

Building Resiliency Through Small Scale Restorative Spaces

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In the year prior to the pandemic, 1 in 3 adolescents in the US reported experiencing persistent feelings of isolation and anxiety, a 40% increase since 2009¹. Schools around the country recognize their role in assisting with this crisis and have increased their mental health services and staff. Although beneficial, these services require spatial complements to increase their effectiveness and reach. Large scale renovations or entirely new constructions are often needed but require years of planning and substantial budgets to implement. How can we immediately begin to spatially address this crisis? Small scale interventions can be quickly designed and implemented with minimal disruptions to school systems, structures, and budgets. Acting together as a supportive network, these spaces can provide students, staff and faculty with accessible, restorative spaces that prioritize and support mental health.

By providing schools and other shared spaces of our built environment with this type of micro restorative space, we hope to build resiliency through small scale, accessible and restorative interventions with the goal of maintaining and improving individual and community health and wellbeing.

This paper focuses on the design, construction, and effectiveness of a small-scale restorative space within a main academic building on the grounds of a public university.

INTRODUCTION

The past two years since the onset of the COVID-19 pandemic have exacerbated and expanded an already pervasive mental health crisis, one that requires our built environment to adjust to the changing needs of its occupants. Increased feelings of anxiety and stress are occurring across the US population, but certain age groups are proving to be more vulnerable than others. According to the Youth Risk Behavior Survey Data Summary & Trends Report from 2009-2019, a growing percentage of students reported negative mental health issues, specifically increased feelings of sadness and hopelessness as well as thoughts of suicide¹. These trends highlight the need for increasing access to mental health support within secondary and higher educational environments. This support can be more effective if it is multidimensional and extensive, comprised of access to counseling services, social support structures and restorative spaces. Students respond to stress and anxiety in many ways, and thus require different options

for seeking help. Offering a variety of choices makes this support more accessible to a broader public.

The idea for introducing a small-scale restorative space to Campbell Hall, the School of Architecture at the University of Virginia, started with an awareness of these alarming trends in adolescent mental health paired with a concern for the mental health of students, faculty and staff returning to in-person schooling following a year of remote learning, social isolation, and loss. Architecture schools are a unique building typology in terms of their spatial organization and patterns of occupation. Students take many, if not all, of their classes within the same building and do much of their coursework from a highly visible desk within an open studio area. It is an environment of high stress and exposure, with few areas to step away and recharge after hours of directed focus work. This type of educational environment is arguably most in need of restorative spaces that offer students a sense of escape, even if only for a few moments.

For the past six years, Office of Things, a research and design practice based in New York, Chicago, and Charlottesville, has been exploring the impact of time-based light, sound, and material assemblies in a series of immersive, restorative spaces within a similarly high stress environment – the workplace. This series of spaces is comprised of enclosed rooms for relaxation and mindfulness; rooms that invite people to close their laptops, put down their phones, and disengage for a few moments before returning to focused work (Figure 1). The sites for these spaces are typically existing rooms within the core of a large floorplate. They are small in scale, without access to natural light and would likely otherwise be a storage closet or server room. Each room works within the given spatial constraints of the existing walls, ceiling, and plenum spaces. These constraints challenge the designers to create meaningful spaces with very few components. The palette implemented for most of these rooms typically includes a sound and light lock or transition space from the outside office into the quiet space proper, a storage area for personal belongings, a soft seating element, a sculpted ceiling scape, and light and sound sequences that slowly transform the space over time. Directional lighting, forced perspective, mirrors, and edgeless surfaces make these small spaces feel expansive, contributing to their restorative capabilities.

