CRITICAL
ACCESS
HOSPITAL
PROTOTYPE

STUDENT PROJECTS

edgefield, sc

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arch 892 | comprehensive studio
architecture + health
clemson university
**PROBLEM**  | Limited access to care

Fundamental to the challenges of financing cost, quality, and access to healthcare are the issues of fragmentation in the healthcare delivery model. As the healthcare industry optimized its pieces to respond to the demands of historical reimbursement protocols, it failed to optimize the whole. The consequence of this failure is that many communities throughout the United States have insufficient resources available to staff even minimal care delivery services. The utilization of collaborative care (Lean healthcare delivery models) provides a very different, viable model to meet current and projected healthcare needs for these populations.

**SOLUTION**  | Critical Access Hospital Prototype

This CAH prototype can be adapted for each site based on three major functional components:

**Public Zone Adjacent to Downtown**
- Creates community link
- Buffers hospital profile

**East/West Solar Shade PHS**
- Creates rational layout
- Creates optimal sun shade
- Maximizes solar energy gain
- Structural steel clear span allows for modular flexibility

**Patient Zone Promotes Views to Nature**
- Creates privacy/security buffer
- Promotes patient wellness and natural healing

**SITE PLAN**

**EDGFIELD, SC**
**CRITICAL ACCESS HOSPITAL**
Located in rural South Carolina, Edgefield is the last place one would expect to find a state of the art healthcare facility. However, this new Critical Access Hospital will help accommodate the underserved population of its community. The site is located just a block south of the community town center, optimizing a community integrated data environment. The openness and light of the site not only serves as an aesthetic backdrop, but it allows the users of the hospital as well as the community to be more interactive and connect with their surrounding landscapes. The building is integrated with the dramatically sloped landscape by sitting the roof forms up from the landscape itself, creating a continuous focus to the surrounding residential neighborhoods. Hospitals tend to not only the largest employer in a small town but the largest building as well. In order to bring the experience of scale to a more human proportion, the building grew out of the sloping site creating landscaped roofs that merge the outdoors in and the hospital out towards the town creating a continuous experience throughout your visit to the Edgefield Critical Access Hospital.

It is important in a small community to fit in with the surrounding context; however, it was also important to integrate a way to stand out so that the new critical access hospital would interact with the community as a whole. While the simple form of the hospital clad in Cor-Ten A58 steel metal panel creates a sensitive gesture, the public space must be something more. This public structure becomes an abstract pendant towards the center of town, a glass-clad system that hangs from organic tiered roof to shingles that begin to blend in with the landscape while also standing out as a beacon of public interaction.
With a complex program, it was important to systematically blend the environment, community, and the programmatic elements while still ensuring a level of spontaneous interaction. This form of programmatic integration provides a variety of spaces ranging from intimate to monumental and provides accessible rooftops that carry and blend functions to the outdoors while engaging the surrounding context. By breaking down the barriers formed by typical divisions of unit typologies (Diagnostic and Treatment, Surgery, Imaging, Inpatient, Outpatient) and creating a plan that allows for cross-flow on both patient and staff throughout the facility, there is an opportunity to create a mental building area, minimal staff, and lower staff. With the wide spanning steel structure in the procedural and inpatient buildings, the facility is extremely adaptable and flexible, allowing for maximum facility changes over time.
The tilted volumes allow for an opportunity to open up the large building footprint to green courtyards that provide natural ventilation, daylighting, and views to nature. The sloping green roofs also provide an opportunity for rainwater collection and utilize heat island mitigation and evaporative cooling techniques. This provides a healthy and environmentally responsible care environment for the occupants of the facility and the community as a whole.
micro hospital

creating a new public hospital that connects isolated care functions back to the community of Edgefield, SC.

The town of Edgefield lies at a critical location for medical care. Being over 30 minutes to any major medical center, a critical access hospital is necessary for the surrounding service population. This site chosen for the new care center is one block from the downtown square of Edgefield, attempting to reintegrate the functions of this critical access hospital back into its surrounding community. Currently, the site location is a dead space with heavy traffic on one side and a sunken stage, creating a zone of disconnection between downtown and an important local neighborhood. The solution to this disconnection came by following the logical extension of the topography that recognizes this topography and at once makes it a place of transition as well as a public destination. A steel framed structure rises out of the ground at the corner closest to downtown and breaks over the public spaces that are necessary for the hospital. Along with making a dynamic public space both above and below, the space of the steel structure creates a striking connection between the two large medical functions of the hospital - the emergency department, diagnostic and treatment block, and the patient care wing. This project is unique to public and back to private areas for that each level of health care in the hospital environment. The public greenway moves toward the back of the site, with it crossing the topography and with its rise, creates a double level that makes a unique entrance in the back of town center and shows for a rear parking lot entrance to the clinic area and atrium space. While the topography governed the path of connection, it also creates a theater for the patient entry to align with. The site finances northwest, giving patients favorable views to the rolling hills down along Edgefield. A steel roof is used along the exterior patient wall to give a natural green roof that enhances sustainability and sun-shading for the patient rooms. The overhanging becomes a canopy with its own organic shadow to support and also a hanging vine like pattern that appears to hang for the landscaping greenway above.
The structural system combines a precise coffered structural slab system to float the green roof with supporting columns. The organic columns play and dance with each other while gracefully connecting to help support the loads of the green above. Each column system connects to the centres of a triangular column, bringing down the load from a greater area. A similar system is used with the structure of the glazed façade that uses undulating brass columns to support the glass panels.

The lean healthcare plan for Edgefield’s hospital makes for quick and intuitive transitions through the medical care areas. By eliminating barriers that create barriers within the diagnosis and treatment blocks, patients do not have as many steps throughout their treatment process. Universal care rooms and two direct paths of circulation are means that create a more fluid patient experience.

The response for a community-integrated care environment is the partial design driver and facilitates the decisions for care and sustainable design. A green, public realm of connecting public space, with the consideration of lean, adaptive, healthy, sustainable design, and the use of steel allows for these to be naturally extended into this new conception of community-integrated care.