly elements that can help to create a more inclusive and accommodating workspace. This can include the use of →

LEFT AND ABOVE
Arm, Cambridge. The use of varied settings at Arm's Cambridge co-working space creates visual interest while defining seating areas as individual zones. The varied options support the changing requirements and emotional wellbeing of the teams
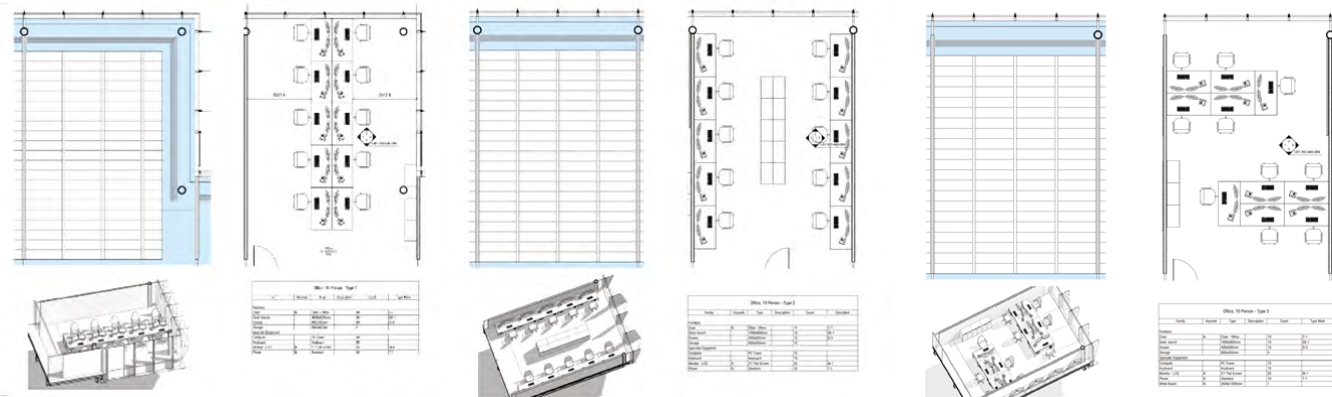
calming or muted colours, soft lighting, and other design elements that can help to reduce potential sensory challenges and create a more comfortable and inviting workspace. In addition, office space may be designed to support individuals with sensory processing differences such as hypersensitivity, such as by incorporating soft lighting and the use of sound-absorbing materials to reduce noise levels.

In addition to physical design elements, modern office space is also being designed with the social and emotional needs of a neurodiverse workforce. This may include the provision of support and resources for employees, such as training on neurodiversity and the use of assistive technology, as well as the creation of an inclusive and supportive workplace culture.

One of the key benefits of incorporating neurodiversity-friendly design elements into modern office space is that it can help to create a more inclusive and welcoming workspace for all employees. By providing accommodations and resources that cater for neurodiversity, organisations can foster a more diverse and inclusive workplace culture, which has the potential to improve overall morale and productivity for everyone.

A leading quantitative research and technology firm have successfully implemented these design principles. Their office space is designed to support collaboration, focus work and innovation, with the aim of providing support and structure for neurodiversity. This includes the use of assistive technology, as well as regular training and support for employees and their managers.

In conclusion, the design of modern office space is increasingly taking into account the potential needs of a neurodiverse workforce, with a focus on creating a flexible and adaptable workspace that can accommodate a diverse range of employee requirements and preferences. Through the the use of technology, sensory-friendly design elements, and other accommodations, modern office space design is responding well, creating a more inclusive and welcoming workspace allowing all employees to grow and thrive.

> **" One of the key benefits of incorporating neurodiversity-friendly design elements into modern office space is that it can help to create a more inclusive and welcoming workspace for all employees. "**

A NOTE ON TERMINOLOGY

We are all Neurodiverse. Neurodiversity encompasses the whole population and includes diverse neurocognitive profiles, so an individual is not neurodiverse.
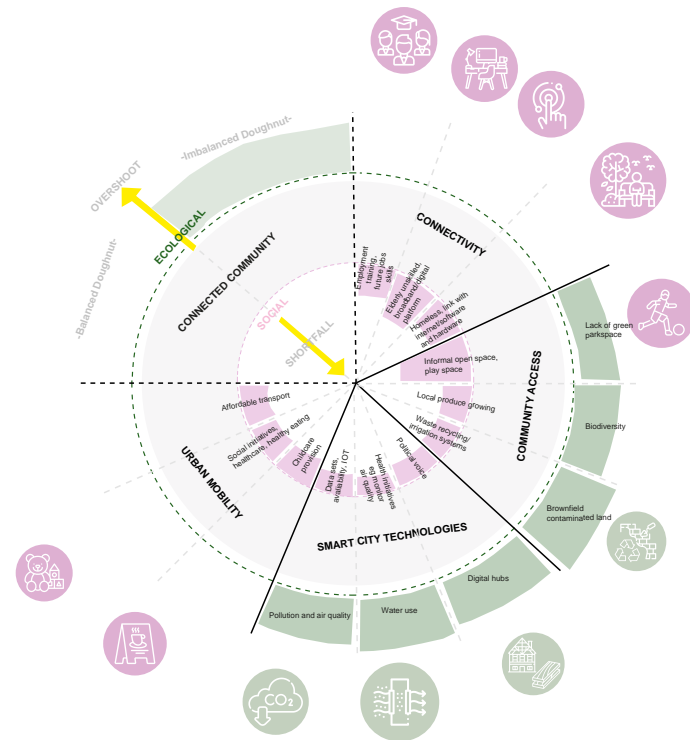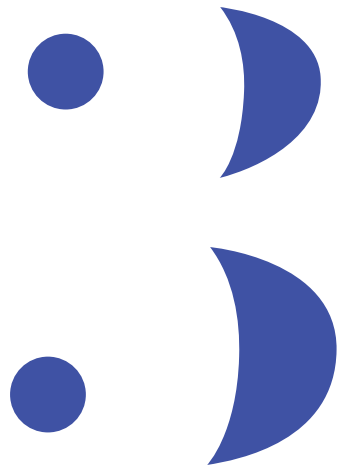
A comprehensive list of terms and definitions is provided in PAS6463:2022 Design for the Mind - Neurodiversity and the built environment - Guide - How to create a sensory inclusive environment which is currently available to download free of charge from the BSI website: https://www.bsigroup.com/en-GB/standards/pas-6463/

With thanks to Jean Hewitt, Buro Happold | Inclusive Design, author of PAS6463:2022 ●

i **British Standards Institution (2022), PAS6463:2022 Design for the Mind - Neurodiversity and the built environment. Guide. (How to create a sensory inclusive environment - Introduction). BSI [online] https://www.bsigroup.com/en-GB/standards/pas-6463/**

LEFT
Kings Cross Doughnut and
Design Outcomes

BELOW
Data, Doughnut, Design
Methodology

DATA   DOUGHNUT   DESIGN

PURE RESEARCH:
HOW CAN ARCHITECTS CONTRIBUTE TO THE INCLUSIVE DESIGN AGENDA?

Here Architectural Apprentice Joanna Koning summarises her dissertation which explores how the architect can use a doughnut econmic model as a framework to design for inclusion within Argent's Kings Cross masterplan.

My research originates from mapping the types of bins found within the Kings Cross Masterplan, recently developed by Argent. The bins created a visual expression of a boundary with the new masterplan development and its fringe with the surrounding boroughs and communities. Sparkling clean new recycle bins are found within the masterplan, meanwhile overflowing general waste bins, with a homeless person nearby are found only the street across. This gives the appearance that there remains a lack of integration for certain elements of the wider community. How can this juxtaposition and its nature be challenged?

The Doughnut Economic Model by Kate Raworth, an economist, questions the economic models of the 20th century which only consider economic growth, instead she focuses on creating a balance.

Carrying out extensive research Kate Raworth has developed this new model to meet the challenges of the 21st century, named the Doughnut Economic Model.

The doughnut model creates a 'safe space' with an inner ring of social foundation and outer ring of an ecological ceiling. Any overshoots or shortfalls in meeting these boundaries causes an imbalance. The principles are

outlined in her book Doughnut Economics: Seven Ways to Think Like a 21st Century Economist.

