NEURODIVERSITY

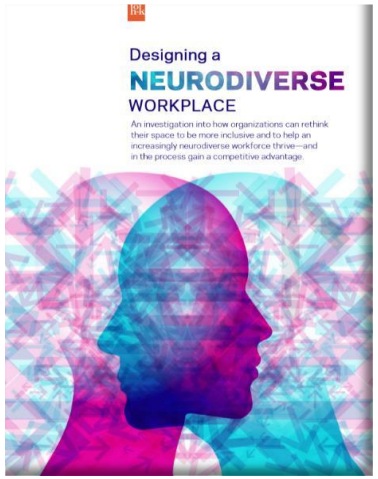
Designing for Inclusive Workplaces and Academic Settings

Presenter

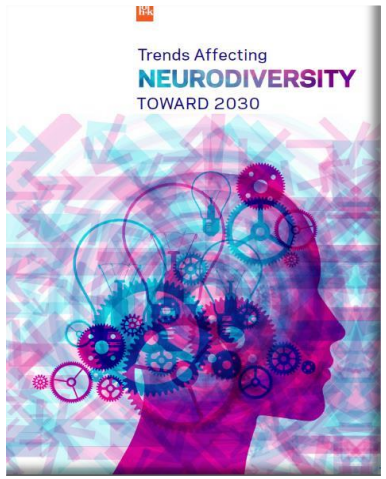
Kay Sargent
Global Director of WorkPlace


It started with a simple question...
How do we accommodate neurodivergents in the workplace?
hok.com

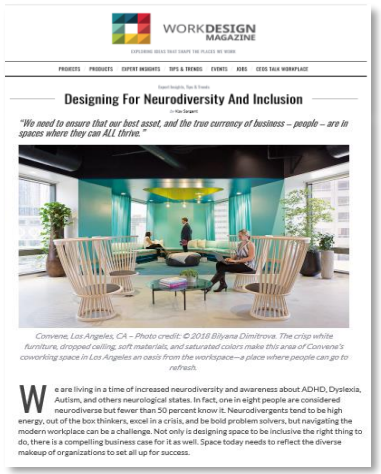
NEURODIVERSITY



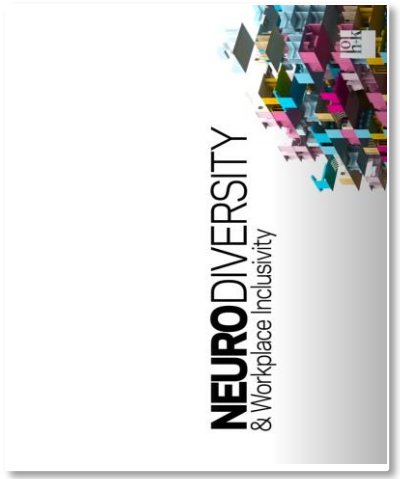
https://www.hok.com/ideas/publications/hok-designing-a-neurodiverse-workplace/



https://www.hok.com/ideas/publications/trends-affecting-neurodiversity-toward-2030/



https://www.workdesign.com/2019/12/designing-for-neurodiversity-and-inclusion/



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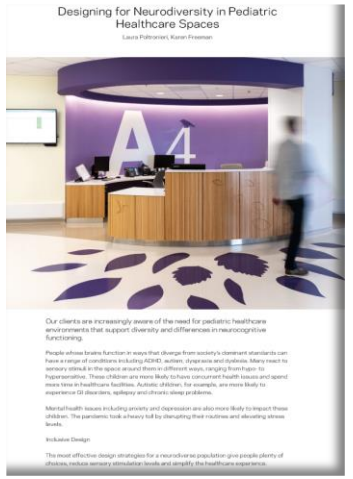
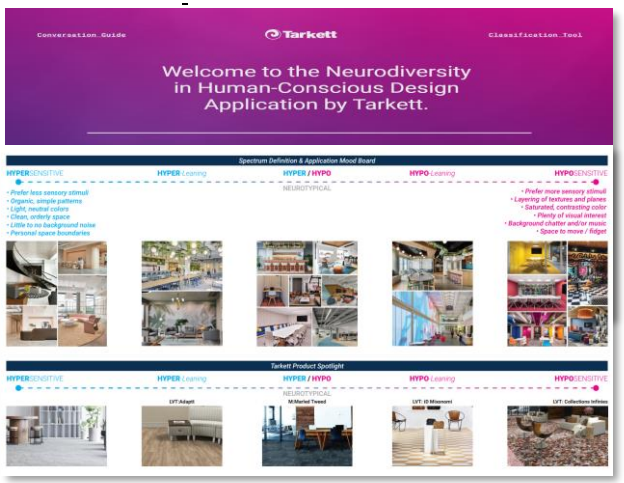
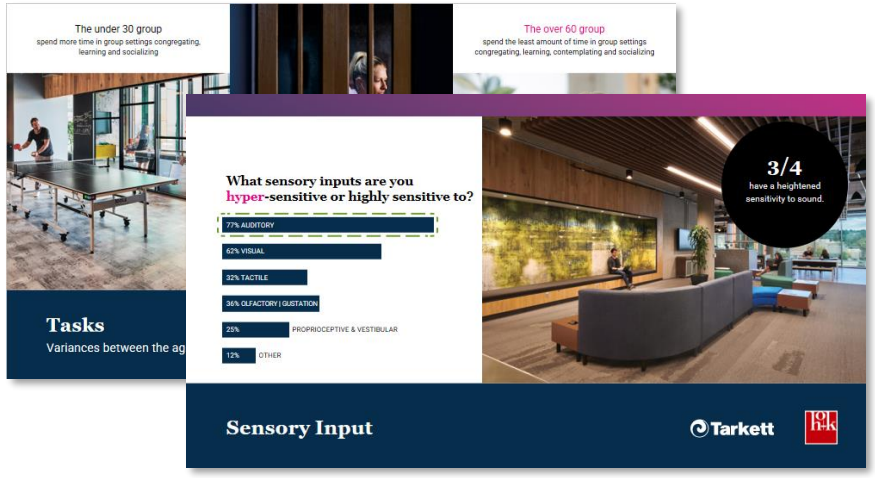


https://www.hok.com/ideas/publications/designing-for-neurodiversity-in-pediatric-healthcare-spaces



https://little-mud-6010.animaapp.io/homepage



https://www.hok.com/news/2022-04/survey-neurodiverse-employees-workplaces/

HOK is not a licensed healthcare provider and any recommendations discussed herein are based on HOK's experience and training related to specific projects and elements of design and are not meant to be an endorsement or a solution for every possible situation.

We are living in a time of increased diagnosis and awareness of neurodivergent conditions including Autism Spectrum Disorder (ASD), Tourettes, Attention Deficit Hyperactivity Disorder (ADHD), Dyslexia and Parkinson's.

Neurominorities have neurocognitive functioning that diverges from dominant societal norms. They are wired differently and often their differences can be an extraordinary strength in the workplace.

NEURODIVERSITY

Physical, cognitive and social exclusion can occur at the **point of interaction between the individual and an environments** when there is a misalignment between them.

- World Health Organization

Impairments + Environment = Disability

Sensory distractions

(sounds, smells, visual clutter)

Sensory distractions

(sounds, smells, visual clutter)

Cognitive distractions

(loss of focus, discomfort)

Sensory distractions

(sounds, smells, visual clutter)

Cognitive distractions

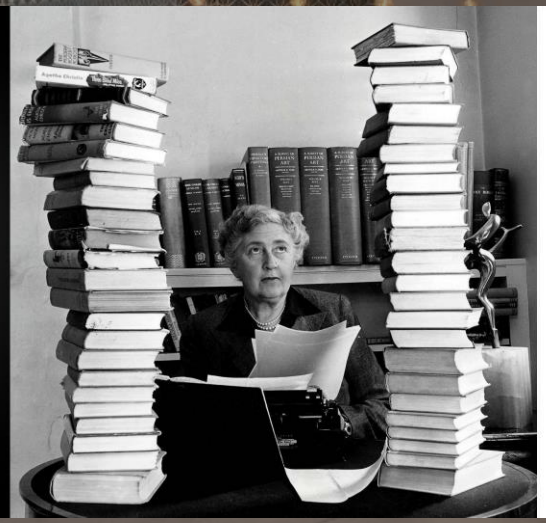
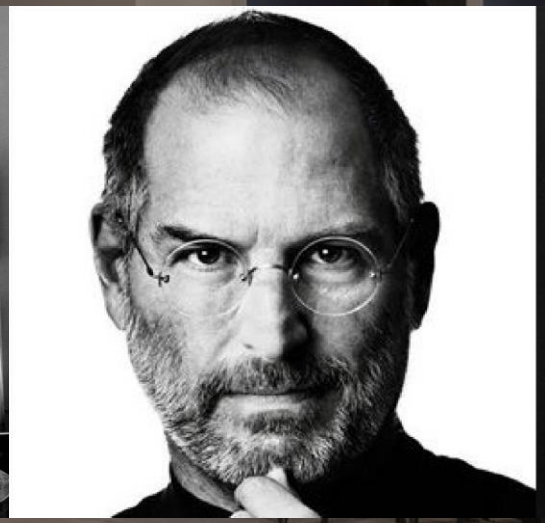
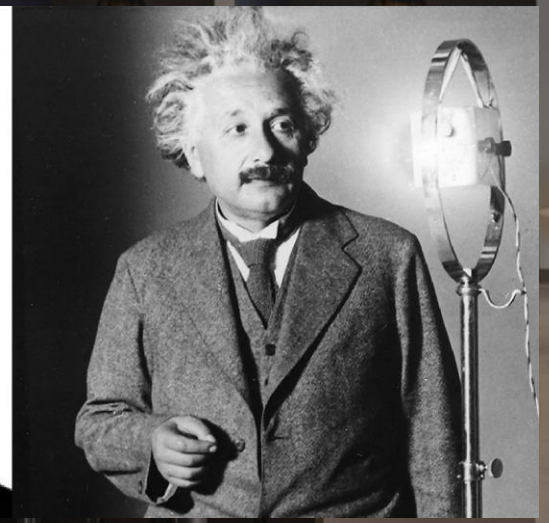
(loss of focus, discomfort)

Loss of engagement and productivity

(presenteeism, poor recall, stress, burnout, dissatisfaction)

1 in 7 people
are considered neurodiverse...

but fewer than 50% know it.

