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**Application Essay**

From my time at the State University of New York at Buffalo to my current pursuit of an M.Arch at Cornell University, sustainability, resilience, wellness, and beauty have been a core part of my architectural education. These topics have been prominent in my personal design interest, allowing me to develop deeper understandings of them. I've learned that sustainability defines architecture that considers the context and environment, and acknowledges how a building fits properly within it. Sustainable architecture doesn't look to conquer nature, but seeks to integrate itself within nature by considering material life cycles, energy efficiency, and naturally present environmental conditions. Resilient architecture addresses the same issues but over a span of time, being carefully considered and designed to adapt to shifts in program, culture, weather, and economies, both predictable and unpredictable. Furthermore, an architecture that promotes wellness addresses how the built environment plays a direct role in the mental and physical health of its inhabitants. Finally, beautiful architecture inspires those who inhabit it, creating a place that is both aesthetically pleasing and desirable to occupy, use, and experience.

These ideas have been prevalent in almost all of my design projects throughout my education. In my sophomore year at Buffalo, I designed a Boys and Girls Club in Buffalo that used an analysis of the growth and development of children to create a facility that responds to daily, seasonal, and yearly changes in occupation. In 2016, I initiated an independent study to design an off-the-grid portable home, developing a highly specified rainwater collection system, solar panel electric system, passive heating/cooling strategy, and proper composting system. However, the intersection of sustainability, resilience, wellness and beauty are most prevalent in two large-scale housing projects of mine. Both designs strive to integrate housing within larger urban and ecological strategies that synthesize sustainability, resilience, and wellness into beautiful architectural interventions.

"Oasis" is a housing complex and urban greenhouse allotment garden/park I designed with Elizabeth Gilman in 2017. The project is located in the heart of the Buffalo-Niagara Medical Campus, which houses hospitals and medical research facilities. Typically, patients being treated here travel from out of town and stay for months at a time. Aside from nearby hotels with high rates, almost no places exist that can accommodate these patients affordably. In response, the housing design consists of thirty units specifically designed for travelling patients and their families. The design revolves around the theory of biophilia, which argues that social interaction and a close relationship to nature vastly improve the mental and physical health of humans. Since Buffalo's climate doesn't accommodate vegetation for most of the year, greenhouses are used as a way to provide a resilient, year-round green environment and integrate sustainable building practices. The housing units are designed in clusters around shared greenhouses, which include shared kitchens and dining areas. By placing the social spaces of the home within the greenhouses, the design seeks to combine the benefits of social interaction with the presence of vegetation to assist patients' healing processes and improve their wellness. The building is

encompassed by a larger greenhouse, creating a year-round, street level public park. The north façade of the building is a green wall, which freshens air intake of the building, filters rainwater collected on the roof, and creates a green element that can be seen by the in-house patients of the adjacent hospitals. At the ground floor, a restaurant and community center activate the park space and create a thriving healing environment.

The greenhouse strategy is also employed at the campus scale. The surface parking of the entire block is replaced by underground parking, and the open space created is converted into rows of greenhouses. The land within the greenhouses is divided into allotments, which are then rented by community members for gardening and cultivation. At this scale, conventional greenhouse construction is cheap, and the money generated by the garden plots, restaurant, and community center creates a resilient economic model that helps sustain the affordable housing. A network of walkways within the greenhouses creates a major thoroughfare for the Medical Campus and a beautiful, year-round park experience. The project was part of a housing design competition, in which a panel of architects and scholars placed it 3rd out of 40 proposals.

Similarly, “[Re]Constructing Memory” is a bamboo housing, factory and memorial project, designed in collaboration with Laura Stargala at Cornell University. It is sited in Mexico City, where an earthquake in 2017 destroyed multiple buildings, killing many people and revealing corruption in the local building industry. On the project’s specific site plot, a 5-story factory collapsed and killed 15 people. After the event, the site was cleaned up, memorialized by the community, but then abandoned. Today, it still exists as a vacant lot, marking the trauma of the natural disaster as a scar in the urban fabric, similar to most sites of collapse throughout the city. In response, this project proposes a new concept of memorialization that not only memorializes a tragic event, but demonstrates resiliency by generating a process of growth and renewal through the use of bamboo.

The proposal begins with growing bamboo forests at all sites of collapse throughout the city, creating a network of memorials, retaining rainwater, recharging the shrinking aquifers below the city, and providing a new building material that is inherently resistant to seismic forces through its flexibility. The yearly harvest of bamboo is then brought to the site across the street, where a bamboo factory/material store treats the bamboo and converts it into a locally sourced, sustainable building material available to the public. Next to the bamboo memorial on site, a housing prototype is built with the harvested bamboo, challenging the current stigma associated with bamboo as a “poor” material and redefining it as a beautiful and intelligent material for building.

The bamboo factory and material store is designed as an open-air work space. In the rear, the bamboo is dropped off and treated, while on the street front the bamboo is sold to the public. The roof canopy is a bamboo bay structure composed of ruled surfaces that undulate to channel rainwater into the soil and allow for maximum diffused day lighting. Additionally, the canopy structure defines a new factory typology that inspires the community on the possibilities of working with bamboo. A multi-use plaza exists in the center where workshops are held to educate the community on working with bamboo.

The housing units are specifically designed for Mexican building culture and familial wellness. Adjacent units share a courtyard, where plants are grown and outdoor circulation exists. Each three-story unit has work/rent space on the ground floor, which allows the families to generate income. In Mexico City, it is customary that an extended family remains living in close proximity. As a result, the construction of each unit consists of a CMU/ bamboo hybrid that allows additional rooms to be built with bamboo in response to the growing family. The roof can be used to collect rainwater, or can be built upon to create semi-outdoor living space or extra bedrooms. The central courtyard is crucial for this add-on process, providing space to store material and construct building elements. The result is an elegant, sustainable, and resilient housing typology.