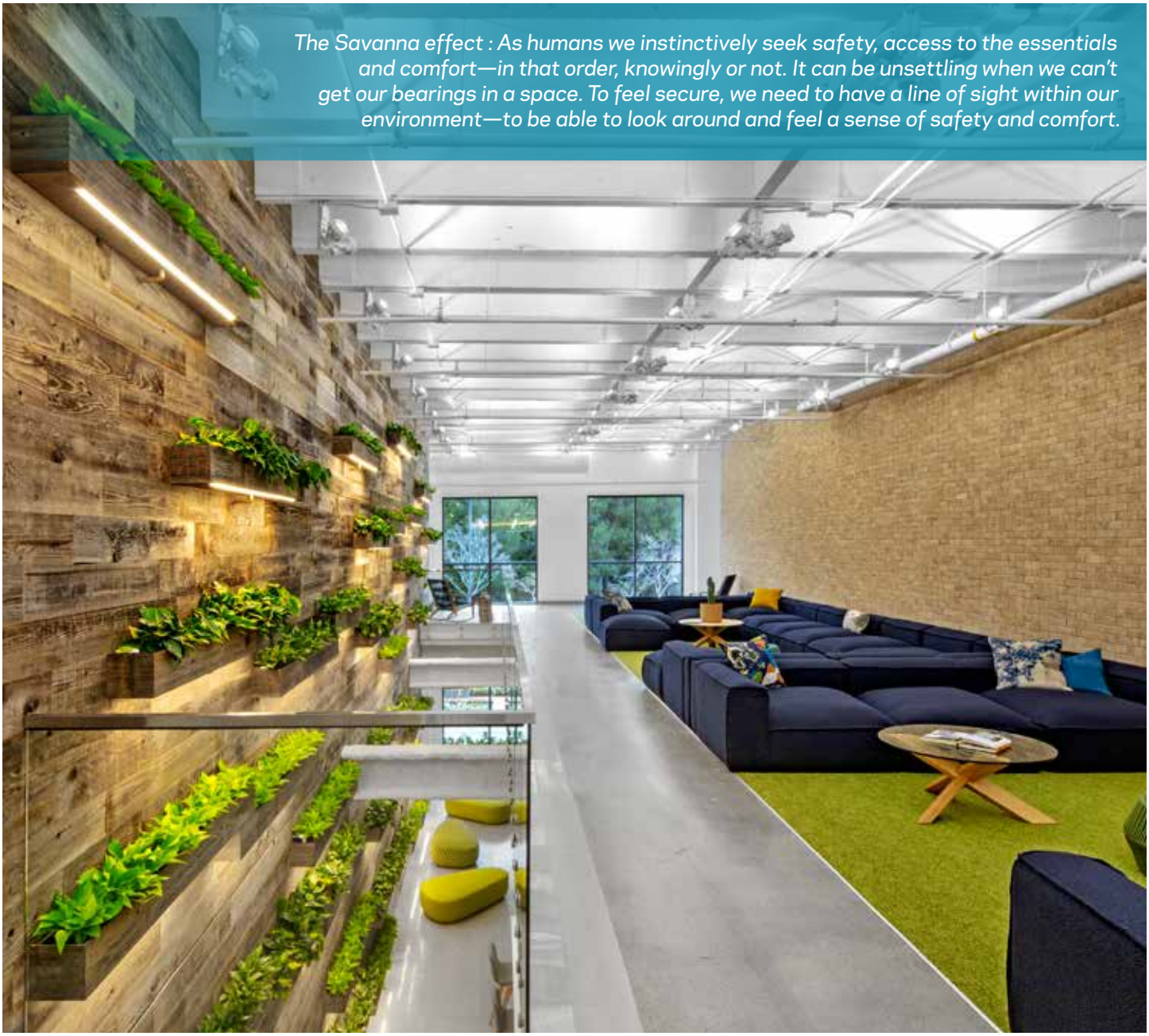
Trends Affecting
NEURODIVERSITY
TOWARD 2030



Pharmavite Office, West Hills, California

Trends Affecting Neurodiversity Toward 2030

Without immediate, coordinated action by planners and health professionals, the World Health Organization has deemed neurological disorders to be one of the greatest threats to public health.[1]

Accommodating the fast-growing number of neurodivergent staff in inclusive, appropriate workplace environments is a critical challenge for employers. To help all types of organizations create space that best supports the neurodivergent and neurotypical alike, HOK recently released a report on "Designing a Neurodiverse Workplace." This report includes interviews with experts as well as suggestions for design strategies, operational changes and individual adjustments that sustain all employees.

