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Sky Factory's illusory skies generate the palpable experience of perceived open space.

Salk Institute Conference: Iowa Company Reveals How Illusory Skies Engage the Brain's Spatial Mapping

September 17, 2018 – Sky Factory, a design/manufacturer of research-verified virtual skylights, will present its research abstract, *Applied Cognitive Architecture: The Restorative Impact of Perceived Open Space*, at the 3rd conference of the *Academy of Neuroscience for Architecture (ANFA)*, at the *Salk Institute*, September 20-22, in La Jolla, CA.

The company will reveal the neuroscience behind its unique therapeutic *Open Sky Compositions™*, the central element behind its *Luminous SkyCeilings™*. These virtual skylights employ a special type of process that photographically captures, then composes and scales sky images and applies about 20 structural and contextual cues that are woven into the ceiling plane. The company's installations are found in 9 of the top 10 American hospitals as ranked by the *2018-19 U.S. News & World Report*.

The abstract presentation at Salk introduces architects and neuroscientists to the restorative power of multisensory imagery used within an architectural context. Unlike standard decorative photography or back-lit panels with nature scenes, Sky Factory's neuroimaging research provides the first published report of brain maps indicating that illusions affect the psycho-physiology of the observer in a tangible way that is different from how we process symbolic or representational imagery.

The abstract is based on two peer-reviewed studies by *Texas Tech University's College of Human Sciences* and its *Neuroimaging Institute, Covenant Health*, and Sky Factory, which were published in the peer-reviewed *Health Environments Research & Design Journal (HERD)*. The first study analyzed whether there were unique patterns of brain activation associated with exposure to Sky Factory's photographic *Open Sky Compositions* as

compared to other positive, negative, and neutral images while the second studied the impact of the illusory sky images as virtual skylights in a medical-surgical inpatient environment.

Unlike most, if not all fine art and commercial nature photography, Sky Factory’s large format, digital images are captured at an unorthodox 90-degree angle, completely perpendicular to the ground. This perspective dramatically alters the gravitational orientation of daylight as it filters through cloud patterns and foliage. The high resolution images undergo a calibration process that preserves the color fidelity of high altitude, high pressure skies from RGB image capture to multi-channel CYMK printing and back to 6500K color rendering index edge-lit (or back-lit) LED illumination.

“The subtle hues and rich saturation of the sky are fundamental elements to sustain the illusion,” says Sky Factory CEO, Skye Witherspoon. “There’s a considerable amount of information that our eyes and brain receive from the sky. Our composition process is designed to preserve and even augment the wealth of critical sensory cues. When the



Neural Correlates of Nature Stimuli: an fMRI study uncovered the multisensory stimuli that Sky Factory’s Open Sky Compositions (bottom right) generate to engage spatial cognition.

images are seen in the context of physical architectural cues like angled reveals (panel elevators), the parts of the ensemble essentially ‘trick’ our brain into engaging a more sophisticated sensory process, not just visual processing but spatial cognition and depth perception as well. This multisensory perception leads the viewer to experience a feeling of depth or vastness that leads to a quieting of the mind and a deeper relaxation response,” adds Witherspoon.

“While healthcare designers are well acquainted with the application of representational nature imagery to create a positive distraction effect in clinical environments,” said Debajyoti Pati, PhD, principal investigator and co-author of the *Texas Tech University* study, “no one had yet employed imaging technology to uncover the neural correlates of nature imagery designed to be perceived, not as a symbolic artifact, but as a *spatial map or reference frame* that engages the cerebellum.”

“This research confirms our success in introducing compositional principles and elements into sky images that create the visual cues necessary to trigger biophilic engagement, an automatic ‘relaxation response’ like we experience in natural environments. The study also confirms that some compositional relationships are more successful in giving rise to a spatial illusion of nature than others,” remarked Bill Witherspoon, Sky Factory’s *Chief Designer* and founder.

The award-winning study in neuroarchitecture that discovered the neural correlates of nature stimuli as represented by Sky Factory’s *Open Sky Compositions* was presented earlier this summer at the *Royal College of Physicians* during the *European Healthcare Conference* in London. The pioneering study in neuroarchitecture has also earned recognition from the *Design & Health International Academy*, the *Environmental Design Research Association (EDRA)*, and *Planetree International*, a global patient advocacy non-profit that encourages evidence-based design enhancements to the patient experience.

Sky Factory’s white paper, *The Restorative Impact of Perceived Open Space* provides an introduction to the wellness value of biophilic *illusions of nature™* as a design technology for architectural applications.

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