My research investigates how the architect can use a doughnut economic model as a framework to design for inclusion within Argent's kings cross masterplan.

The objective was to do this using data led design and collaborative techniques to propose an intervention which enables inclusion and aims to contribute to a thriving community for all at Kings Cross. The aim is to create a pathway to opportunities for the most underprivileged and vulnerable.

METHODOLOGY

Data (Context) - Doughnut (Inclusive framework) - Design (Typology)

The architectural typologies are based on an intervention to be placed within a recently redeveloped area of London with already highly urbanised character. The strategy was based on fitting into the existing urban grain. Focused to contribute but not take away from the existing uses of Kings Cross's urban landscape. This uses intensification, identifying underused or temporary use sites.

Creating a portrait of needs through data and verifying decisions can enable a more collaborative process with other members of the team, for example in gaining client support for transformative design ideas and innovations to tackle the needs. Other sources and consultants input can be referred to prove data and decisions through the later stages results in a continuing data driven design process which is a consultative design process. The Data Driven Design process for this research will consider and incorporate three aspects of data:
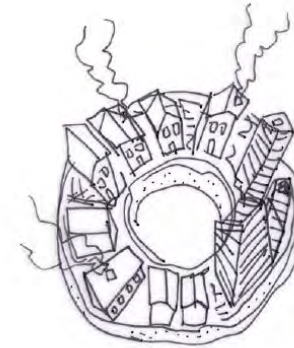
Data and Design: The datasets are applied at various stages of the process: from the early stage considering census demographic information and carbon emissions through to microclimate and circular economy related issues for waste predictions data and buildability considerations at the detailed design stage.

In particular, attention should be paid to feedback data and evaluating the project subsequent to completion. "Architects do little to obtain feedback on the outcomes of their work and are shockingly ignorant of the impact they have on communities. As a result, it is virtually impossible to predict or explain the positive societal impact of their contribution to buildings, homes and places." (Social Value Toolkit for Architecture, 2020, p3).

Data and Inclusion: Specific data sets used are social and economic reports on the Kings Cross area and adjacent borough,alongside site analysis, census data, employment statistics and commentaries from stakeholders in the design process. A portrait of the community is established from this data as these examples illustrate:

Socio-economic benefits are collected from the area's census data: 57.8% of the working population (aged 16-74) are economically active with 59.3% of children achieving GCSEs 5+ A*-C grades (including Maths and English) and low crime rate at 90 crimes per 1000 people (Camden Neighbourhood Profile- Kings Cross, 2015).

Data and Collaboration: Collaboration is important to testing hypotheses and variables within research and the data driven design process. However, this can be an inefficient process if individuals or each member of a multi disciplinary team adds their own variables in turn or uses restricted data sets, leading possibly to incomplete testing or evaluation and corrected options several times over.

Data categories of Kings cross census and site data:

Social - Thriving:
- 59.3% of children achieved qualifications KS4
- GCSEs 5+ A*-C including Maths and English.
- Crime rate is relatively low at 90 crimes per 1000 people.
- 57.8% of 16-74 aged are economically active.

Social - Not Thriving:
- 47.9% of people over 65 are living alone
- 48.6% of children are living in poverty
- 44.8% of older people are living in deprivation
- 25.2% of people are struggling with income deprivation
- 31% of people are living in overcrowding
- 20.7% of residents have no qualifications
- 26% of adults are overweight

Ecological - Thriving:
- 22% of the land in Kings Cross is public green space, with 21sqm of green space per resident
- 92.7% of homes in Kings Cross have access to a local, small or pocket park
- 100% of homes in Kings Cross have access to nature

Ecological - Not Thriving:
- 21.6% of households are without broadband
- Domains of deprivation:
- Barriers to housing and services 9.3%
- Living environment 9.3% →
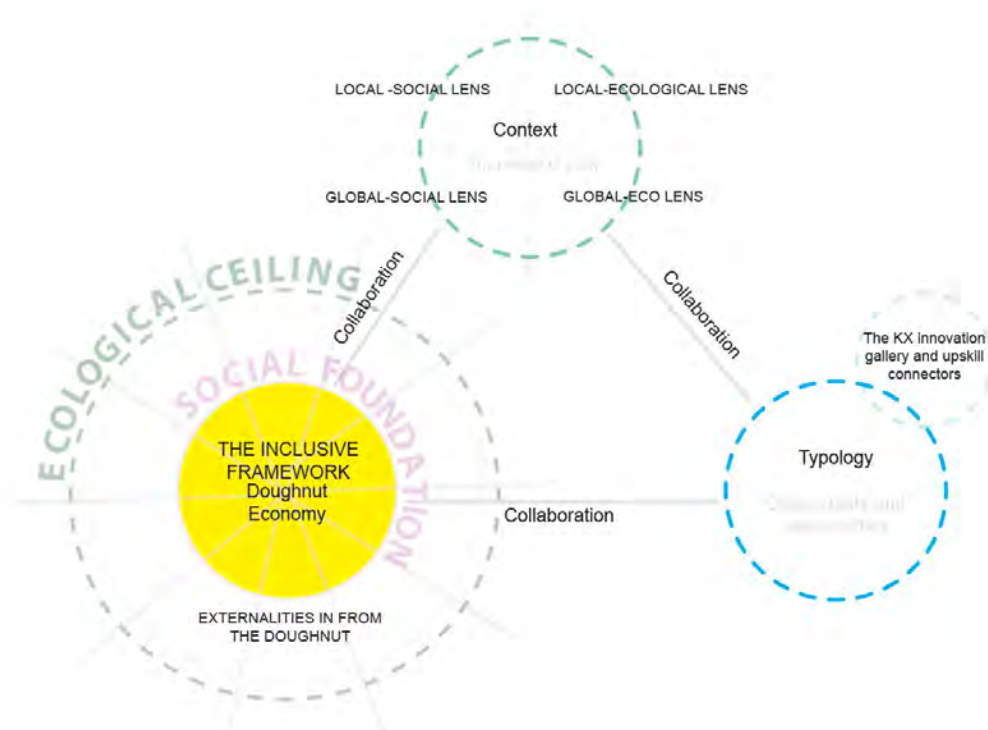
FINDINGS: DESIGN OUTCOME

The approach and methodology of the research results in a proposal for an intervention.

The Intervention: The Vision Connectivity and Carbon are the driving force for the intervention. The vision includes:

- The Upskill Centre. Here local workforce can be re-skilled and upskilled. The aim is to offer opportunity, orientation and training for future jobs and technologies. People in communities finding themselves unequipped (with digital platforms etc.) and underskilled can find a way/opportunity to be included.
- 'Skills Connectors' which provide a linking/meeting space between potential employers looking for newly skilled aspiring workers. Provide an overarching master plan strategy for the urban area to connect to other areas of the site and to communities in neighbouring boroughs. The 'Skills Connectors' are focused on providing adaptable modules to be responsive to the type of future jobs requirements for each sector and social and economic aspects affecting opportunities at the time. For example, the pandemic resulted in the need for more lab technicians on a huge and sudden scale /on a short timescale. Engagement with thriving institutions, businesses, university and education developments already on site to increase connections to facilities and social and physical infrastructure already at Kings Cross eg Construction Skills Centre.

LOCATION

The typologies and their forms are to act to attract the inquisitive nature of people. For this reason the Upskill

centre is embedded into the public realm, with the skills centre located in Lewis Cubitt park. The intention to incorporate the connectivity and carbon aims by retaining and improving the park and making more accessible - so in balance the essence and activity of the park life within the accessibility of the centre and its programme of spaces. Retaining and enhancing the biodiversity.

Located in a semi-permanent way, taking up underused space, adding to buildings etc. In this way the skill connectors will act as 'beacons' both within the site and outside Kings Cross to provide visible form and advertisement to those in neighbouring boroughs. This is to provide visual connectivity.

THE RATIONALE

The rationale follows from the aspects identified in the carbon and connectivity doughnut. These determined a portrait of the issues related to the site; responding to the 'overshoots' and 'shortfalls' found.

BRIEF FOR INTERVENTION

This follows from the imbalances shown in carbon connectivity doughnut to establish the brief and its programme requirements. These address shortfalls found in the Carbon connectivity model.

