



SILO

Architecture

Narrative

Missouri
University of
Science and
Technology



SILO at A Glance

Life can be complicated, from hectic weeks at work to even more trying weeks at home. Starting a life and career is exciting and fulfilling, but after a while the busy city life can take its toll. After countless wishes to get away from the noise of traffic, SILO grants respite from the city.

Bathed in the warm glow of the sun, SILO sits on a plot of land surrounded by lush foliage and breathtaking mountain views. Whether it be from inside sitting at the dining table or outside on one of the nature-immersing decks, SILO is the perfect place for residents to overlook the rolling hillside and forget about the bustling city. SILO is the perfect house for an individual or couple entering their late 40's or early 50's ready to move to a smaller home and embrace a relaxing net zero solar powered life.

Appealing to those who want a practical and well-engineered design, SILO blends the characteristics of a farmhouse architecture with modern style and technology. The Missouri S&T team centered the home on three beliefs: to be a Smart, Innovative, and a Living Oasis to cohesively combine form SILO.

Farmhouse

Breathing new life into a tried-and-true architectural style, SILO embodies the American Farmhouse designs with a modern twist. The American Farmhouse designs evolved from the people, geography, and available materials to create a resourceful home.

Farmhouses were built out of necessity. Early homes were constructed to be practical because skilled labor was limited and architects were costly. As time progressed, better materials could be transported across the railroad opening the door for farmhouses to be built with better materials and eventually be filled with eclectic textiles. Through the years farmhouses held true to their straightforward, functional nature, reflecting their inhabitants and local geography.

SILO uses these building blocks to create a functional home with the amenities of a modern lifestyle in a minimalistic, soothing environment. Traditional features of a farmhouse design include: large openings with expansive views, wraparound porches, beamed ceilings, an open floor plan, and an abundance of natural wood.

Much like the conventional oversized doorways found in farmhouses, two sets of accordion doors create expanded openings. This breaks down the barrier between interior and exterior spaces and connects SILO to the outdoors.

Rather than using timber trusses, exposed steel trusses are fitted on the over 14-foot-high ceilings in the center module of the home. Without increasing the home's footprint the raised ceiling makes the home feel larger and enhances the vitality of the home.

The vaulted ceiling paired with powered clerestory windows and an open floor plan passively cool in the warm summer months; large windows passively heat in the cool winter months.

Large storefront windows accompany the trusses, enhancing the openness. SILO uses faux wood which offers many benefits that traditional hardwood floors lack. Besides being a modern light grey, the textured flooring is impact-absorbent, scratch resistant, and sound dampening.



Interior

SILO spans just under one thousand square feet of indoor conditioned space separated into public and private spaces to give the residents exactly what they need when they need it.

Fitted with a large open living space, inviting kitchen area, and office that can transform into a spare bedroom, SILO is perfect for those looking to

unnecessary space, upgrade quality, and live sustainably. Moving away from their large family home, residents no longer have unused space, but can still host parties and events for their friends and family.

A wealth of light passes into the center of the home through large storefront windows located in the middle module. This surplus of natural daylight throughout the home negates the energy cost of lighting during the day. Pendant and can lights provide supplemental lighting in the home. The views from the northwest corner are sure to become a talking piece over dinner as the residents overlook the outstretched land and the garden just outside of one of the storefront windows.



The interior environment is relaxing with a calming color scheme, minimalistic design, abundant natural sunlight, and open layout. Blue and green accents splash color through furniture and thriving flora.

The two sets of accordion doors and storefront windows in the home are fitted with solar shades which reduce ultraviolet rays and control solar heat gain during peak hours.

Healthy Living

To enhance the livability of the residents and the home itself, SILO promotes a style of healthy living. Large accordion doors and clerestory windows supply the home with ample amounts of fresh air. A set of accordion doors line the east side of the master

bedroom supplying ample amounts of sunlight in the room.

Residents will awake to the rising sun each morning, promoting healthier daily function through their circadian rhythm which is linked to brain wave activity, cell regeneration, and other biological activities.



The faux wood flooring promotes healthy living since the modular tile, equipped with glue free installation, reduces the environmental footprint by 90% when compared to traditional glue adhesive.

American Clay plaster lines the walls in the master bedroom and office. Instead of using paint, these rooms are covered in a finished plaster that has a reduced carbon footprint, is made with over 70% recycled material, and is mold resistant due to its ability to regulate humidity. Additionally, 10 LEED credits are available from the U.S. Green Build Council due to the product's use of resources, packaging, and containing zero volatile organic compounds (VOC's). Research, performed at Missouri S&T, shows that the clay plaster actually absorbs small amounts of VOC's from the air. By using this plaster over traditional paint, the residents are reassured that the air they breathe is clean.

Through the use of an Amazon Echo and systems, residents control many technical features such as the Nest thermostat, fan, lighting, and windows with just the sound of their voice. Another automated system

tracks the humidity, temperature, and carbon dioxide levels along with all energy consumption and generation. Residents can visually see how they are impacting the environment and act accordingly.

Exterior

Stepping outside of the master bedroom, residents walk into their own personal oasis: the serenity space. Filled with seating and a soothing water wall, that doubles as a filtration for the grey water system, this private deck overlooks rolling hills and lush foliage. This is an ideal place to let all of a residents' stresses melt away. Glass railing lines the outside edge of the deck so that no view is obstructed, furthering the immersive connection to nature. If the resident wants to completely enclose themselves in the serenity space, they can move two mobile walls filled with plants in front of the breezeway. The two movable green-walls also act as a thermal mass in front of the south facing accordion doors. They block additional heat from entering the home, reducing the need for additional cooling.

Conclusion

SILO is ideal for a couple or individual looking for a more relaxed "green" way of living. Including low-maintenance greenery found both indoors and outdoors, the house promotes the physical and mental well-being of its residents. The modern appeal and functionality of a traditional farmhouse will incite visitors to think differently about future homes. Guests will see that the future is using the building blocks of past designs to create a comfortable net zero home. Fitted with all of today's amenities, SILO uses innovative technology to bring back the simplicity and tranquility of a bygone era.