As part of HOK's ongoing exploration of this topic, we have compiled this summary of trends around neurodiversity. These trends will have profound implications on the future of work and the accommodation of neurodiversity in the workplace over the next decade and beyond.

As we head toward 2030, four broad trends related to neurodiversity will reshape the workplace:

1. **Technological developments** will enhance the ability of medical professionals to detect people with diverse neurological profiles, improve our understanding of the causes of and means for boosting quality of life for those affected, deliver interventions in increasingly granular ways and individualize interventions for different neurodiverse subgroups.

2. **Demographic developments and environmental changes** will increase the number of people who need more workplace choices to be productive.

3. A **focus on health and well-being** will redefine the role of health in our lives and the expectations that individuals have for healthcare providers, insurance companies and prospective employers.

4. The **fast pace of change and organizational business models** will transform work tasks and processes, with the most profound effect on the neurodiverse.

While it is important to understand how these trends will come together to shape the future, we also need to recognize that these trends will converge and interact, generating new wants and needs that will lead to discontinuous developments in creating solutions that improve the work lives of the neurodiverse.

TECHNOLOGY TRENDS

Neuroscience is undergoing a technological revolution. We're seeing a steady stream of breakthroughs in artificial intelligence, methods for identifying causes of neurodiversity, remote diagnosis of neurodiversity, and new interfaces and forms such as interactive extended reality (XR) that can improve the quality of life for those affected.

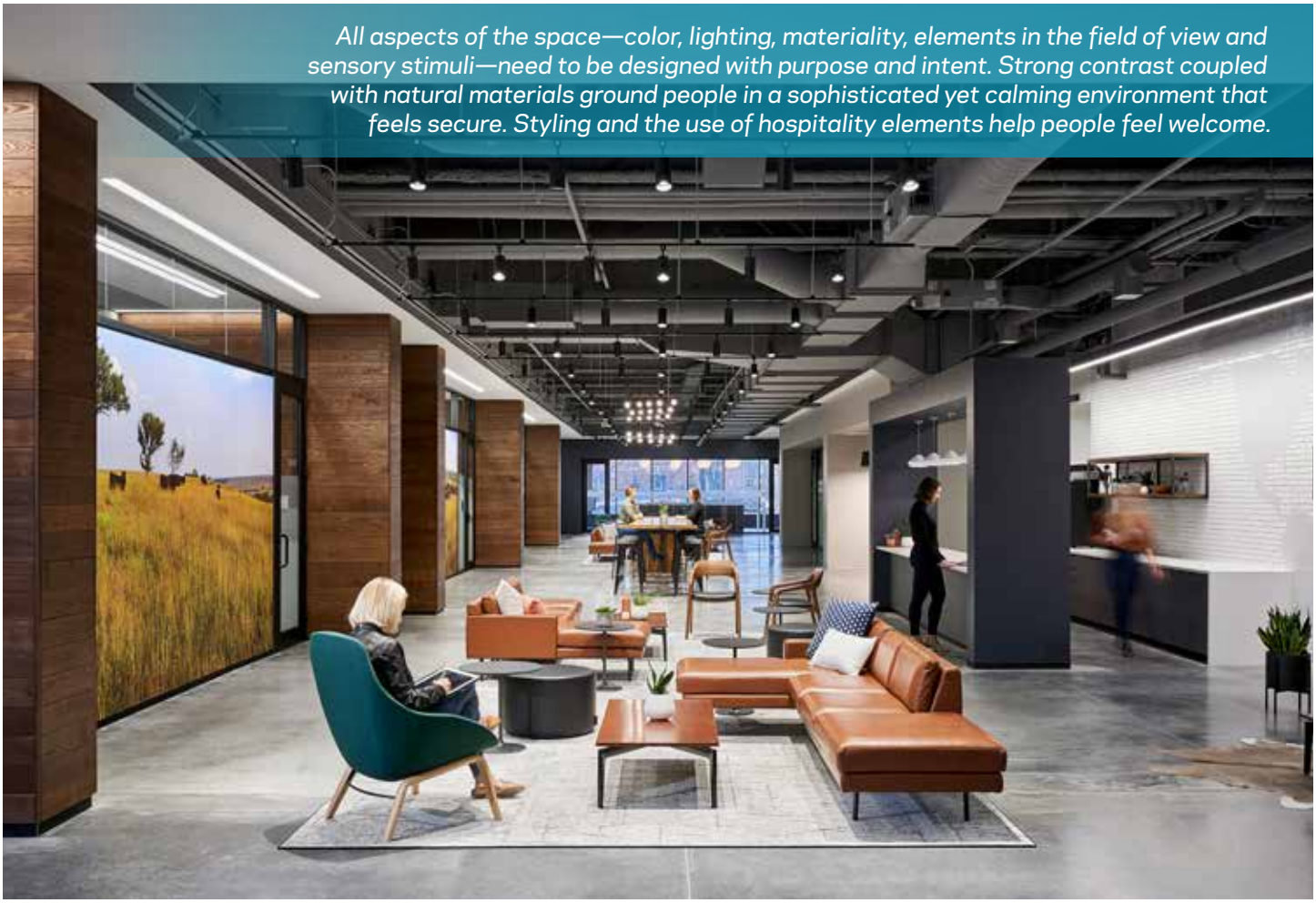
The development of neuroprosthetics, for example, shows promise for enabling new interventions to assist or replace visual, auditory, and motor functioning and processing.[2]

