Perkins&Will

INNOVATION INCUBATOR FALL 2021

Learning from *Biodiversity* to Support *Neurodiversity* in the Workplace

Georgia Metz, Author (Jesce Walz, Contributor) | April 15, 2022

Contents

Section 01.
Overview

OVERVIEW

Abstract

What can biodiversity teach us about designing welcoming and effective workplaces for a diversity of people? As the focus on wellness and inclusivity in the workplace increases, the question of "how to design for all?" is at the forefront of everyone's minds.

"Neurodiversity may be every bit as crucial for the human race as biodiversity is for life in general. Who can say what form of wiring will be best at any given moment?" [1]

- *Harvey Blume, The Atlantic 1998*

Neurodiversity refers to the range of differences in the human brain associated with functions and traits, such as sociability, learning, attention, and mood. In ecology, biodiversity thrives along edges between systems, such as estuaries, stream-side riparian buffers, and mangroves. These places invite difference and opportunities for exchange. In design, biomimicry emulates ecological patterns and processes of engineering to improve performance and promote health. We propose to draw from these established areas of research as we develop a set of design explorations to support neurodiversity in the workplace. A homogeneous approach can result in waste as well as suboptimal outcomes. Support for Neurodiversity responds to the reality that we're all wired differently. Empowering a variety of people and perspectives results in rich interactions, stronger teams, innovative solutions, a competitive edge, and a thriving culture.

"Design for the extreme, benefit the mean... one size misfits all"[2]

- *Kay Sargent, Director of Work Place, HOK*

We propose an exploration of punctuated moments to support neurodiversity at multiple scales within the workplace. In short, we aim to:

- Promote cognitive differences and wellness in the workplace
- Discover rich and outside the box approaches to design
- Create a tool to assess and address a design approach to neurodiversity
- Dovetail with existing initiatives at Perkins&Willl to promote Living Design

OVERVIEW

Introduction

Biodiversity and Neurodiversity each relate to "Living Design," our Firm's holistic framework for approaching the interdependent perspectives of sustainability, resilience, regeneration, inclusion, and well-being.[3]

THE LIVING DESIGN PERSPECTIVES AND THEIR KEY DEFINITIONS:

SUSTAINABILITY

A system that can endure, maintaining its capacity and performance over time, achieving its fullest potential.

RESILIENCE

A system which adapts to shocks, flexing in the face of sudden change and withstanding unexpected challenges.

REGENERATION

A system that can rejuvenate its own life sources, reconstructing itself and producing over time.

INCLUSION

A system that integrates diverse populations, ensuring all human, plant, and animal life is treated in a fair and equitable way.

WELL-BEING

A system that thrives inside and out, allowing life to prosper holistically.

Design that supports Neurodiversity is fundamental to **Inclusion** and **Well-Being.** However, for a space to invite a variety of people to thrive and prosper, it must also be able to adapt, endure, and regenerate over time. Thus, Perspectives that are primarily associated with biodiversity and climate health, such as **Sustainability, Resilience,** and **Regeneration,** are also crucial for fostering human health and equity. This paradigm is circular and can form a positive feedback loop: Diversity and equity can help a system to rejuvenate and resist senescence, prolonging balance while also helping the whole system to evolve across Perspectives over time.

This document takes cues from biological and ecological patterns, as well as research on Neurodiversity, and applies these to a set of strategies to increase flexibility and choice for a variety of people in the workplace. While the recommendations presented here focus primarily on spaces and amenities that might be found in a typical professional office, these ideas may be expanded to apply to other environments.

OVERVIEW

Process

(2021) December

Collect & Review Research

Articles, podcasts, and Online resources
CUNY Neurodiversity Conference
Books and journals
Internal Perkins&Will examples
(See "References" at the end of this document for a full list of resources)

(2022) January

Test Ideas with Project Teams

Ami Robinson
Devin Kleiner
Julie Gauthier
Leigh Christy

February

Conduct Interviews

Amy Sickeler
Basak Alkan
Berta Nuredini
Gunner Romberg
Kimberly Romberg
Lindsey Braciale
Margaret Gaffney
Matt Finn

March

Formulate Tool

Create summary / consolidation of research
Evaluate other tools and formating options
Develop spreadsheet tracking tool
Create written guidelines with details on strategies

April

Gather Feedback & Refinement

Matt Finn, follow up review
Present to Perkins&Will Research Board & Incubator Cohort
See more "Next Steps" at the end of the Neurodiversity Toolkit

Beyond...

Section 02. Background

BACKGROUND

Past

Judy Singer, an Australian sociologist, coined the term Neurodiversity in 1999.[4] It speaks to the different ways our brains are wired, leading to unique skills, needs and abilities. Those differences impact social dynamics, cognitive functioning, motor skills, attention, sensory stimulations, speech, language, and learning. Upon creation, neurodiversity was intended to be similar to biodiversity in that neurodiversity does not define a certain subgroup of individuals but rather speaks to the infinite variations of the human brain.

In contrast, there is a movement utilizing the term neurodiversity as a way to empower certain subgroups with diagnoses. The term has evolved to classify individuals as either neurodivergent or neurotypical, with neurotypical referencing those who display average patterns of thought and behavior. But this evolution has created the question, who defines average vs. who is considered neurodivergent?

Currently, the answer seems dependent on who you ask, but all responses reference a range of subgroups when speaking to neurodiversity. For example, many define neurodiverse as those with Autism, Attention Deficit / Hyperactivity Disorder, Down Syndrome, Dyslexia, Dyscalculia, Dyspraxia, Dysgraphia, Meares-Irlen Syndrome, Hyperlexia, Tourette Syndrome, Obsessive Compulsive Disorder, Synesthesia, Trauma Disorders and other mental health disorders (see definitions on proceeding pages). The list is extensive and often expanding. Furthermore, it varies based on how one defines 'normal' or neurotypical. Within each diagnosis there is also a range of classifications and differing needs making designing for individuals based on diagnoses limiting. Additionally, it leaves out those that are unable or have yet to receive a diagnosis.

With that in mind, there is also an understanding that labels can empower some. To those with certain neurological needs, putting a label on their differences gives them a sense of relief and belonging. Currently, labels still impact our benefits, the welfare system and how many receive help. For employees, a label can provide a term to reference when requesting accommodations. So how do we cater to supporting diagnoses, without being constrained by them?

BACKGROUND

Present

In order to balance the benefits of defining a diagnosis with the limitations it can entail, we must **be aware of those diagnoses**, understand proven methodologies to support them, but **not restrict design considerations to specific labels**. Instead, design considerations that focus on flexible solutions can benefit all individuals to empower each person with tools to support their needs. This leads us back to Judy Singer's original intent of the word neurodiversity.

Biodiversity is vital to our ecosystem just as neurodiversity is vital to society. If the whole world thought the same, we would all have the same problems we could never overcome. Diversity in the way we think and our range of cognitive abilities leads to better problem solving and more creative solutions.

Neurodiversity, as originally intended, acknowledges that normal is a gray area, and focusing on labels of diagnoses is limiting. Furthermore, humans have layers of physiological and physical needs that do not fit into just one box, as explored by co-morbid conditions. But if spaces can adapt to any employee's need, offices can optimize work for all and improve their business as a whole.

Since neurodiversity encompasses everyone, designing for neurodiversity is actually a question of how to design for a **Truly Universal Environment:**

Physical
- Stamina
- Flexibility
- Strength
- Mobility
- Agility

Sensory
- Sight
- Hearing
- Smell
- Touch
- Taste

Cognitive
- Memory
- Learning
- Communication
- Perception
- Attention

Spatial
- Air & Light
- Color
- Pattern
- Form
- Materiality

BACKGROUND

Diagnoses Awareness

Neurodiversity

Speaks to the wide rage of cognitive functions and dispositions found in the world. It encompasses the variety of ways our brains are wired, including but not limited to the variations below:

Autism Spectrum Disorder (ASD)

A neurological developmental disorder with varying levels of severity that is characterized by challenges in communication and social interactions, repetitive patterns of behavior, and difficulty managing change.

Attention Deficit / Hyperactivity Disorder (ADHD)

A neurodevelopmental disorder characterized by difficulty staying focused, impulsivity, hyperactivity, and difficulty with task completion.

Down Syndrome

A genetic disorder characterized by distinct physical appearances, intellectual disabilities and developmental delays due to a defect involving chromosome 21. It often causes other medical issues.

Dyslexia

A learning difficulty that primarily impacts the skills related to reading and spelling. It can also impact abilities related to time, measurement, spatial reasoning, verbal memory, and verbal processing speeds.

Dyscalculia

A learning difficulty that primarily impacts the skills related to arithmetical skills, creating challenges with number concepts. It can also impact abilities with time and spatial reasoning.

Dyspraxia (Developmental Coordination Disorder DCD)

A disorder impacting motor coordination both fine and gross. It can also impact speech, balance and hand to eye coordination.

BACKGROUND

Diagnoses Awareness Cont.

Dysgraphia
A neurological disorder that primarily impacts the skills related to written expression, spelling and putting thoughts on paper.

Meares-Irlen Syndrome
A perceptual process disorder characterized by difficulties with vision tasks due to visual stress due to the brains ability to process visual information.

Hyperlexia
A syndrome characterized by an advanced self-taught skill to read words occurring early and far above their expected level. It can also present as an obsession with numbers, letters, maps or visual patterns.

Tourette's Syndrome
A neurological condition characterized by tics including involuntary and uncontrollable sounds and movements.

Obsessive Compulsive Disorder (OCD)
A disorder characterized by reoccurring and obsessive thoughts or fears resulting in compulsive repetitive behaviors.

Synesthesia
A condition characterized when one sense simultaneously stimulates another sense due to connections between the cognitive pathways.

Trauma Disorders
Mental health conditions due to neurological challenges resulting from brain injury, traumatic or stressful events or other environmental causes.

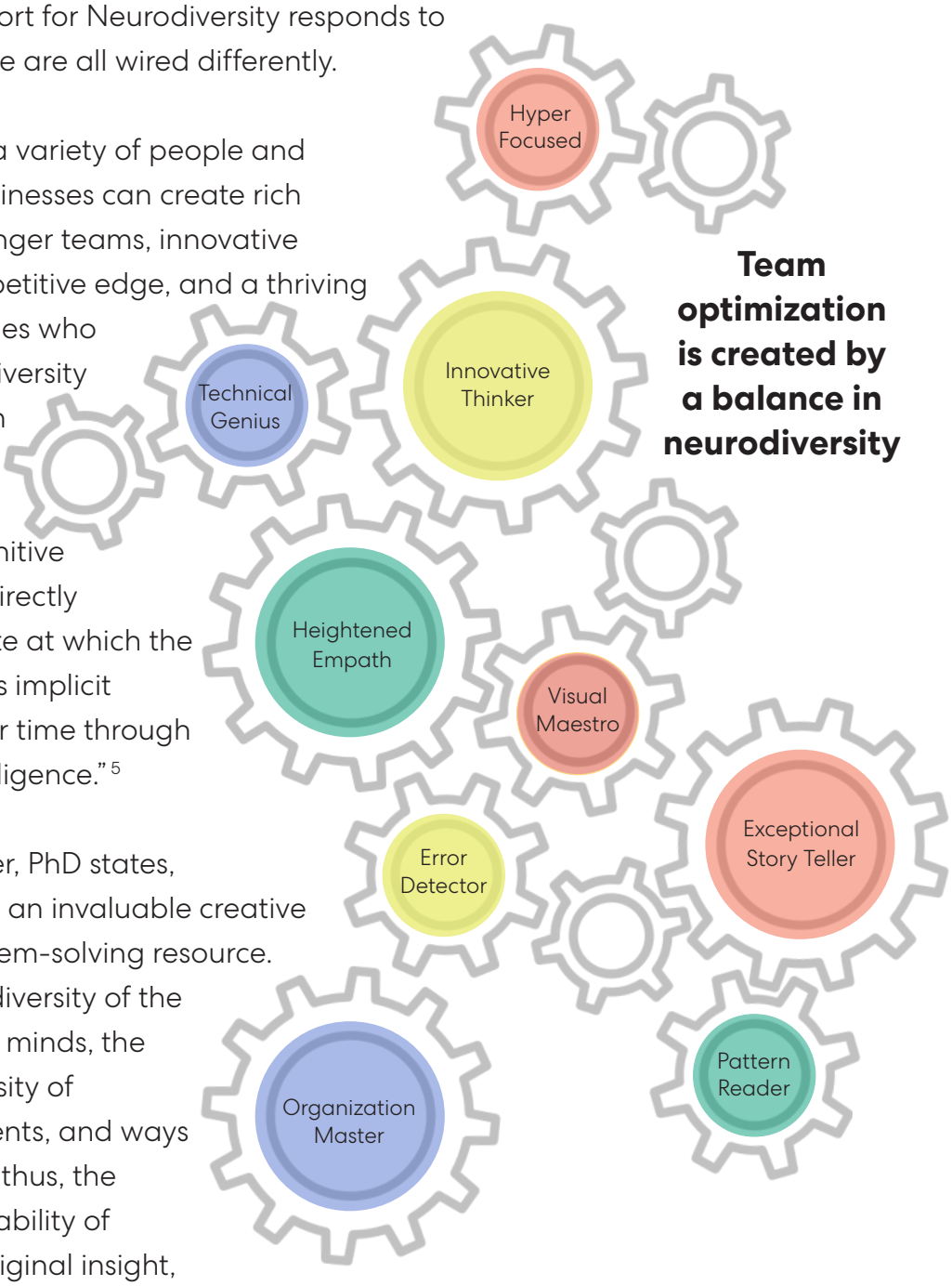
Mental Health Disorders
Includes a range of conditions characterized by impacts to emotions, thinking, or behavior.

BACKGROUND

Advantages

Neurodiversity includes all the diagnoses previously defined, plus all individuals who do not fit into those categories. Support for Neurodiversity responds to the reality that we are all wired differently.