A – LOCAL - SOCIAL: PROGRAMME TARGETS

- Improved access to, and visibility of, jobs available for local labour force.
- Tailored facilities for future job and skills and knowledge requirements, training for these along with broadband

connectivity for those that don't have access to the software and hardware.
- Skill Connector - localised interventions placed in Kings Cross and adjacent neighbourhoods in community places next to existing services - community spaces, health spaces, food banks or space shared with other global headquarters.
- Public events, installations and job fairs spaces to increase face to face contact in the community and connectivity within the masterplan.
- Ability to respond to changing demands from Job market, for example the COVID pandemic created new demands. This requires flexibility in terms of use of the Upskill Centre and Skill Connectors. To create flexibility in use requires reusable multi use design of the Upskill Centre and Skill Connectors.
- The Upskill Centre to provide a neighbourhood centre - opportunities for families struggling to balance finding employment with child care. Collaboration with creche facilities within the centre's programme.

B – LOCAL - ECOLOGICAL: PROGRAMME TARGETS

- The Upskill Centre to reuse and redistribute technologies including computer hardware that is donated and provide broadband connection.
- Future jobs training of local workforce and the introduction to new technologies will have the potential to implement low carbon technologies locally, e.g. retrofitting gas boilers with hydrogen based equivalents, installation of solar panels, installation of electric charge points.
- Local underused sites can be used for the Skill Connectors instead of demolition and new site in the process of Intensification with fit out modules,
- The Upskill Centre will demonstrate use of passive design systems, sustainable materials and carbon neutral construction in its location.
- Retention of the green space of the park and increase of its biodiversity whilst encouraging use by people in the local area.

C – GLOBAL - SOCIAL: PROGRAMME TARGETS

- Programme targets to create a Hybrid model for investment in communities in the UK. A link for those sourcing jobs from other countries. Information sharing of Insights, expertise, and effective practices for skills transfer.
- To provide a design led example (exemplar project) for research Group DEAL that have Doughnut Economic Framework principles for global change. Or to collaborate with research groups such as DEAL to provide a exemplar project incorporating the principles of the Doughnut Economic model with its aims to create inclusive and thriving communities.
- Creation of (and connection to) workforce skilled in / working with new technologies / interested in jobs for the future - commercially good for businesses.

D – GLOBAL - ECOLOGICAL: PROGRAMME TARGETS

- Sustainable and adaptable assembly on site rather than transportation from many destinations to create minimal carbon footprint and pollution.
- Network of exemplar Biodiversity and passive measures encouraged as exemplar. Through introduction of, and implementation of low carbon technologies in Kings Cross which provides an available skilled labour force to continue in London has an effect globally.
- Role model for new urban developments to integrate and to collaborate with local businesses - skills connectors (connect with outside communities in urban Business and social aims combined to provideillustration of a economic system which not based solely on usual economic system and how this can benefit). Knowledge and practice can be compared. Acts like a High Street and can be a blend of digital and face to face connections for communities. →

CONCLUSION

In assessing the contribution of architects to the 'inclusive agenda', this can be seen through the three elements - Data Driven Design of Process, Collaboration and Engagement where architects play a role. In all of these three elements social and ecological values are bound together to contribute to the Inclusive agenda, instead of solely social values.

However the architect needs to create a vision from these elements that incorporate other objectives such as thinking long term, creating shared value and behavioural change. These objectives relate to the fourth element required - Viability - which has emerged from the evaluation of the Data Driven Design Process by the developer, architects, and is essential to the development appraisals of investors and clients and businesses.

The findings from the interview with Argent show that if investment in and appreciation of the long term value of buildings and the environment are held as important objectives, developments can be made to work both in societal terms and in the financial viability to clients. What is required is willingness to look at benefits other than financial. This seems to support the framework to design for inclusivity established around the principles of the Doughnut Economy. Various ideas were proposed to be incorporated, in particular data related to the building as it continues its life following construction.

LONDON DOUGHNUT ECONOMICS ACTION LAB

Leonora Grcheva, DEAL's Cities and Regions Lead, was contacted and responded with feedback.

"There is a lot of interest and work by urban planners and architects to use the tools and concepts of Doughnut Economics in their work, but their work is in early days" (Grecheva, 2022)

It was recognised that this research framework could be applied to architectural projects.The intention is to explain data and parameters used to create the Carbon - Connectivity and then a detailed evaluation of its use in pointing to a programme for transformative action can be made.

In this research what is seen to answer these objectives and unlock viability is an intervention which provides opportunity, engages, upskills, and creates a workforce for the future within a park environment which keeps and enhances the 'green space' value.

One tangible value stems from creating a city and a local workforce, especially one aimed at closing skills gaps and being available to businesses in the local area. This would complete the circle of interdependencies for a group of stakeholders i.e. the investor, the local community, the Local authority and businesses. Values can then be shared because of mutual benefit ●

LEFT
The Upskill Centre

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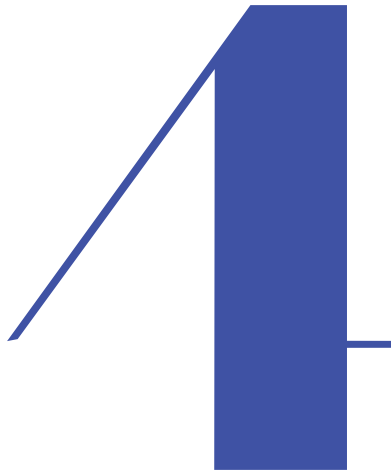
BUILDING STUDY:
PETERHOUSE TECHNOLOGY PARK –
WESTERN EXPANSION

The western expansion of Peterhouse Technology Park for British Land will provide a single, three-storey building with new state-of-the-art laboratory and workspace, landscaping, parking and associated infrastructure. The project design was subject to a rigorous accessibility review by the Greater Cambridge Shared Planning Service Disability Conservative Panel. Here we lay out of the contents of our report and the Panel's findings.

Lying to the south east of Cambridge city centre, the site is 2.5 miles from the railway station, benefitting from easy access to the M11 and the A14 and is served by a regular bus service to the front of the park. The site is adjacent to Peterhouse Technology Park which is the global headquarters for Arm, designed and delivered by Scott Brownrigg.

In terms of site access, staff using the building will park on the western car park where accessible bays are provided closest to the building. Accessible parking is also provided opposite the main building entrance to the north for visitors.

The building is located on a sloping site. To maintain a gentle gradient across the site, the building is partly cut into the site on the West side, subsequently the landscaping from the West is terraced down towards the building. At the east side an internal stair is provided down to ground level.

ACCESS ACROSS THE SITE

To ensure adequate access across the site, the following landscaping considerations have been incorporated:

- Block paving - provided in accessible bays north of the building with continuous step free access directly to the northern main entrance.
- Block paving - provided in accessible bays to the North West which continues uninterrupted to the main building entrance and a pedestrian path that runs around the building.
- Hard surfacing in the access roadway to the North allow for easy drop off.
- Outdoor working spaces to the South are provided for all, with easy level access through the building.
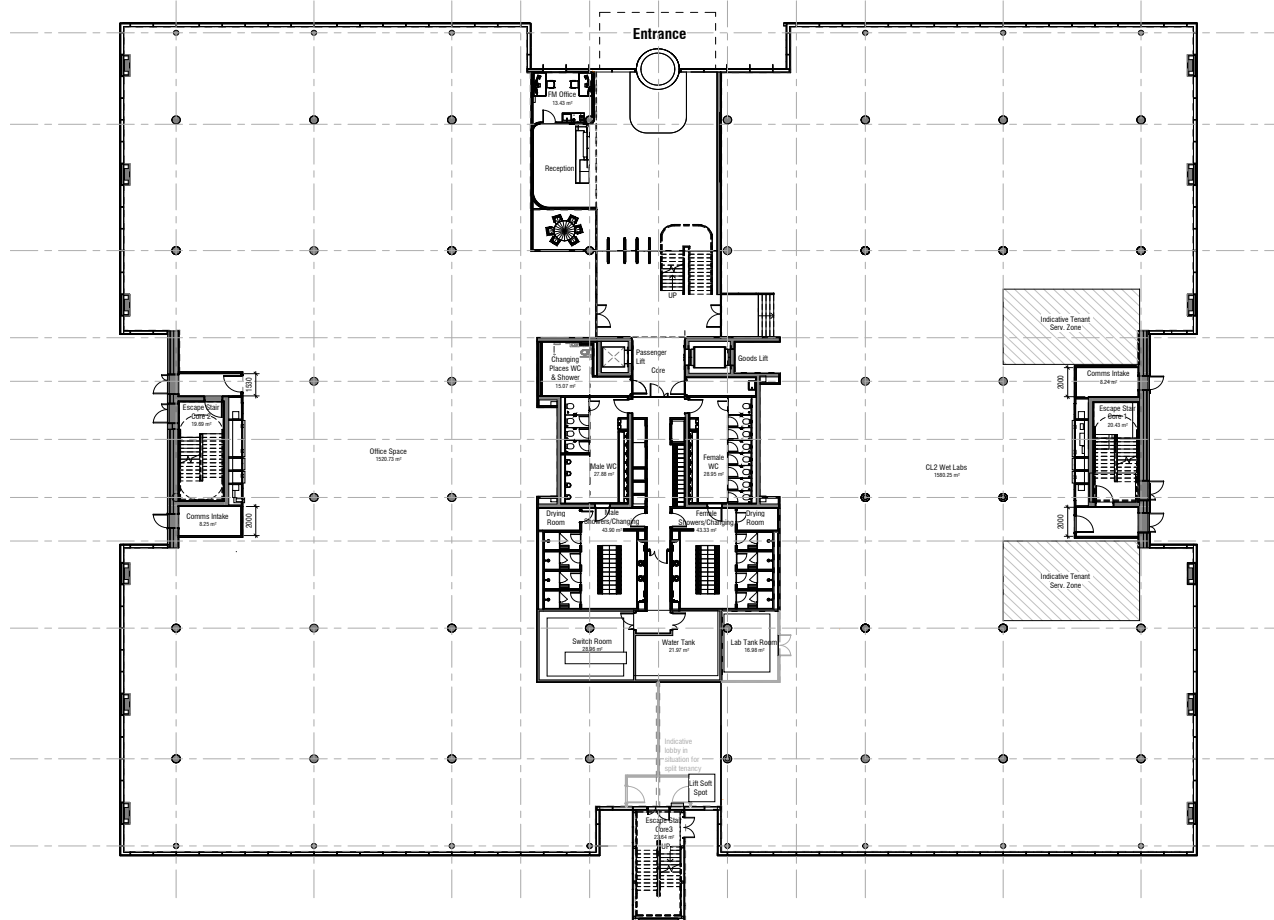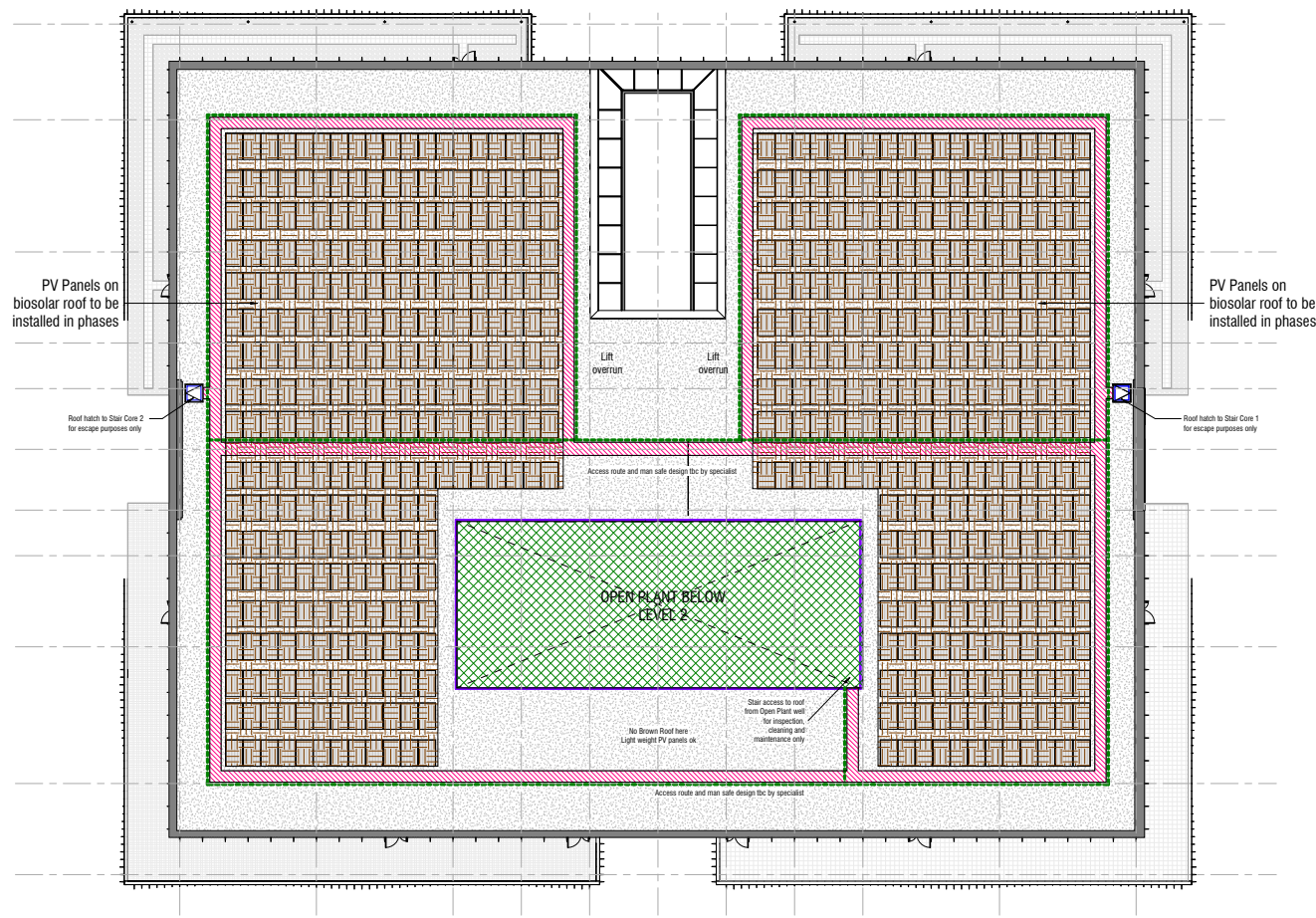- A continuous path, incorporating a trim trail, runs around the site.

ACCESS TO BUILDING

Entrance Door:
- Access to the building via the main visitor's entrance to the North is provided via a circle slide door with a minimum clear opening of 1500mm. This is in excess of the requirements for wheelchair use under table 2 of AD.M.
- Double doors slide open upon presence detection from door sensors. Circle slide doors provide a noticeable entrance feature on the front of the building to guide visitors to the entry point. →

RIGHT
CGI images of proposed entrance area in PTP Western Expansion.

- Outside the entrance, a video entry post with accessible controls to contact the receptionist to be granted access are provided.
- The circle slide door will create a draft lobby (meeting the provisions set out in 2.29 under AD.M). The internal size of the space is at least 2.9m wide and deep, giving enough space for a wheelchair and guide.
- There will be a level matting system within the lobby to assist in drying pedestrian shoes with an additional matching run off matting system within the main entrance area. Flooring within the reception will have a minimum PVT slip resistance of 36.
- Staff entrance to the east and west will be via an outward opening leaf and half door with minimum 1000mm clear. The landlord will have provision to install powered controls to be wall mounted internally and on a post externally (in compliance with provisions under AD.M 2.21).

ACCESS TO RECEPTION

- The reception is at a level entry position from the main entrance carefully positioned to take account of the slope of the site.
- The reception desk is designed to be fully accessible and identifiable. The dimensions of the desk will cater for both standing and seated persons (All in accordance with provisions set out under AD.M 3.6).
- The reception space has a clear view through to the reception desk, lifts and to the accessible feature stair.
- The reception area has a hearing enhancement system incorporated into the reception desk.