When considering the translation of this type of space to an educational setting, we began to question the scale and scope of the project. Previous spaces were constructed by professional

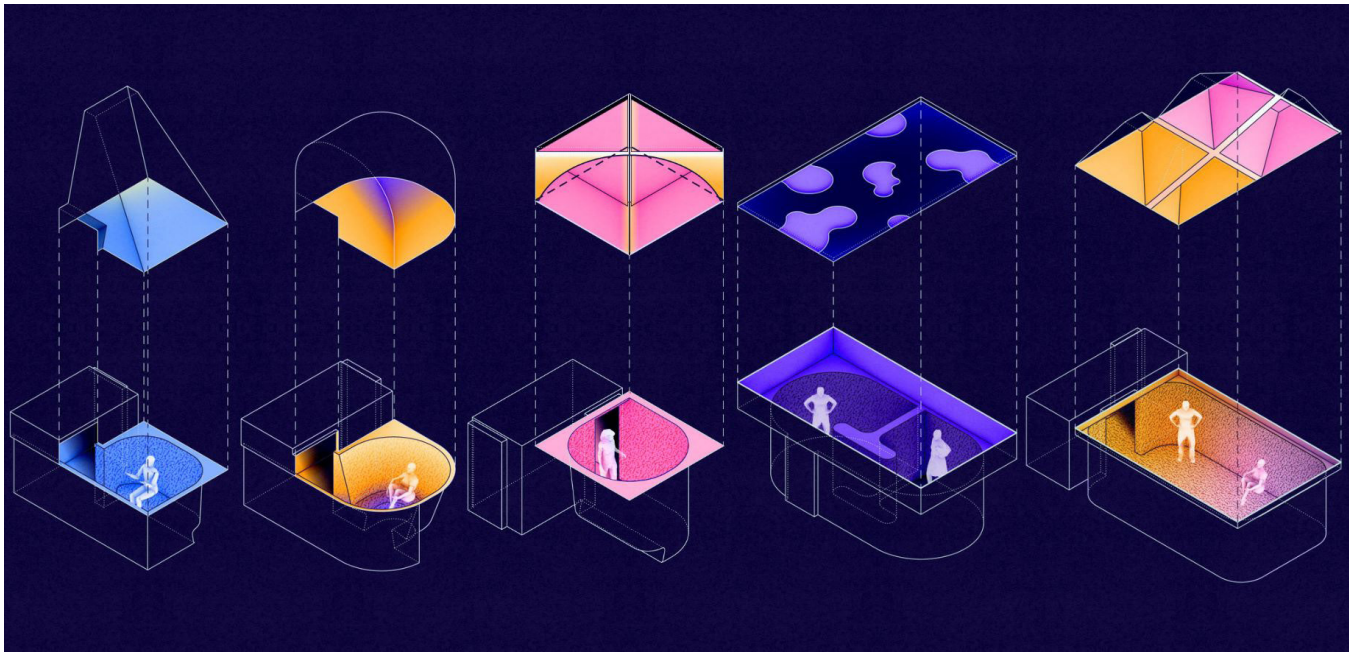


Figure 1. *Immersive Space Series*. Image credit: Office of Things.

contractors for private clients with substantial budgets. To make the spaces more accessible to a public audience, our goal was to work with a minimal budget, to use familiar and available materials and to utilize replicable construction techniques. The critical questions became, what could be achieved with far fewer means and could the space still be both immersive and restorative at a smaller scale?

STELLA – a Space for Emotive Listening, Learning and Awareness – is the first iteration of this scale of restorative space by Office of Things, operating between the scale of a piece of furniture and a room. It works within the same realm of exploration as the previous immersive spaces, except it is moveable, reconfigurable, and not defined by the bounds of an enclosed room. It utilizes a similar lexicon of elements – a sculpted enclosure, sound absorptive materials, and lighting sequences designed to slow and regulate breathing - to create an implied space of refuge within a larger room. It is a space that is open to students, faculty, and staff, offering a place of respite to disconnect and recharge for short periods of time throughout the day.

DESIGN CONSIDERATIONS

A space with a good Refuge condition feels safe, providing a sense of retreat and withdrawal – for work, protection, rest or healing – whether alone or in small groups. A good refuge space feels separate or unique from its surrounding environment; its spatial characteristics can feel contemplative, embracing and protective, without unnecessarily disengaging².

