

Next-Generation Environments for Learning: The Benefits of Biophilic Design

By Paula Meason



An indirect experience with nature can be achieved through the selection and placement of materials to mimic elements of nature.

Technology reigns supreme in today's society. In fact, according to a 2018 Nielsen Report, the average adult interacts with a television, computer, tablet, or phone for 11 hours each day, streaming video content, scrolling through social media, browsing the Internet, communicating with family and friends, and more.

As technology becomes an ever-increasing presence in our daily life, questions surrounding the potential negative impacts from excessive exposure continue to surface. Prolonged screen time is associated with lower cognitive function, depression, impaired vision and headaches, irregular sleeping patterns, and higher rates of obesity.

Technology's influence on education is more apparent than ever, affecting students' personal and

learning environments. College lecture halls are often tech-enabled, allowing students to interact with their teachers through online programs on their laptops, tablets, and smartphones. While the effectiveness of technology in the classroom is still up for debate, its prevalence is undeniable.

Although overexposure to screen time is inevitable for students, facility managers can help negate some of its negative side effects by reconnecting students to nature through the use of biophilic design elements on campus.

WHAT IS BIOPHILIC DESIGN?

Despite the modernization of the built environment, all human beings have a "built-in" connection to nature, called "biophilia," or a love of life or living systems. The practice of biophilic design takes this innate connection into consideration, drawing upon natural influences to provide the end user with the psychological and physical benefits of connecting with nature.

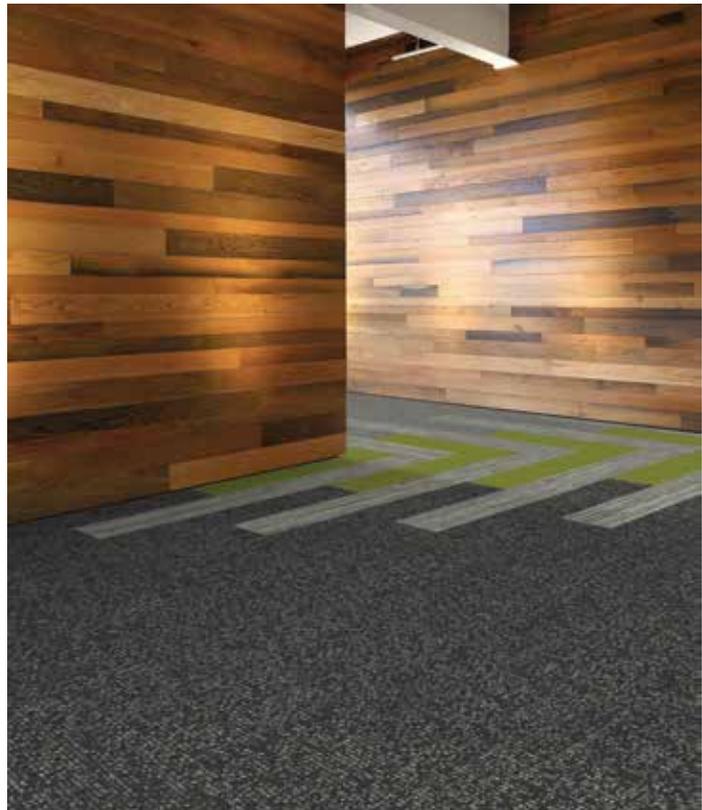
Designing educational facilities with nature in mind results in increased student health, productivity, and well-being, improving performance and creativity. Nature's restorative properties create a positive habitat for end users, making the classroom a place that students want to be in.

A recent study found that built spaces that include natural elements improve end user well-being by 15 percent, productivity by 6 percent, and creativity by 15 percent. In addition, student attention span is greatly improved, allowing for increased concentration. Students' speed of learning increases by more than 20 percent when they are exposed to daylight; optimizing daylight exposure is an easy design element that can be incorporated into almost any space.

When the elements of biophilic design are successfully established, end users experience sustained



Windows can provide students with a direct experience to nature and natural light.



Interface's Simple Abstraction collection carpet tiles support wayfinding to ease navigation.

engagement with nature, an emotional attachment to particular settings and places, and positive interactions between their community and nature.

ACHIEVING BIOPHILIC DESIGN

Finding success with biophilic design can be achieved through three design strategies: Direct experience of nature, indirect experience of nature, and the experience of space and place. These three design strategies can be applied in any built environment.

A direct experience with nature can be achieved through the use of water, light, plants, and air. Implementing the practice of biophilic design can begin with the simple steps of adding plants to learning environments and integrating natural light. Classrooms can also be adapted to expose students to the natural world through the creative use of windows.

An indirect experience of nature can be achieved by incorporating nature photography as well as nature-inspired materials, colors, patterns, and forms. Integrating products that take on biomorphic forms,

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including natural variance such as leaves on a forest floor, or those that utilize natural geometric patterns, such as spirals, fractals, or tessellations, creates comfortable spaces that establish a connection to the natural world. These patterns can be incorporated through pathway and hallway design, structural design, and fabric, flooring, and other finishes, easily integrating nature into built environments.

