

BUSINESS OF HOME

BOH

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It's time to live well.

From lighting that matches
your circadian rhythm
to the brain science behind
the perfect room

+

Skyscrapers with
surprising secrets

Sleep studies
for designers

Should you be
afraid of VOCs?

Interior



The study of design's impact on mental health is a relatively new field, but early research points to a crucial role for designers at the intersection of psychology and design.

← Black walls and built-ins are a dramatic foil to the blue-and-white decor of this home office by Rachel Cannon.

↓ Ramona Albert designed the curved bedroom ceiling to soften the space; a wall of gauzy white curtains filters the natural light.

BY Hannah Hickok



Harmony

For many designers, the link between living spaces and well-being is intuitive. A thoughtfully designed, personalized space sets you at ease, whereas a poorly planned one can bring on stress or blues. But what that actually looks like can vary widely: Some people feel most at home among rich hues, ample texture and low lighting; others prefer clean lines and sun-splashed minimalism. And while experts have reached certain points of consensus—like that greenery can boost mood—other topics, like how much symmetry matters in design, aren't so clear-cut. ¶ The good news is that design's connection to mental health is garnering growing interest and resources, which means we're likely to see plenty of new insights in the future. In the meantime, here's a look at how beautiful spaces affect our brains, how art and nature can act as feel-good tools, and how color and light might influence our emotions. One thing's for sure: In this ever-evolving realm, it's worth keeping an open mind about how design choices can elevate (or inhibit) well-being.

THE BRAIN ON BEAUTY

Beauty may have always been in the eye of the beholder, but the way we think about and define it has fundamentally transformed in recent years. Neuroaesthetics—the study of how the mind processes and responds to beauty and art—wasn't introduced until 2002. In the years since, there's been a sea change in how we approach the subject. “Beauty has [traditionally been held as] an individual assessment of a visual pattern,” says Denver-based architect Donald H. Ruggles, author of *Beauty, Neuroscience & Architecture: Timeless Patterns and Their Impact on Our Well-Being*. “Now, [we are realizing] that beauty originates as an intuitive, emotional response in our ancient brain as the recognition of a pattern that has the potential for pleasure.”

What does that mean for interior design? “If you recognize the geometry and colors of a pattern, then the ancient brain starts the emotion-to-feeling cycle that results in a sense of well-being,” says Ruggles, who uses the phrase *ancient brain* to describe the primal part of the brain that's responsible for survival instincts like fight-or-flight. “This applies to all visual arts, including interior design and architecture. If the pattern of a space is readily understandable, then the ancient brain signals that it is stress-free and approachable. The result is an improved brain wave coherence—a physiological state very similar to a meditation session.”

Ruggles theorizes that we are always subconsciously searching for what he calls the nine-square pattern, which resembles a tic-tac-toe board. When we find this symmetry in anything we're looking at,

from a building facade to a fireplace mantel, our brains experience a recognition that translates to a feeling of calm—and when we don't find it, we feel stressed. Jagged edges and sharp points, too, are design features that, if overused, can cause anxiety. “Our ancient brain discerns these patterns as dangerous, activating a survival response that initiates a suite of emotional and chemical reactions—including the release of adrenaline and cortisol—that diminish our health with long-term exposure,” says Ruggles. “A typical living room, for instance, often includes a statement piece like a coffee table



PHOTOGRAPHY, PAGE 42: JESSIE PREZA. PAGE 43: COURTESY OF RAMONA ALBERT ARCHITECTURE



FROM THE EARTH

In this living room, Sarah Barnard used natural materials that reference the nearby oceanic environment to encourage mental calm and physical well-being.

with jagged or sharp edges. A table with rounded edges, on the other hand, allows our nervous system to relax.”

While some designers believe symmetry in design facilitates well-being, other experts think it's overrated. “Symmetry is not an indication of equilibrium or balance, nor does it translate to wellness,” says New York-based architect and designer Anjie Cho, a feng shui specialist and author of *Holistic Spaces: 108 Ways to Create a Mindful and Peaceful Home*. “In fact, symmetry can be pretty boring, because it focuses on duality and can be

two-dimensional, which is not interesting to the eye.” A 2014 study by researchers at the University of Liverpool found that although people almost universally prefer symmetry over random patterns, there is little evidence that it causes a positive emotional response. So perhaps there's truth in both arguments: Symmetry in design (like the nine-square pattern) can be calming in its familiarity, but asymmetrical accents can also surprise and delight.