By empowering a variety of people and perspectives, businesses can create rich interactions, stronger teams, innovative solutions, a competitive edge, and a thriving culture. Companies who embrace neurodiversity benefit, as shown in the 2019 study from *Frontiers in Psychology,* "cognitive style diversity indirectly influences the rate at which the team improves its implicit coordination over time through its collective intelligence." [5]

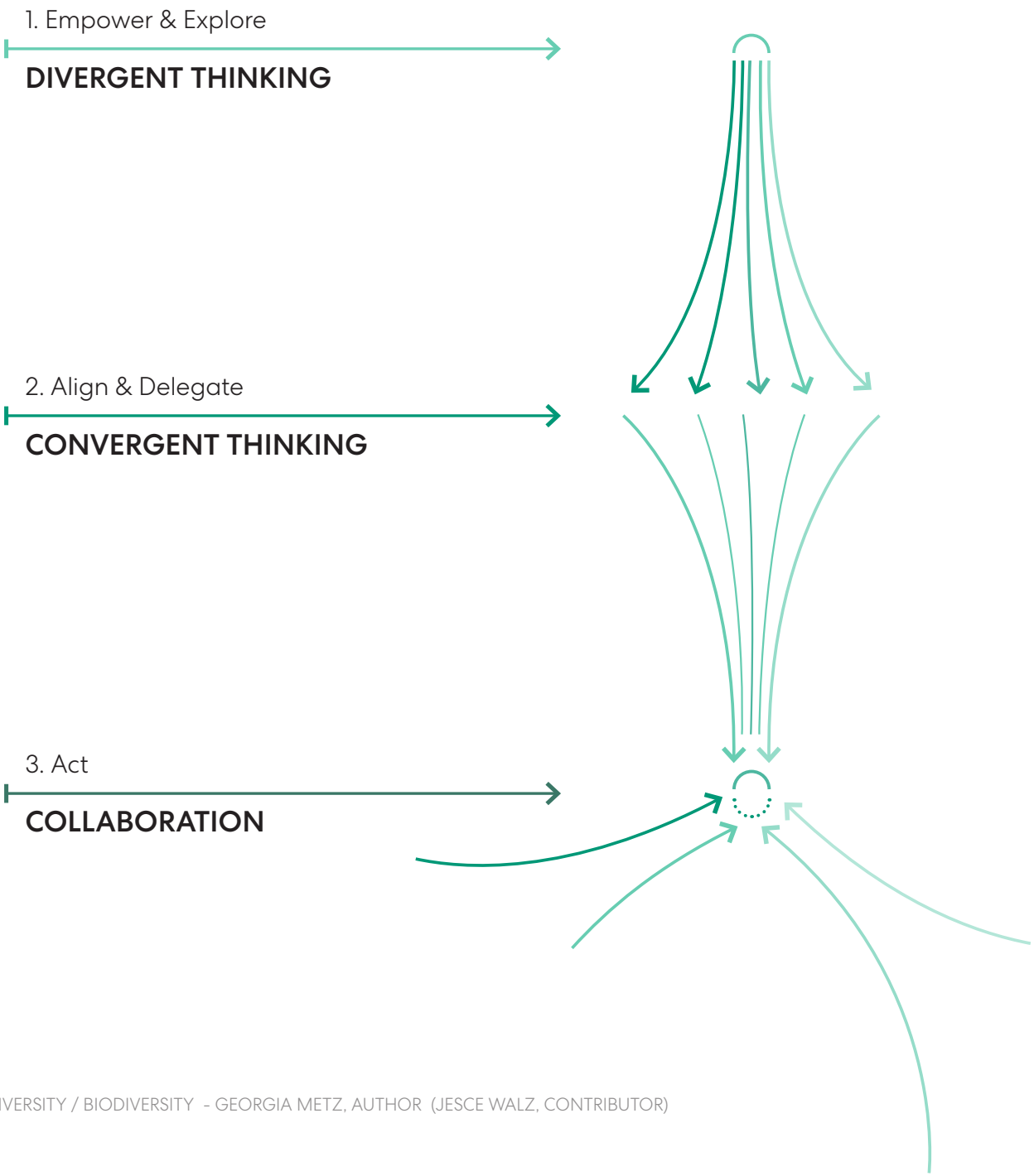


Or, as Nick Walker, PhD states, "Neurodiversity is an invaluable creative resource, a problem-solving resource. The greater the diversity of the pool of available minds, the greater the diversity of perspectives, talents, and ways of thinking—and thus, the greater the probability of generating an original insight, solution, or creative contribution." [6]

BACKGROUND

Embracing Difference

Biological and Neurological diversity each demonstrate that exchange across differences enriches a group's capacity to share resources, strengthen individual identities, and engage in focused work as well as shared action. Space for divergence supports a multitude of perspectives while adding value to any collaborative environment.



BACKGROUND

Lessons from Ecology

Ecological patterns that support diversity in biological habitats can inform design to support Neurodiversity. The examples below may serve as inspiration when overlaid with strategies to achieve universal design.

Edges are locations where organisms exchange nutrition, materials, and energy. Edges that are “fuzzy” or complex support greater levels of exchange. Too much exchange may overload a system and inhibit growth, yet exchange is essential to support life and healthy diversity.

Porosity invites matter to pass from one environment into another. Spaces that are hard and impermeable exert control over circulation and may direct flows through channelization. Spaces that are porous create a sense of possibility and openness, yet they may lack a sense of containment.

Ecotones are transitional spaces between biological communities where one type of system overlaps with another. These spaces exist along particularly porous edges and are rich centers for a diversity of inhabitants.

Mosaics & Patches are spatial patterns in landscape ecology. Mosaics are composed of patches that serve as pools of resources for specific sets of species. The edges of each patch can invite disturbance, protection, filtration, or migration or species from one patch to another.

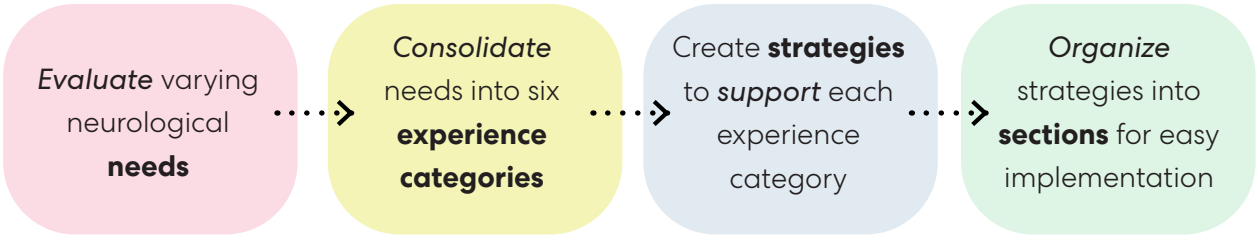
BACKGROUND

Future

Universal design breaks down barriers and focuses on a holistic approach to support all, no matter what their needs or labels. It provides optimizations for every individual and, in turn, each team and the entire company. Thus, supporting neurodiversity in a workplace varies by person, as each person requires different types and levels of accommodations. This varying level of needs has often led to a struggle for employees who require more adjustments, putting the unemployment rate for those individuals as high as 80%. But what companies are finally learning is by supporting a wider range of individuals and levels of needs, they gain employees with different strengths and gifts, leading to an overall better workplace.

The Neurodiversity Toolkit proposed in this document focuses on the ways to support a truly universal design within corporate office spaces so neurodiversity can thrive. Understanding that the high rate of unemployment for those with greater needs can be due to a lack of accommodations within the typical interview processes, lack of awareness, lack of employer training and lack of adjustments within the workplace, the tool aims to mitigate the issues within the physical environment to help employees thrive once they find the right employment. These design solutions will draw in a wider field of employees and increase retention. The strategies aim to address the spectrum of neurological differences in order to support each employee, resulting in a happier and more productive workforce.

We start by evaluating a variety of overarching neurological differences to better understand how varying aspects of the built environment can impact individuals. We then consolidate those findings into six experience categories that affect all employees. Finally, we create strategies organized into sections to support each experience category, so teams can easily implement the right solutions.



Section 03. Neurodiversity Toolkit

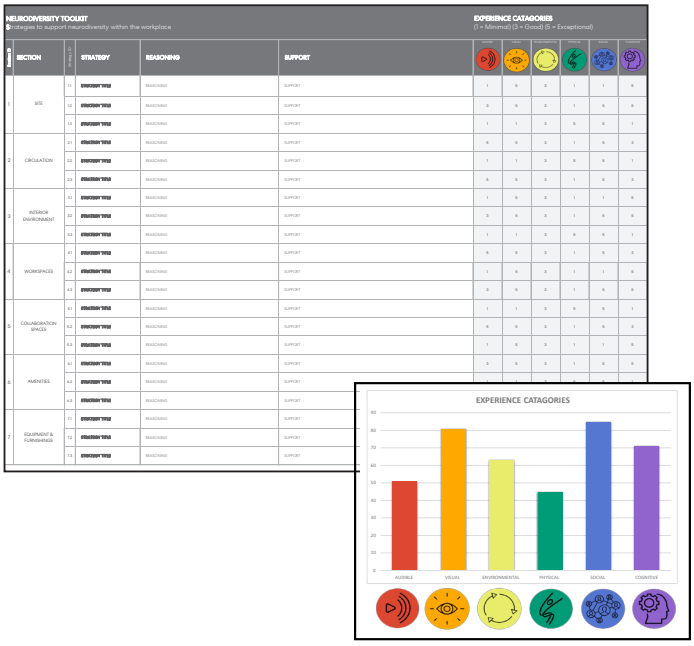
NEURODIVERSITY TOOLKIT

Overview

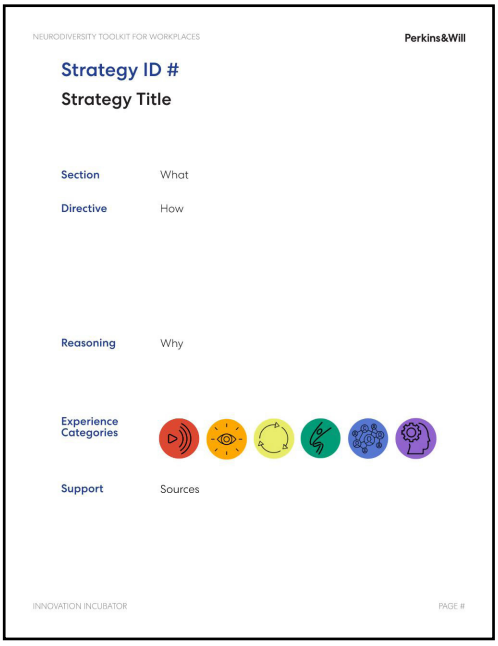
The Neurodiversity Toolkit empowers users with the choice, flexibility, and variety they require to fit the environment to their needs. It provides strategies for evaluating and implementing design solutions in the workplace to support the spectrum of neurological variations found within society.

This Toolkit is a two-part resource containing the guidelines and details found within this document, along with the corresponding excel tracking list which allows users to visually see how well they are supporting various neurological needs.

Excel Tracking



Written Guidelines



Graphic Output

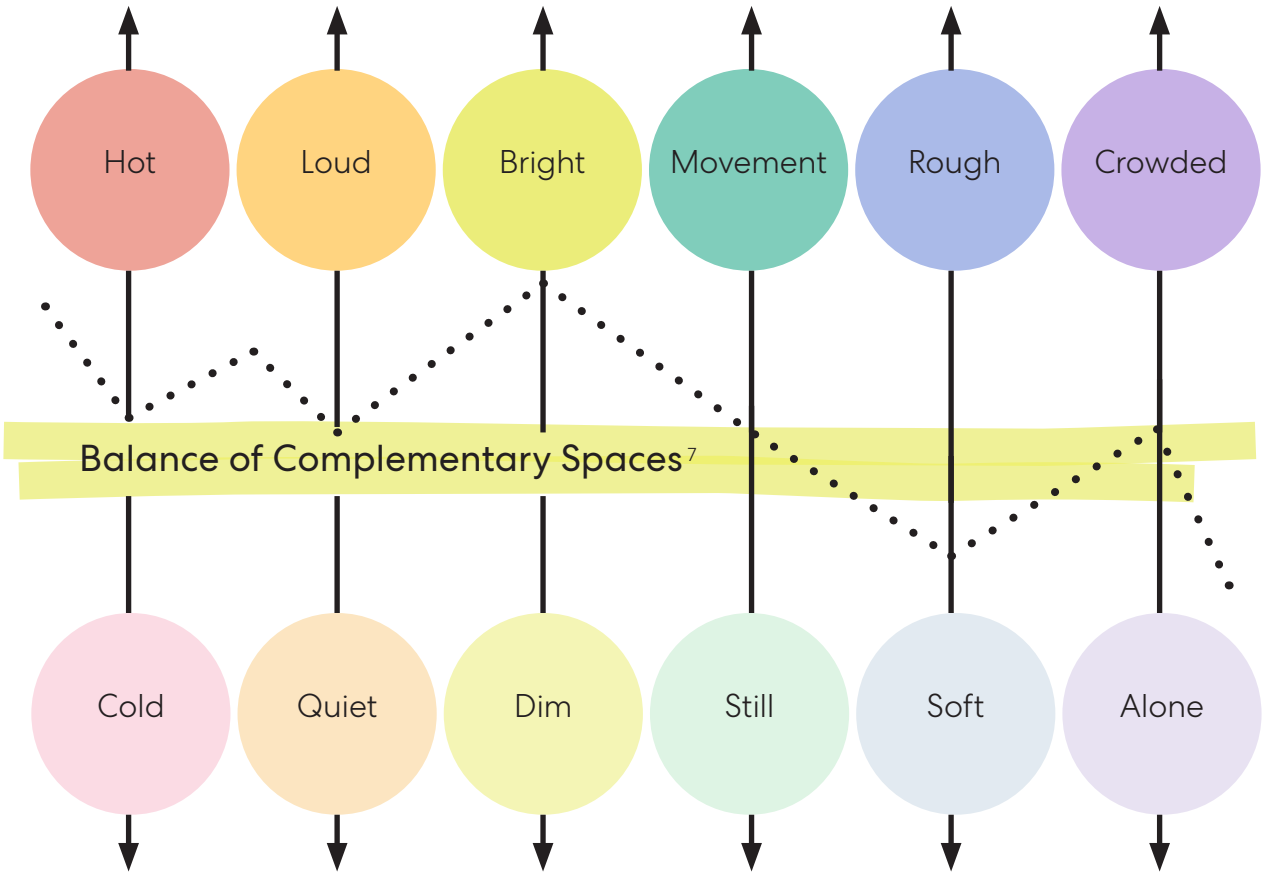
The Toolkit contains stategies, which define what to do, and experience catagoies, that show what that stragtegy impacts. It also includes details on how to execute the straegiy and why it is important. This Toolkit is meant as a draft, with the intent to update and refine based on feedback gathered, as outlined in the conclusion section of this report. Consider this a starting point that will grow and evolve just as the topic of neurodiversity has become more prevalent over the years.

NEURODIVERSITY TOOLKIT

Spectrum of Needs

Supporting neurodiversity in the workplace is about supporting every employee within the space, creating the ability to adjust for various needs. No two people are the same. Just because one person with a specific disorder requires a certain set up, does not mean that same solution applies to another individual with the same disorder. One person might need a quiet, warm room while another requires a loud, cool space. Furthermore, the impacts one space has on two different people can produce polar opposite reactions. One person's sanctuary is another person's worst-case scenario.

