



STUDIO OBLIQUE

DESIGN STUDIO
 The space of the studio is the lifeblood of the school—a place of independent and collaborative creative work, of private struggles, intellectual exchanges and public discourse. The open studio is a model of collectivity that too often becomes a depersonalized sea of desks. We propose a sectional alternative that retains the idea of a shared democratic surface, one that produces a new variety of atmospheres: the inclined plane. This surface lifts from Union Lawn to access the building, maintaining strong connections to campus pathways and drawing student life into the building. As the organizational principle, it arrays multiple levels of studio trays and is the major circulation connecting them. It is a new studio interface stimulating improvisation, interdisciplinary exchange, and serendipitous discovery.

The inclined plane is sliced and carved to serve every building need. It dematerializes into a network of paths, expressing the building's activities across six levels. It staggers the studio trays in section, separating them for more intimate and focused activity, yet providing overlooks from one to the other to foster a cross-pollination of ideas. Each tray carries a large crit pit into the inclined plane and is capped with a break-out meeting and exhibition room piercing the glass facade. Tucked beneath the trays are light and sound controlled pin-up spaces and computer rooms.

The inclined plane is a social hub: clearings of different sizes create a field of micro-atmospheres, including living rooms, digital lounges, kitchenettes and coffee bars, reference libraries, print stations, squatters' landings, sleeper stairs for catnapping, and bleachers for impromptu gatherings.

The studio trays are instruments for calibrating group learning space: operable pin-up walls subdivide, permitting smaller desk groupings for individual work and desk-crits, denser digital clusters, hand-assembly and model-building spaces, and informal group meeting areas. For students, the studio is the "home away from home," a place of full immersion, 24/7. Individual workspaces must be personalized: a desk to settle into where ongoing work remains, sources of stimulation, and tools can be kept. The trays accommodate permanent desks for all graduate students and unprogrammed desk areas for roving undergrad studios. Given the volume of students and limited space, each undergrad will be assigned a mobile work unit—a "charette"—to personalize their nomadic lives. The trays are wired with a power / data grid, and the "charette" can be docked when idle, wheeled to a seminar room for a studio session, or to the library, a workshop or cafe. Like a Swiss army knife, this compact unit unfolds into a work surface for drawing and model making with lockable drawers for books, laptops and tools.

BUILT PEDAGOGY
 The opposition between theory and practice has been put into doubt in recent years as the research product of many theory-based contemporary practices takes built form. The opposition between real world and academy is also breaking down as productive links between research, policy, and industry are forged to address the challenging global problems of cities and the environment. The new building for the Faculty of Architecture Building and Planning must straddle and merge these reductive dualisms, engaging theory and practice together for the first time. We propose to invert the conventional logic that the dirty, noisy activity of the shop belongs on the ground and the clean space of the book belongs in the rarefied domain elevated above it. The ethereal world of knowledge in paper and digital form will be at the base of the building while the messy, physical world of production will be under the sky with unlimited vertical height to build.

The large open-air roof platform is dedicated to 1:1 constructions. Crowning the building is a gantry crane that travels the building's trusses. Raw materials delivered at the eastern service dock are hoisted to the roof. Large assemblies may be built and lowered down the west facade for exhibition within the building or display on Union Lawn. A glazed model shop, displaced between the studio and roof houses sensitive CNC equipment for automated fabrications. This roof is publicly accessible with an espresso bar as a magnet.

THE ACADEMIC ENVIRONMENT
 The inclined plane divides off the quieter, more intimate graduate research and faculty office environments in the eastern building. RHDM and research studios extend the studio trays through the stair into more conventional floor plates, preserving their lateral connection to design work while offering visual and acoustic separation for group and individual research. Faculty offices line the quietest eastern facade, with both glass-enclosed individual offices and interspersed open office areas for visiting professors, adjuncts and sessionals.

At the ground floor is the incubator—a curated program for young architects bridging academic and professional worlds. Subsidized use of school's facilities for emerging practitioners promotes new methods of research in practice. New on-campus professional internship opportunities are available for both undergraduate and graduate students. In return, professionals actively engage the life of the students and gain visibility for their work.