Though the research on how our brains process and respond to beauty in its various forms might not yet be conclusive, the field of neuroaesthetics is

ripe for growth. At Milan Design Week in April 2019, Google created an immersive installation devoted to the field. The three-room interactive “Space for Being”—designed in partnership with Danish furniture brand Muuto, New York-based studio Reddymade Architecture, and Johns Hopkins University's neuroaesthetics department—invited visitors to wear wristbands that measured their physiological responses to a series of vignettes. The idea, according to Ivy Ross, Google's vice president of hardware design, was to create a reflective process for people who



ROOM WITH A VIEW

Floor-to-ceiling high-performance glass brings in light without the heat, while evergreen ivy offers a natural privacy screen in this bathroom. "The balcony is an extension of the room," says Albert. "The doors slide all the way open so that you can be outside while bathing."



experienced the space to look at the data to see how they had reacted. Rather than harnessing the data for future projects, Google wanted to show that although people are strongly affected by their environments, they're also in control of them, and can choose to create beautiful spaces that awaken the senses through sound, light, color and texture.

PERSONAL SPACE

In the age of Instagram virality, it can be easy to forget how important it is to customize a home based on the inhabitants' idiosyncrasies, not just the trends that excite them. After weeks and months working on a project, designers get to know their clients intimately. But unless a self-aware client speaks up, how often does their personality type, and not just their taste, factor seriously into the design vision? Creating spaces to suit different temperaments and lifestyles can be a challenge—especially among couples or families whose shared spaces must work for everyone.

Introversion and extroversion, in particular, are personality traits that tend to impact—and be heavily influenced by—design choices. Baton Rouge, Louisiana-based designer Rachel Cannon has made a career out of creating spaces that suit both types. (Her catchy website tagline: “We help introverts and extroverts peacefully coexist at home.”) How does she do it? “Most couples will have to compromise when it comes to taste, but few ever consider how they actually need their homes to help them recover from their day,” says Cannon, who identifies as an introvert. “An open floor plan caters more to an extroverted person's penchant for stimulation, as the reward center in his or her brain is wired to perceive things like sound, light, socializing and attention as a reward. However, an introvert's reward center is wired to release dopamine during low-key activities like reading, quiet conversation and calm settings. Ideally, a home would help nurture both types of responses, offering areas of stimulation for the extrovert and areas of quiet for the introvert.”

The way we build homes today, says Cannon, is geared more toward extroverts. “We design rooms for every activity other than quiet time,” she says. To address that gaping hole, she's deliberate about design details, down to fabrics that can facilitate a more peaceful space for those who need to chill to recharge. “I can't say enough about choosing soft textures to dampen sound, especially in an open floor plan,” says Cannon. “Draperies, area rugs, cozy upholstery, even wallcoverings can go a long way in muffling the echoing in an open plan. Rather than just painting a room, consider upholstering the walls. Even [affordable] wool flannel offers amazing depth and texture—and selecting a fabric rather than a paint means the light will be absorbed, rather than reflected into the room, ultimately creating a hushed atmosphere.”

Whether introvert or extrovert, everyone seeks refuge from rough days at home. In order to create a sanctuary for all personality types, Cleveland-based designer Laura Mineff created her Universal Design Method, a process of assessing individual

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—RAMONA ALBERT

design elements—such as lighting, color, texture, sound, plumbing, furniture, cabinetry, entrances and layout—to ensure that an interior will fit the dwellers' unique needs. “Every aspect of our atmosphere can be redefined in a way that can create a life of joy,” she says. “During our evaluation, we watch clients get excited and observe their body language. We're looking for enthusiasm, and that's when we know we've hit the right course of action.”

Tweaking minor design details that cause anxiety can add up to a space that facilitates much better mental health, says Mineff. She offers a few examples: Homes with multiple flooring surfaces can cause a feeling of inhibition and discomfort; swapping those for a smooth, uniform surface encourages freedom of movement and a sense of calm. Walls that are the same color as floors, she says, force us to constantly adjust our depth perception; delineating the two with different hues makes the space feel more clearly defined, and thus safer. Breaking up a square room with a curved wall or furniture piece, or even removing unnecessary walls, can eliminate feelings of claustrophobia, and with it, blocked thoughts and energy.