20% of college age students are neurodiverse, but **only 1/3 informed** their college.

85 - 90% of adults with ADHD don't know they have it.

If untreated individuals with ADHD **lost an average of 22 days of productivity** per year and are **18 times more likely** to be disciplined for perceived "behavior problems".

20% of teenagers will experience depression before reaching adulthood.

65% of the 1.2 million American adults on the neurodiverse spectrum have above average intelligence, yet **85%** of them remain unemployed or under-employed.

Often individuals feel they need to fit in regardless of their discomfort hence engage in **neurotypical-passing, masking, or camouflaging** which is unsustainable and can result in stress, burnout, illness, and job loss.

NEURODIVERSITY CHALLENGES

Understand **complex systems, independently focusing on tasks, reliability,** and **loyalty.**

Hyper focused when the topic or task is stimulating

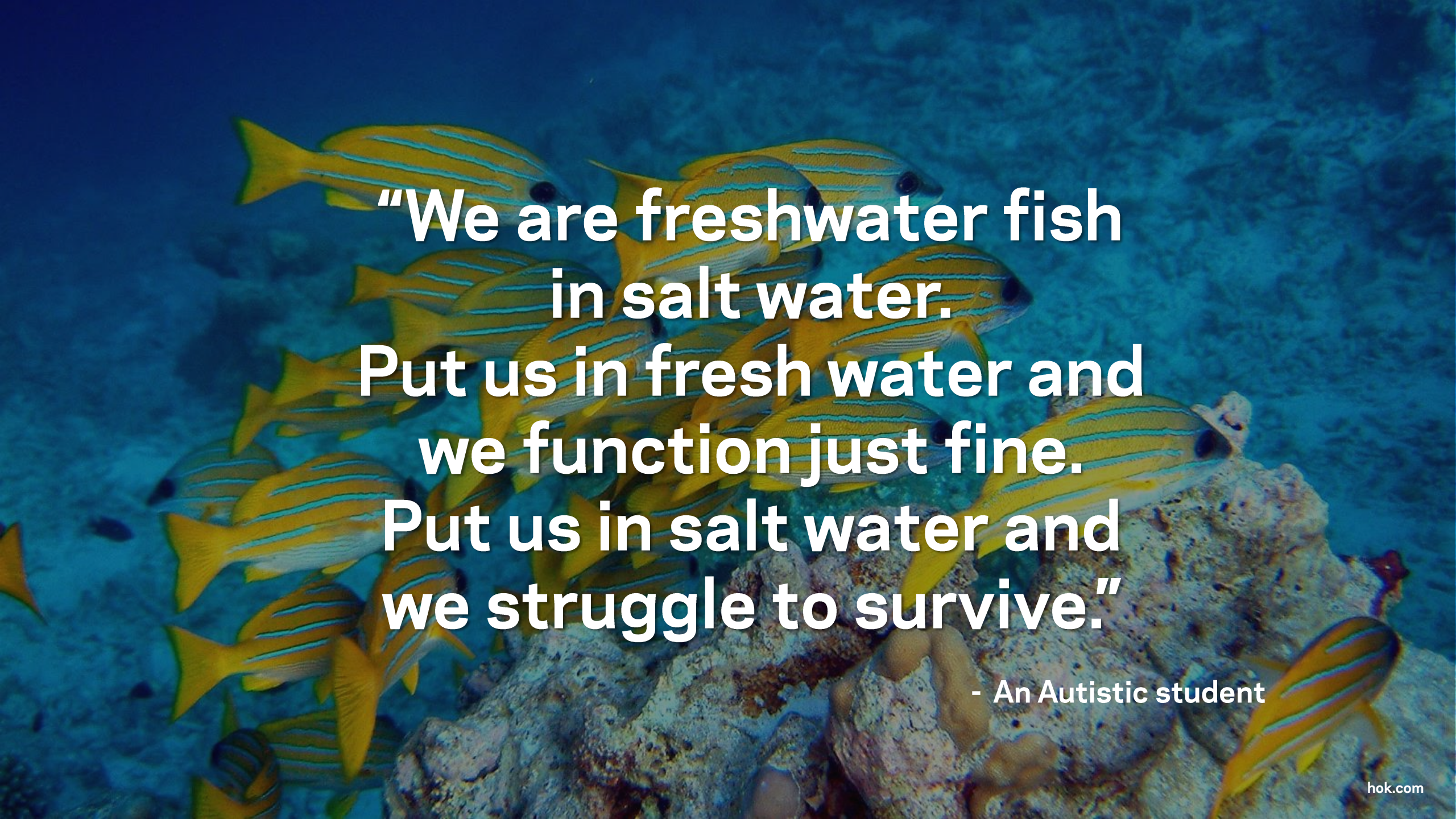
Being able to see the **bigger picture** and are willing to **stretch boundaries** despite potential for disruption, challenging of the status quo and **think outside the box.**

Research shows a strong connection between autism and the **capacity for invention.**

In the right setting, they can be **140% more productive** than other employees.

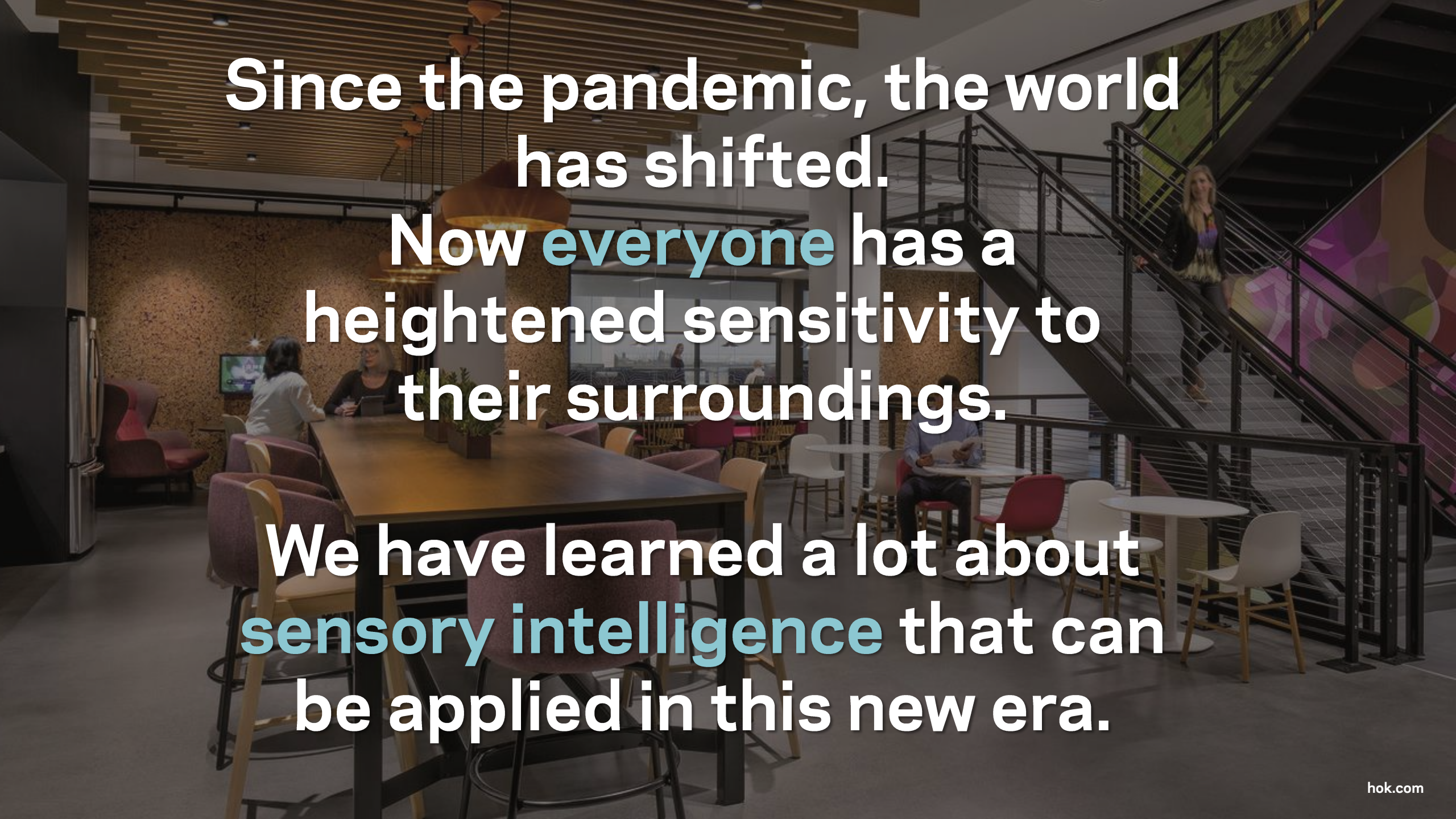
Thrive under pressure.

NEURODIVERSITY ADVANTAGES


“We are freshwater fish
in salt water.
Put us in fresh water and
we function just fine.
Put us in salt water and
we struggle to survive.”
- An Autistic student
hok.com

"**Indifference** towards people and the reality in which they live is the one and only **cardinal sin of design.**"

- Dieter Rams



Since the pandemic, the world has shifted.
Now everyone has a heightened sensitivity to their surroundings.

We have learned a lot about sensory intelligence that can be applied in this new era.