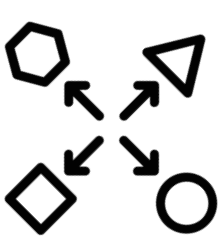
These environmental sensitivities impact all employees to varying degrees. Individuals span from being **hyposensitive**, where one has lessened sensitivity to stimulation and thus requires more of it, to **hypersensitive**, where one has magnified sensitivity to stimulation and looks to limit it. Thus, design must approach these factors with a lever, by permitting individuals to move up or down the scales as they see fit.

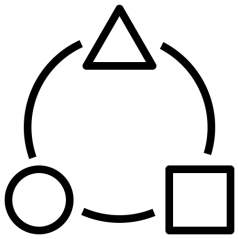


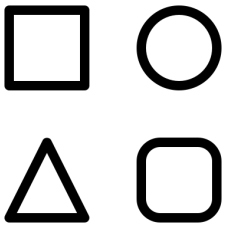
NEURODIVERSITY TOOLKIT

Individualized Focus

Therefore, the design strategies outlined in this tool focus on accommodating **flexibility**. They define clear solutions for implementation while supporting a **variety** of individual needs. The solutions empower each employee with **choice** so they can adjust the space to best work for them. Thus accomplishing three important features:







Choice

Individual feedback used to help determine primary set up and selections.

Flexibility

Spaces and features designed to be flexible, supporting autonomy of choice throughout the day.

Variety

Different types of spaces and set ups provided to support a range of needs.

By designing for choice, flexibility and variety, common ground is formed to support an equitable, integrated workplace where the focus is not on the challenges of difference but rather the strengths those differences create together. Just as the varying forms and functions that compose each living system that make up our world support each other for flourishing ecosystems, we must do the same.

While the strategies outlined in this tool can address flexibility and variety, choice starts by engaging the employees. Therefore, choice requires preparation before design to permit time for reaction based on individual responses.

NEURODIVERSITY TOOLKIT

Tools for Dialogue

In order to ensure a space works for an individual, gathering feedback from that individual is vital. Without it, one can make assumptions that don't actually fulfill the user's needs. By asking just a few questions, teams better hone in on proper accommodations that make the most impact per person. That feedback provides the foundation of choice for every employee.

Begin by having each employee complete a survey to evaluate their needs, with adequate time and space to think and answer honestly. This survey will be used to help determine the arrangement for their primary workstation. If possible, new hires should complete the survey prior to their first day of work. Once completed, review the results together, allowing space for open communication and clarification on any responses. The list to the right includes ten suggested survey questions.

Suggested Survey Questions:

1. Do you prefer a warm or cool space?
2. Do you prefer a loud or quiet space?
3. Do you prefer a bright or dimly lit space?
4. Do you prefer more social interactions or fewer?
5. Are you impacted by visual distractions such as movement around you?
6. Do you prefer the flexibility to change your primary desk throughout the week or prefer to stick with a designated desk?
7. Are you sensitive to odors?
8. Do you like to move around while working or prefer to remain still?
9. Are you sensitive to textures in materials and surfaces?
10. Do you have any specific equipment needs or barriers?

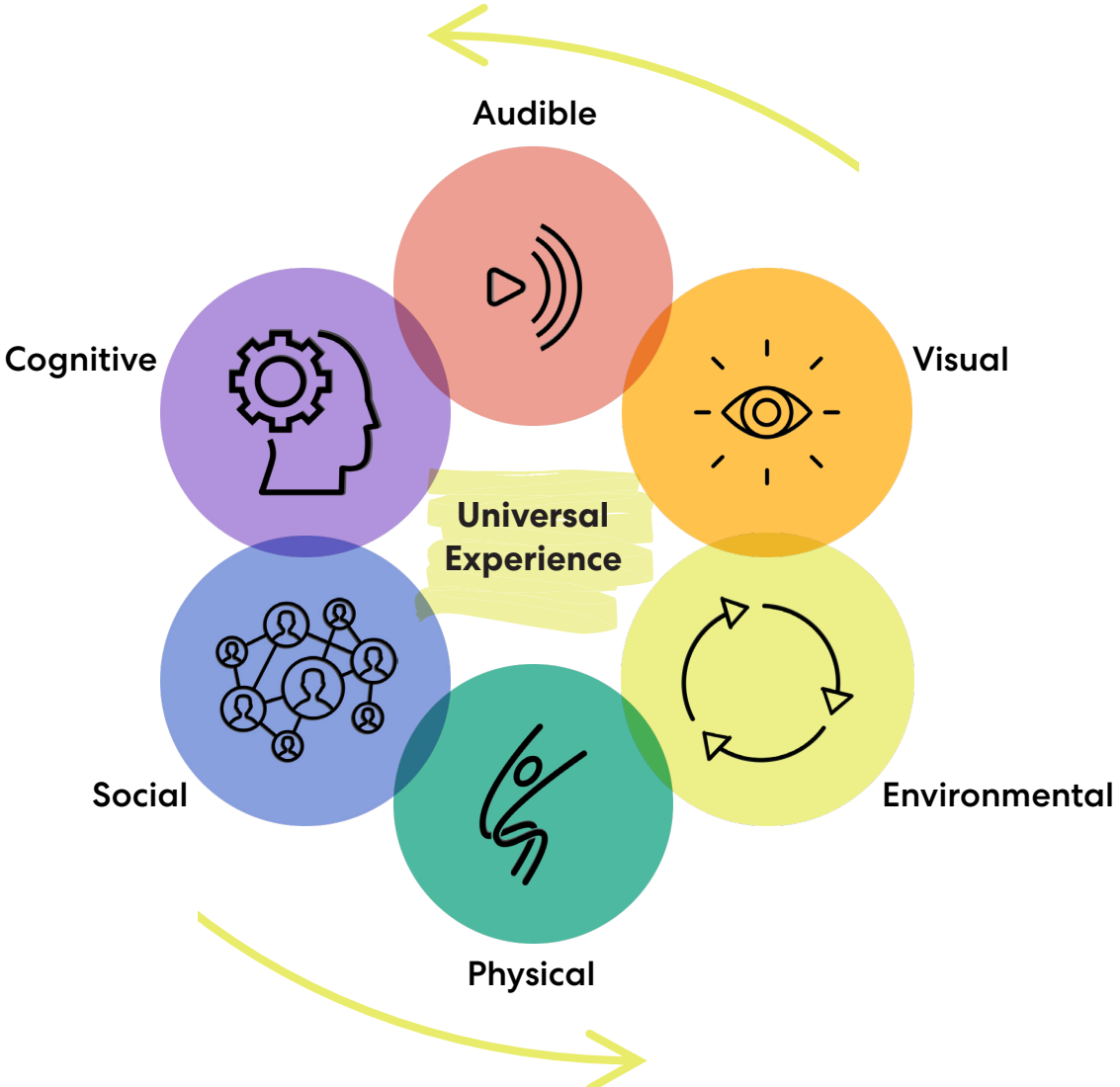
Engage participants by formatting questions with multiple choice answers, followed up by discussion. The discussion should include a review of options on how to best support their needs, thus giving each employee the opportunity to feel in control of their workspace. An office tour prior to their first day should also be offered. Tours allow employees to prepare and avoid surprises. It gives them time to plan or gather what they personally need to tackle the new environment. And by utilizing the strategies outlined in this tool, each employer will have the variety and flexibility they need to make any adjustments with ease.

NEURODIVERSITY TOOLKIT

Experience Categories

Experience categories were divided into areas of need based on overarching impacts found by evaluating a variety of neurological differences. The categories were grouped into: Audible, Visual, Environmental, Physical, Social and Cognitive.

While each category speaks to different ways an individual is affected by space, as described on the proceeding page, the categories are not isolated. For example, window shades help to control light and thermal gains, thus impacting both visual and environmental needs. You will see impacted categories highlighted on each of the strategy pages. Where one design strategy can impact multiple experiences, all applicable categories will be highlighted.



NEURODIVERSITY TOOLKIT

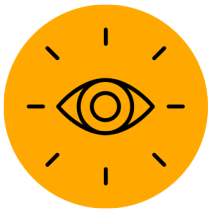
Experience Categories

Audible

Features that support those with auditory sensitivities, are hard of hearing and/or require acoustical adjustments. Including but not limited to control over noise or enhancement of sounds.

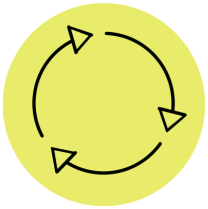
Visual

Features that support those who have visual sensitivities or require vision accommodations. Including but not limited to control over natural or artificial light and visual distractions.



Environmental

Features that support those who have environmental sensitivities to surrounding air qualities such as temperature and smell.



Physical

Features that support those who require physical adjustments, including but not limited to specific ergonomic requirements, support for movement and tactile sensitivities to material textures.

Social

Features that support those who have social sensitivities, including but not limited to crowd considerations, group clustering, meeting points and interactions with others.

Cognitive

Features that support processing information, utilizing different modes of relaying content or statements, to support retention and processing.

NEURODIVERSITY TOOLKIT

Organization

The strategies outlined in this tool are broken into seven sections:

1. **Site**: Parking & Outdoor Circulation
2. **Circulation**: Signage & Indoor Wayfinding
3. **Interior Environment:** Overarching Interior Needs
4. **Workspaces**: Workstations, Touchdowns, Workspaces & Offices
5. **Collaboration Spaces:** Conference, Huddle & Meeting Rooms
6. **Amenities:** Break Rooms, Wellness Rooms, Mother's Rooms, Restrooms and Other Employee Spaces
7. **Equipment & Furnishings:** Technology & Accessories

Each strategy has an ID number that corresponds to its section and a supported details page outlining the what, why, and how behind it.

First number of the ID corresponds to the section

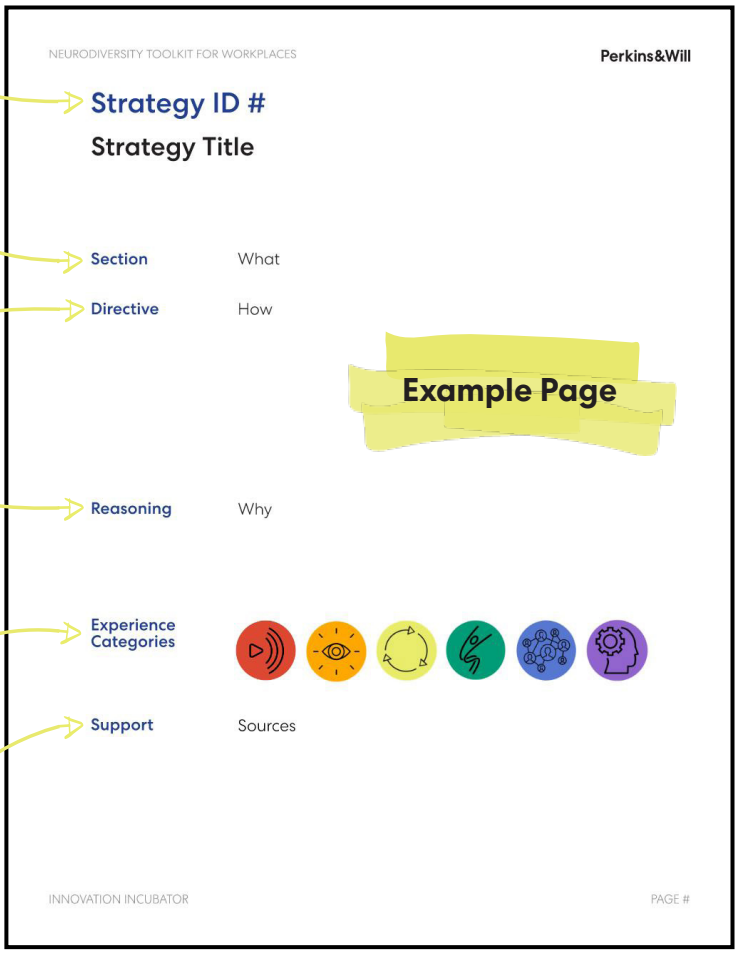
What section the strategy is included within.

Clarifying details on **how** to implement the strategy.

Explanation on **why** the strategy is needed.

Highlights what experience categories are supported by this strategy. Icons in color below indicate support from this strategy.

Source citations supporting the strategy.



Perkins&Will

1.0

SITE

Parking & Outdoor Circulation

DRAFT NEURODIVERSITY TOOLKIT

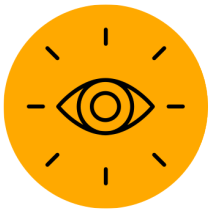
SUBSECTIONS

1.0 SITE
SUMMARY OF STRATEGIES

1.1 Site signage includes clear wayfinding to support all paths around building

1.2 All site lighting is non-flickering

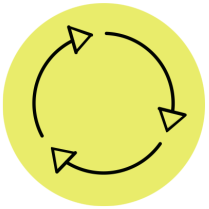
1.3 Site paths are outfitted with low-mounted light fixtures



1.4 Site paths are organized in a clear straightforward pattern

1.5 Smoking is prohibited within 25 feet of building openings

1.6 Multilevel parking includes distinct wayfinding elements that differ per floor



1.7 Parking is adequately lit

1.8 Main entry and exit points are uniquely distinguished from other entry and exit points and properly lit

1.9 For any outdoor amenity space, include clear wayfinding and adequate lighting

1.1

Site signage includes clear wayfinding to support all paths around building

Section

Site

Directive

- Wayfinding components should enable a first time user to easily navigate where they need to go.
- Wayfinding components to include text and visual cues.
- Landmarks or architectural features should be used to further delineate paths.
- Spacing and layout of wayfinding components to support all points along paths.
- Includes paths to all main building entry/exit points.
- Includes paths to parking or transportation stops.

Reasoning

Cognitive Support: Good wayfinding limits stress and confusion by clearly organizing paths. When users face barriers interrupting paths, a sense of isolation can result. Supporting a sense of place allows users to better process their environment and focus their attention on other needs.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. The Neurodiverse Workplace: An *Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

1.2

All site lighting is non-flickering

Section

Site

Directive

- Non-fluorescent lighting is specified due to the small pulsations cycling 60 times per second in fluorescent fixtures.
- Flicker-free LED lighting is specified where allowed. All other fixture selections to be evaluated for flickering and selected based on lowest count.
- Includes all lighting around building, site and parking.

Reasoning

Visual Support: Excessive flickering leads to headache and eyestrain. Hypersensitive eyes register these pulses like a strobe light. While flickering is not noticeable to all, it can create a distracting disruption to those who see it.

Experience Categories

Support

Psychobiology of Stress. Germany: Springer Netherlands, 2012.

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment across the Entire Spectrum*. Routledge.

1.3

Site paths are outfitted with low-mounted light fixtures

Section

Site

Directive

- Spacing and layout of fixtures to support all points along paths.
- Beam Photometry to be reviewed for proper distributions.
- Luminance size to be reviewed for proper luminous flux.
- Includes paths to all main building entry/exit points.
- Includes paths to parking or transportation stops.