Easing anxiety through design can, at times, require outside-the-box solutions. For a married couple adjusting to life after one spouse's stroke, Mineff came up with an innovative fix. “The husband couldn't sleep because he was afraid his wife would get up to go to the bathroom in the middle of the night, fall and get hurt,” she says. “So we installed motion-sensor airplane runway lights that lit up a direct path, allowing her to get to the bathroom without her husband's help or concern. We also made the walls darker and kept the carpeting light for added depth perception. Both spouses were able to let go of their fears with their new, adjusted environment.” It's a great example of how a few small but significant design changes can have a powerful emotional impact.

ARTISTIC MERIT

Another reason not to let clients skip out on an art budget: A home with thoughtfully curated art isn't just prettier—it's also better for you. Research by a neurobiologist at University College London in 2011 found that people viewing art experience

a surge of the feel-good chemical dopamine, as well as activation in the same part of the brain associated with falling in love. And a 2014 meta-analysis published in *Brain and Cognition* found that viewing paintings may support brain functions related to memory, decision-making and emotional processing.

“Most simply, art brings us pleasure and joy, which can have a positive effect on our mental state,” says Sarah Barnard, a Los Angeles-based interior designer who specializes in spaces that promote wellness through art, nature and sustainability. “Installing art is a simple way to elevate well-being and connect you to your home. Art can magnify happiness and encourage new and different experiences. Its presence may have a similar effect to incorporating positive habits into your routine, like meditation or walking outside. The absence of these habits isn't necessarily damaging—but the addition can hugely improve mood.”

When helping clients select art, Barnard suggests that instead of viewing the process from a purely financial perspective, they trust their instincts to find what clicks for them on an emotional level. “We try to help our clients find a balance between sound investments and works that bring them a critical feeling of personal joy. It's essential for art to resonate personally with people living in the home.”

That said, she has a few pointers. Art featuring vibrant colors can be energizing in common spaces like living or dining areas, while neutral hues, dreamy abstracts and diffused sculptural lighting can help make the bedroom a restorative space. Art in the office should feel personal and offer a mental escape to rejuvenate and boost productivity. For extroverts, large, bold statement pieces featuring interesting backstories or materials—all springboards for a lively conversation about the piece—can be ideal for entertaining; for introverts, art with soothing colors, natural themes, textiles or sculptural works with a nestlike quality can promote comfort, calm and decompression.

What if one spouse has a penchant for pop art and the other gravitates toward abstract expressionism? “Being mindful of personal preferences in individual spaces guarantees everyone is getting

something they love,” says Barnard. “In common areas, art should speak to shared tastes. When selecting artwork for a group, it’s key to ensure that everyone has a voice.”

NATURALLY INCLINED

When it comes to design elements proven to promote mental health, the research is clear on the benefits of greenery and the great outdoors. Spending time in natural environments can lift mood, improve focus and fight stress. And you don’t have to go for a hike—the idea also extends to bringing the outdoors in. A 2014 study published in the *Journal of Experimental Psychology* found that people who worked in offices with plants felt better and more productive, and a 2008 University of Michigan study found that simply looking at images of nature scenes improved memory.

These findings bolster the philosophy behind biophilic design (see “Green Party,” page 12), which aims to strengthen human connection to nature through design and architecture—something a growing number of designers are interested in. “I strongly believe that spaces that harmonize with the environment create better energy and make us happier,” says New York-based designer and architect Ramona Albert, who specializes in creating sustainable spaces rooted in nature. “In a current project, a Brooklyn townhouse, we wanted to focus on the exterior garden, so we designed floor-to-ceiling glass facades on the street and rear sides of the building. The kitchen and bathroom are set to the sides of the space, and we opened up the staircase with a skylight. The end result is that you can see through the home from front to back and feel like the space does not end, but connects to nature outside.”

Perhaps the best part about nature-inspired design is its accessibility. Even if you’re not building or renovating a home, it’s easy to bring natural elements inside for the same mental health benefits, whether it’s a live-edge table or a low-maintenance potted fern. “Something as simple as bringing in fresh flowers or a beautiful plant can enhance the quality of a space,” says Albert. “Natural materials such as wood offer a calmer environment while absorbing noise. Softly curved and continuous surfaces, inspired by natural forms, can also instill a sense of peace.”