Sensory Thresholds

HYPERSENSITIVE

Prefer environments with controlled stimuli and dislike environments with excessive stimuli such as bright lights, crowds, unfamiliar scents, textures, or temperature fluctuations

- Prefer less sensory stimuli
- Organic, simple patterns
- Light, neutral colors
- Clean, orderly spaces
- Little to no background noise
- Personal space boundaries

NEUROTYPICAL

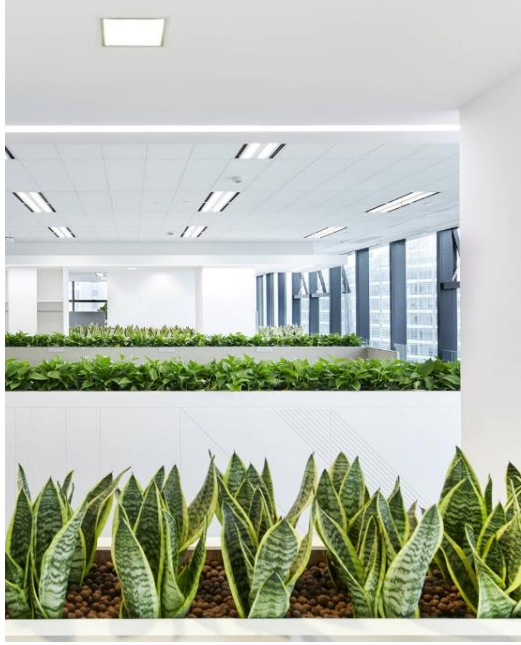
Some individuals are both hyposensitive to some sensory stimulation while being hypersensitive to others.

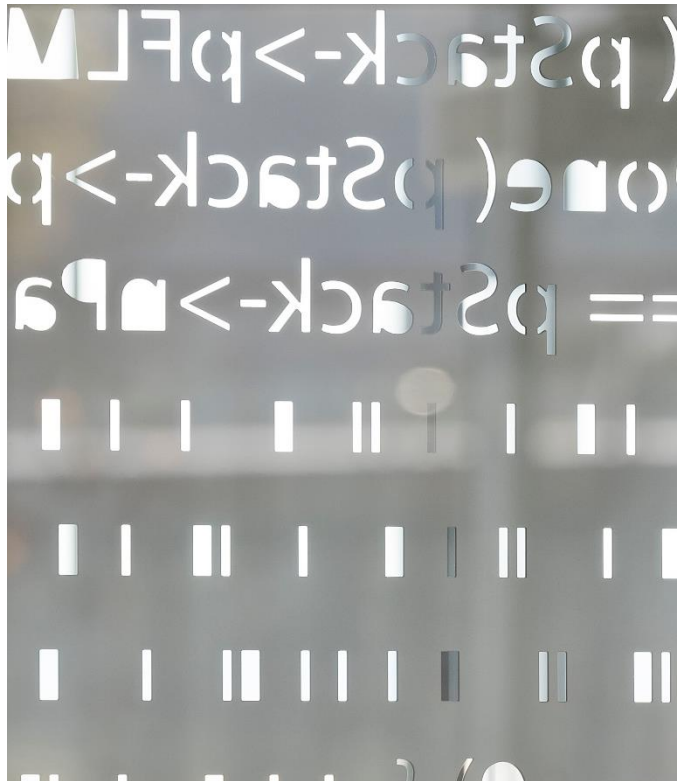
HYPOSENSITIVE

Difficulty seeing, hearing, or feeling the acute sensory details in a given environment and need more sensory stimuli to successfully process information

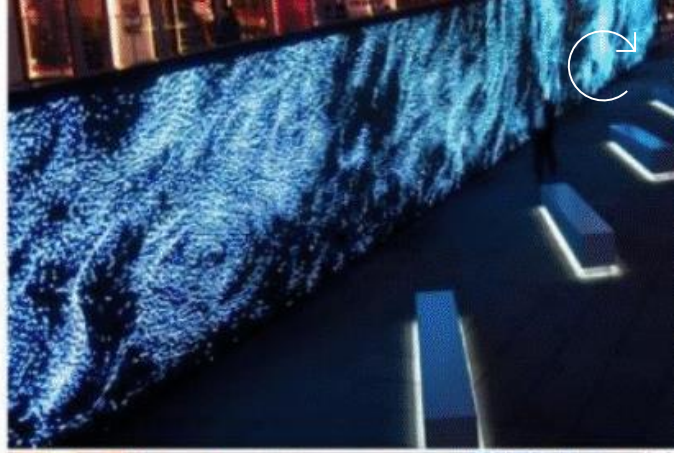
- Prefer more sensory stimuli
- Layering of textures and planes
- Saturated, contrasting colors
- Plenty of visual interest
- Background chatter and/or music
- Space to move/fidget

For the over-stimulated





For the under-stimulated



AUDITORY

VISUAL

TACTILE

OLFACTORY & GUSTATION
(Smell and taste)

PROPRIOCEPTIVE & VESTIBULAR
(Body position and balance)

SENSORY CHALLENGES

Diversity of Space Types

HYPOSENSITIVE

HYPERSENSITIVE

AUDITORY

VISUAL

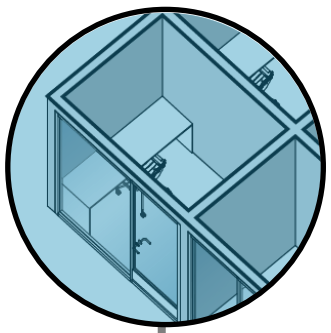
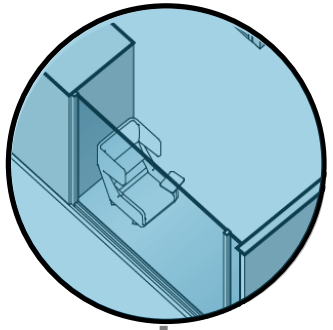
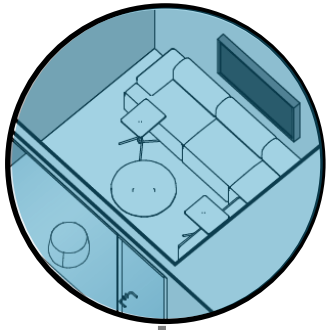
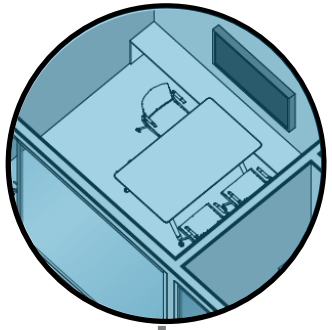
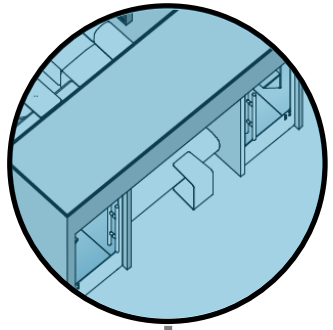
TACTILE

PROPRIOCEPTIVE & VESTIBULAR

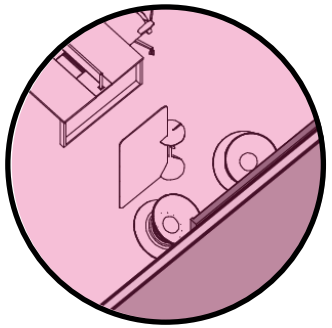
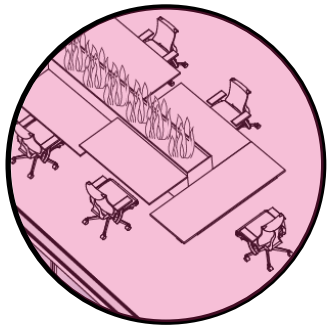
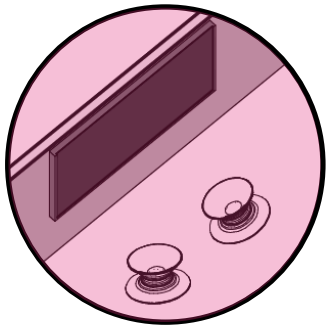
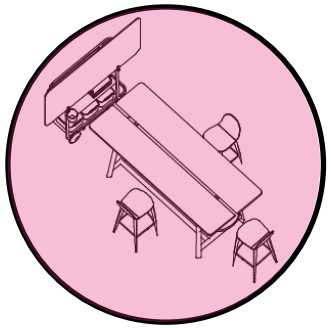
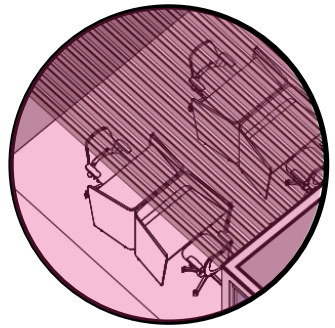
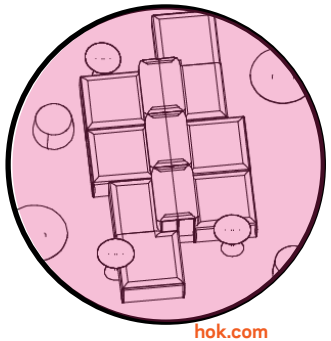
OLFACTORY & GUSTATION