In the decades to come, these technology-fueled breakthroughs will give us a better understanding of neurodiversity as well as the different ways neurodivergent individuals process information and interact with their surroundings. This will allow for more granular behavioral interventions for different subgroups of the neurodiverse and ultimately lead to a better understanding of how they affect individual welfare.[3]

Facial recognition and eye-tracking technologies are becoming more common in the workplace, with market projections for remote facial recognition solutions approaching $15 billion by 2026.[4] Even so, increasing concerns about potential abuse by government and other organizations have prompted some to take action. In May 2019, San Francisco became the first major U.S. city to ban the use of facial recognition software by the police and other agencies.[5]

Mobile and handheld devices already have a huge impact on our lives, leading to several neurological implications and the emergence of screen addiction disorders. But these devices can also augment the ability of neurodivergents to communicate with others. Autistic YouTube personality Carly Fleischmann is an example of how tech tools can help. Once considered a non-verbal, low-functioning autistic person, she now uses a digitally synthesized voice to host her own online talk show.[6]

With these new technologies will come serious challenges. The addictive qualities of our mobile devices are even more problematic for the neurodiverse, as these technologies can exacerbate neurological vulnerabilities and prove to be more addictive to those with autism spectrum disorders.[7]



All aspects of the space—color, lighting, materiality, elements in the field of view and sensory stimuli—need to be designed with purpose and intent. Strong contrast coupled with natural materials ground people in a sophisticated yet calming environment that feels secure. Styling and the use of hospitality elements help people feel welcome.

Cargill Protein Group Office, Wichita, Kansas

DEMOGRAPHIC AND ENVIRONMENTAL TRENDS

Changes in demographics and environmental factors will expand the number of people classified as neurodivergent.

Emerging research suggests that neurodiverse disorders arise from the interaction of genetic, environmental and behavioral factors, many of which are on the rise. Examples include higher parental age at conception, elevated exposure to pollution from growing urbanization and the proliferation of chronic diseases such as obesity and diabetes.

Countries with aging populations can expect more neurological disorders among the elderly. Already underway are tests using interactions with smart devices, speech detection and analysis, and facial recognition software to detect conditions like early onset Parkinson's disease.[8]

FOCUS ON HEALTH AND WELLNESS

An amplified focus on the physical, mental and social well-being of employees will significantly bolster organizations' support of neurodiversity in the workplace. Designers and facility managers have a unique opportunity to develop targeted interventions and nudge employees toward healthier choices that improve their well-being.

A move toward prevention-focused health frameworks, more individualized consumer needs, and the ability of data to inform the delivery of personalized healthcare services is transforming how people define the role of health in their lives. This will be supported by advances in human-centric, next-generation biology and information and communications technology (ICT) platforms that will shift services toward preventive behaviors and early interventions. Going forward, we can expect employers, healthcare providers and insurance companies to accommodate people's specific preferences and needs.[9] This likely will include a wide range of customized technologies and services for assisting neurodivergent staff at work and in their daily lives.

Ask the Expert

JEFFREY SAUNDERS

Futurist and Future of Work Specialist

Jeffrey Saunders is an executive advisor, strategic foresight expert and futurist. He has written extensively on the future of work and its implications on organizations, employees and workplaces. He is the Workplace Evolutionaries Denmark HUB co-leader. Previously, he was director and head of the strategy & innovation team at the Copenhagen Institute for Futures Studies (CIFS), chief consultant at SIGNAL Architects and a national security consultant in the U.S.