Feature Stair:
- The accessible feature stair enables access to all office levels within the building.
- The stair width is 1400mm wide and has risers not greater than 170mm, and tread depth minimum of 280mm.
- The treads and risers will be clearly marked with contrasting colour at the edge, which also provide additional grip.
- Continuous handrails on both sides will be set within the guarding with no obstructions.

LIFTS AND SERVICE CORE

Lifts:
- Two lifts at the rear of the reception space provide access to all office and laboratory floors.
- The specification for both lifts is compliant with the provisions set out under 3.34 of AD.M, with the dimensions sized to cater for all occupants of the building. The passenger lift allows for 10 person and this would comfortably serve the whole building.
- An additional dual purpose passenger / goods lift has been provided. This will primarily be used as an additional passenger lift to ensure during routine maintenance there is always a lift available. This lift

has also been designed as a goods lift to support back of house operations.
- All lift landings are generously sized for ease of access to the front of the lift.
- Audible and visual indicators are provided within lift and landing to provide clear communication.

Service Core:
The cores are accessed via doors with suitable eye level vision screens, providing minimum 900mm clear opening. There is a clearance of 300mm from leading edge of the door to the wall return (in compliance with provisions set out under 3.10 of AD.M).

- The doors are fitted with door closers providing a resistive force not more than outlined under 3.10a.
- The cores on every floor have an accessible shower room and toilet (in accordance with BS8300-2 Fig.30 and AD.M 5.18r) as well as an ambulant cubicle (in accordance with diagram 21 and 5.14 of AD.M) and enlarged cubicle within each separate-sex wash room.
- On the ground floor in the core that would be accessible to visitors, the design includes a Changing Places cubicle in line with BS8300 and recommendations from the Greater Cambridge Shared Planning Service Disability Conservative Panel. This significantly improves the building's access credentials.
- Internal arrangements for the accessible toilet facilities are handed between floor to allow ease of access on and off the facilities.

OTHER CONSIDERATIONS

Escape Stairways:
- All escape stairs are accessible but also contain a landing space for fire escape refuge. Providing a minimum area of 1400 X 900mm clearance from the escape route and a dedicated call point (in accordance with BS9999 Appendix G).

Terrace Access:
- All terraces at second floor are fully accessible spaces with level thresholds.

Manifestation:
- All glazing panels that have less than 600mm drop between spaces at floor level will have a manifestation (in accordance with AD.K Section 7).

General Items:
- Switches and controls throughout will be set in compliance with AD.M 4.30.
- The colour contrasting of finishing's are suitable for visually impaired people. Full consideration will be given to colour / luminance contrast between walls / floors, walls / ceilings, walls / doors and partitions, stairs and stair nosings and fixtures and fittings with their backgrounds. →

In the UK, the Equality Act 2010 involves protecting people against discrimination in all areas of life. However, as designers, we tend to focus on compliance with the Building Regulations Approved Document M, which requires minimum standards for access to and use of all buildings and facilities. When working with Occupational Therapists and various agents that discuss and provide feedback to the regulatory bodies on accessible design, it is evident that simply complying with the regulations does not guarantee an environment that truly fits its purpose of facilitating access to those with less mobility. In addition to the regulations being short of clarity, the minimum requirements stated in this guidance document are often not nearly enough for what one needs in order to carry out their activities freely and independently.

Designers all around the world, not only in the architectural industry, are talking more and more about "Inclusive Design", which encompasses the design of products, services and spaces to be usable by as many people as possible, particularly groups who are traditionally excluded from being able to use an interface or navigate an environment. Historically, Inclusive Design has been linked to designing for people with physical disabilities, with accessibility being one of the key outcomes of Inclusive Design. However, rather than focusing only on designing for disabilities, Inclusive Design is a strategy that considers the many aspects of human diversity.

The term "Universal Design" has also been around since the 1980s and implies that everything should be developed so that they are usable by the greatest diversity of people possible at the same time without the need for specific adaptations. Universal design is a powerful concept for inclusion. For example, kerb ramps may have been primarily created with wheelchair users in mind, but it can also make other people's lives easier, such as parents with a pram, shoppers with a trolley or even workers pushing a delivery cart. Voice announcements, now commonplace in public transport or lifts, help people with visual impairments but also inform others who might be distracted or need reassurance. We may have used accessible spaces many times without even noticing it, and this is how it should be – used by all without being necessarily obvious.

When places do not adhere to include all, then there is exclusion, segregation and even humiliation. If someone needs to make unnecessary efforts to use a space, without comfort, safety and autonomy, then we have failed as designers ●

The Panel noted that they'd like to see sliding (pocket) doors on the accessible WCs as these are easier to manoeuvre from a wheelchair. On the ground floor core, which is accessible to visitors, they recommended including a Changing Places cubicle. These are increasingly becoming a feature in places of work and public buildings and are included within BS8300. The upgrade required from the proposed shower rooms would be minimal and yet it would significantly improve the building's access credentials. The team have taken the decision to incorporate this facility to every level.

In conclusion the Panels said: "This is a very well thought out scheme with an impressive variety of access features proposed. The constraints regarding the gas main and level change that will impact options on entering the building are noted, but the Panel are generally very supportive." ●

ABOVE
CGI images of proposed lobby and lift area in PTP Western Expansion

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" **At Scott Brownrigg we design for accessibility and inclusion for all from first principles, we consider it fundamentally important that the buildings we create have considered the needs of the whole of our society and enhance everyone's wellbeing. It is especially important that our workplaces respond to these needs to ensure that there are no barriers to engagement for talented people across the whole spectrum of physical and neurological diversity. We are delighted to have the support of the Greater Cambridge Shared Planning Service Disability Conservative Panel for this great project.** "

Ed Hayden, Director

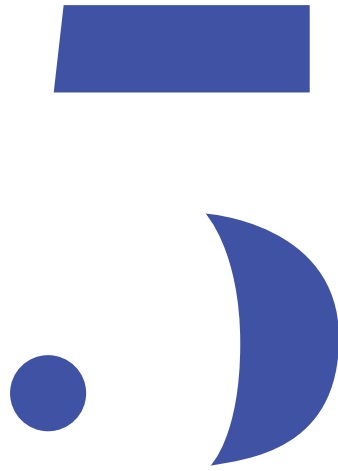## PERSPECTIVE PIECE
Glauco Borel, Architect

Leave my terraced house. Go back inside. Walk into a shop. Cross the street. Go to a friend's house for dinner. These all seem to be very mundane daily activities and indeed they are. Unfortunately, not for everyone. 15 years ago, they unexpectedly became very challenging hurdles for me to overcome after I was in an accident that severely impaired my mobility. Being wheelchair-bound made me realise, for the first time, how I had spent my whole life up to that point, taking for granted all my privileges as a perfectly "able" person – and I am only talking about mobility here, not to include another entire sphere of diversity that there is, at many different levels of severity. As a designer, it made me pay attention to the impact of the built environment. It can either facilitate, limit or block one's freedom. Mobility issues can affect any of us at any point of our lives - we could become less able through accident, illness or as we age.

DESIGN PROCESS:
AGEING POPULATIONS -
STATIONS OF THE THIRD AGE

All but 18 countries in the world are experiencing population ageing. In the UK over 65's increased by 23% between 2009 and 2019 to 19% of the total population, whilst in Singapore over 65's will rise to 25% of the overall population by 2030. Andrew Posting explores the design aspects in stations that can support not just an ageing population, but everyone.

Our aim should be to enable everyone to be able to lead active, engaged, and valued lives within their communities. By providing public transport infrastructure designs that facilitate people living in their preferred environments by increasing their autonomy, self-confidence, and mobility, we bring benefits to the whole of society. Designing for inclusivity results in higher quality, more accessible and usable spaces for all on a much wider level. With positive affects beyond the specific stations environments, as well as to the operators of such infrastructure.