Task Modalities / The 6Cs

HYPERSENSITIVE

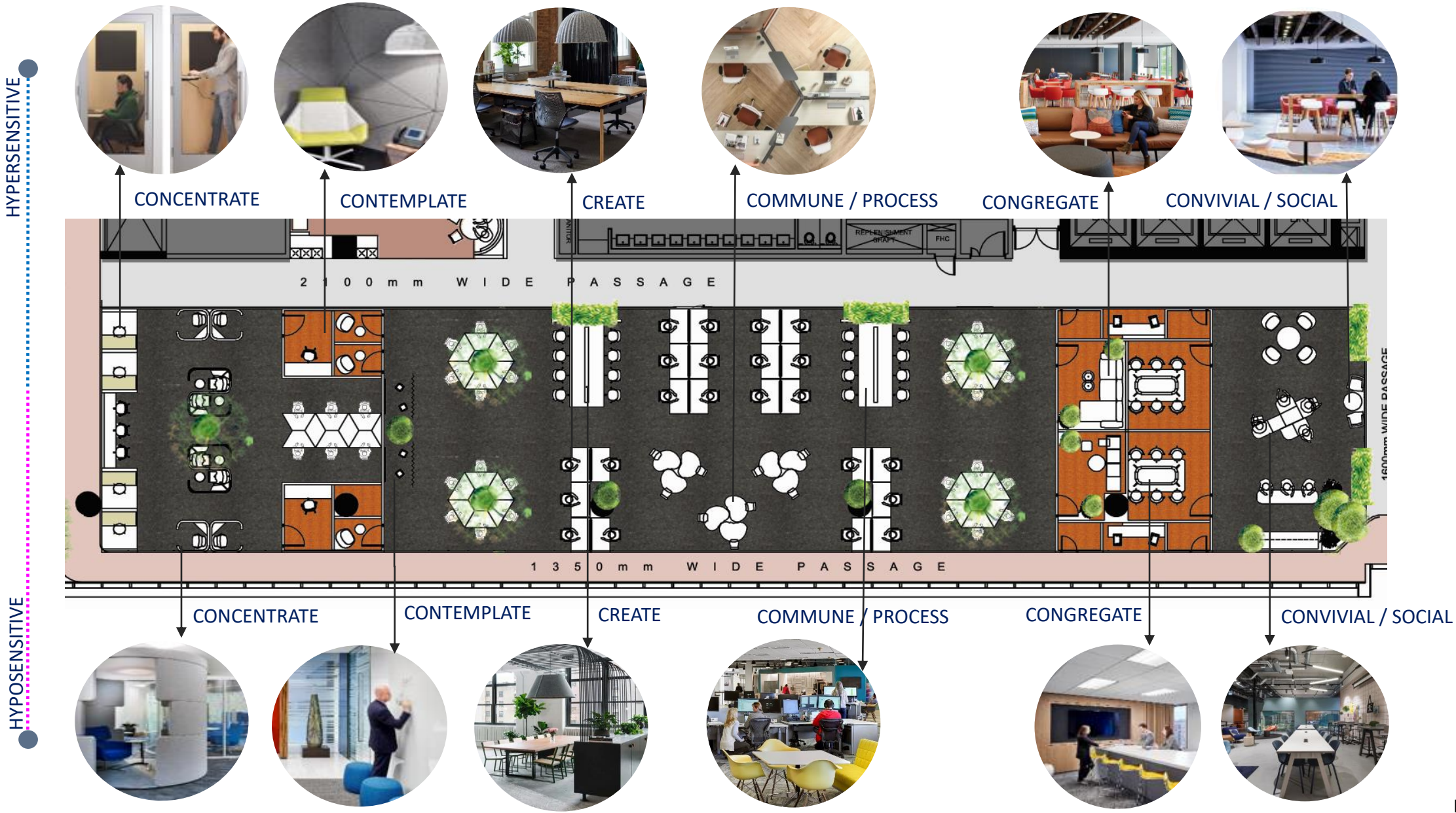







SPACE TYPES	CONCENTRATE / FOCUS	PROCESS / LEARN	CO-CREATE	CONGREGATE / MEET	CONTEMPLATE / STUDY REFRESH	COMMUNAL/ CONVIVIAL / SOCIAL

HYPOSENSITIVE

Diverse Settings / Spatial Sequencing/ Sensory Zoning



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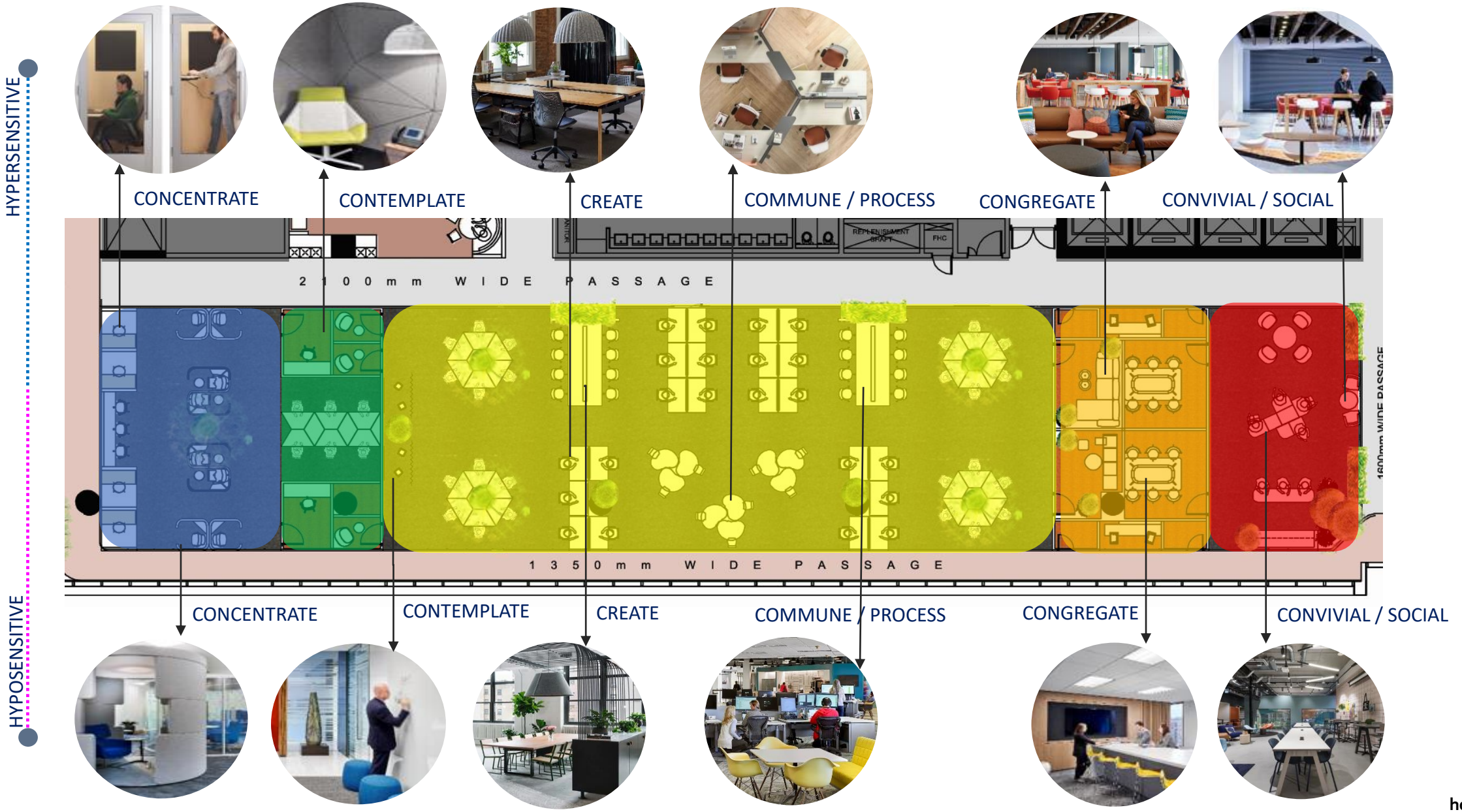


Seating Options

COMMUNAL/
CONVIVIAL /
SOCIAL

CONTEMPLATE /
STUDY REFRESH

CONGREGATE /
MEET / LEARN

CONCENTRATE
/ FOCUS

PROCESS /
LEARNING

CO-CREATE

Biophilic Elements in Design

To balance today's high-tech world, designers are introducing biophilic elements that evoke a feeling of nature and are calming, refreshing and relaxing. Biophilic design strategies can reduce stress, enhance creativity and clarity of thought, improve well-being, boost health outcomes and expedite healing for the neurodivergent and neurotypical.

METAPHORIC RELATIONSHIPS WITH NATURE


BIOMORPHIC: FORMS FROM NATURE


SIMULTANEOUS COMPLEXITY & ORDER


FRACTAL PATTERNS & NON-RHYTHMIC SENSORY STIMULI


NON-VISUAL / LOCAL / NATURAL MATERIALS

DIRECT CONNECTION WITH NATURE


PHYSICAL / VISUAL


AUDITORY


OLFACTORY

EXPERIENTIAL CONNECTION WITH NATURE


EXPERIENCE NATURAL SYSTEMS


THERMAL & AIRFLOW VARIABILITY


DYNAMIC & DIFFUSE LIGHT


MYSTERY / PERIL & EXCITEMENT


BLURRING EXTERIOR / INTERIOR

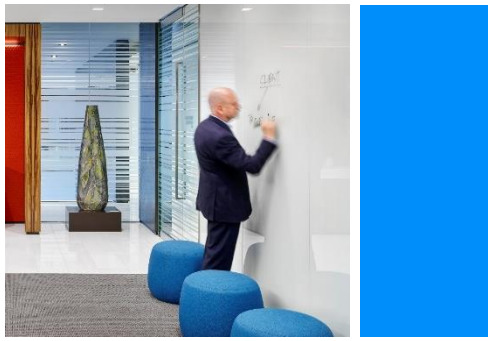

PROSPECT


REFUGE

Color in Design

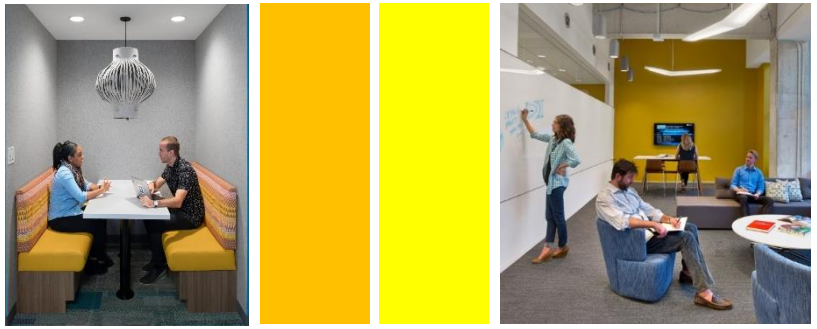
Color has a significant impact on individuals in the built environment. Color has the power to energize, restore, stimulate, calm and even encourage creativity. (Browning, 2014) In times of crisis and instability, such as a pandemic, there is an increased need for the comfort and visual nourishment. Natural tones evoke a connection to nature and order and can convey qualities of comfort, calmness, and grounding.