Why do you think there is a growing awareness about neurodiversity among organizations?

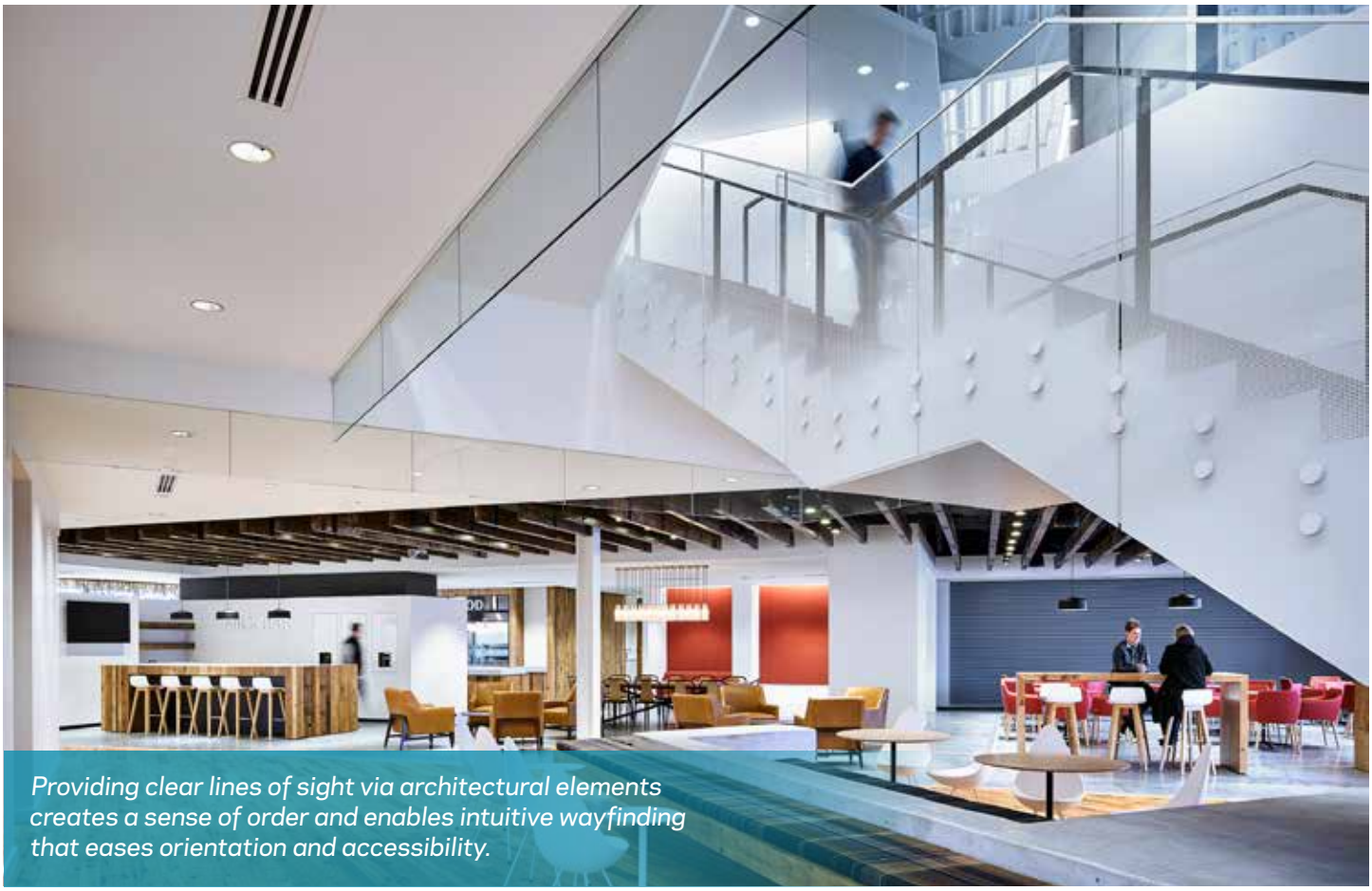
Neurodiverse individuals often possess higher-than-average abilities in such areas as pattern recognition, memory and mathematics. These skills are in high demand as more and more sectors of the economy become data driven. Managers in many organizations have become cognizant of the need to harness the creative and innovative capabilities of all their employees. To do so, they need to be more sensitive to individual needs—neurodiverse or not.[10]

Why are companies increasingly seeking to create diverse, inclusive environments?