Reasoning

Visual Support: Low-mounted fixtures control the range of luminance size which limits glare, allowing paths to be safely lit. Glare produces discomfort and reduced visibility that is problematic for visual sensitivity.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Markowitz, Frank. 2021. *Outdoor Lighting for Pedestrians A Guide for Safe and Walkable Places*. Taylor & Francis

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

1.4

Site paths are organized in a clear straightforward pattern

Section

Site

Directive

- Organization should enable a first time user to easily navigate where they need to go.
- Landmarks or architectural features should be used to further delineate paths.
- Clear nodes and defined edges are used to distinguish paths.
- Paths are continuous with clear start and end points.
- Includes paths to all main building entry/exit points.
- Includes paths to parking or transportation stops.

Reasoning

Cognitive Support: Clear paths limits stress and confusion. When users face barriers interrupting paths, a sense of isolation can result. Supporting a sense of place allows users to better process their environment and focus their attention on other needs. Organized pathways support cognitive comprehension.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

1.5

Smoking is prohibited within 25 feet of building openings

Section

Site

Directive

- Eliminate the smell of smoke from entering the building.
- Include signage with text and visual cues at all primary entry/exit points of the building.
- Additional signage to be located around the building at designated points to ensure clarity for all users and visitors.
- Applicable to doors, windows, vents and other openings.

Reasoning

Environmental Support: Strong odors can lead to nausea, headaches and/or anxiety for those with hypersensitivity. The potent smell of smoke negatively impacts the olfactory sensory neurons.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

1.6

Multilevel parking includes distinct wayfinding elements that differ per floor

Section

Site

Directive

- Wayfinding component should help a user remember which floor they parked on by distinguishing levels by visual markers, graphics, pattern and/or color.
- Wayfinding component should not rely on color alone due to limitations with colorblindness.
- Landmarks or architectural features should be used to further distinguish levels.
- Wayfinding should include signage with text and visual cues.

Reasoning

Cognitive Support: Clear wayfinding limits stress and confusion. Supporting a sense of place allows users to better process their environment and focus their attention on other needs. Defined levels support cognitive comprehension and retention.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

1.7

Parking is adequately lit

Section

Site

Directive

- Spacing and layout of fixtures to be evenly distributed throughout parking.
- Beam Photometry to be reviewed for proper distributions.
- Luminance size to be reviewed for proper luminous flux.
- Adequate lighting provided for at least two hours before and after building hours.

Reasoning

Visual & Cognitive Support: Proper lighting reinforces safety for those who have anxiety or fear due to being bullied, heightened paranoia or PTSD. Proper lighting levels supports those who are visually impaired.

Experience Categories

Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

1.8

Main entry and exit points are uniquely distinguished from other entry and exit points and properly lit

Section

Site

Directive

- Distinguish main entry/exits through visual markers, graphics and color.
- Color alone should not be relied on due to limitations with colorblindness.
- Landmarks or architectural features such as awnings and protected coverings should be used to further designate main entry/exits.
- Lighting levels further distinguish the main entry/exit points while providing proper illumination for visible clarity

Reasoning

Visual & Cognitive Support: Proper lighting reinforces safety for those who have anxiety or fear due to being bullied, heightened paranoia or PTSD. Proper lighting levels support those who are visually impaired. Clear entry/exits limit stress and confusion. Defined entry/exits support cognitive comprehension.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

1.9

For any outdoor amenity space, include clear wayfinding and adequate lighting

Section

Site

Directive

- Wayfinding component should distinguish space with visual markers, graphics, pattern and/or color.
- Wayfinding component should not rely on color alone due to limitations with colorblindness.
- Landmarks or architectural features should be used to further distinguish space.
- Wayfinding should include signage with text and visual cues.
- Adequate lighting provided for at least two hours before and after building hours.

Reasoning

Visual & Cognitive Support: Clear wayfinding limits stress and confusion. Supporting a sense of place allows users to better process their environment and focus their attention on other needs. Proper lighting reinforces safety for those who have anxiety or fear due to being bullied, heightened paranoia or PTSD. Proper lighting levels supports those who are visually impaired.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Perkins&Will

2.0 CIRCULATION

Signage & Indoor Wayfinding

DRAFT NEURODIVERSITY TOOLKIT

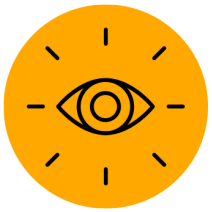
SUBSECTIONS

2.0 CIRCULATION
SUMMARY OF STRATEGIES

2.1 In addition to words, signage includes pictograms to distinguish spaces

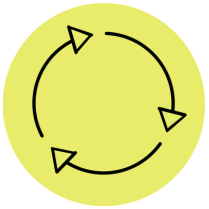
2.2 At the exit/entry point of main vertical circulation paths, include distinct wayfinding elements that differ per floor

2.3 Main exit points to be clearly distinguished by visual indicators



2.4 Doors and/or frames contrast with the surrounding walls

2.5 Design features or architectural markers are utilized to aid with orientation



2.6 Circulation paths are organized in a clear straightforward layout

2.7 Building signage includes clear wayfinding to support all paths around building

2.8 Provide circulation paths with views to outside

2.9 Emergency evacuation arrangements are fit for universal needs

2.10 Elevators and circulation paths are free of unnecessary noise

2.11 Provide circulation paths designated for pacing or walking

2.1

In addition to words, signage includes pictograms to distinguish spaces

Section

Circulation

Directive

- Pictograms clarify meaning of signs for those with difficulties reading and for those whose primary language differs from the written text.
- For example, restrooms, stairs, meeting rooms, break rooms etc. should include icons that can be distinguished by any.
- Icons should be sized for legibility.
- Color/pattern schemes should be used to further define zone and room types. Color alone should not be relied on due to limitations with colorblindness.

Reasoning

Cognitive Support: Clear signage limits stress and confusion. Supporting a sense of place allows users to better process their environment and focus their attention on other needs.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

2.2

At the exit/entry point of main vertical circulation paths, include distinct wayfinding elements that differ per floor

Section

Circulation

Directive

- Wayfinding components should help a user differentiate floors through visual markers/graphics/pattern and color.
- Wayfinding component should not rely on color alone due to limitations with colorblindness.
- Landmarks or architectural features should be used to further distinguish floors.
- Wayfinding should include signage with text and visual cues.
- In addition to floor numbers, elevator buttons include descriptions of floors.

Reasoning

Cognitive Support: Clear wayfinding limits stress and confusion. Supporting a sense of place allows users to better process their environment and focus their attention on other needs. Defined levels support cognitive comprehension and retention.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

2.3

Main exit points to be clearly distinguished by visual indicators

Section

Circulation

Directive

- Visual indicators include more than an exit sign. For example, change in wall materiality or color, change in flooring or change in ceiling height or type.
- Color alone should not be relied on due to limitations with colorblindness.
- Lighting levels properly distinguish these exits

Reasoning

Cognitive Support: Clear exits limit stress and confusion. Defined exits support cognitive comprehension and retention. Easily identifying exits is vital in everyday activities and imperative during emergency situations.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

2.4

Doors and/or frames contrast with the surrounding walls

Section

Circulation

Directive

- Doors and/or frames should contrast in tone compared to their surrounding walls.
- Color alone should not be relied on due to limitations with colorblindness.
- Contrast levels should allow the eye to distinguish the doors without jarring the viewer.

Reasoning

Visual & Cognitive Support: Contrasting tones grab visual attention, making distinguishing rooms more intuitive. Tonal contrasts are easier to perceive for those with color blindness or other visual challenges while respecting those with scotopic sensitivities.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

2.5

Design features or architectural markers are utilized to aid with orientation

Section

Circulation

Directive

- Architectural or design nodes to be easily seen along paths and within large open areas without being overtly distracting.
- Examples of such features might include a grand staircase, prominent elevator lobby, large planting wall or indoor water feature.
- Repeated features to vary from one another to distinguish multiple points within a space.

Reasoning

Cognitive Support: Architectural or design nodes provide clear points of reference within a space. These indicators limit stress and confusion. Supporting a sense of place allows users to better process their environment and focus their attention on other needs.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

2.6

Circulation paths are organized in a clear straightforward layout

Section

Circulation

Directive

- Organization should enable a first time user to easily navigate where they need to go.
- Design or architectural features should be used to further delineate paths.
- Clear nodes and defined edges are used to distinguish paths.
- Paths are continuous with clear start and end points.
- Includes all central and secondary circulations paths.

Reasoning

Cognitive Support: Clear paths limits stress and confusion. When users face barriers interrupting paths, a sense of isolation can result. Supporting a sense of place allows users to better process their environment and focus their attention on other needs. Organized pathways support cognitive comprehension.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

2.7

Building signage includes clear wayfinding to support all paths around building

Section

Circulation

Directive

- Wayfinding components should enable a first time user to easily navigate where they need to go.
- Wayfinding components to include text and visual cues.
- Design or architectural features should be used to further support signage.
- Spacing and layout of wayfinding components to support all points along paths.
- Includes all central and secondary circulations paths.

Reasoning

Cognitive Support: Good wayfinding limits stress and confusion by clearly organizing paths. When users face barriers interrupting paths, a sense of isolation can result. Supporting a sense of place allows users to better process their environment and focus their attention on other needs.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. The Neurodiverse Workplace: An *Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

2.8

Provide circulation paths with views to outside

Section

Circulation

Directive

- Windows or storefront are strategically placed along paths to permit sightlines outside.
- Windows or storefront are adequately sized for easy views and located at an appropriate height from the ground.
- Feature windows are used at ends of corridors where windows or storefront are not available along pathways.

Reasoning

Cognitive Support: Paths with views to outside aid in orientation which limits stress and confusion. Supporting a sense of place allows users to better process their environment and focus their attention on other needs. Outside views allow users to self-localize and solidify which floor they are on.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

O'Malley, Mary, Anthea Innes, and Jan M. Wiener. "(Dis)Orientation and Design Preferences Within an Unfamiliar Care Environment: A Content Analysis of Older Adults' Qualitative Reports After Route Learning." *Environment and Behavior* 54, no. 1 (January 2022): 116–42. https://doi.org/10.1177/0013916520953148.

2.9

Emergency evacuation arrangements are fit for universal needs

Section

Circulation

Directive

- Emergency strobe light frequency is determined based on code requirements, photosensitive epilepsy needs and hypersensitive eyesight.
- Emergency alarm decibels are determined based on code requirements and hypersensitive hearing.
- Crowd management plans in emergency situations incorporate accommodations for individuals with social distress.
- Egress plans are clear, conciseness and do not rely on the ability to see color to understand. Plans should be easy to find and sized appropriate for all.

Reasoning

Audible, Visual, Social & Cognitive Support: Loud noises, flashing lights and large crowds can be distressing, confusing and debilitating to varying neurotypes. This can inhibit an individual from properly egressing, creating safety concerns.

Experience Categories

Support

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

Hanna Bertilsdotter Rosqvist, Nick Chown and Anna Stenning. 2020. *Neurodiversity Studies, A New Critical Paradigm.* Routledge.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

2.10

Elevators and circulation paths are free of unnecessary noise

Section

Circulation

Directive

- Elevators and paths are free from background music.
- Elevators and paths are placed away from or acoustically separated from noisy machinery, equipment and adjacent loud spaces.
- White noise is included where background noise is unavoidable.

Reasoning

Audible Support: Varying sounds can create a cognitive overload for those with hypersensitive hearing. This distress leads to confusion and inhibits focus on navigation. Distracting noise makes perceiving intentional signal sounds difficult.

Experience Categories

Support

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

Doyle N. (2020). Neurodiversity at work: a biopsychosocial model and the impact on working adults. *British medical bulletin*, 135(1), 108–125. https://doi.org/10.1093/bmb/ldaa021

Hanna Bertilsdotter Rosqvist, Nick Chown and Anna Stenning. 2020. *Neurodiversity Studies, A New Critical Paradigm.* Routledge.

2.11

Provide circulation paths designated for pacing or walking

Section

Circulation

Directive

- Paths to be clearly defined through visual markers, graphics, pattern and/or color.
- Color alone should not be relied on due to limitations with colorblindness.
- Clear nodes and defined edges are used to distinguish paths.
- Paths are continuous with clear start and end points.
- Paths are located in a location where pacing/walking will not distract others.
- Signage is included to further clarify the purpose of paths.

Reasoning

Physical Support: Kinetic actions provide a sense of control over the environment. They can also be a form of stimming to support sensory stimulation. Proving a designated space for this movement allows individuals to engage in an activity that helps them think or sooth without bothering others.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Walker, N. (2021). *Neuroqueer heresies: Notes on the neurodiversity paradigm, autistic empowerment, and postnormal possibilities*. Autonomous Press.

Perkins&Will

3.0

INTERIOR ENVIRONMENT

Overarching Interior Needs

DRAFT NEURODIVERSITY TOOLKIT

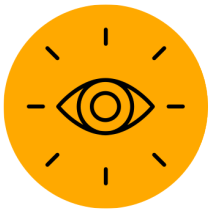
SUBSECTIONS

3.0 INTERIOR ENVIRONMENT SUMMARY OF STRATEGIES

3.1 Overall design should create clear zones that are easy to distinguish

3.2 Door hardware selections align with function requirements of each door

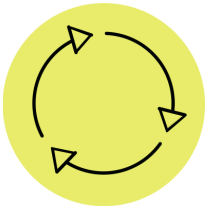
3.3 Patterns on floor are kept minimal and simple



3.4 Hanging features are limited where focus is required

3.5 All windows are equipped with operable shades

3.6 Secondary glazing is provided on windows



3.7 Acoustic design considerations are incorporated to reduce echoes

3.8 Interior partitions are specified to reduce noise transmission

3.9 Materials are specified to reduce glare

3.10 All lighting within building is non-flickering

3.11 Lighting automatically adjusts to align with circadian rhythms

3.12 Flashing devices are concealed or hidden

3.13 Comply with ventilation requirements outlined in ASHRAE 62.1-2019 or local equivalent

3.14 Volatile Organic Compounds (VOC) free materials are specified wherever possible

DRAFT NEURODIVERSITY TOOLKIT

SUBSECTIONS

3.1

Overall design should create clear zones that are easy to distinguish

Section

Interior Environment

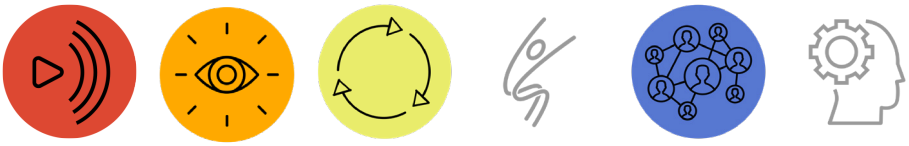
Directive

- Color/pattern schemes should be used to define zones and room types.
- Color alone should not be relied on due to limitations with colorblindness.
- Signage should be used to reinforce behaviors in each zone.
- Zones should define varying ends of the scales for audible, visual, environmental and social needs. For example, designated quiet zones or high social areas.