CALMING COLORS

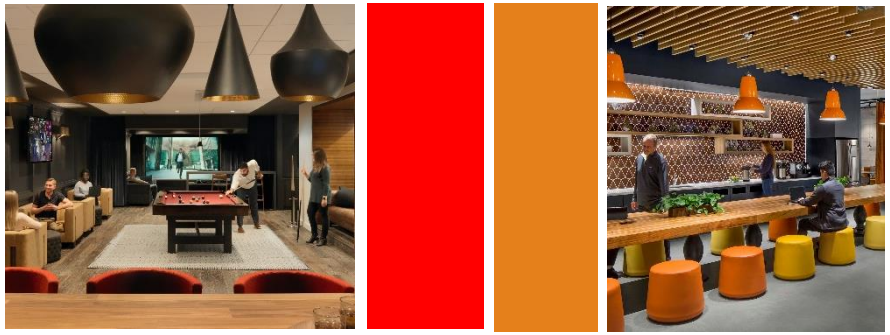


COLORS SUPPORTING ANALYTICS

REFRESH | NATURAL COLORS



CREATIVITY COLORS



ENERGIZING COLORS

WAYFINDING

202
individual
respondents
Dec 2021 - Feb 2022

69%
Female
or non-binary

82%
30-60 years old

54%
ADHD

40%
Autism

57%
A combination
of neurodiversities

47%
Hypersensitive

22%
Hyposensitive

Nothing about us, without us.

We did this research to give a voice to neurominorities and have a deeper understand of their experiences.

Most research to date on neurodiverse individuals has focused on the youth and historically, women have been underrepresented.

Research Sample

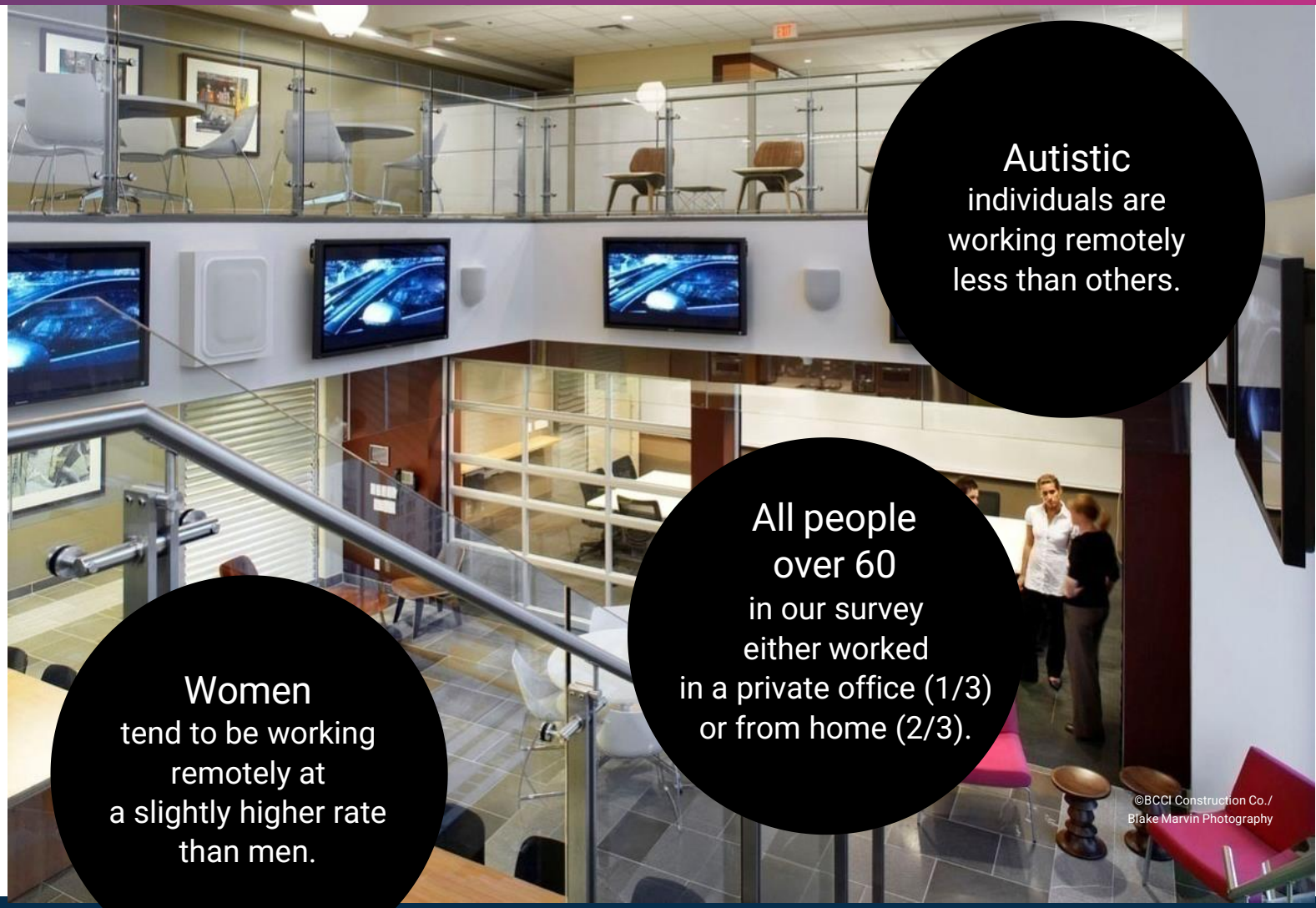
Tarkett

hok

hok.com

What best describes your work environment?

- 36% OPEN ENVIRONMENTS | LOW-PANELS
- 34% HOME | REMOTE WORKING
- 24% PRIVATE OFFICE
- 3% HIGH-PANELED STATIONS
- 3% SPECIALITY SPACES | SCHOOLS | MEDICAL PRACTICES ETC.
- 0% SPECIAL FACILITIES | LABS | WAREHOUSES ETC.



Settings

What sensory inputs are you hypersensitive or highly sensitive to?

77% AUDITORY

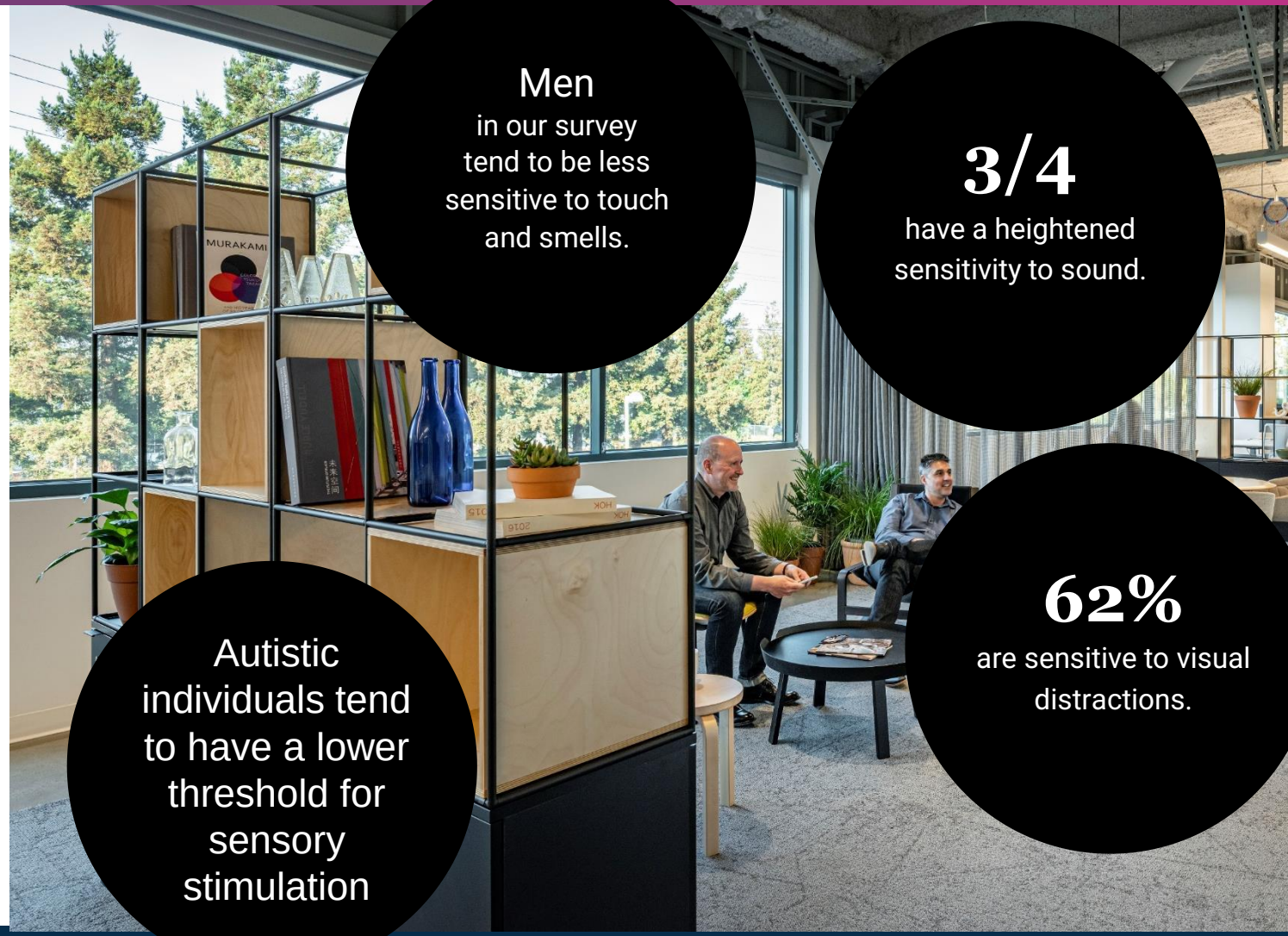
62% VISUAL

32% TACTILE

36% OLFACTORY | GUSTATION

25% PROPRIOCEPTIVE & VESTIBULAR

12% OTHER



Men in our survey tend to be less sensitive to touch and smells.

3/4 have a heightened sensitivity to sound.