LIGHT LESSONS

As with the abundance of research pointing to the benefits of nature, copious studies have revealed light’s impact on our health, from mood and energy to productivity and decision-making. Even something as simple as the amount of light you’re exposed to can make a difference: A 2014 study from the University of Toronto Scarborough, for example, showed that bright light can cause people to feel emotions (both positive and negative) more intensely. On the other hand, insufficient light in the home is associated with depression, per a 2011 study published in *Public Health Reports*.

Beyond the volume and brightness of light in the home, designers should also consider the color. Light that emits blue wavelengths (such as



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—RACHEL CANNON

energy-efficient LED bulbs and the glow emitted from electronic screens) can be good during the day because it may fight fatigue. It may also improve memory, per a 2019 study published in *Environment and Behavior*, as well as creative thinking, according to a 2016 study conducted by researchers at Cornell and the University of California Irvine in partnership with Microsoft. However, blue light can mess with circadian rhythms by suppressing melatonin, which can cause sleep disruption; longer-

wavelength red light may have the opposite effect, helping you fall asleep more easily—and we all know how getting enough sleep (or not) affects mood. (For more on designing for a good night’s sleep, see page 50.)

Many designers are already paying plenty of attention to light. “Along with colors, layout and fabrics, light can affect [how we feel],” says Albert. “Small changes to these elements can significantly improve comfort levels. Natural light, in particular,



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LIVE WITH WHAT YOU LOVE

Rachel Cannon's kitchen and breakfast room feature all of her favorite things, from lavender grasscloth to statement light fixtures from Visual Comfort and Circa. "It's full of colors and fabrics that speak to me, artwork that is meaningful to me and furnishings that comfort me," she says.

is very important, and greatly affects the quality of any space." In a recent project, Albert renovated a historic home in New York's Hamptons with original wood flooring, fireplaces and brickwork. She offset dark spaces—like the brick kitchen hearth and brownish-red pine floors—with ample natural light, pale gray-green Farrow & Ball paint, and sleek custom cabinetry. "The result is a space that's infiltrated with light that feels amazingly calm," she says. "Every person who visits has the same reaction of serenity."

COLOR CODING

No matter how you feel about Living Coral and Classic Blue (Pantone's Color of the Year choices for 2019 and 2020, respectively), it's worth remembering that color isn't just about trends or taste—it can have a real psychological impact. "Color is one of the most effective ways to shift the energy of a space," says Cho. Research suggests that the impact colors have on our state of mind is different than the way the body reacts to the light from, say, a computer or phone screen. "Different wavelengths of colors affect us differently. Shorter wavelengths, like blue, are more soothing than colors like red or yellow, which are more energizing."

A 2016 meta-analysis of 40 studies published in *Environment-Behaviour Proceedings Journal* found that color in the workspace can have a significant effect on temperament and performance, with a positive association between green and feelings of freshness and calm. A 2013 study published in the *International Journal of Accounting Research* reported that green's fellow cool hue, blue, has been associated with well-being and focus; however, other research shows it may make some people feel drowsy or downbeat. It's likely no surprise that red, according to a 2018 study published in *Frontiers in Psychology*, is associated with higher levels of excitement, stimulation and competitiveness, with aggression and low attention span being potential downsides. Yellow, too, is considered energizing and cheerful—though, along with purple, it was also found to have a somewhat distracting effect. Color can also have a symbiotic relationship with mood: In a 2019 study published in *Color Research & Application*, participants who were happy and relaxed were more likely to gravitate toward light colors, including yellow or yellow-green.

Regardless of what the research says, the effect of any hue in the home is also determined by an individual's own disposition. "Everyone's a little

different," says Cho. "Something that's comforting or soothing to one person may not be for someone else—not because the qualities of the colors change, but because needs vary from person to person. One person might need more uplifting energy; someone else might need a more relaxing or soothing energy to feel balanced."

As with plants, color doesn't require major updates to a space. Cho suggests starting with wall paint, and if that's too much of a commitment, try bringing in new hues through accessories. "It's a fun and simple way to work with energy in the home," she says. "Bedding, pillows and artwork are a great option, because you can change them out quickly, test different things and see what works."

Course correction may feel subtle, but the impact can be profound. Got a client who's having trouble getting out of bed in the morning? Maybe the color scheme is *too* soothing, and needs a fiery throw to give the space—and them—a boost. Does your client's attention keep wandering in the home office? Try swapping out that abstract wall print for a forest or ocean scene. Just like any wellness routine, designing for mental health will never be a one-size-fits-all formula, but it can be an empowering tool if you use it right. ■