Reasoning

Audible, Visual, Environmental & Social Support: Creating zones allows users to choose their environment based on needs. Creating clear delineation ensures behaviors and activities align with intent of zone. This clarification also allows users to understand how they should act in each zone without relying on social cues.

Experience Categories



Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

3.2

Door hardware selections align with function requirements of each door

Section

Interior Environment

Directive

- Hardware to differ between push and pull functions to align with intuitive motion dictated by hardware. For example, flat plates clearly indicate a push requirement.
- Hardware to enable a first time user to correctly operate the door upon first try without undue need for interpretation.
- Signage is used to reinforce functionality, not correct issues with hardware that intuitively has one act the wrong way.
- Signage includes text and pictograms.

Reasoning

Cognitive Support: Ambiguity in functionality creates undue stress and confusion. Intuitive door hardware limits frustration and embarrassment that can deter users from utilizing rooms and hinder feeling comfortable in a space.

Experience Categories

Support

Norman, D. A. (2013). *The design of everyday things.* Basic Books.

Plowright, Stephen. 2011. *Workplace Neurodiversity A Key to Success for ICT and Technical Managers*. Lulu Press.

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions.* Jessica Kingsley Publishers.

3.3

Patterns on floor are kept minimal and simple

Section

Interior Environment

Directive

- Patterns utilize low contrasting tones.
- Natural patterns are given preference.
- Low repeating frequencies are specified where pattern is desired.

Reasoning

Visual Support: Strong patterns can be irritating and distracting for hypersensitive eyes. This can result in sensory overload. Busy patterns can be confusing and disorienting. Additionally, high contrast on floors can be perceived as objects, holes or steps.

Experience Categories

Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

3.4

Hanging features are limited where focus is required

Section

Interior Environment

Directive

- Hanging lights, flags, sign etc. are limited in areas of focus.
- Where hanging features are required in areas of focus, height of object is high enough to keep out of peripheral eyesight at seated height.
- Where hanging features are required in areas of focus, object is tightly secured to limit movement or wavering.

Reasoning

Visual Support: Hanging features captured by peripheral views can be distracting, creating undesired fixation in the corner of our eyes. This can lead to sensory overload.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

3.5

All windows are equipped with operable shades

Section

Interior Environment

Directive

- Roller shades are specified, not blinds due to the undesired shadows and patterns they often produce.
- Shades to have individual controls per window.
- Shade controls are accessible by users within space and easy to modify throughout the day.
- Dual shades with blackout ability are optimal.

Reasoning

Visual & Environmental Support: Window shades provide flexibility and user control over natural light within the space and help control thermal heat gain from that light. Shades also help regulate lighting levels for those who are distracted by the constant changes of natural light.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment Across the Entire Spectrum*. Routledge.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

3.6

Secondary glazing is provided on windows

Section

Interior Environment

Directive

- Double-glazed windows are set as the minimum requirement for all windows.
- Triple-glazed windows are specified where required by the exterior environment.
- Thickness of glazing and air chamber separating glazing is reviewed for acoustic and thermal needs.

Reasoning

Audible & Environmental Support: Added layers of glazing limit outside noise from entering the space and minimize thermal heat gains. This allows users to better control their noise and temperature levels from within.

Experience Categories

Support

Tadeu, A. J. B., & Mateus, D. M. R. (2001). Sound transmission through single, double and triple glazing. experimental evaluation. *Applied Acoustics*, 62(3), 307–325. https://doi.org/10.1016/s0003-682x(00)00032-3

Ozel, M., & Ozel, C. (2020). Effect of window-to-wall-area ratio on thermal performance of building wall materials in Elazığ, Turkey. *PloS one, 15*(9), e0237797. https://doi.org/10.1371/journal.pone.0237797

3.7

Acoustic design considerations are incorporated to reduce echoes

Section

Interior Environment

Directive

- Materials are reviewed per space to balance the expanse of hard surfaces that create echoes. Materials such as carpet, upholsteries, and acoustical panels are utilized where needed.
- Geometric layout of rooms are designed to reduce reverberation time.
- Relationship between doors, opening and adjacent rooms are designed reduce reverberation time.

Reasoning

Audible Support: Echoes lead to auditory distress and sensory overload. Echoes distract, making it difficult to concentrate.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Dokmanić, I., Parhizkar, R., Walther, A., Lu, Y. M., & Vetterli, M. (2013). Acoustic echoes reveal room shape. *Proceedings of the National Academy of Sciences, 110*(30), 12186–12191. https://doi.org/10.1073/pnas.1221464110

3.8

Interior partitions are specified to reduce noise transmission

Section

Interior Environment

Directive

- Sound insulation is utilized within all partitions.
- Partitions go to deck where allowed.
- Acoustical calculations are run to determine exact partition types needed to minimize noise transmission.
- Acoustical consultants are utilized as needed to evaluate more complicated environments.
- Sounds masking is utilized where partition requirements cannot be met.

Reasoning

Audible & Cognitive Support: Limiting noise transfer between rooms reduces audible distractions that create sensory overloads. Reducing transfer of noise also instills a sense of privacy and safety which reduces cognitive distress.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Heerwagen, J., & Bloom, M. (2011). Sound Matters - How to Achieve Acoustic Comfort in the Contemporary Office. *GSA Public Buildings Service*.

3.9

Materials are specified to reduce glare

Section

Interior Environment

Directive

- Bright colors and shiny surfaces are kept to a minimum.
- Where materials that cause glare are used, they are evaluated to minimize glare.
- Materials are reviewed in relation to lighting in the space to anticipate glare and modify for reductions.

Reasoning

Visual Support: Light processing difficulties make glare problematic. Glare can create visual discomfort and confusion.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

3.10

All lighting within building is non-flickering

Section

Interior Environment

Directive

- Non-fluorescent lighting is specified due to the small pulsations cycling 60 times per second in fluorescent fixtures.
- Flicker-free LED lighting is specified where allowed. All other fixture selections to be evaluated for flickering and selected based on lowest count of flickers per minute.
- Includes overhead, task, specialty and all other lighting within the building.

Reasoning

Visual Support: Excessive flickering leads to headache and eyestrain. Hypersensitive eyes register these pulses like a strobe light. While flickering is not noticeable to all, it can create a distracting disruption to those who see it.

Experience Categories

Support

Psychobiology of Stress. Germany: Springer Netherlands, 2012.

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment across the Entire Spectrum*. Routledge.

3.11

Lighting automatically adjusts to align with circadian rhythms

Section

Interior Environment

Directive

- Brightness levels, duration, timing, and spectral properties of light should all be reviewed to align with circadian rhythms.
- Lights are set to automatically adjust to compliment natural lighting levels through windows.
- Rooms without window views contain lighting that adjusts to align with circadian rhythms.
- Lighting overrides are provided for users to easily adjust settings as required.

Reasoning

Cognitive Support: Disruptions to natural circadian rhythms are tied to cognitive and physical issues. Supporting circadian rhythms signals a sense of time, and produces a calming stimuli.

Experience Categories

Support

Edelstein, E. (2005). Influence of Architectural Lighting on Health. *Implications, 07*(02).

Duffy, J. F., & Czeisler, C. A. (2009). Effect of Light on Human Circadian Physiology. *Sleep medicine clinics, 4*(2), 165–177. https://doi.org/10.1016/j.jsmc.2009.01.004

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

3.12

Flashing devices are concealed or hidden

Section

Interior Environment

Directive

- Equipment with flashing components are located in enclosed spaces or away from areas of work, out of visual lines of sight. For example, printers or wireless devices that have small but constant flashing lights.
- Where permissible, flashing components are disabled or hidden.

Reasoning

Visual Support: Excessive flickering leads to headache and eyestrain. Hypersensitive eyes register these pulses like a strobe light. While flickering is not noticeable to all, it can create a disruption to those who see it.

Experience Categories

Support

Psychobiology of Stress. Germany: Springer Netherlands, 2012.

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment across the Entire Spectrum*. Routledge.

3.13

Comply with ventilation requirements outlined in ASHRAE 62.1-2019 or local equivalent

Section

Interior Environment

Directive

- Ventilation systems maximize fresh air to minimize the spread of odors and disease.
- Ventilation systems evenly distribute air as required to maintain thermal comfort set by zones or rooms.
- Ventilation systems comply with the latest ASHRAE standards and align with goals set out by LEED®.

Reasoning

Environmental Support: Proper airflow and circulation is critical to control thermal comfort, odors and airborne sickness. Strong odors negatively impact the olfactory sensory neurons leading to nausea, headaches, and/or anxiety for those with hypersensitivity. Thermal discomfort also impacts productivity.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

J. Sundell, H. L., et al. (2011). "Ventilation rates and health: multidisciplinary review of the scientific literature." *Indoor Air 21:* 191-204.

3.14

Volatile Organic Compounds (VOC) free materials are specified wherever possible

Section

Interior Environment

Directive

- A Precautionary List review is conducted across all materials. https://transparency.perkinswill.com/
- Where a VOC free material is not available, low VOC materials are selected.
- Materials with unknown VOC content are not used.
- Applicable to all materials within the building.
- Applicable to all material selections on furniture.

Reasoning

Environmental Support: VOCs produce an off gassing with odors. Strong odors negatively impact the olfactory sensory neurons leading to nausea, headaches and/or anxiety for those with hypersensitivity. The toxic off gassing also has a direct negative impact on overall human health.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Wallace LA, Pellizzari E, Leaderer B, Zelon H, Sheldon L. (1987). Emissions of volatile organic compounds from building materials and consumer products. *Atmos Environ, 21*(2):385-393.

Perkins&Will

4.0

WORKSPACES

Workstations, Touchdowns, workspaces & Offices

DRAFT NEURODIVERSITY TOOLKIT

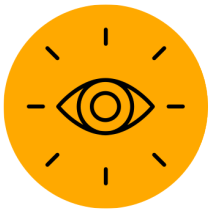
SUBSECTIONS

4.0 WORKSPACES
SUMMARY OF STRATEGIES

4.1 Provide a minimum of 70 square feet of workspace per person

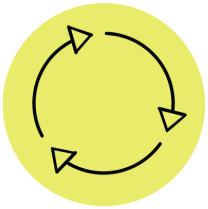
4.2 Provide at least 5% workspaces in a zone free of visual distractions

4.3 Provide at least 5% workspaces in a zone free of audible distractions



4.4 Provide at least 5% workspaces in a zone free of strong odors

4.5 Provide at least 5% workspaces in a zone where overhead lighting can be individually controlled



4.6 Work areas are thermally zoned to support varying temperature needs

4.7 Provide views of nature for 75% of workspaces

4.8 Provide access to natural light for all workspaces

4.9 Provide dimmable lights in all areas of work

4.10 Provide at least 5% allocated workspaces

4.11 Provide mobile divides for at least 5% of workspaces

4.12 White noise or sound masking systems are installed in all work zones

4.13 Provide at least 5% workspaces with closed backs

4.14 Provide two types of desk set ups at minimum

4.15 Provide 1 focus room per 50 employees

4.16 Provide 1 tranquility work room per 50 employees

DRAFT NEURODIVERSITY TOOLKIT

SUBSECTIONS

4.1

Provide a minimum of 70 square feet of workspace per person

Section

Workspaces

Directive

- Dimension utilized to sufficiently space out workspaces.
- Dimension used as a minimum, final layout should account for all accessibility and code requirements.
- Dimension includes clearly designated space that should not overlap walkways or other individual workspace zones.

Reasoning

Physical & Social Support: Providing proper spacing between workspaces supports personal space allowing for a sense of comfort. Greater personal space also accommodates greater movement as required by challenges with proprioception.

Experience Categories

Support

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

4.2

Provide at least 5% workspaces in a zone free of visual distractions

Section

Workspaces

Directive

- Workspaces are located away from doors, circulation paths, vertical circulation, social zones, and meeting rooms.
- Full height walls or dividers are utilized to septate this zone from adjacent spaces.
- Full height or tall panel divides are utilized to divide workspaces in this zone.
- Hanging features, fixtures, and equipment are not utilized in this zone.
- Signage should be used to reinforce behaviors in each zone.

Reasoning

Visual Support: Zones allow user control over space by providing flexible choice based on personal needs. Visual distractions can create heightened anxiety and stress for those with hypersensitive eyes. Distraction free visual zones limit disturbances which inhibit productivity.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

4.3

Provide at least 5% workspaces in a zone free of audible distractions

Section

Workspaces

Directive

- Workspaces are located away from doors, circulation paths, vertical circulation, social zones, equipment such as printers, and meeting rooms.
- Acoustical full height walls or divisions are utilized to septate this zone from adjacent spaces.
- Acoustical full height or tall panel divides are utilized to divide workspaces in this zone.
- Signage should be used to reinforce behaviors in each zone.

Reasoning

Audible Support: Zones permit user control over space by providing flexible choice based on personal needs. Audible distractions can create heightened anxiety and stress for those with hypersensitive hearing. Audible distraction free zones limit disturbances which inhibit productivity.

Experience Categories

Support

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

Doyle N. (2020). Neurodiversity at work: a biopsychosocial model and the impact on working adults. *British medical bulletin*, 135(1), 108–125. https://doi.org/10.1093/bmb/ldaa021

Plowright, Stephen. 2011. *Workplace Neurodiversity A Key to Success for ICT and Technical Managers.* Lulu Press.

4.4

Provide at least 5% workspaces in a zone free of strong odors

Section

Workspaces

Directive

- Workspaces are located away from break rooms, kitchens, bathrooms, coffee stations and other high odor spaces.
- Full height walls or divisions are utilized to septate this zone from adjacent spaces.
- Signage should be used to reinforce behaviors in each zone.

Reasoning

Environmental Support: Zones permit user control over space by providing flexible choice based on personal needs. Strong odors can lead to nausea, headaches and/or anxiety for those with hypersensitivity. Odor free zones limit disturbances which inhibit productivity.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

4.5

Provide at least 5% workspaces in a zone where overhead lighting can be individually controlled

Section

Workspaces

Directive

- Each workspace to have control over primary overhead light fixtures, including ability to dim or completely turn off lights without impacting others.
- Lighting controls are accessible to all.
- Full height walls or divisions are utilized to septate this zone from adjacent spaces.
- Full height or tall panel divides are utilized to divide workspaces in this zone.