62% are sensitive to visual distractions.

Autistic individuals tend to have a lower threshold for sensory stimulation

Sensory Input

“

Too much background chatter.

Movement around me is distracting and upsetting when concentrating.

Visual stress - I struggle with certain patterns like lines, colour contrasts, and fluorescent lights can knock me out.

I am highly sensitive to the interoception sense - my body’s internal feelings (being too hot/cold, hungry/ thirsty, sensations of pain/discomfort)”

“

Highly sensitive to noise.

Hypersensitive

What sensory inputs are you hyposensitive or need more of?

- 30% AUDITORY
- 29% VISUAL
- 23% PROPRIOCEPTIVE
- 22% TACTILE
- 13% OLFACTORY | GUSTATION
- 12% OTHER

1/3 of respondents needed a higher % of auditory and visual stimulations.

Women
in our survey tend to need more visual stimulation than men and are more impacted by visuals than acoustics.

Men
in our survey tend to be less aware of self-movement and body position.

Sensory Input

Good smells
help to regulate
my anxiety

I need to be able to
fidget and move
to be able to concentrate

I need to move

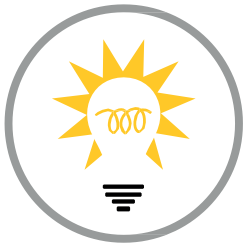
I need to be able to
physically engage
or touch things
in space

I need some sound
or music
to be able to
function better

Hyposensitive

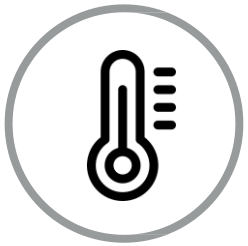
66%

SOUND



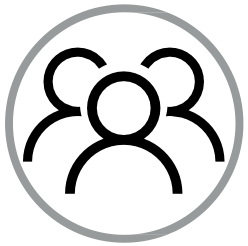
56%

LIGHTS



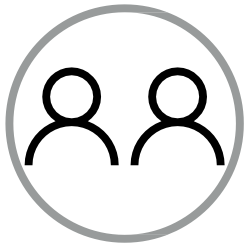
56%

TEMPERATURE



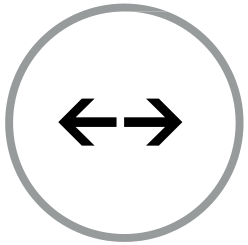
53%

NUMBER
OF PEOPLE



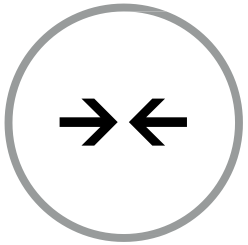
48%

PROXIMITY
TO OTHERS



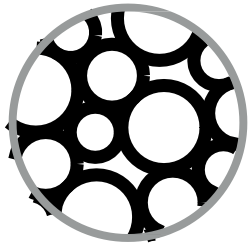
40%

CONFINED OR
IN CLOSED SPACE



36%

LACK OF
ENCLOSURE

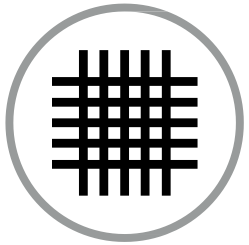


21%

PATTERNS

16%

COLOUR



12%

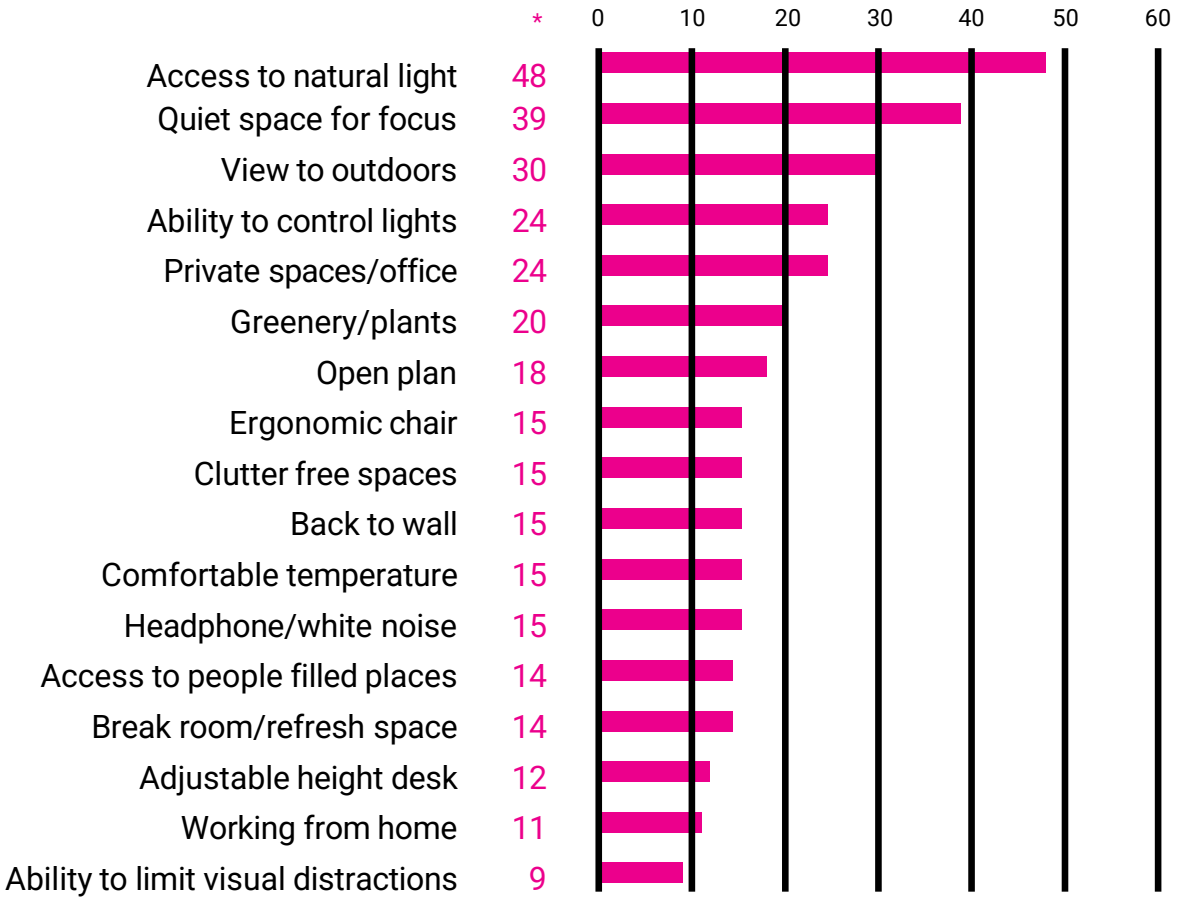
TEXTURE

Challenges

Design elements you find challenging in environments?

Tarkett

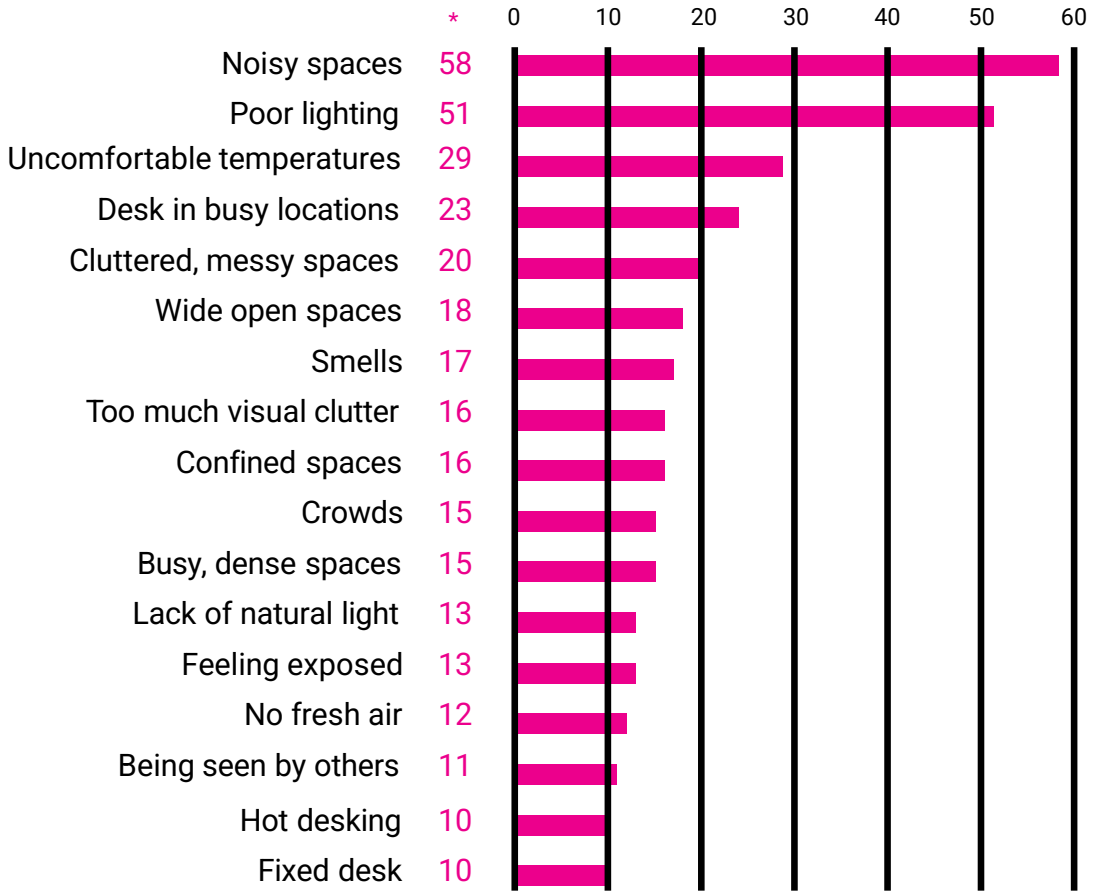
h+k



*Number of respondents (Total 202)

Design Strategies

What types of spaces or elements do you find comforting?