The current wave of automation is eliminating routine knowledge work and enabling the emergence of the innovation society. In this society, labor is liberated to work with creativity, innovation, research and development, along with similar tasks that cannot yet easily be automated. These technologies and the types of work they enable are putting pressure on established organizations, leading to a focus on creating diverse, inclusive environments.

First, companies are permitting the emergence of alternative structures that are based on dynamic flows of power, trust, information and authority among coordinators and staff. Enabled by interconnected technologies and people, they can outcompete their more hierarchical rivals. To drive bottom-up innovation, these new organizations need to motivate and increase engagement and well-being among employees.

Second, most employees now can work from anywhere at any time. The coming 5G revolution will only accelerate this ability. For many organizations, the workplace is becoming the tool and location for fostering and reinforcing an organizational culture and for driving innovation. They are turning their workplaces into locations that attract workers. The workplace is becoming a place for socializing and informal knowledge sharing, where the exchange of information may not be directly connected to the task at hand but still is of immense value. As a result, the workplace's role in driving innovation, well-being and inclusion is being recognized and promoted.



Providing clear lines of sight via architectural elements creates a sense of order and enables intuitive wayfinding that eases orientation and accessibility.

Dairy Farmers of America Headquarters, Kansas City, Kansas

ACCELERATED CHANGE

Fast-changing business environments will alter work tasks and processes, continuously transforming the work context for the neurodivergent.

With "diversity of thought" being a critical element of success in a global, dynamic market, supporting a neurodiverse workforce will be more important than ever in helping organizations compete.[11]

New organizational structures with flattened hierarchies will give tech-connected staff more authority to identify and recruit employees. These employees will need to be well-informed about the benefits and needs of neurodivergent hires.

The emergence of these more permeable and agile organizational structures will have a mixed impact on neurodiverse employees. On one hand, it will expand opportunities for them to participate in more diverse teams and projects. It also could create new opportunities for neurodiverse job seekers to find a work culture that offers the right fit. Yet these alternative organizational structures could detract from the reliable structures many neurodiverse thinkers need and even could reduce the availability of formal integration programs and job training.

The predicted growth of the gig economy and commensurate rise in the use of freelance workers means employers will need to rethink how they motivate, engage and improve the well-being of all employees, including neurodiverse workers.[12] A strong focus on inclusion will empower workers to contribute.[13] This platform-based, gig economy may also generate feelings of insecurity and scarcity, with potentially profound cognitive consequences.

THE TIME IS NOW

Neurominorities are becoming a larger percentage of the overall population, and all indications point to that trend continuing. As the stigma associated with neurodiversity diminishes and more people acknowledge the benefits of inclusivity, employers will encounter more existing staff, applicants and customers that are neurodivergent. Employers now have the opportunity to address the potential workplace needs of neurodivergents in groundbreaking ways that enable them to benefit from the unique talents of these individuals and gain a competitive advantage.

BIOPHILIC 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 incorporates natural materials, light, vegetation and views to nature into the built environment.

In an urbanized world, 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.

Access to nature and views outside can reduce "presenteeism," increase creativity and effectiveness, result in fewer sick days, improve job performance and enhance employee retention. Plants can also offset odors.