Reasoning

Visual Support: Zones permit user control over space by providing flexible choice based on personal needs. Undesired lighting conditions can create heightened anxiety and stress for those with hypersensitive eyes. Environments that are too bright can lead to headaches and eyestrain.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

4.6

Work areas are thermally zoned to support varying temperature needs

Section

Workspaces

Directive

- In open work areas, provide both hot and cold zones with a gradient range of temperature zones in between.
- Where thermal temperature zones are not achievable in open work areas, clusters of workstations, no larger than four desks, are located in areas that are easily controlled by thermostats. Cluster are organized based on similar user temperature preference.
- Signage should be used to reinforce behaviors in each zone or cluster.
- Offices and enclosed work rooms are equipped with thermostats to control room temperature.

Reasoning

Environmental Support: Zones permit user control over space by providing flexible choice based on personal needs. Environmental sensitivity is heightened for certain neurotypes. Undesired thermal environments can lead to overheating, extreme chills, and an overall discomfort level that becomes a distracting deterrent from productivity.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

4.7

Provide views of nature for 75% of workspaces

Section

Workspaces

Directive

- Workspaces to have an unobstructed view outside with the maximum direct line of sight equal to three times the window height.
- Where views outside are unachievable, views of nature are incorporated through use of plantings, water, or other natural elements.
- Where views outside do not reflect nature, views are supplemented through use of plantings, water, or other natural elements.

Reasoning

Cognitive Support: Connection to nature is critical for overall well-being. Nature has a positive impact on emotional and psychological states, with views outside linked to improving performance in employees and reducing patterns of stress.

Experience Categories

Support

Leather, P., et al. (1998). "Windows in the workplace sunlight, view, and occupational stress." *Environment and Behavior 30*(6): 739-762.

Largo-Wight, E., Chen, W. W., Dodd, V., & Weiler, R. (2011). Healthy Workplaces: The Effects of Nature Contact at Work on Employee Stress and Health. *Public Health Reports, 126*(Suppl 1), 124–130

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

4.8

Provide access to natural light for all workspaces

Section

Workspaces

Directive

- Building orientation to be considered using a daylight analysis tool so that natural light can be optimized.
- Workspaces to have an unobstructed view outside with the maximum direct line of sight equal to three times the window height.
- Skylights are utilized where standard windows are unachievable.
- Outside views to allow natural light in. Any window films are reviewed for maintaining visibility and light transmission.
- Interior layout and materials are reviewed based on strategies for controlling glare.

Reasoning

Visual Support: Artificial light contains pulsations that can be distracting for hypersensitive eyes and lead to migraines. Natural light is free of pulsations. It supports circadian rhythms that signal a sense of time, and produces a calming stimuli.

Experience Categories

Support

Leather, P., et al. (1998). “Windows in the workplace sunlight, view, and occupational stress.” *Environment and Behavior 30*(6): 739-762.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Evans GW. (2003). The built environment and mental health. *J Urban Health 80*(4):536-55. doi: 10.1093/jurban/jtg063. PMID: 14709704; PMCID: PMC3456225. doi:10.1016/0004-6981(87)90017-5

4.9

Provide dimmable lights in all areas of work

Section

Workspaces

Directive

- Provide dimming capabilities down to at least 10% of lighting power capacity.
- Dimming controls to be accessible for all users in the space.
- Includes all overhead lighting.
- Includes all open work areas, offices, or rooms with desks.
- Signage should be used to define dimming protocols in open work areas.

Reasoning

Visual Support: Dimming capabilities support flexible choice based on personal needs. Undesired lighting conditions can create heightened anxiety and stress for hypersensitive eyes. Environments that are too bright can lead to headaches, eyestrain and sensory overload.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

4.10

Provide at least 5% allocated workspaces

Section

Workspaces

Directive

- Allocated desks to be assigned based on user needs.
- Desk type and location to be coordinated with individual users.
- Users are permitted to maintain space as they see fit as long as it does not produce unruly mess or odors that can be distracting to others.
- Provide signage to reinforce assignments and relay standard of behaviors related to desking protocols.

Reasoning

Cognitive Support: Having the same desk supports predictability and routine which establishes a sense of stability. It allows the users to maintain the area as they see fit and leave out materials as chosen. It eases stress over arriving too late to get a desired desk and promotes a sense of place.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce*. Kogan Page.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

4.11

Provide mobile divides for at least 5% of workspaces

Section

Workspaces

Directive

- A minimum of two divides are provided per 5% of workspaces.
- Divides to be a minimum of 5'-0"H x 2'-0"W.
- Divides to be on casters or glides enabling them to easily move. Divides to be able to lock or stay in place after moved to designated space.
- Divides to be made of acoustically absorptive materials.
- Divides to be accessible for all employees.

Reasoning

Audible, Visual & Social Support: Mobile divides permit user control over space through flexible choice. Divides help block audible and visual distractions while also creating a barrier to alleviate the demands of social surrounds. These features create a sense of security and personal space to minimize anxiety.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce*. Kogan Page.

4.12

White noise or sound masking systems are installed in all work zones

Section

Workspaces

Directive

- White noise or sounds masking systems are installed in all open work areas, individual work rooms, and offices.

Reasoning

Audible Support: Background noise can be distracting, especially for those with hypersensitivity. White noise helps block out background noise, minimizing stress.

Experience Categories

Support

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce*. Kogan Page.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

4.13

Provide at least 5% workspaces with closed backs

Section

Workspaces

Directive

- Percentage to be applied to total open workspaces. Private offices not included in percentage count.
- Closed backs can include workstations with backs to solid walls or divides and workstations with tall fixed panels located behind the primary seated position
- Solid portion of wall or divide to be a minimum 4'-0"H.

Reasoning

Social Support: Closed backs create a barrier to alleviate the demands of social surrounds. They create a sense of security by prohibiting someone from sneaking up behind and startling the user. Cocooned enclosures minimize anxiety.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

Plowright, Stephen. 2011. *Workplace Neurodiversity A Key to Success for ICT and Technical Managers.* Lulu Press.

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

4.14

Provide two types of desk set ups at minimum

Section

Workspaces

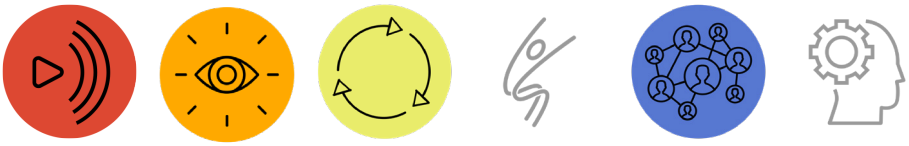
Directive

- Provide one type catered toward hypersensitive needs. For example, provide a higher level of enclosure with more breaks from acoustic and visual distractions. Limit bold colors or patterns and keep textures smooth.
- Provide one type catered toward hyposensitive needs. For example, provide an open feel with more opportunities for social, visual, and auditory engagement. Incorporate bright colors, patterns, and playful textures.

Reasoning

Audible, Visual, Environmental & Social Support: Different options permit user control through choice. This supports a sense of space. While one setup might not fit perfect, it gives the user a foundation to build off.

Experience Categories



Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce*. Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

4.15

Provide 1 focus room per 50 employees

Section

Workspaces

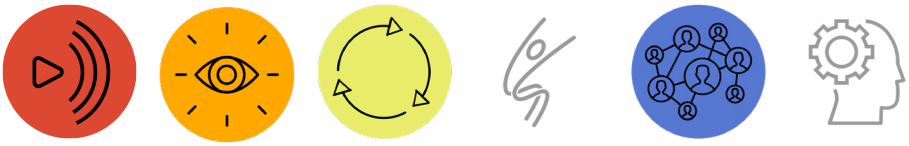
Directive

- Room to be available for all employees.
- Room to be enclosed with solid walls and door. Glass is permitted on one wall of the room and can include the door. Where glass is used, privacy film is installed.
- Room to have multiple layers of lighting control.
- Acoustical features and materials are incorporated in room.
- Room to have indicator system to signal when user needs to be left undisturbed.
- Finishes and materials so be simple with natural colors.
- Room to contain standard desk and supporting technology.

Reasoning

Audible, Visual, Environmental & Social Support: Providing focus rooms gives users options. It permits user control over space through choice. The ability to modify lighting, sounds, temperature, control smell and social interaction level gives the user ample flexibility.

Experience Categories



Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

4.16

Provide 1 tranquility work room per 50 employees

Section

Workspaces

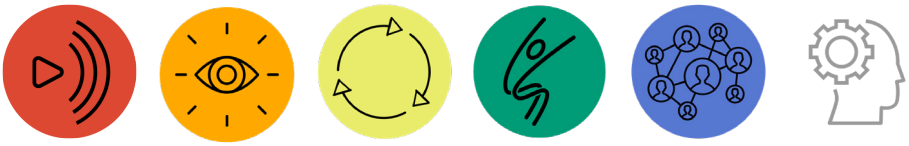
Directive

- Room to be available for all employees.
- Room to be enclosed with solid walls and door. Glass is permitted on one wall of the room and can include the door. Where glass is used, privacy film is installed.
- Room to contain color changing lighting controls.
- Acoustical features and materials are incorporated in room.
- Room to have indicator system to signal when user needs to be left undisturbed.
- Lounge seating is provided with supporting technology to permit work. Example includes couch plus side table with secondary monitor and room for mouse.

Reasoning

Audible, Visual, Environmental & Social Support: Providing tranquility rooms gives users options. It permits user control over space through choice. The ability to modify lighting, sounds, temperature, control smell and social interaction level gives the user ample flexibility. The alternate seating set up allows the user to modify their physical position while working.

Experience Categories



Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

Perkins&Will

5.0

COLLABORATION SPACES

Conference, Huddle & Meeting Rooms

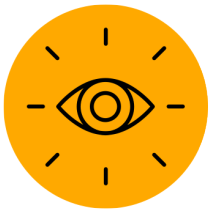
DRAFT NEURODIVERSITY TOOLKIT

SUBSECTIONS

5.0 COLLABORATION SPACES SUMMARY OF STRATEGIES

5.1 Provide a thermostat in all collaboration spaces

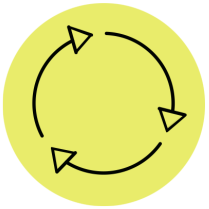
5.2 Provide dimmable lights in all collaboration spaces



5.3 Provide a variety of collaboration room sizes

5.4 Provide a variety of seating types in each collaboration space

5.5 Provide flexible furniture in at least 50% of collaboration spaces



5.6 Provide enhanced personal space for at least 20% of seats within each collaboration space

5.7 Provide at least one, low stimuli collaboration space

5.8 Provide at least one high stimuli collaboration space

5.9 Provide at least one active collaboration space

5.1

Provide a thermostat in all collaboration spaces

Section

Collaboration Spaces

Directive

- Thermostat to be dedicated to each room.
- Thermostat to be accessible to users within room.
- Includes all conference, huddle, and meeting rooms.

Reasoning

Environmental Support: Environmental sensitivity is heightened among certain neurotypes. Undesired thermal environments can lead to overheating, extreme chills, and a discomfort level that becomes a deterrent to productivity.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

5.2

Provide dimmable lights in all collaboration spaces

Section

Collaboration Spaces

Directive

- Provide dimming capabilities down to at least 10% of lighting power capacity.
- Dimming controls to be accessible for all users within room.
- Includes all overhead lighting.
- Includes all conference, huddle, and meeting rooms.

Reasoning

Visual Support: Dimming capabilities support flexible choice based on personal needs. Undesired lighting conditions can create heightened anxiety and stress for those with hypersensitive eyes. Environments that are too bright can lead to headaches, eyestrain and sensory overload.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

5.3

Provide a variety of collaboration room sizes

Section

Collaboration Spaces

Directive

- Provide a minimum of two different room sizes to accommodate small and large groups.
- Rooms to be accessible to all users.
- Rooms to be enclosed. Where glass is used, privacy film is installed.
- Includes all conference, huddle, and meeting rooms.

Reasoning

Social Support: Different size collaboration rooms permit gatherings of small or large groups. This permits social interactions to be controlled based on need and comfortability of varying participants. This can limit crowds or undesired social interactions when needed to avoid overwhelming situations.

Experience Categories

Support

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce*. Kogan Page.

5.4

Provide a variety of seating types in each collaboration space

Section

Collaboration Spaces

Directive

- Provide a minimum of two different seat types in each collaboration space.
- Different seating types to support varying postures, textures, heights, mobility, or support. For example, but not limited to, low vs high backs, firm vs soft cushions, smooth vs textured materials, arms vs armless, short vs tall, stable vs wheels vs wobble, recline vs vertical and perched vs seated.
- Includes all conference, huddle, and meeting rooms.

Reasoning

Physical Support: Providing different seating options supports flexible choice based on personal needs. Material feel can be heightened with hypersensitivity so users can chose which is better. Those with hyperactivity can benefit from the ability to move while seated and physical variations are best supported by offering a variety of solutions.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

5.5

Provide flexible furniture in at least 50% of collaboration spaces

Section

Collaboration Spaces

Directive

- Seating and tables to be easy to move by all users. These can includes features such as castors, glides, or lightweight furniture.
- Technology, power, and data to support multiple configurations of room layout.
- Includes conference, huddle, and meeting rooms.

Reasoning

Physical & Social Support: Providing mobile furniture supports flexible choice based on user needs. Teams can reconfigure a room to suit the meeting. For example, where challenges with eye contact are prevalent, seats can be arranged accordingly, or where movement is desired furniture can be adjusted.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce*. Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

5.6

Provide enhanced personal space for at least 20% of seats within each collaboration space

Section

Collaboration Spaces

Directive

- Enhanced space to include a minimum 36" W clear space.
- Clear space to be free of other users, furniture, or walkways.
- Includes conference, huddle, and meeting rooms.

Reasoning

Physical & Social Support: Some neurotypes encounter anxiety when too close to others. Minimal personal space also limits movements that might be needed to sooth an individual. Providing an option to maximize personal space gives users control to minimize stress.

Experience Categories

Support

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

5.7

Provide at least one, low stimuli collaboration space

Section

Collaboration Spaces

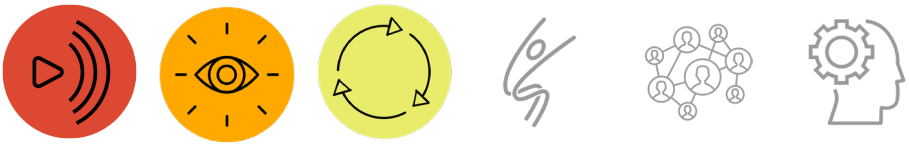
Directive

- Room to be available for all employees.
- Room to be completely enclosed. Where glass walls or doors are used, privacy film is installed. Curtains at glass are added as required based on quantity of glass and acoustical needs.
- Room to have multiple layers of lighting control.
- Acoustical features and materials are incorporated in room.
- Finishes and materials so be simple using natural colors.
- Room is located away from areas with strong odors.
- Overall layout is kept clean, simple, and spacious.