—William Browning, Catherine Ryan & John Clancy, *14 Patterns of Biophilic Design: Improving Health & Well-Being in the Built Environment*

Prior to starting the design process, we began to look at other examples of restorative spaces, both natural and artificial, and determine what spatial characteristics are essential to a restorative space. According to the WELL Building Standard v2 of 2022, a rating system that evaluates the performance of buildings as they relate to human health and wellbeing, restorative spaces are environments that provide relief from the type of stress and mental fatigue experienced in a workplace setting³. To qualify for this particular credit within the WELL v2 rating system, these spaces must include at least five of the following seven requirements: adjustable lighting, ambient sound, thermal comfort, flexible seating arrangements, calming colors, textures and forms, visual privacy and the incorporation of nature³. These spaces can be indoors or outdoors, but they must be accessible to users throughout the year³. This set of criteria in combination with our immersive space elements served as a general guide for our approach to the design of a restorative space for Campbell Hall.

The design for STELLA started in the summer of 2021 by a team of three – myself, JT Bachman, and our Student Research Assistant, Cassie Dickson – with a total budget of \$5,000. The design phase of the project included site evaluation and selection within the school, precedent, and material research, as well as preliminary design iterations. Multiple sites within the school were considered and a range of scales of enclosures were tested. Several factors went into the evaluation of the design iterations, including developing a series of design metrics to gauge the effectiveness of the space. The primary metrics included the following:

Accessibility – Is the site inviting to all students, faculty, and staff?

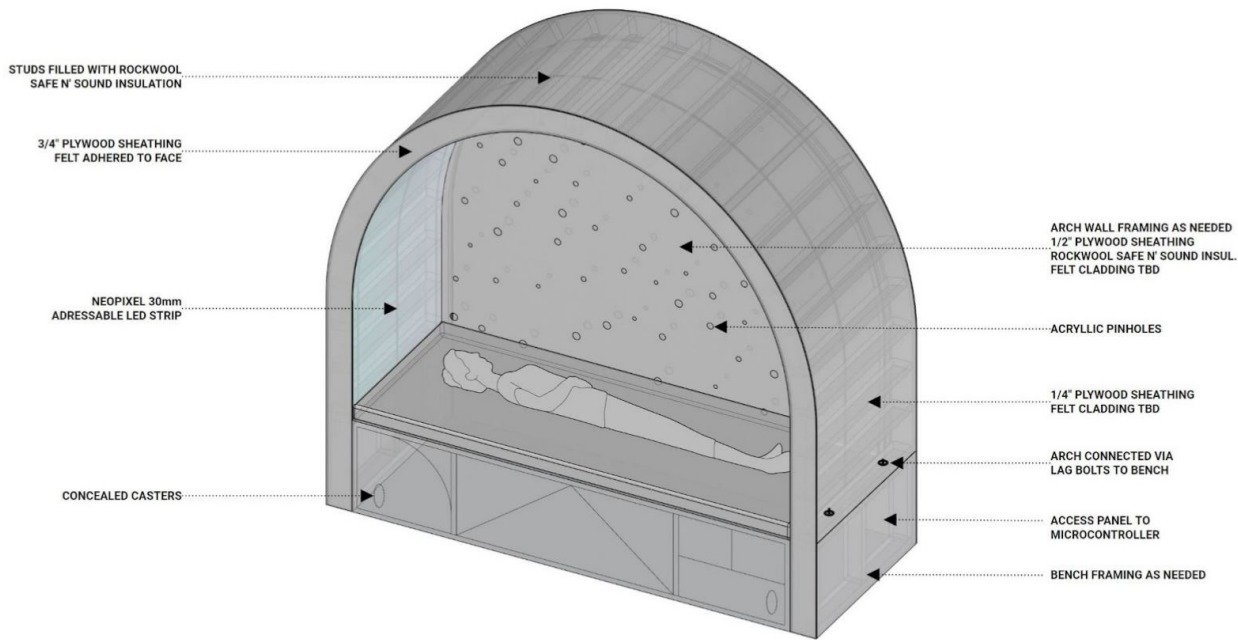


Figure 2. *STELLA Components*. Image credit: Office of Things.

Flexibility – Does it allow for a range of uses or modes of occupation?

