Proposal for Enclosing Holmes Hall Atriums

February 17, 2012

Background

The Department of Civil and Environmental Engineering (CEE) has had a significant storage problem since construction was started on the POST building in 1993. The department previously had a fenced-in storage yard with vehicle access where the POST building currently stands. The storage yard was 30 feet by 60 feet with concrete slab walls and a chain link fence that served to secure the area. (There were actually two identical storage yards attached to Holmes Hall, one near Holmes 101 used by CEE and the other near Holmes 180 that was used by the engineering machine shop.) No space has been made available by the university to replace the CEE storage yard (or the other one). A copy of the original layout for Holmes Hall is appended.

One aspect of study and research in Civil Engineering involves structures—concrete beams and slabs, rebar, sand, gravel, concrete mixers—all of these items are large and bulky. Along with other building materials, these items require storage. The department used the former storage yard to keep these materials as well as to work on projects.

This past year (2011), Chancellor Hinshaw attended the Johnson Hall dedication ceremony and inquired with CoE Dean Crouch as to why the area around the Ewa end of Holmes Hall was so crowded with materials. The Chancellor indicated to Dean Crouch that a major effort needs to be made to clear the area and find an acceptable place to store materials and work on projects.

Purpose

CEE proposes that enclosing both of the Holmes Hall planted areas will help to meet the Chancellor’s mandate and will fulfill two major needs:

1) Provide storage space for construction materials:

Black plastic bins, storage sheds, dumpsters and building materials which currently line the sidewalks outside of Holmes 101 on both the mauka and makai sides can all be placed in the new storage areas, thereby clearing the areas.

2) Provide workspace for student projects including:

- Concrete Canoe Project (large canopy currently occupying loading dock area on Ewa end). This canopy and associated supplies will be removed leaving a clear, usable loading dock area as was originally intended by design.

- The Steel Bridge Project (currently squeezed in/ around the Structures Lab Area).

Both projects are ongoing annual interscholastic programs where students develop and test their skills by designing and building canoes and bridges for competitions with other colleges and universities.
**Project**

**Current Configuration**

Holmes Hall currently has two uncovered square atriums at the base of the three towers which contain mounds of dirt with vegetation growing on them. Adjacent to the mounds are bicycle racks and picnic benches (mauka sides). Additionally, the Ewa opening has a steel sculpture on the makai side. We propose to remove the dirt mounds and build enclosures in both areas to store materials as well as work on projects.

**Proposed Configuration**

The enclosed areas will be approximately 925 square feet each (totaling 1850 square feet) with a roof and sides around the entire perimeter with gates on mauka and makai sides. A concrete floor will also be poured. As to existing fixtures, the steel sculpture will remain in place and the picnic tables on the mauka side of each opening will be shifted to allow for the forklift gates. Bicycle racks will also be retained and reoriented to fit more efficiently. We feel it’s important to retain greenery which is why the enclosure walls will be surrounded by a 4 foot wide swath of vegetation on all sides, aside from the gate driveways.

An architectural fabric roof (closely matching building paint) will be installed to protect projects and materials against the elements and also be esthetically pleasing when looking down from upper floor walkways. The roof will extend out to the 4 existing building columns and the top will be no higher than the 2nd story deck.

The sides will extend to a height of 16 feet above ground level, which is 5 feet below the bottom of the 2nd story. Additionally, the sides will be set inward from the 2nd story deck by 7 feet on all sides, allowing ample daylight and air circulation. The double height sides are necessary because of tall experiment specimens and also so pallet and cantilever racks can be installed to maximize storage density. If single height sides were used, we would be unable to fit all of the projects and materials within the enclosures.

The floor of the enclosures will be reinforced concrete slabs. Should these areas be developed into multi-level office or lab space in the future, the concrete slabs could be built on as they will be installed per specification. Concrete is the only option for the floor because it needs to bear heavy point loads and be able to support a forklift driving over it with heavy materials.

**Enclosure Sides Options:**

There are 2 options described below for the sides of the enclosures. Both options will use architectural fabric for the roof and concrete slab for the floor (as described above).

*Plant Trellis Option*

The first option which will be the best looking, environmentally pleasing, most enduring and most secure is the Eco-Mesh plant trellis. Eco-Mesh is a 3 dimensional heavy duty wire screen which plants and vines grow into, creating a dense wall of green vegetation. Please see the attached photos of the new Ward parking garage to get an idea of what the Eco-Mesh plant trellis will look like. Additionally,
other plants will be put in the soil swath to further beautify the enclosure. The plant trellis would present a continuous, unbroken wall of vegetation.

*Chain Link Fence Option*

The second option is a standard green colored chain link fence with slats. Because of the height of the sides, two 8 foot high sections would be used because of materials availability and thereby necessitating a continuous horizontal joint around the sides.

**Cost Estimate**

The total cost to build the enclosures using the plant trellis option is $130K each (x2), including the cost of materials and labor. The chain link fence option reduces cost by only $6K each. We highly recommend the plant trellis option due to its inherent benefits and the minimal cost savings of the chain link option.
Current Condition of Mauka Side of Structures Laboratory

All of the black bins, blue racks, wood, pallets, sheds, concrete beams, etc. would be housed in the new storage area and out of sight restoring the exterior of Holmes Hall to its original appearance.
Current Condition of Makai Side of Structures Lab

Everything seen here would be housed in the new storage area including the green trailer, blue racks, black boxes, and walls
Current Condition of the Ewa End of Holmes (loading dock area)

The canopy, cement blocks, sheds and steel beams would be removed restoring the loading dock back to its original function and appearance.
Existing Ewa Atrium

Mauka Side

Makai Side (Steel Sculpture in Center)
Existing Koko Head Atrium

Makai Side

Mauka Side
The design of this recently built parking garage across from Ward Center incorporates a plant trellis system, creating a pleasing facade of vegetation. As time passes, the vines will become more dense, eventually hiding the concrete decks behind them entirely. Our proposed enclosures would use Eco-Mesh plant trellis for the walls and gates.
Here are two preliminary renderings of what the fabric roof would like from the ground level (top) and second floor walkway (bottom).