



INCORPORATING WOOD INTO HANDS-ON LEARNING SPACES

How Wood Improves Mental Health & Sustainability



INTRODUCTION

You're taking a stroll through the woods. You take a deep breath and look around, consuming the fresh air around you while you observe the top of the trees sway back and forth in the wind. You feel calm ... relaxed. Why is this?

Studies have shown that nature improves people's mental and physical well-being. For example, one study shows that people exposed to more natural light heal faster from spinal surgery and reportedly have less pain. Other studies show that natural light, plants, trees, water and other forms of nature can reduce stress, help improve focus and even increase immunity.

Couple this information with the fact that 83% of the U.S. population lives in urban areas, more and more architects and landscape planners are seeing a need to bring nature back to us. This is why we see an increasing number of them incorporating elements of nature into their designs – also referred to as biophilic design.



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BIOPHILIC DESIGN

Biophilia means “the love of nature” and focuses on how people and nature interact and connect with one another. Biophilic design is about bringing the indoors inside, in an efficient and aesthetically pleasing way.

As stated previously, hundreds of millions of people now live in cities or large towns, making it harder to connect with nature. This is why incorporating elements of nature within the walls of a building – especially classrooms and lab environments – has become an important trend in architectural design.

When it comes to hands-on learning spaces, there are many ways to incorporate biophilic design including maximizing natural light, using natural color choices, embracing the shapes of nature and using natural materials like wood.

Since wood makes up most of nature, it's obvious that it plays a critical role in biological design. Not only does it achieve a contemporary look, but the versatile material is also the perfect option to reflect the natural environment.

BIOPHILIA

"love of nature"



MENTAL HEALTH BENEFITS OF WOOD

1

Wood lowers stress levels.

[In 2019, a study conducted at a newly refurbished National Oncology Institute waiting room in Bratislava, Slovakia](#) came to this very conclusion. Visitors in the space, which featured wood throughout, were measured for respiration, heart rate, cortisol level and blood pressure before, during and after their stay in the wooden room. The study found their cortisol levels decreased by 7.5%, implying a stress-reducing effect. The participants also described feeling satisfied or very satisfied.



2

Using wood furniture improves student & school performance.

In 2008, an Austrian study by [Joanneum Research](#) compared a classroom of mainly solid wood materials with a standard classroom. Measurements were taken of the health benefits of 52 students. The result? The students' heart rates in the wooden classroom had significantly decreased. It was also observed that the students appeared more relaxed. The wood classroom also had a positive impact on the students' overall school performance.

3

Using natural materials like wood boosts creativity.

While there are many studies that prove wood boosts creativity, there's one study that stands out. It was led by Washington State University professor of interior design Janetta Mitchell McCoy, PhD. In a [2002 Creativity Research Journal \(Vol. 14, No. 3.4\) study](#), McCoy found that high school students designed more innovative collages in a setting high in direct sunlight and natural wood than in a space finished with manufactured materials like drywall and plastic.



4

Going "green" improves cognitive ability.

A [Harvard University](#) study observed 24 people who were to spend six work days in an environmentally-controlled office. The subjects were exposed to conditions in conventional and green office buildings as well as a green office with enhanced ventilation. The results? Cognitive function scores were 61% higher in green building conditions and 101% higher in enhanced green building conditions.