Reasoning

Audible, Visual & Environmental Support: Providing collaboration spaces with varying levels of stimuli permits user control over space through choice. Low stimuli spaces support those with varying hypersensitivities.

Experience Categories



Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment Across the Entire Spectrum*. Routledge.

5.8

Provide at least one high stimuli collaboration space

Section

Collaboration Spaces

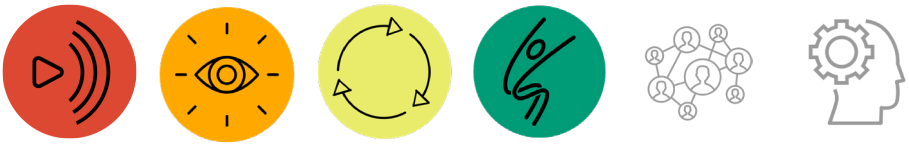
Directive

- Room to be available for all employees.
- Room to be partially enclosed at minimum.
- Room to have multiple layers of lighting control with options for color changing lights.
- Visual interest is added through use of art, color, texture, and patterns.
- Materials with greater texture are used throughout.
- Ample space is provided to permit mobility.

Reasoning

Audible, Visual, Environmental & Physical Support: Providing collaboration spaces with varying levels of stimuli permits user control over space through choice. High stimuli spaces support those with varying hyposensitivities.

Experience Categories



Support

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment Across the Entire Spectrum*. Routledge.

5.9

Provide at least one active collaboration space

Section

Collaboration Spaces

Directive

- Room to be available for all employees.
- Alternate seating that supports motion is provided, such as, bouncy chairs, spinning and wobble chairs, or motion stools.
- Mobile white boards or equipment that supports moving around and standing is provided within room.
- Stationary bikes, treadmill desks or other stationary motion equipment is encouraged for space.
- Ample space is provided to move around.

Reasoning

Physical Support: Collaboration spaces that allow mobility support those with hyperactivity. Furthermore, providing flexibility of motion and position support varying physical needs or constraints.

Experience Categories

Support

Armstrong, Thomas. 2011. *The Power of Neurodiversity Unleashing the Advantages of Your Differently Wired Brain*. Hachette Books.

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Perkins&Will

6.0

AMENITIES

Break Rooms, Wellness Rooms, Mother's Rooms, Restrooms, & Other Employee Spaces

DRAFT NEURODIVERSITY TOOLKIT

SUBSECTIONS

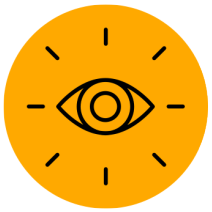
6.0 SITE AMENITIES

6.1 Provide a thermostat in all amenity spaces

6.2 Provide dimmable lights in all amenity spaces

6.3 Provide a variety of seating types in each amenity space

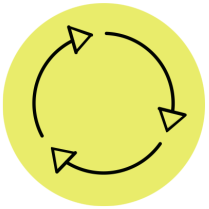
6.4 Provide enhanced personal space for at least 20% of seats within each amenity space



6.5 Provide at least one low stimuli wellness space

6.6 Provide at least one high stimuli wellness space

6.7 Provide at least one low stimuli break room space



6.8 Provide at least one high stimuli break room space

6.9 Provide social gathering and activity space

6.10 Provide individual reflection space

6.11 Provide at least one pet relief area

6.12 Provide amenity space on-site that is either outside or has access to views and fresh air

6.13 Provide access to a low stimuli natural environment

6.14 Provide access to a high stimuli natural environment

6.1

Provide a thermostat in all amenity spaces

Section

Amenities

Directive

- Thermostat to be dedicated to room.
- Thermostat to be accessible to users within room.
- Includes all break rooms, wellness rooms, mother's rooms and other employee support spaces. Bathrooms do not apply.

Reasoning

Environmental Support: Environmental sensitivity is heightened for certain neurotypes. Undesired thermal environments can lead to overheating, extreme chills, and an overall discomfort level that becomes a distracting deterrent from productivity.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

6.2

Provide dimmable lights in all amenity spaces

Section

Amenities

Directive

- Provide dimming capabilities down to at least 10% of lighting power capacity.
- Dimming controls to be accessible for all users within room.
- Includes all overhead lighting.
- Includes all break rooms, wellness rooms, mother's rooms and other employee support spaces. Bathrooms do not apply.

Reasoning

Visual Support: Dimming capabilities support flexible choice based on personal needs. Undesired lighting conditions can create heightened anxiety and stress for those with hypersensitive eyes. Environments that are too bright can lead to headaches, eyestrain, and sensory overload.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Bury, S. M., Hayward, S. M., Dissanayake, C., & Hedley, D.(2020). *Supporting a neurodiverse workforce: A mental health and well-being resource and training package.* Melbourne: La Trobe University.

6.3

Provide a variety of seating types in each amenity space

Section

Amenities

Directive

- Provide a minimum of two different seat types in each amenity space.
- Different seating types to support varying postures, textures, heights, mobility or support. For example, but not limited to, low vs high backs, firm vs soft cushions, smooth vs textured materials, arms vs armless, short vs tall, stable vs wheels vs wobble, recline vs vertical, and perched vs seated.
- Includes all break rooms, wellness rooms, mother's rooms, and other employee support spaces. Bathrooms do not apply.

Reasoning

Physical Support: Providing different seating options permits flexible choice based on personal needs. Material feel can be heightened with hypersensitivity so users can chose which is better. Those with hyperactivity can benefit from the ability to move while seated and physical differences among all of us are best supported by a variety of options.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

6.4

Provide enhanced personal space for at least 20% of seats within each amenity space

Section

Amenities

Directive

- Enhanced space to include a minimum 36" W clear space.
- Clear space to be free of other users, furniture, or walkways.
- Includes all break rooms, wellness rooms, mother's rooms, and other employee support spaces.

Reasoning

Physical & Social Support: Varying neurotypes encounter anxiety when too close to others. Minimal personal space also limits movements that might be needed to sooth an individual. Providing an option to maximize personal space gives users control to minimize their stress.

Experience Categories

Support

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

6.5

Provide at least one low stimuli wellness space

Section

Amenities

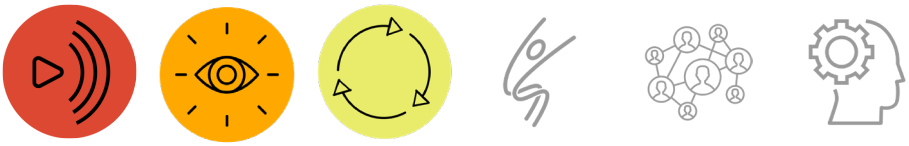
Directive

- Room to be available for all employees.
- Room to be completely enclosed. Where glass walls or doors are used, privacy film is installed. Curtains at glass are added as required based on quantity of glass and acoustical needs.
- Room to have multiple layers of lighting control.
- Acoustical features and materials are incorporated in room.
- Finishes and materials so be simple using natural colors.
- Room is located away from areas with strong odors.
- Overall layout is kept clean, simple, and spacious.
- Room to include lounge or reclined seating.
- Room to be free of technology such as monitors.

Reasoning

Audible, Visual & Environmental Support: Providing wellness rooms with varying levels of stimuli, allows uses to choose how they sooth themselves, based on personal needs. Low stimuli spaces support those with varying hypersensitivities.

Experience Categories



Support

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

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Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment Across the Entire Spectrum*. Routledge.

6.6

Provide at least one high stimuli wellness space

Section

Amenities

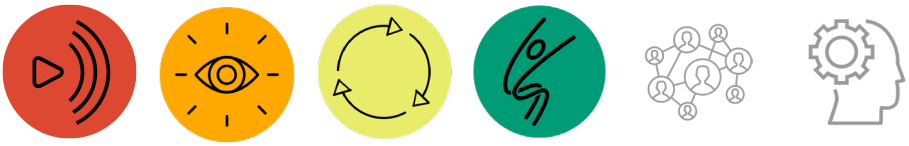
Directive

- Room to be available for all employees.
- Room to be completely enclosed.
- Room to have multiple layers of lighting control with color changing lights.
- Sound proofing is used to contain noise within.
- Visual interest is added through use of art, color, texture and patterns.
- Materials with greater texture are used throughout.
- Space is provided to move around.
- Scent diffuser or similar equipment is provided in room.
- Room to include lounge or reclined seating
- Room to be free of technology such as monitors.

Reasoning

Audible, Visual, Environmental & Physical Support: Providing wellness rooms with varying levels of stimuli, allows uses to choose how they sooth themselves, based on personal needs. High stimuli spaces support those with hyposensitivities.

Experience Categories



Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

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Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment Across the Entire Spectrum*. Routledge.

6.7

Provide at least one low stimuli break room space

Section

Amenities

Directive

- Space to be available for all employees.
- Low stimuli space can be separate enclosed room or zone within larger break room space. If zone is utilized, clear edges and signage is used to reinforce the purpose.
- Space to have multiple layers of lighting control.
- Acoustical features and materials are incorporated in space.
- Finishes and materials so be simple using natural colors.
- Space is located away from areas with strong odors.
- Overall layout is kept clean, simple, and spacious.
- Space provides opportunities to sit alone or in small groups with a protected back.

Reasoning

Audible, Visual, Environmental & Social Support: Providing break rooms with varying levels of stimuli, allows uses to choose how they take a break, based on personal needs. Low stimuli spaces support those with hypersensitivities. Creating a spot to eat away from groups supports those who become overwhelmed or drained by social interactions.

Experience Categories

Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment Across the Entire Spectrum*. Routledge.

6.8

Provide at least one high stimuli break room space

Section

Amenities

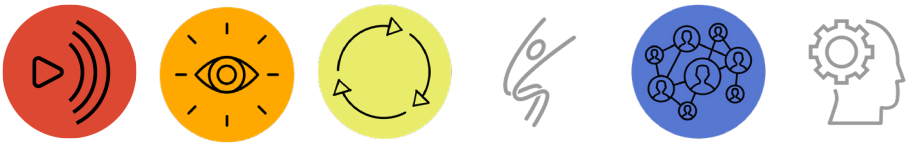
Directive

- Space to be available for all employees.
- High stimuli space can be separate enclosed room or zone within larger break room space. If zone is utilized, clear edges and signage is used to reinforce the purpose.
- Room to have multiple layers of lighting control.
- Visual interest is added through use of art, color, texture, and patterns.
- Materials with greater texture are used throughout.
- Space provides opportunities to sit, converse, and take a break with others.

Reasoning

Audible, Visual, Environmental & Social Support: Providing break rooms with varying levels of stimuli, allows uses to choose how they take a break, based on personal needs. High stimuli spaces support those with varying hyposensitivities. Creating space to eat with others supports those who recharge from talking and interacting with others.

Experience Categories



Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

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Feinstein, Adam. 2018. *Autism Works: A Guide to Successful Employment Across the Entire Spectrum*. Routledge.

6.9

Provide social gathering and activity space

Section

Amenities

Directive

- Space to be available for all employees.
- Space to be located away from work or quiet zones.
- Space to include acoustical solutions to contain noise.
- Space to include amenities such as games, monitors, and group activities. For example, video game systems, chess, pool, foosball, ping pong, or corn hole.
- Space gives employees an area to unwind and interact or meet with others in a more relax setting.

Reasoning

Physical & Social Support: Providing bonus space with varying levels of social interaction, allows uses to choose how they relax. Space to move and interact with others supports stress relief, group collaboration, and enables those with hyperactivity to engage in purposeful activities.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce.* Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

6.10

Provide individual reflection space

Section

Amenities

Directive

- Space to be available for all employees.
- Space to be located away from loud or high activity zones.
- Space to include acoustical solutions to mitigate noise.
- Space to include amenities such as individual gaming set ups and connection to nature.
- Space to include alternative seating such as lounge chairs with high backs and sides, hanging chairs, and small booths.
- Space gives employees an area to unwind and reflect in an informal matter.

Reasoning

Social Support: Providing bonus space with varying levels of social interaction, allows uses to choose how they relax. Space to sit alone, away from social interactions and sensory distractions, supports stress relief and enables users to recharge.

Experience Categories

Support

Smith, Theo and Amanda Kirby. 2021. *Neurodiversity at Work: Drive Innovation, Performance and Productivity with a Neurodiverse Workforce*. Kogan Page.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone*. Jessica Kingsley Publishers.

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders*. Routledge.

6.11

Provide at least one pet relief area

Section

Amenities

Directive

- Space to be available for all employees.
- Proper separation from vehicles and other areas of concern is provided. Fencing or barriers are in place.
- Ground to be conducive for animals in any weather, for example, grass or turf, and inhibit spread of disease.
- Tools for proper disposal of waste are provided to include a bag dispenser and sealed trash that minimizes odors.
- Cleanliness tools are provided such as proper drainage and sprays or hoses. Hand washing sink to be located nearby.
- Space equipped with pheromone-scented 3D sculpture.
- Airflow and ventilation are maximized for space.

Reasoning

Cognitive Support: Service animals provide comfort and reduce stress. They can alleviate social challenges and support emotional balance. Planning for these helpers allows users to care for their service animals with ease.

Experience Categories

Support

Horn, V. L. (2016, September 7-9). *Service Animal Relief Areas: Guidance and Best Practice* [PowerPoint presentation]. 7th Annual FAA National Civil Rights Training Conference for Airports, Washington, DC, United States. https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/acr/ADCP_ODO_PPT_SARAs.pdf

O'Haire M. (2017). Research on animal-assisted intervention and autism spectrum disorder, 2012-2015. *Applied developmental science, 21*(3), 200–216. https://doi.org/10.1080/10888691.2016.1243988

6.12

Provide amenity space on-site that is either outside or has access to views and fresh air

Section

Amenities

Directive

- Space to be available for all employees.
- Space to include views or connection to nature.
- Space to be located away from vents of areas with high air pollutants.
- Space to include place to sit.
- If outdoor amenity space is not within site, provide guidance to all staff to find nearby, safe, accessible outdoor space.

Reasoning

Cognitive Support: Connection to nature is critical for overall well-being. Nature has a positive impact on emotional and psychological states, with links to improved performance and reduced patterns of stress.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

Largo-Wight, E., Chen, W. W., Dodd, V., & Weiler, R. (2011). Healthy Workplaces: The Effects of Nature Contact at Work on Employee Stress and Health. *Public Health Reports, 126*(Suppl 1), 124–130

Joye, Y. (2007). Architectural Lessons from Environmental Psychology: The Case of Biophilic Architecture. *Review of General Psychology, 11*(4), 305–328. https://doi.org/10.1037/1089-2680.11.4.305

6.13

Provide access to a low stimuli natural environment

Section

Amenities

Directive

- Space to be available for all employees.
- Space includes features such as a minimally colored plantings and/or soothing water features.
- Overall layout is kept clean, simple, and spacious.
- If outdoor amenity space is not within site, provide guidance to all staff to find nearby, safe, accessible outdoor space.