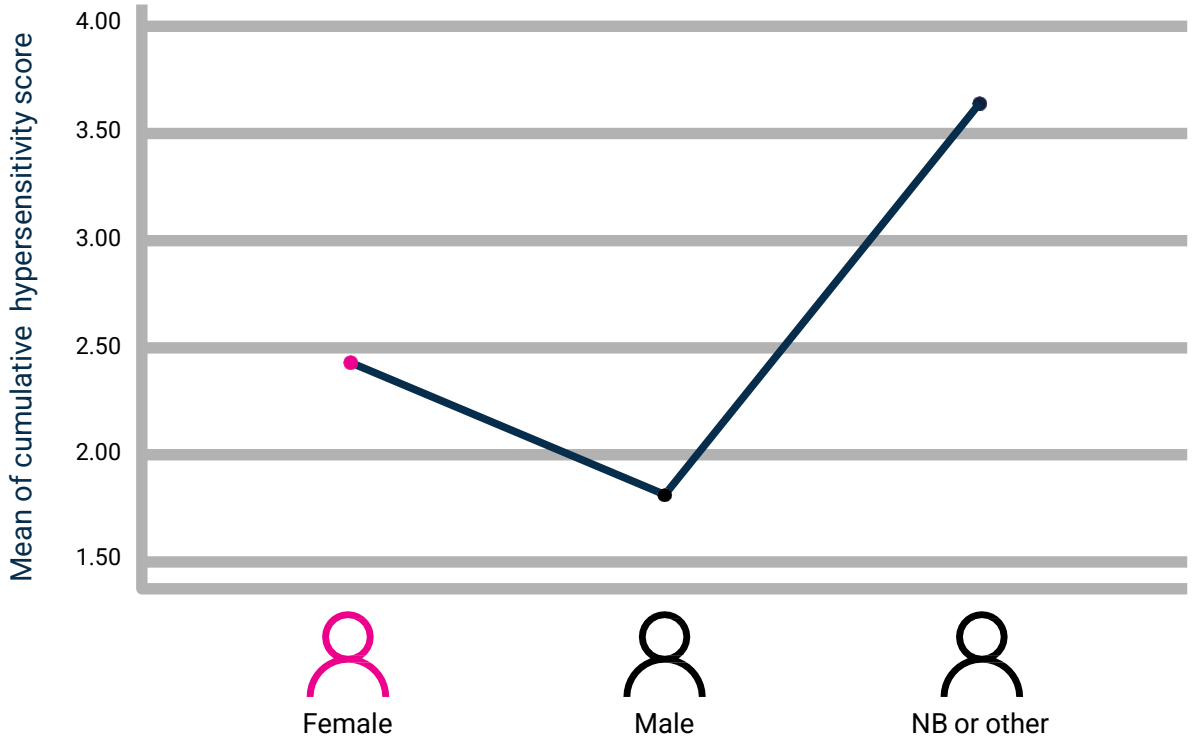
*Number of respondents (Total 202)

Design Strategies

What types of spaces or elements do you find uncomforting?

Women in this sampling tend to…

- report having more sensitivities than men
- be working remotely at a slightly higher rate than men.
- be more hypo sensitive visual stimulation than they are to auditory stimulation and desire more visual stimulation then men.
- be less challenged with being in open, communal space.
- prefer warmer spaces.

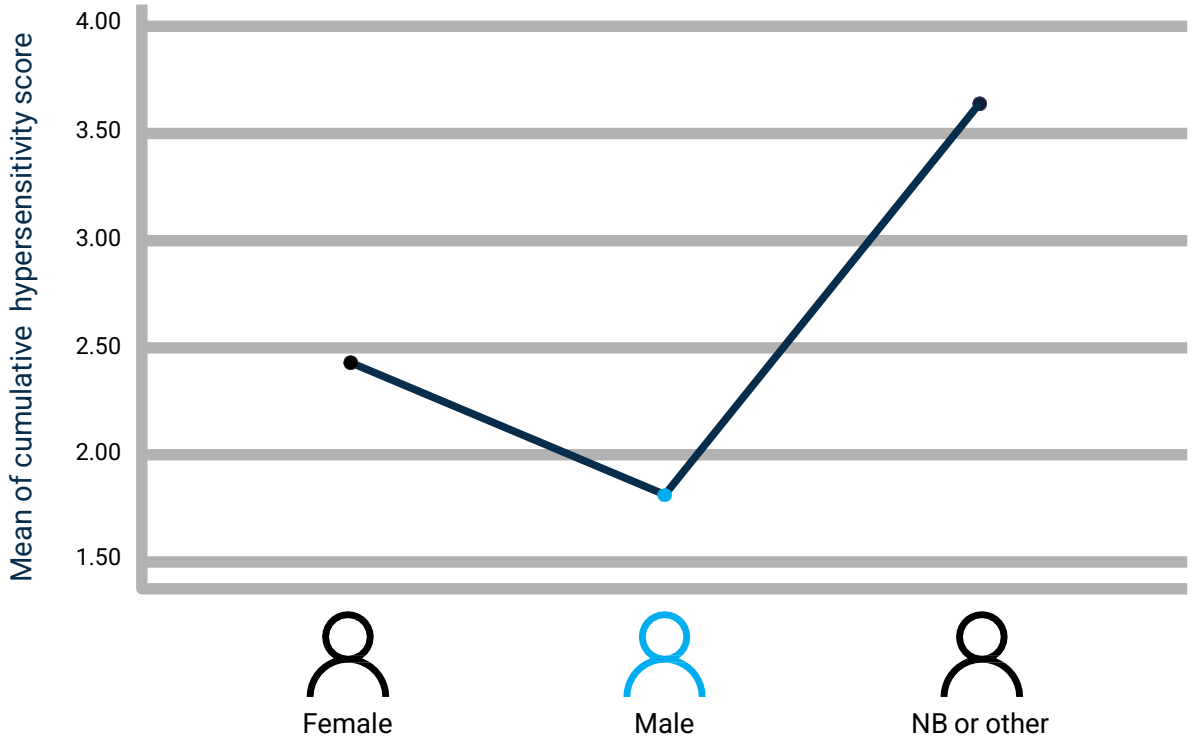


Variances

Were there any notable difference between genders?

Men in this sampling tend to…

- be less sensitive to touch and smells.
- be less awareness of self-movement and body position.
- be less challenged by pattern, color and texture than women.
- prefer cooler temperatures.



Non-binary individuals in this sampling tend to be significantly more sensitive than both men and women

Variances

Were there any notable difference between genders?

1. Having the option to select where you will work.
2. Spaces that allow you to move.
3. Having a dedicated space you are assigned to.
4. Access to natural daylight.
5. Work points located in low-traffic areas.
6. Dedicated quiet rooms.
7. Spaces that have areas to retreat to.
8. Rooms where you can turn the lighting down or off.
9. Spaces that incorporate natural elements.
10. Adjustable, ergonomic furniture.

Top 10 Design Strategies

that are the most effective for you?

1. Awareness training to help staff understand neurodiversity among colleagues.

2. Flexible work policies that allow staff to work from home.

3. Flex hours so staff can work during off-hours with minimize distractions.

4. Noise canceling headphones to reduce auditory distractions.

5. Ability to have intermittent breaks between tasks.

6. Having clear action points and assignments.

7. Ability to book meeting rooms for concentrative task.

Top 7 Operational Strategies

or accommodations that are the most effective for you?

1. Use visual checklists to track progress.

2. If working in an open space, choose a low-traffic area.

3. Avoid getting stuck in a daily routine. Schedule breaks and make slight changes to your days.

4. Use visual timelines to track dates and break down assignments.

5. Break tasks up into manageable pieces.

6. Perform one task at a time. When possible, don't start a new task until you complete the current one.

7. Only attend critical meetings, as defined by your supervisor's interpretation, where you can maintain your focus.

Top 7 Individual Adjustments Strategies

which are the most effective for you?