Cognitive function
scores

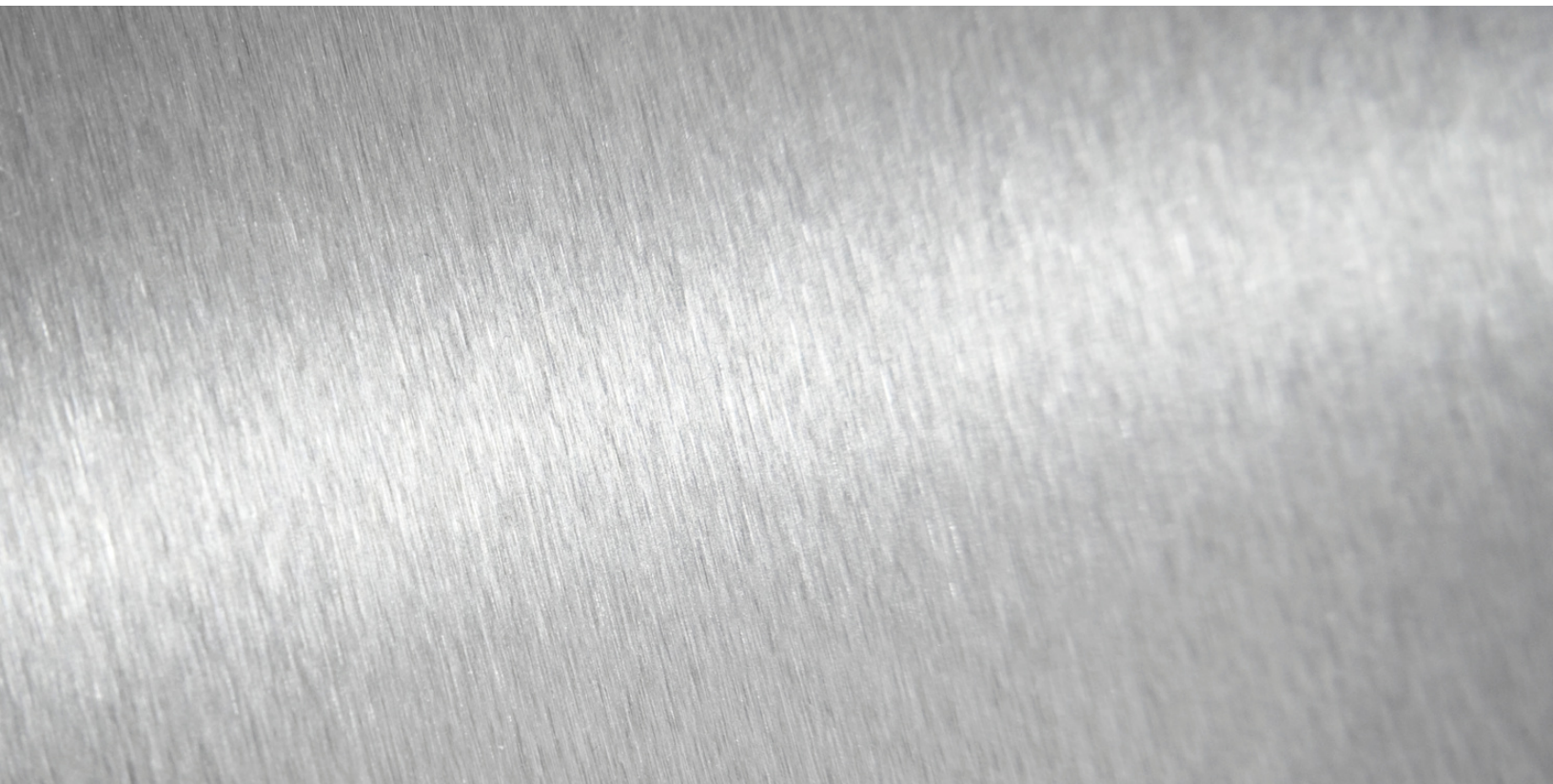
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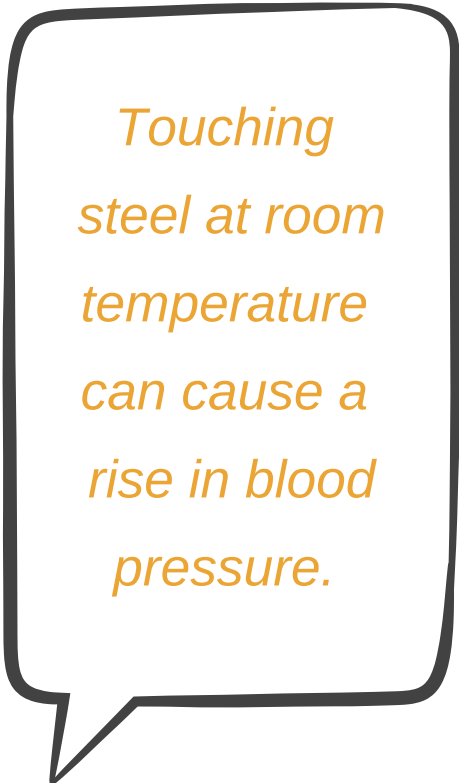


WHAT ABOUT STEEL?

After working in the educational industry, we have all seen our fair share of K-12 lab furniture that's made out of steel. But does it provide as positive of an impact on our health as wood does?

Studies actually show that [touching steel at room temperature can cause a rise in blood pressure.](#)

While steel furniture has many benefits in a learning space, combining steel with wood as part of the overall design will add warmth while promoting healthy, relaxed learning.



*Touching
steel at room
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pressure.*

– WOOD FOR GOOD

SUSTAINABILITY OF WOOD

It's clear that incorporating wood into lab space design is beneficial to mental health, but its benefits don't end there. Wood is also a more sustainable choice. In fact, [wood has a carbon footprint 75% less than many common building materials](#) like steel.

In addition, a study concluded [17% of all fossil fuels consumed worldwide are used to produce steel, concrete, brick and aluminum. Steel alone accounts for a full 9% of global fossil fuel consumption](#), which does not include the additional fossil fuels consumed during transportation or installation. But the good news – replacing those materials with wood products in construction would [reduce fossil fuel consumption worldwide by 10%](#)!

To further reduce the carbon footprint of a new lab space, consider using wood from sustainably-managed forests. The practice not only protects our endangered forests, but may also reduce energy use relating to processing and shipping.

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- Certifies over 170 million acres of forests across the United States & Canada
- Sets standards for responsible forestry management
- Chain-of-custody certification traces the path of products from forests through the supply chain



- Certifies over 360 million acres of forests across the United States & Canada
- Protects water quality, biodiversity, wildlife habitat, species at risk & forests with exceptional conservation value

WHAT IS A SUSTAINABLY MANAGED FOREST?

Sustainable forestry is the practice of regulating forest resources to meet the needs of society and industry while preserving the forest's health. When looking for wood lab furniture, you may want to ensure the wood is harvested from forests certified by the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI).

CONCLUSION

As urbanization continues to rise, we as humans seek out a stronger connection with the natural world around us. The use of wood elements as part of a larger design strategy can help foster a calming, yet invigorating, biophilic response from those using the space. This in turn leads to both improved mental health and gains in overall performance.