SUPPORTING THE STUDENT EXPERIENCE

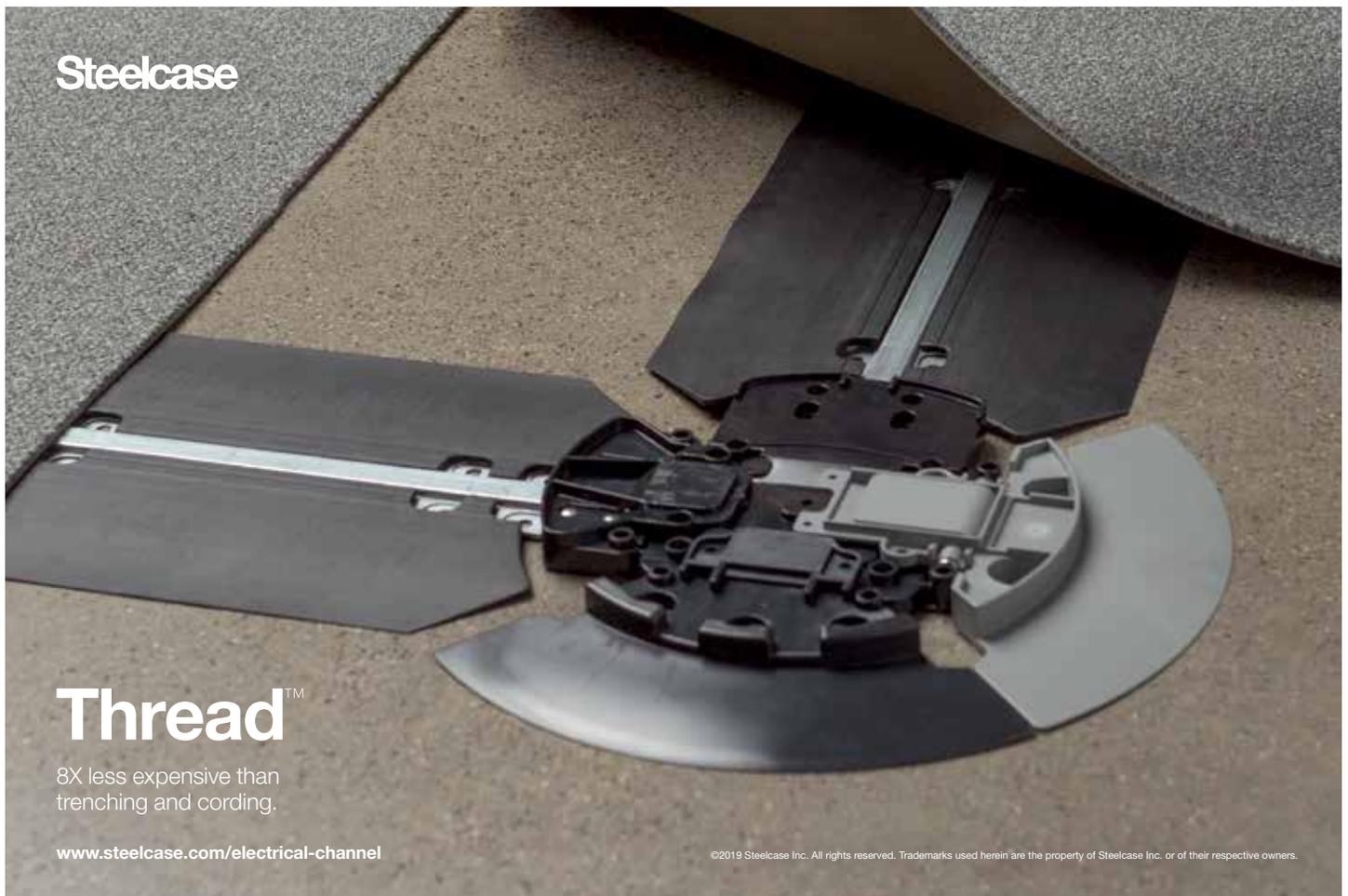
Educational facilities can support a student's connection to their learning environment by taking cues from the school's surrounding geography and integrating the outdoor space into the overall facility design, layout, and material selection. Through these considerations, the barriers between the students and their outside environment are removed. Students are then able to interact with their environment depending on their needs, allowing for space that is more conducive to studying, working, and interacting with others.

For example, the concept of organized complexity, which is based on the theory of intelligent design, is

associated with feelings of connection and coherence. Wayfinding, or spatial problem solving, brings feelings of comfort when users can understand how to freely flow between connected spaces. When the two principles of organized complexity and wayfinding work together, end users feel they have opportunities that allow for organized exploration.

Following these steps, universities can create spaces that foster student growth and positive experiences across all facets of campus life, encouraging productivity, creativity, overall wellness, and increased interaction between students. Through biophilic design strategies, educational facilities can offer their students the flexibility to collaborate with other students, embrace creative ideas, and expand their knowledge of new topics that pique their interest. §

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