LINEAR, CLEAN ELEMENTS FOR EASE OF ACCESS

NATURAL DAYLIGHT AND WOOD ELEMENTS

ACCESS TO WATER

ACOUSTIC ELEMENTS + DROPPED CEILING FOR MORE INTIMACY

FEATURE LIGHTING

SPACE OFF TO THE SIDE TO REGROUP, REFRESH

HYPER-SENSITIVE

HYPO-SENSITIVE

HYPER AND HYPO

WRITING SURFACE

DROPPED CEILING FOR MORE INTIMATE SETTING AND DIFFUSED, INDIRECT LIGHTING

VARIOUS SETTINGS

CALMING COLOURS

VARIOUS SETTINGS

HYPER-SENSITIVE

HYPO-SENSITIVE

HYPER AND HYPO

BOUNDARIES / SHEILDING

HOSPITALITY ELEMENTS

NATURAL LIGHT BIOPHILIA

ADJUSTABLE, GROUP SEATING

SOFT BOUNDARIES

STANDING OPTIONS WRITING SURFACE

HYPER-SENSITIVE

HYPO-SENSITIVE

HYPER AND HYPO

SMALL, INTIMATE SEATING

SOLO SEATING OPTIONS

OPTION FOR ACTIVE ENGAGEMENT

BOLD MATERIALITY, LIGHTING

SEATING NICHES

HYPER-SENSITIVE

HYPO-SENSITIVE

HYPER AND HYPO

HYPER-SENSITIVE HYPO-SENSITIVE HYPER AND HYPO

NATURAL MATERIALS, PLANTS

WIDE PASSAGEWAYS

CLEAR LINE OF SIGHT

SOFT SEATING ENCLAVE

HYPER-SENSITIVE

HYPO-SENSITIVE

HYPER AND HYPO

Team Learning

Student Center

Common Space

Common Space

„Flipped“ Classroom

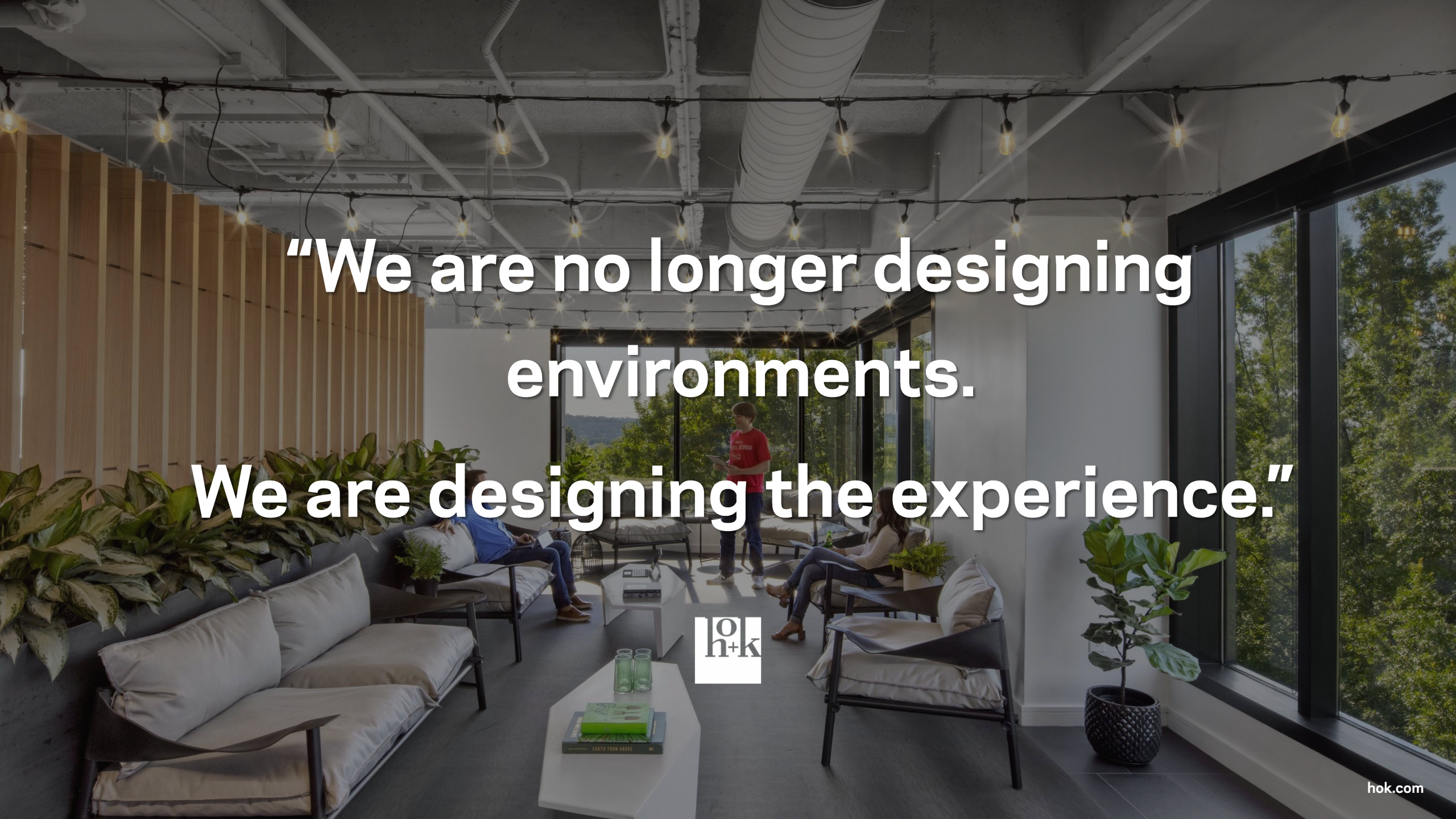
hok.com

Auditorium

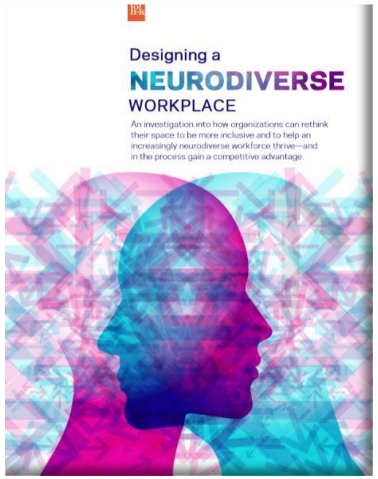

• Lysosomes: digestive enzymes
Module 3.6
- Membrane renewal vesicles
• Lysosomes: digestive enzymes
Module 3.6

Auditorium

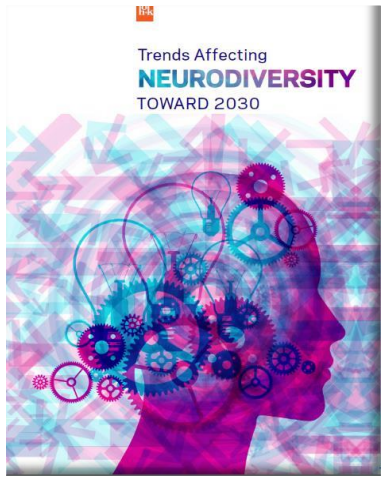

There is a compelling human and business case to be made for ensuring we approach the design of work places to help address mindfulness, health, safety, wellbeing and inclusivity.
hok.com


“We are no longer designing environments.
We are designing the experience.”
hok.com

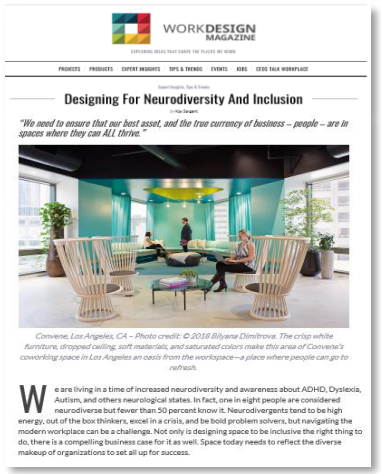
NEURODIVERSITY



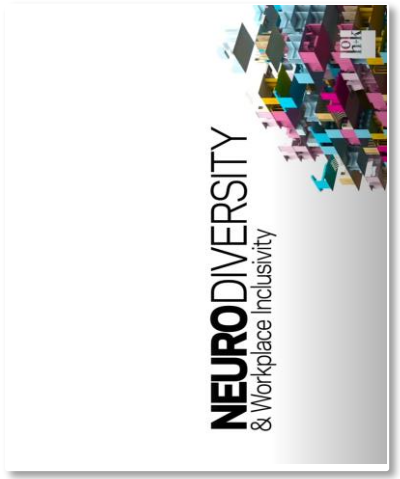
https://www.hok.com/ideas/publications/hok-designing-a-neurodiverse-workplace/



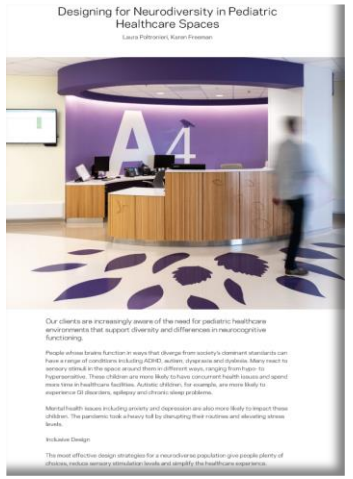
https://www.hok.com/ideas/publications/trends-affecting-neurodiversity-toward-2030/



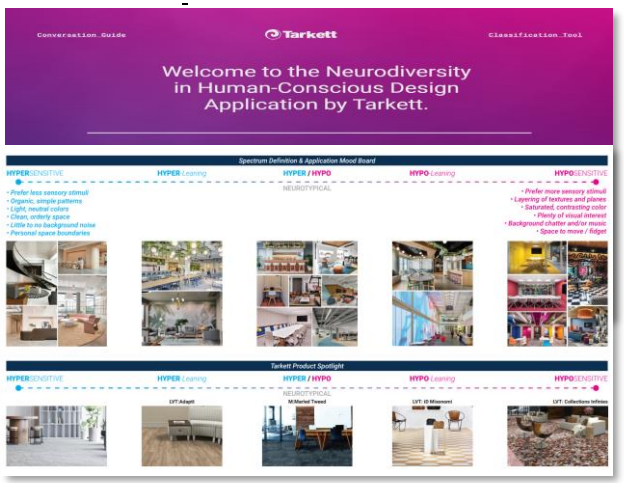
https://www.workdesign.com/2019/12/designing-for-neurodiversity-and-inclusion/



https://www.youtube.com/watch?v=KoGdEqZIn8M



https://www.hok.com/ideas/publications/designing-for-neurodiversity-in-pediatric-healthcare-spaces



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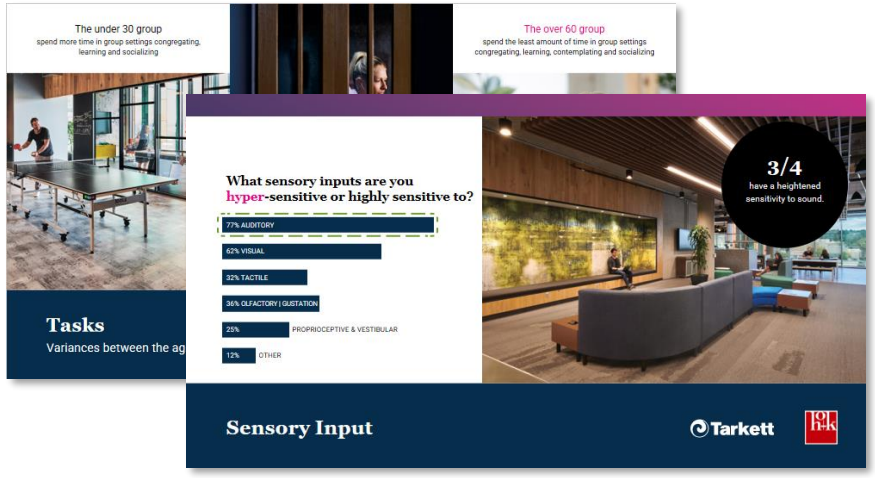

https://www.hok.com/news/2022-04/survey-neurodiverse-employees-workplaces/

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