Reasoning

Audible, Visual, Environmental & Cognitive Support: Connection to nature is critical for overall well-being. Nature has a positive impact on emotional and psychological states, with links to improved performance and reduced patterns of stress. Low stimuli spaces support those with varying hypersensitivities.

Experience Categories

Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

Largo-Wight, E., Chen, W. W., Dodd, V., & Weiler, R. (2011). Healthy Workplaces: The Effects of Nature Contact at Work on Employee Stress and Health. *Public Health Reports, 126*(Suppl 1), 124–130

6.14

Provide access to a high stimuli natural environment

Section

Amenities

Directive

- Space to be available for all employees.
- Space includes features such as a sensory garden, colorful plantings, and/or soothing water features.
- Visual interest is added through use of sculptures, textures, and patterns.
- If outdoor amenity space is not within site, provide guidance to all staff to find nearby, safe, accessible outdoor space.

Reasoning

Audible, Visual, Environmental & Cognitive Support: Connection to nature is critical for overall well-being. Nature has a positive impact on emotional and psychological states, with links to improved performance and reduced patterns of stress. High stimuli spaces support those with varying hyposensitivities.

Experience Categories

Support

Honeybourne, Victoria. 2019. *The Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers.* Jessica Kingsley Publishers.

Maslin, Steve. 2022. *Designing Mind-Friendly Environments Design and Architecture for Everyone.* Jessica Kingsley Publishers.

Largo-Wight, E., Chen, W. W., Dodd, V., & Weiler, R. (2011). Healthy Workplaces: The Effects of Nature Contact at Work on Employee Stress and Health. *Public Health Reports, 126*(Suppl 1), 124–130

Perkins&Will

7.0

EQUIPMENT & FURNISHINGS

Technology & Accessories

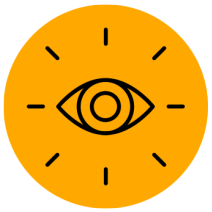
DRAFT NEURODIVERSITY TOOLKIT

SUBSECTIONS

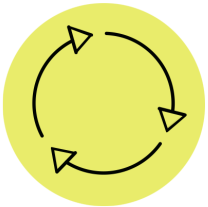
7.0 EQUIPMENT & FURNISHINGS SUMMARY OF STRATEGIES

7.1 Provide equipment and furnishings to support auditory needs

7.2 Provide equipment and furnishings to support visual needs



7.3 Provide equipment and furnishings to support environmental needs



7.4 Provide equipment and furnishings to support physical needs

7.5 Provide equipment and furnishings to support social needs

7.6 Provide equipment and furnishings to support cognitive needs

7.1

Provide equipment and furnishings to support auditory needs

Section

Equipment & Furnishings

Directive

- Have ear defenders/earplugs/noise-canceling headphones available for all users. Equipment to be provided to users as needed/requested and readily available/on hand at all times.
- Specify quiet equipment throughout the building. Evaluate equipment such as lights, copiers and computers etc. for humming.
- Hand dryer models are quiet or paper towels are used.
- Set equipment to power off when not in use where allowed.
- Equip seating without wheels or glides on hard surfaces with padded feet to prohibit scraping noises.

Reasoning

Audible Support: Personal sound isolating equipment provides flexibility and user control over space. Constant equipment humming can be picked up by those with hypersensitivity creating a distractive stress.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

Honeybourne, Victoria. 2019. T*he Neurodiverse Workplace: An Employer's Guide to Managing and Working with Neurodivergent Employees, Clients and Customers*. Jessica Kingsley Publishers.

Kapp, Steven, ed. *Autistic Community and the Neurodiversity Movement: Stories from the Frontline*. Singapore: Palgrave Macmillan, 2020.

7.2

Provide equipment and furnishings to support visual needs

Section

Equipment & Furnishings

Directive

- Have blue screen filters available for all users. Equipment to be provided to users as needed/requested and readily available/on hand at all times.
- Provided tinted glasses or sunglasses as needed based on individual user needs.
- Equip each workspace with a small flicker-free task lamp.

Reasoning

Visual Support: Personal lighting fixtures provide flexibility and user control over space. Specialty glasses and blue filters can be used to alleviate hypersensitive eyes while also providing a sense of control over space.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions*. Jessica Kingsley Publishers.

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7.3

Provide equipment and furnishings to support environmental needs

Section

Equipment & Furnishings

Directive

- Have small desk fans available for all users. Equipment to be provided to users as needed/requested and readily available/on hand at all times.
- Fan models to run quietly and be evaluated based on humming output.

Reasoning

Environmental Support: Personal fans provide flexibility and user control over space allowing for localized adjustment of temperatures.

Experience Categories

Support

Hendrickx, Sarah. 2009. *The Adolescent and Adult Neuro-diversity Handbook: Asperger Syndrome, ADHD, Dyslexia, Dyspraxia and Related Conditions.* Jessica Kingsley Publishers.

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7.4

Provide equipment and furnishings to support physical needs

Section

Equipment & Furnishings

Directive

- Equip each workspace with wrist-rests, ergonomic keyboards, ergonomic chairs, and sit-to-stand capabilities.
- Have motion adjusted mouse controllers, standing mats, bouncy chair plus alternate seating options and sensory stimulating objects available for all users. Equipment to be provided to users as needed/requested and readily available/on hand at all times.
- Provide voice activated software as needed based on individual user needs.
- Provide at least one treadmill desk, bike desk, or alternate movement supported desk per 50 occupants.

Reasoning

Physical Support: Adjustable and alternate equipment options provides flexibility and user control over space. These support varying range of gross and fine motor functions. Equipment that allows kinetic motion supports user movement. Ergonomic features reduce physical pain and stress.

Experience Categories

Support

Doyle N. (2020). Neurodiversity at work: a biopsychosocial model and the impact on working adults. *British medical bulletin*, 135(1), 108–125. https://doi.org/10.1093/bmb/ldaa021

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7.5

Provide equipment and furnishings to support social needs

Section

Equipment & Furnishings

Directive

- Have indicator flags available for all users. Equipment to be provided to users as needed/requested and readily available/on hand at all times. Flags to easily attach to desk or work surface and indicate when an individual requires uninterrupted time so fellow users know not to disturb them.
- Provide at least one high back acoustical lounge 'egg' chair per 50 occupants. Locate in a low stimuli zone.

Reasoning

Social Support: Personal indicator flags provide flexibility and user control over space. They allow an individual to control social interactions at times they need a break. 'Egg' chairs provide another form of social respite with a lounge feel. The high backs offer a sense of security and break from their surrounding environment.

Experience Categories

Support

Kristi Gaines, Angela Bourne, Michelle Pearson, and Mesha Kleibrink. 2016. *Designing for Autism Spectrum Disorders.* Routledge.

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7.6

Provide equipment and furnishings to support cognitive needs

Section

Equipment & Furnishings

Directive

- Have handheld marker boards or notepads available for all users. Equipment to be provided to users as needed/ requested and readily available/on hand at all times.

Reasoning

Cognitive Support: Certain neurotypes have challenges with verbal tasks. Personal boards and note pads provide flexibility and user control over how they process their tasks by allowing for visual support. That could be narrative, illustrative, or symbolic.

Experience Categories

Support

Doyle N. (2020). Neurodiversity at work: a biopsychosocial model and the impact on working adults. *British medical bulletin*, 135(1), 108–125. https://doi.org/10.1093/bmb/ldaa021

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Section 04.
Conclusion

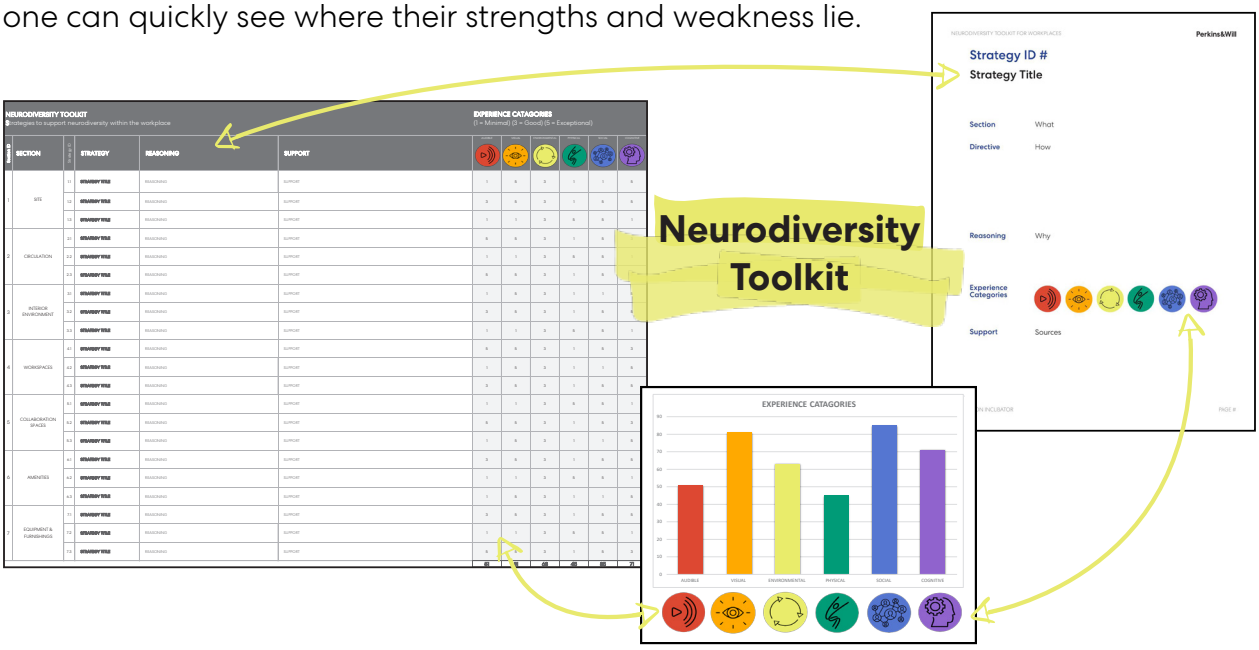
CONCLUSION

Summary

Support for neurodiversity responds to the range of neurological differences that make up humankind. It learns from individuals and varying diagnoses to create a more accommodating environment. It focuses on a truly universal design, while respecting the barriers and struggles many face when “universal” becomes “generic”. It looks to biodiversity, and the ways flourishing ecosystems support each other, to understand that every person is different, and that to thrive as a whole we must support all.

The Neurodiversity Toolkit is meant to empower users with the **choice**, **flexibility,** and **variety** they require to fit the environment to their needs. It provides strategies for evaluating and implementing design solutions in the workplace, to support the spectrum of neurological variations found within society.

In conjunction with the written guidelines, the corresponding excel tracker should be utilized to easily evaluate how a space is doing to support each experience category. By reviewing how many strategies were utilized and how well they were implemented, one can quickly see where their strengths and weakness lie.

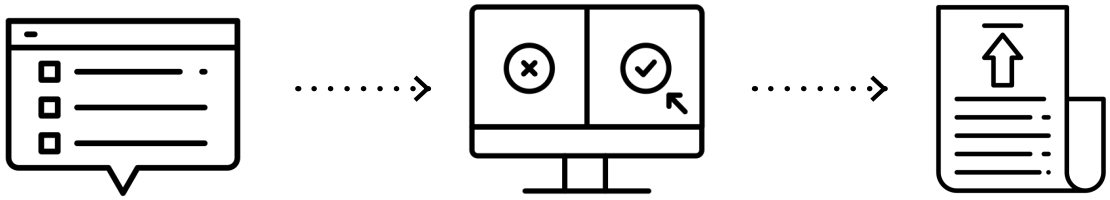


Together, the written guidelines and excel tracker make up **The Neurodiversity Toolkit**, the tool that will help teams ensure their workplace is truly welcoming to all.

CONCLUSION

Next Steps

With the Neurodiversity Toolkit draft complete, we must work to update and refine, based on user needs. This requires feedback from individuals utilizing spaces that could benefit from the tool. We see this happening in three steps:



STEP 1

Questionnaire:
Create questionnaire to distribute with tool. Questions to focus feedback on determining if our experience categories and recommended strategies align with needs. Questionnaire to be multiple choice with a range of 10-20 questions. Questionnaire platform to be finalized, Survature.com to be considered based on intrinsic priorities feedback.

STEP 2

Feedback Collection:
Distribute tool and questionnaire to various groups. Utilize connections made throughout incubator. Specifically, reconnect with Margaret Gaffney for her connection to groups of young adults entering the workforce and Lindsey Braciale for her connection to groups of working adults who have dealt with barriers of inclusion in the workplace. Finalize time to review tool as a whole with Dr. Eve Edelstein.

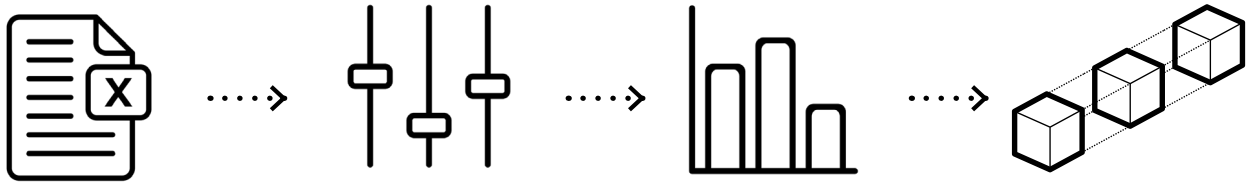
STEP 3

Updates:
Review and consolidate feedback. Update the Toolkit as-needed in response to this engagement process.

CONCLUSION

Next Steps Cont.

Once we update the guidelines, we can finalize the corresponding excel tool. This requires four steps, as outlined below. While updating the Excel tool, the Online platform will be set up. The platform will eventually host the interactive tool and intertwine with the current Perkins&Will Living Design Online resources.



STEP 1

Update Excel: Incorporate updates into spreadsheet to align with finalized written guidelines.

STEP 2

Sliding Scale: Review options for assessing points and graphs on a sliding scale to represent the gradient range of experiences.

STEP 3

Added Visuals: Create additional graphs. One to reflect how well the project did in each experience category per section, and the other showing values on either end of a spectrum to indicate where they fall on that range.

STEP 4

Test on Projects: Identify applications to apply and test the Toolkit through projects across Perkins&Will. Gather lessons learned and incorporate findings into future iterations.

Finally, we see this Toolkit expanding beyond the workplace. Creating different versions for varying project typologies, such as healthcare, schools, athletic facilities, museums, and libraries. In the end, the more projects that can design for neurodiversity, the better, because everyone deserves to feel at ease within their built environment.

CONCLUSION

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