



USC DATASHOP

ТҮРЕ

RENOVATION ADDITION

LOCATION

LOS ANGELES, CA

DATE

2009-2010

Lodged within the existing fabric of the USC School of Architecture in a turn of the century cast-in-place concrete and masonry building, the DATASHOP has the responsibility to condense the intensity of current digital technology by conjoining digital representational production with digital fabrication in one learning classroom. This facility sets a new agenda for the integration of media and design and develop a "high profile" central lab for existing and expanding digital hardware in a second story slot of space at the heart of the school's two courtyards. Establishing the goals of using the technology that it will house to fabricate itself, each technology becomes a functional shape of its own process. A performative skin as an energy capturing blanket makes the heavy electrical load a neutral net gain and provides an interstitial space for the ventilation requirements of the lab. Extending from walkway to walkway, the scheme removes all existing lateral walls to produce a collective space that can be visually engaged by the passerby. The two ends assume functions directed towards the student community: mailboxes and a rotating gallery wall. Within are a series of materially and formally distinct pavilions each calibrated to the form making sensibilities of the technologies they house.





VIEW FROM BRIDGE LOOKING SOUTHEAST







VIEW OF OUTDOOR CINEMA FROM EAST COURTYARD

Digital Classroom - CAD CAM Surfaces: The smart classroom is the primary teaching component of the new lab. Outfitted with fully interactive screens, motion capture capabilities and distance learning infrastructure the form of the room emerges from the overlay of the three geometries of its potential configuration: an inward ring configuration for a seminar class, a linear configuration focused on a single projection for a lecture class and finally an equalized review space for traditional jury reviews but outfitted for digital integration technologies. The final form comes from the synthesis of these three configurations.

3D Digitizer - Glass Point Plane: A glass snowflake of flat planes connected by variable rods to produce a compressive structure of linked surfaces houses the digitizer facility. Designed to transition three dimensional objects into digital models, the room emerges from the mapping of point to establish planes.

3D Printer - Layered Wall: The three dimensional printing facility will house the plaster, plastic and resin printer for generating stereo-lithography files. Using the stacked sensibility of the machine the pavilion is formed by varied layers: each laminated in alternating bands of transparent and opaque but with variable plan configurations to create the striated walls of the pavilion.

Actual three –dimensional printing technologies are used for the storage wall of the information technology office. In collaboration with an engineering faculty member that has developed the ability to three dimensionally print in real scale out of concrete, this wall will use the technique to create the mass wall of the office and server space.



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LONGITUDINAL SECTION



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VIEW OF LASER AND DIGITIZER PAVILIONS

6 PRIMARY PAVILIONS







VIEW FROM ENTRY OF LASER CUTTER AND 3D PRINTER PAVILION

Laser Cutter - Responsive Interchangeable Wall: The quad of laser cutters is cloaked in a panel wall that has a series of glass pivot walls that allow for interchangeable $4'x8' \frac{3}{4}''$ panels to be inserted. The walls can then house milled panels from the CAD CAM machines extending the capabilities of the laser cutter into real-world dimensions engaging the planar cutting technique and the role of architectural ornament through interchangeable screen panels. Here a buck shot pattern is displayed.

Student Mailboxes - Social Condensor: Located at the north end of the DATASHOP along the outside corridor, this aluminum wall has a series of 750 perforated cuts each lined with a powder coated color tray to serve as a mailbox wall for the students.

Gallery Wall - **Social Infusion:** Located at the south end of the DATASHOP along the outside corridor, this operable glass wall houses a simple protected space for the 24 hour display of work. Installed student or faculty exhibition, announcements and reviews can occur in the 24' long three foot deep space.

Performative Umbrella - Skin and Surface: A performative outer canopy provides a wrapper that establishes an interstitial space between the roof proper and the solar skin to protect and conceal the equipment necessary for the heavy ventilation load. The angled skylights permit a saw tooth clerestory natural day-lighting with a southern solar surface on the opposing face that generates energy for the DATASHOP. On the eastern face the canopy extends over the outside stair to protect it from the elements while the west face deploys view funnels to filter light through a color wall.

VIEW DOWN EXTERIOR HALLWAY OF MAILBOX WALL AND SMART CLASSROOM

Plotter Field - Datum Bands: The plotter field serves as the datum running through the DATASHOP. Each station is comprised of a plotter and a networked desktop computer set in a repetitive and homogenizing frame. A milled aluminum encasement for the plotters establishes the field of the space and provides a minimal wrapper to emphasize and objectify output.









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UNDER UMBRELLA V

VIEW OF OFFICE



PLOTTER FIELD



LASER CUTTER PAVILION

3D DIGITIZER PAVILION





AERIAL VIEW - ROOF OFF



WEST AND EAST ELEVATIONS

MAILBOX WALL



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SERVER FARM



SMART CLASSROOM PAVILION



3D DIGITIZER PAVILION

3D PRINTER PAVILION

VIEW THROUGH PEEP HOLES



AERIAL VIEW - ROOF ON