Site Specificity – Is it context specific or site agnostic?

Immersiveness – What is the degree of enclosure or privacy?

We wanted this space to serve as a space of refuge for students, faculty, and staff. A space that would offer enough enclosure to make occupants feel secure, while remaining open and connected to the surrounding space². A 7'-0" wide by 3'-0" deep by 7'-0" high sized prototype allowed for the greatest flexibility in how it might be occupied (Figure 2). STELLA's interior is intentionally customizable, prompting the user to control the seating elements and lighting modes of the environment. It's large enough to allow for one person to fully recline or for two to three people to sit comfortably inside. Below the bench are geometric pillows that can be reconfigured within or outside of the space to accommodate for multiple people and posture configurations (Figure 3). Its arched enclosure is packed with rock wool insulation and the interior is lined with thick felt to assist in blocking out peripheral noise. Acrylic rods puncture the back wall allowing for daylight to register within the space, but also for the interior lights to register from the outside, signaling that the space is in use. The base has four concealed and lockable casters, allowing it to move freely to different locations. LED strips are concealed behind a frosted diffuser, softening the light, and obscuring the light source from the viewer. There are three different lighting modes that run for a few minutes at a time, each with unique colors and configurations. A headphone jack allows users to listen to paired ambient soundscapes that accompany each mode. A side

panel secured with button-fix panel couplers allows for access to the hardware controlling the LED strips.

Construction took place over the course of eight weeks and was executed by the design team. This allowed for testing of the space and materials by the team during construction and for the incorporation of small changes throughout the construction process. For ease of fabrication and later dismantling, STELLA was built in two components – the lower seating element and upper arched enclosure. Once in the starting location, the pieces were bolted together.

In the end the project met six out of the seven WELL v2 requirements for a restorative space. This milestone was achieved while working within the same lexicon of architectural elements as previous immersive spaces completed by Office of Things.

FEEDBACK

STELLA is an instrument for measuring the effectiveness of this type of restorative space on user mental health and well-being. It is an evolving prototype, constructed with flexibility in mind to allow for continual updates to its lighting modes and sound sequences, its siting, and materials in response to user feedback.

STELLA is situated on the first floor of Campbell Hall, the School of Architecture at the University of Virginia. It has moved locations many times, but typically it resides at the edge of the main open space underneath a stair, occupying an underutilized corner of a transient area where students, faculty and staff pass through on their way to classes and meetings. Here it is visible, but tucked away, providing a moment of pause and refuge within a busy space of exchange (Figure 4).