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

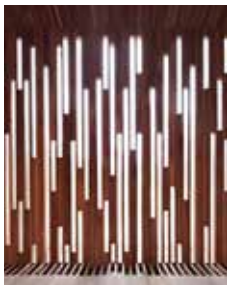

AUDITORY


OLFACTORY

EXPERIENTIAL CONNECTION WITH NATURE


EXPERIENCE NATURAL SYSTEMS


THERMAL & AIRFLOW VARIABILITY


DYNAMIC & DIFFUSE LIGHT

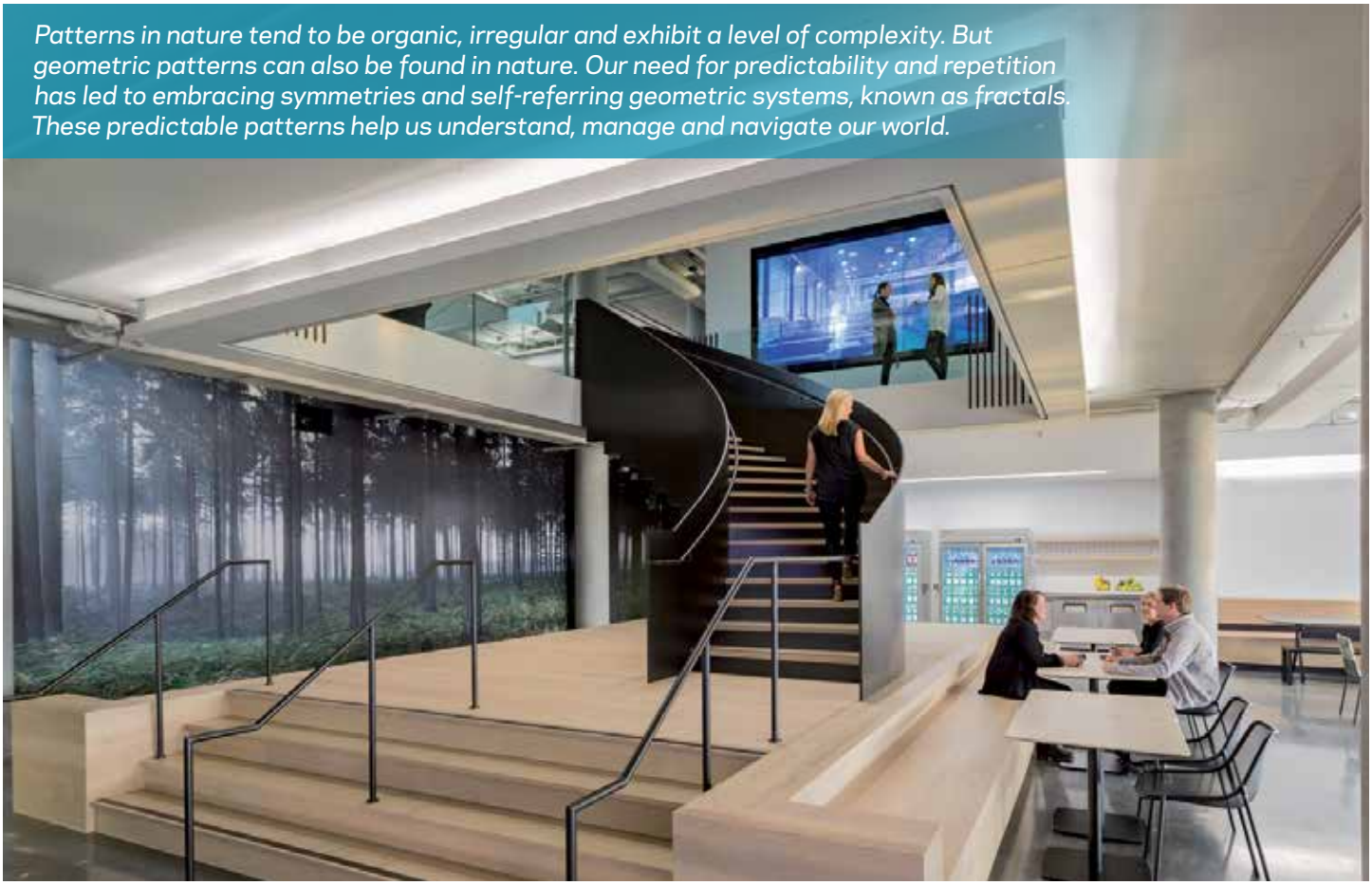

MYSTERY / PERIL & EXCITEMENT


BLURRING EXTERIOR / INTERIOR


PROSPECT


REFUGE

Patterns in nature tend to be organic, irregular and exhibit a level of complexity. But geometric patterns can also be found in nature. Our need for predictability and repetition has led to embracing symmetries and self-referring geometric systems, known as fractals. These predictable patterns help us understand, manage and navigate our world.



OpenText Office, San Mateo, California

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ENDNOTES

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High-performance workplaces enable people to be productive, engaged and happy, whether they are distributed workers, digital nomads or working in an office building, hospital, lab, campus or at home. HOK's evidence-based design solutions optimize the potential of these experiences. This may involve decreasing occupancy costs, embodying an organization's culture or fostering innovation—however our client defines success. Leveraging our global network and knowledge of best practices, HOK's WorkPlace practice leads the strategic planning, design and implementation of work experiences across the world.

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As humans we crave positive stimuli. Things we perceive as beautiful trigger the release of endorphins in the brain that yield positive sentiments and act as a strong motivator. Strong imagery can aid in wayfinding and create a common thread that ties spaces together.

AstraZeneca Lab and Office, San Mateo, California