For the new user a station can present a confusing, difficult to navigate and often overwhelming public space. However, in making the station as inclusive as possible we provide benefits to all – both passengers and operators. There are a number of key areas to consider:
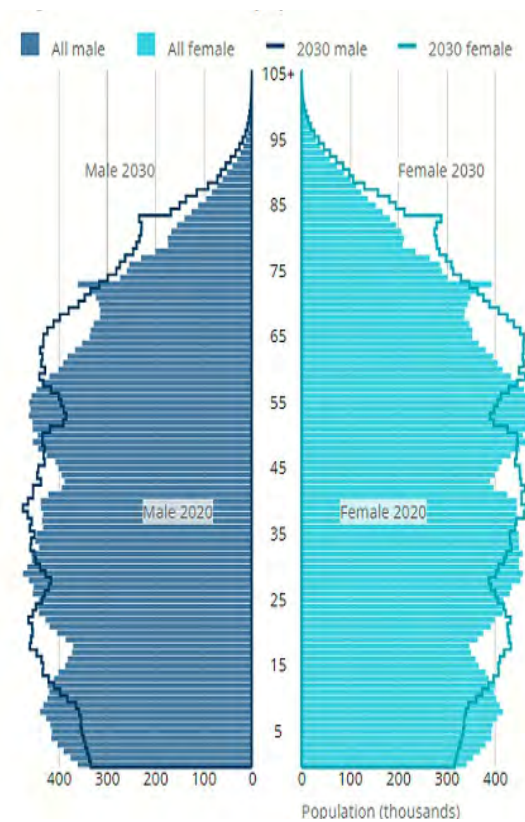
LAYOUT AND WAYFINDING

Station designs should provide clear, visible, and legible routes from street to platform and vice versa. When the layout is intuitive, easy to navigate and understand, passengers move through the station more easily, which also benefits station staff overseeing daily operations.

Spatial designs must provide clear visibility of routes to and from platforms and wayfinding needs to be intuitive, reducing the level of signage required. However, signage needs to be located strategically at various decision-making points to assist passengers.

Ticket Office and/ or Assistance windows should be designed at heights suitable for all passengers including wheelchair users. Sufficient numbers of accessible fare-gates should be incorporated into gate-lines as determined by the demand numbers and pedestrian flow modelling.

LEVEL CHANGES

These areas are typically those in the top-risk classification for the potential for slips, trips, and falls amongst all passengers. These include stairs, ramps, escalators, and lifts. For all publicly accessible means of level change the designs should provide sufficient run-offs to top and bottom landings (and intermediate when required), together with treads and risers that meet statutory requirements with sufficient lighting and appropriate waiting areas at top/ bottom / landings.

FINISHES

Highly reflective surfaces cause problems with glare and produce reflections which can cause confusion and can be misinterpreted. The need for hard wearing easily cleanable architectural finishes tends to result in the specification of shiny surface finishes in stations. The balance needs to be judged carefully as overly prescriptive restrictions in materials choice reduces the opportunities for innovation and expression.

Manifestations with appropriate contrast must be installed on any obstruction or glazed elements in accordance with relevant statutory requirements. Fritting applied to glazed balustrades will benefit passengers in navigating the station, as visually impaired passengers or staff may find transparent surfaces problematic. These features also aid others such as autistic passengers or staff, or passengers with dementia.

COLOUR

The use of colours when proposing the finishes is vital in ensuring members of the public and staff with visual impairments can navigate the station safely and independently.

As per industry standard guidance there must be appropriate colour contrast between planes, and to indicate doorways and obstacles. Colour choice will follow both industry guidance and consider the needs of passengers, such as those with visual impairments, autistic people, or people with dementia.

LIGHTING

Marked changes in lighting levels and flickering light sources can prove problematic for some passengers. The industry standard requires minimum light levels in public areas of the station with minimal deviation and with increased levels for areas such as stairs and escalators. This should reduce the potential for confusion and disorientation within the station environments.

Modern energy efficient light sources typically use LED lamps which have the potential to flicker, however the expectation is that the specification of light sources will be sufficient to provide stable light output with minimal flicker. Where local requirements permit, architects should seek to allow natural lighting into the building, and to provide longer views out of the station buildings. →

SIGNAGE

Railway station signage is often held up as an exemplar of how to design and provide consistency in the style and design of direction, route guidance and legibility. Wayfinding signage helps to underline the station and operator's identity. All signage will be adequately lit and easily recognisable by all passengers with clear lines of sight. Emergency signage is self-illuminated, operating on emergency power as standard. Customer information needs to be positioned in prominent and accessible locations.

Key legislative requirements for warning signs and evacuation routes will be incorporated where appropriate in conjunction with PAVA systems.

SOUND AND INFORMATION SYSTEMS

Stations are designed in conjunction with acoustic engineering inputs with absorptive materials to give reduced reverberation times and to allow speech intelligibility. This allows PAVA systems to be able to operate effectively, and there will be benefits to passengers, including autistic passengers or passengers with dementia, with regard to excessive sound levels.

Induction loops or equivalent hearing aid systems should be incorporated into the communication design scope to ensure passengers can receive updates and notifications from the operator, communicate clearly with members of staff and in case of emergency.

SEATING

Seating should be provided in ticket halls and circulation spaces, near to level changes and on platforms. Consideration can be given to provision for a respite space for disoriented or anxious passengers. Long interchange routes should provide for resting areas out of the path of trafficked areas.

TOILETS AND CHANGING PLACES

Station designs should provide for a Changing Places facility in the central area, which will be readily accessible to passengers. These should be provided in addition to public toilet facilities including accessible toilets.

CALM CORNER / SENSORY ROOM

A sensory room is an interactive space designed to help travellers who are neurodivergent and may become particularly overwhelmed in a bustling and unfamiliar terminal. They can help travellers with conditions like autism, dementia, or other sensory processing issues.

TRAINED STAFF OFFERING ASSISTANCE

In busy public spaces it is considered imperative that operational staff have received training in being able to offer assistance to passengers, including neurodivergent users.

DOG SPEND

For passengers and station operational staff who require either a Guide Dog or a Service Dog to enable them to live in their preferred environments a Dog Spend area will be provided close to the entrance to the station ●

LEFT FROM TOP
Stations are complex spaces (Waterloo Network Rail Station in London)
Clear signage and routes (Paddington and Elizabeth line station in London)

PURE RESEARCH:
DESIGNING FOR WOMEN'S SAFETY

Here Director of Practice, Helen Taylor, explores how the design of the built environment can help (or hinder) women's safety.

Even before London went into official lockdown in March 2020, many people started staying home and businesses voluntarily closed. The streets were quiet and the usual passive surveillance, that much of the public relied on to make them feel safe in the urban environment, particularly outside daylight hours, was no longer there. In the last few years, a number of high profile murders of women using public space have raised the profile of women's safety and prompted more conversations across the industry on how the design of the built environment might help or hinder safety, or even just the sense of safety, that might encourage women to use a space[i].

Obviously women and girls aren't the only group considered vulnerable but, as roughly 50% of the world population[iii], they are a very significant group. Designing for the needs of women should have positive impacts on a wide range of people.

Many of the industry initiatives have taken the opportunity to emphasise the importance of having a diverse design team or diverse stakeholder input[iv]. This is absolutely important, and to be championed, however, there are specific design measures or principles that could be established, regardless of the make-up of the project team, that mitigate against the need to implement active surveillance or wait for behavioural transformation. Additional CCTV and security patrols are more likely to communicate that a space is unsafe and will not necessarily

encourage more use. And no amount of lighting will stop someone determined to cause harm.

Over and above basic physical accessibility standards, there are a few specific areas of design that positively contribute to safety.

SEE AND BE SEEN

This is not only about good sightlines (including visibility and transparency in the design of routes, boundaries, fences, walls, gates, planting etc.) but also about creating activity and opportunities for overlooking that create a sense of safety - windows or views from active spaces onto public spaces. Mixed use and high density have long been a good recipe to support urban safety and connectivity[v]. Conversely, limiting access to open space or green spaces can cause mental and physical stress. UN Sustainable Development Goal 11 identifies that a healthy, sustainable city is one that provides access to safe and inclusive public green space[vi].