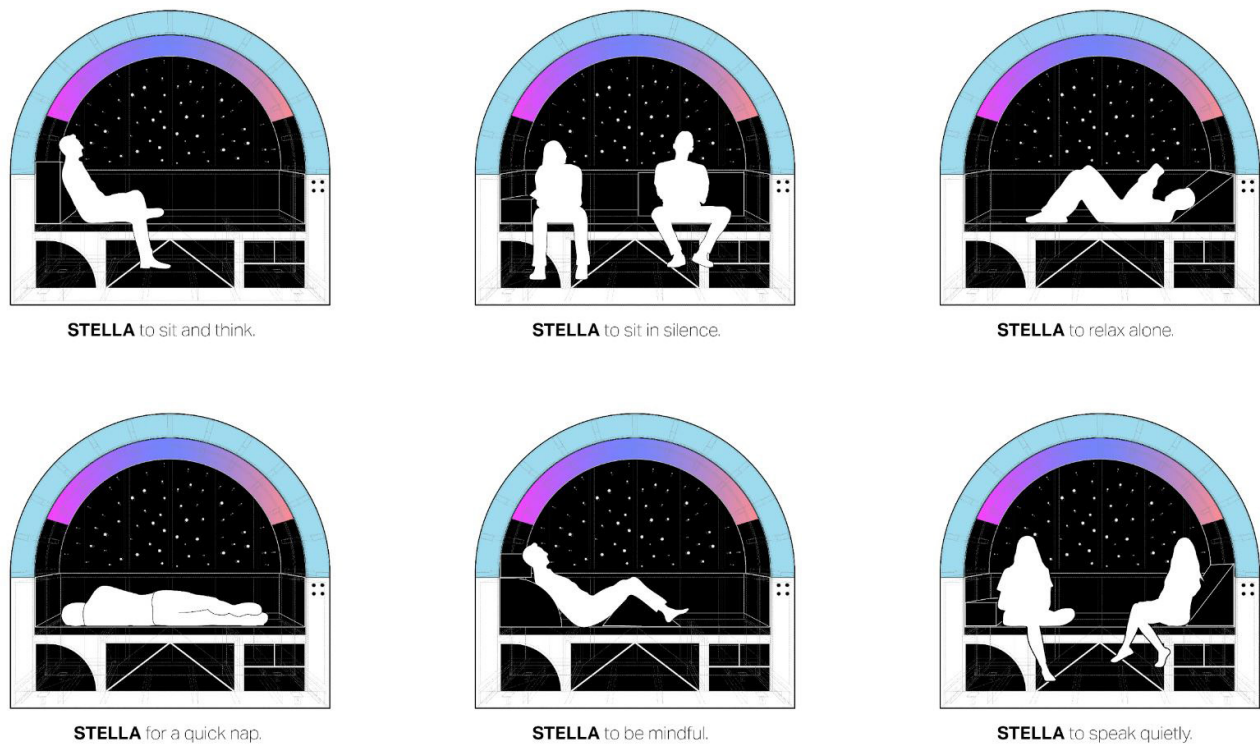


Figure 3. *STELLA Modes of Occupation*. Image credit: Office of Things.

Once positioned, we tested began to test the effectiveness of this type of space on student health and wellbeing. Could the same elements be scaled down and still effectively provide refuge and restoration ⁴? Could a partial enclosure still alter one's sense of extent and block distractions ⁴?

We introduced STELLA to the school via social media posts and by hanging flyers around the school encouraging students, faculty, and staff to utilize the space, whether taking a break from studio or in between classes.

Dr. Jenny Roe, Professor and Director of the Center for Design and Health at the UVA School of Architecture, applied methods from environmental psychology to understand the perceived restorativeness of the space and its effect on student wellbeing. Students took part in two repeat experiments administered in Fall 2021 and 2022 respectively, which entailed spending 5 minutes in STELLA and completing an experiential survey immediately before and after the experience. The measures employed in the survey instrument were the Perceived Restorative Scale (Hartig et al., 1997)⁵ and a psychological scale capturing perceived stress, mood and vigor (i.e. UWIST mood adjective checklist, Matthews et al., 1990)⁶. Experiment 1 (Fall 2021) showed statistically significant positive change in stress and mood outcomes ($p < 0.05$) in a small sample of users ($n=9$).

Experiment 2 in Fall 2022 (replicating Experiment 1) showed statistically significantly positive change on stress, mood tone and vigor ($p < 0.05$) and was perceived by users to be high on four psychological attributes of restorative environment, that is, 'being away' (i.e. sense of escape) 'fascination', 'compatibility' and 'extent' (i.e. coherence) in a small sample of users ($n=12$)⁷.

CONCLUSION

The positive feedback and sustained use of STELLA within the School of Architecture by students, faculty and staff suggests the important role small scale restorative spaces can play within environments of high stress. STELLA's presence in the school has not only provided the community at UVA's School of Architecture with a much needed, restorative space, it has also prompted a larger conversation about mental health in the school and in the design profession.

Maintaining and improving mental health and wellbeing are of the utmost importance as our community navigates a COVID-19 world. We need access to restorative spaces that allow individuals to disconnect, relax and recharge as they reacclimate to inhabiting and sharing public spaces. By providing schools and other shared spaces of our built environment with this type of micro restorative space, we hope to build resiliency through small scale, accessible and restorative interventions with the goal of maintaining and improving individual and community health and wellbeing.



Figure 4. *STELLA in situ*. Image credit: Tom Daly.



Figure 5. *STELLA Rainbow Mode*. Image credit: Tom Daly.

ENDNOTES

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