ALTERNATIVE MEANS OF ESCAPE

Research by the campaigning organisation 'Make space for Girls'[vii] identified that one of the barriers to girls using fenced sports pitches was that they only had a single access point - making it too easy for them to be trapped by others or their access to be barred by others. This principle also applies to constraints on any spaces - can you easily move away or keep your distance from someone who makes you feel safe? →

RIGHT
Poorly maintained or dis-used facilities become an indicator of an unsafe environment

> **Often, conversations around women's safety in public centre on the risk of sexual assault. But that's not the sole concern - and taking a broader view of public safety can be one of the best ways to achieve more women-friendly streets.**[ii]

LIGHTING

This is one that is most commonly cited in surveys but it doesn't mean that a standardised light level needs to be applied in every single space. Making sure that the lighting is attractive, appropriate and well maintained makes an enormous difference.

PUBLIC TOILETS

Perhaps not always thought of as a safety, rather than a public health issue, but something that has a significant impact on women's safety - particularly in countries with poor sanitation infrastructure. Women and girls are disproportionately affected, and exclude themselves from spaces, due to a lack of access to toilets[viii]. The 2021 London Plan recognises that provision of safe public toilets is a critical part of our social infrastructure[ix].

DESIGN QUALITY

"Safety in numbers" rings true in this context - a well-designed, inclusive space will be more appealing and more likely to be used, and therefore it will feel safer. Green space and good quality play space for children and young people also increases this perception of safety. Robust, resilient and popular facilities are more likely to be well maintained. Poorly maintained or dis-used facilities become an indicator of an unsafe environment.

THE LACK OF VISIBILITY OF WOMEN IN PUBLIC SPACES

Whether due to lack of usage, dedicated facilities, road names, statues or otherwise, reinforces the perception that these spaces are not for women and girls. In a time when we need to re-build community and positive social relationships, the design of our built environments can contribute to breaking down these barriers. This is a complex topic[x] but these five principles offer a simple starting point - a "women's safety framework" that could be applied to, or used to review, any design proposal or existing environment. A safer environment will have a positive social, environmental and economic impact for all of us - not just for individual women and girls ●

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DESIGN PROCESS:
DESIGNING FOR DEMENTIA

Here Architect, Teresa Kokot highlights some key areas to consider when providing built environments that support those living with Dementia.

Dementia[i], is an umbrella term caused when diseases, such as Alzheimer's, vascular dementia, and other conditions damage the brain.

All types of dementia are progressive and each person will experience dementia in their own way. Symptoms may include memory loss and difficulties with thinking, problem-solving, or language, which gradually become severe enough to affect daily life. A person with dementia may also experience problems managing their behaviour or emotions, lose interest in relationships and socialising, lose empathy, or experience hallucinations. There are also sensory challenges, including vision, hearing, perception and balance, taste and smell. The specific symptoms that someone experiences will depend on the parts of the brain that are damaged and the disease that is causing it. With an ageing population, it is key to note that dementia is most common in older people, however not exclusively. Dementia

can also exacerbate the effects of physical impairments and other health conditions.

Globally, the World Health Organisation estimates the number of people with dementia to be 50 million and recognises the disease as a public health priority. According to Alzheimer's Society research published in 2019, there are around 850,000 older people living with dementia in the UK. Alzheimer's Society predicts an 80% increase to around one million in 2024 and 1.6 million people living with the condition by 2040 (people aged 65 and over). In 2013, there were over 42,000 people living in the UK with early-onset dementia.

The built environment plays a major role in promoting or impeding the health and well-being of people living with dementia. They may find public spaces such as shopping centers, or other facilities open to the general public, uncomfortable or distressing. In many cases, traveling on a busy transport network may be challenging or impossible.

Stress and anxiety result from the bombardment of sensory stimulants experienced without the ability to filter-creating "sensory overload". Many potential negative impacts can be eliminated or reduced with thoughtful design or management. Designers have a role to play in developing ways to both learn from, and design for, diverse needs.

In the World Alzheimer Report[ii], the application of participatory design on a community scale was explored by Martin Quirke and his co-researchers, in their section-

'Citizen Audits: Developing a participatory, place-based approach to dementia-enabling neighborhoods'. This team successfully used games, theatre techniques, craft activities, poems, diaries, touch and proximity, personal objects, and even songs and dance to engage people with dementia in the work of designing together. These techniques aimed to create dementia-enabling public spaces, involving weekly citizen-led observational walks through the city. Through this, the project team and local council learned about the significance of sharing place-based memories and stories as a way of connecting for people with dementia.

Design principles for the built environment for people living with dementia are summarized in the Report as follows:

- Unobtrusively reduce risks
- Provide a human scale
- Allow people to see and be seen
- Reduce unhelpful stimulation
- Optimise helpful stimulation
- Support movement and engagement
- Create a familiar place
- Provide opportunities to be alone or with others
- Link to the community
- Design in response to vision for way of life

Public transport is one of the most challenging environments for people living with dementia. And for designers, a design

intervention to improve the environment for one type of sensory difference might worsen another.
Accessibility of public transport environments can be reinforced by:

- Making public transport hubs easy to access by a variety of transport modes, including cycle and vehicle parking or taxi drop off. Public transport can be the only option for older people who are no longer able to drive.
- Providing quiet places to allow people to retreat from the main flow of pedestrian traffic whilst retaining sightlines and safe spaces. An innovative example that may influence this concept are public galleries by Outernet in central London, made of Ultra HD screens. The audio-visual experience is easy to adapt and transform into an 'oasis of calm'.
- Landmarks and distinctive features, such as a memorable wall detail or piece of art, positioned in strategic locations with good sight lines, assist in wayfinding. These can also be incorporated in wayfinding instructions and maps made available in advance of a journey.
- The art installations by world-renowned artist Daniel Buren, located at the entrance area of Tottenham Court Road Station aid wayfinding, indicating the Oxford Street entrance with black and white installations, and the Centre Point Plaza entrances →
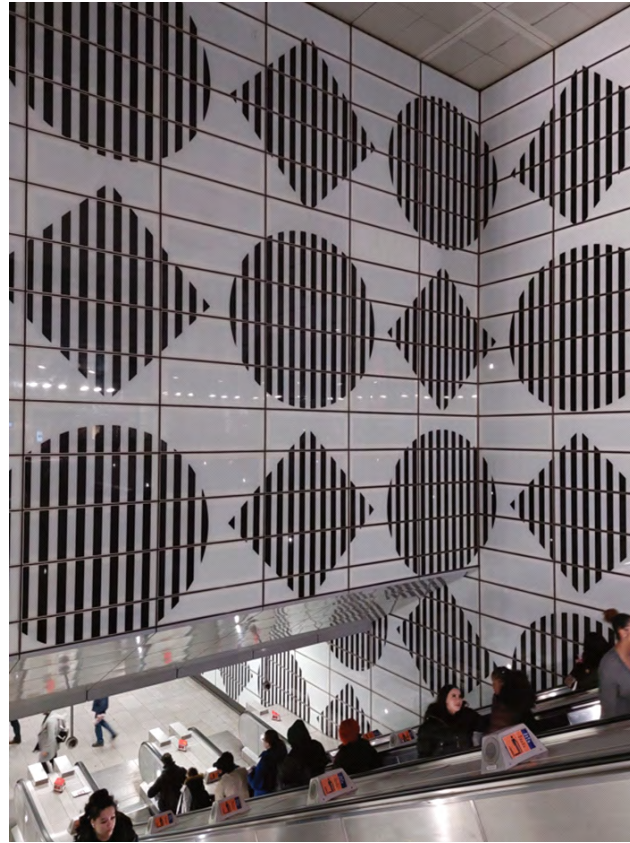
Many people with dementia find it difficult to negotiate stairs. Residents use lifts instead, however a break or change in the flooring pattern creates a barrier. Many residents wouldn't see a lift, they would see a hole. The same carpet is used in the corridors and the lifts, which required a Building Regulations dispensation.

It is not only lifts where breaks in flooring patterns can prove problematic. There are no blue rugs or carpets anywhere in the building. Dementia can affect sight and there have been cases where dementia sufferers have mistaken blue rugs for ponds and have taken great pains to walk around them in rooms, sometimes injuring themselves in the process.

Another lift-related design feature that required Building Regulations dispensation concerned mirrors. There have been incidents of people with extreme dementia being gravely alarmed when unable to recognize themselves in mirrors. They might think another person is in the room with them and become anxious or afraid, in some cases lashing out at the mirror and injuring themselves in the process. Consequently, there are no mirrors in any of the lifts and all mirrors in bathrooms are removable.

Providing a human scale of a building can positively affect the behaviour and feelings of a person living with dementia. The experience of scale is influenced by three key factors; the number of people that the person encounters, the overall size of the building, and the size of the individual components (such as doors, rooms, and corridors). A person should not be intimidated by the size of the surroundings or confronted with a multitude of interactions and choices. Rather the scale should encourage a sense of well-being and enhance the competence of a person. The provision of an easily understood environment "to see and be seen" will help to minimise confusion. It is particularly important for people living with dementia to be able to recognise where they are, where they have come from and where they can go. When a person can see key places, such as a lounge room, dining room, bedroom, kitchen, and an outdoor area they are more able to make choices and see where they want to go. Good visual access opens up opportunities for engagement and gives the person living with dementia the confidence to explore their environment. It also enables staff to see residents. This reduces staff anxiety about the residents' welfare and reassures the residents.

Sensory stimulation is also key. Clusters of accommodation are laid out like a 'wandering loop' with all facilities, including TV rooms, kitchen, dining hall, quiet room, as well as bedrooms, accessible from a broad circuitous central corridor designed to encourage residents to walk, explore and engage. Large windows are located at corridor ends or corners. These often have a chair strategically placed next to them and are subsequently popular spots for residents to sit and look at the outside world. →

with colourful installations. This station upgrade project by Acanthus LW (now Scott Brownrigg) and Hawkins Brown was completed in 2017, and has won numerous awards.

- Routes and spaces that are intuitive, avoiding street clutter, obstacles, and clashes between different transport modes to create a calmer, safer and less stressful experience. Colour and patterns should be used thoughtfully to avoid confusion and create visual balance. Rail concourses can contain numerous passenger information screens, frequent announcements, advertising screens and shops, including outlets selling hot foods with associated smells disturbance.
- Liverpool Street Station in Central London with its' visual clutter is currently undergoing a transformation to provide a more inclusive, welcoming and vital public place. The objectives set up by Network Rail and TfL include improving presence, permeability and accessibility of all transport modes, and essential services for all users. The new design aims to deliver a natural environment with clean sightlines and easy wayfinding, providing a safe, healthy and welcoming place to meet, relax and move. As part of this project, Scott Brownrigg has been appointed by the Architect Herzog and de Meuron to provide a specialist service relating to the rail elements of the architectural design.
- Lighting should be designed to minimise the creation of shadow that can be misinterpreted as a barrier, obstruction, or hole in the ground, particularly for people with a visual impairment or dementia. Recessed downlights, for example, can lead to stark contrast.
- In emergency evacuation situations in large transport environments, live information boards should be used to communicate instructions to back up audio announcements.

Promoting the well-being of people living with dementia is more straightforward in settings designated specifically for them. The ambition for Lydia Eva Court care home, a pioneering scheme in Norfolk for people living with dementia, designed by Barron Smith Architects, is to help residents live as independently as possible. This has been achieved by creating an intimate and domesticated care environment, but to do so required some variance of standard building regulations requirements.

People living with dementia require an environment that is safe and easy to move around, but all safety features must be unobtrusive. Obvious safety features, such as fences or locked doors, can lead to frustration, agitation, anger or apathy, and depression. All doors to areas inaccessible to residents, such as plant or administration, are painted white against a white wall. The lack of colour contrast means many dementia sufferers will not recognise or register it as a door. Doors they are supposed to use are painted a bold, distinctive colour. Sensors for staff to open these doors are discreetly concealed below adjacent handrails to remove them from residents' lines of sight and minimise any chance of residents trying to operate them.

Dementia reduces the ability to filter stimulation and attend to only those things that stand out. A person living with dementia becomes stressed by prolonged exposure to large amounts of stimulation. The environment should be designed to reduce unhelpful stimulation, such as unnecessary or competing noises or signs, posters, spaces, and clutter that are of no use to the resident. The full range of senses must be considered. Too much visual stimulation is as stressful as too much auditory stimulation.

Conversely, some stimulation is vital to provide clues about where they are and what they can do, which can help minimise their confusion and uncertainty. Using text and images in signs is a simple way to do this, such as an image of a plate with food for the dining hall. Encouraging a person to recognize their bedroom through the presence of furniture, the color of the walls, the design of a light fitting, and/or the bedspread is a more complex one. These clues need to be carefully designed so that they do not add to clutter and become overstimulating.

It is also not enough to ensure that doors to residents' rooms are painted in a bold and distinctive color. At Lydia Eva Court, a residents' room door resembles a typical house front door, complete with paneling and numbers, to help residents associate them with doors they may recognise from their past. However, instead of door handles being above locks in a conventional manner, the arrangement is reversed so that the lock is not obscured by the handle. This ensures residents do not forget where it is.

One of the most moving aspects of the design is a recessed 'memory box' beside the entrance to each resident's room. These are filled with sentimental objects from residents' past lives, such as photographs or jewellery, to help trigger their memory.

Finally, the design of the rooms themselves makes provision for the dementia condition. Cupboard and drawer doors are often glass fronted to ensure that residents do not forget what is inside them, and in each room, the door to the en-suite bathroom is visible from the bed, to avoid a resident waking in the night and forgetting where the bathroom is.

Lydia Eva Court's occupants are 'residents and not patients'. Links to the wider community through frequent interaction with friends and relatives can help to maintain their sense of identity. Without constant reminders of who they are, a person living with dementia loses this identity. An attractive and comfortable environment encourages visitors to come and spend time. For staff, an environment that embodies the philosophy of care becomes a message of the values and practices required, while providing them with the tools they need to do their job.

Understanding the impact of dementia on individuals, their carers and families, is a way in to exploring the impact of the built environment on people, and their standard of living. There are things we can all do as individuals to reduce the risk of developing dementia, such as drinking less alcohol, stopping smoking, maintaining a healthy weight, and being physically and socially active. The quality of our built environment can support this preventative approach and have an impact on how easily we can make these behavioural changes. While social support, and problem-solving approaches can help to compensate for less supportive physical environments, Inclusive Design encourages and enables people to take decisions concerning their own lives- to live freely, independently, and with dignity •

[i] World Health Organisation description
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BUILDING STUDY:
NEW RETIREMENT AND SOCIAL SERVICES BUILDING IN THE BRONX

This recently approved new ten-story senior housing building at 105 West Tremont Avenue in The Bronx has been designed by our New York studio SB+C Architecture D.P.C. Here New York Principal, Michael Santora explores its design.

The building is one of three properties to be developed as part of the wider regeneration of Morris Heights. Developer Crown Holdings have teamed up with The Community Builders – America's largest affordable housing operator - to bring state-of-the-art retirement and social services facilities to the area.

Located at the corner of Grand Avenue, the proposed 55,000sq ft, 100ft tall development provides 95 much needed Affordable Independent Residences for Seniors (AIRS).

The project is designed to support ageing-in-place with fully adaptable apartments and the integration of handrails in all corridors, bright lighting, and color-defined wayfinding. There will also be double the required number of fully accessible and designed hearing and vision-impaired units. Residents will enjoy access to a range of amenities onsite which include community and recreation spaces, 24-hour reception, bicycle storage, laundry service and consultation rooms.

The design, with sleek rectangular geometric forms and sustainable porcelain and metal detailing, offers a modern take on the art deco buildings of the nearby Grand Concourse. The building is designed to Passive House Standards, is fully electric, and features a 1,800sq ft solar array on the roof. As the east façade rises above its neighbour it creates an opportunity for a landmark mural – designs for which are still in development.

The building is due to complete in late 2025 •

> **This project brings me great pride both personally and professionally. While providing much needed senior housing with amenities for ageing in place, we were able to deliver a quality of architecture that raises the bar for this community. Due to the steep rock formations on the northern part of the site, common in the Bronx, we had to design within a restrictive and challenging footprint, despite these challenges our team was able to achieve great apartment layouts and maximise use of all the available floor area.**

Matthew Lucciola, SB+C Director

RIGHT
CGI image of proposed housing building