THE LIVING BUILDING
 Structure & Envelope: As a living pedagogical environment, the building manifests both innovative and conventional structures. Split by the inclined plane, the lower building utilizes a conventional steel frame, while the open studio volume above employs a long-span suspension structure: prefabricated long-span trusses supported on lightweight web columns carry the roof over the entire building as a platform for the outdoor workspace, lending the building its primary image. Studio trays hang from the trusses on tension rods. The upper trusses' chords carry the gantry crane. Cores and inclined plane laterally stabilize the building.

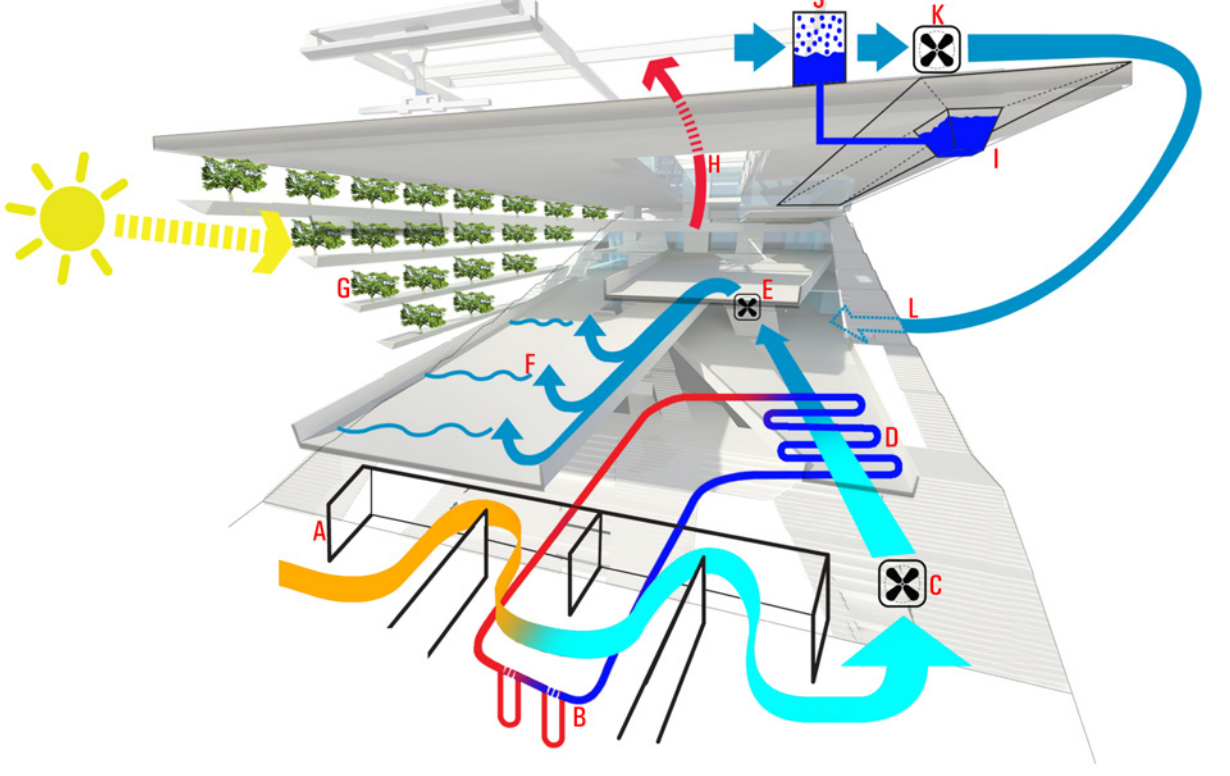
Facade gravity loads are resolved by the web columns nested into the glass folds. Wind loads are resisted by the rigidity of the folded glass. Each laminated, toughened insulating panel is locally clipped to the adjacent panel, acting like a glass fin. Increasing facade depth, from flat at the bottom to highly faceted at the roof line, is achieved through "cold bending" each panel. This variation provides a degree of privacy for the studio trays without compromising daylighting. Treated with a white frit on the glass, its pleats participate in sunshading.

Sustainable Systems: The building implements two strategies for sustainable heating and cooling—ground-coupled and atmospheric systems to provide high user comfort for a low carbon footprint. Energy and water will be site harvested; building equipment will be updatable to maintain its efficiency; and the building's systems will be visible and accessible for their use as educational tools.

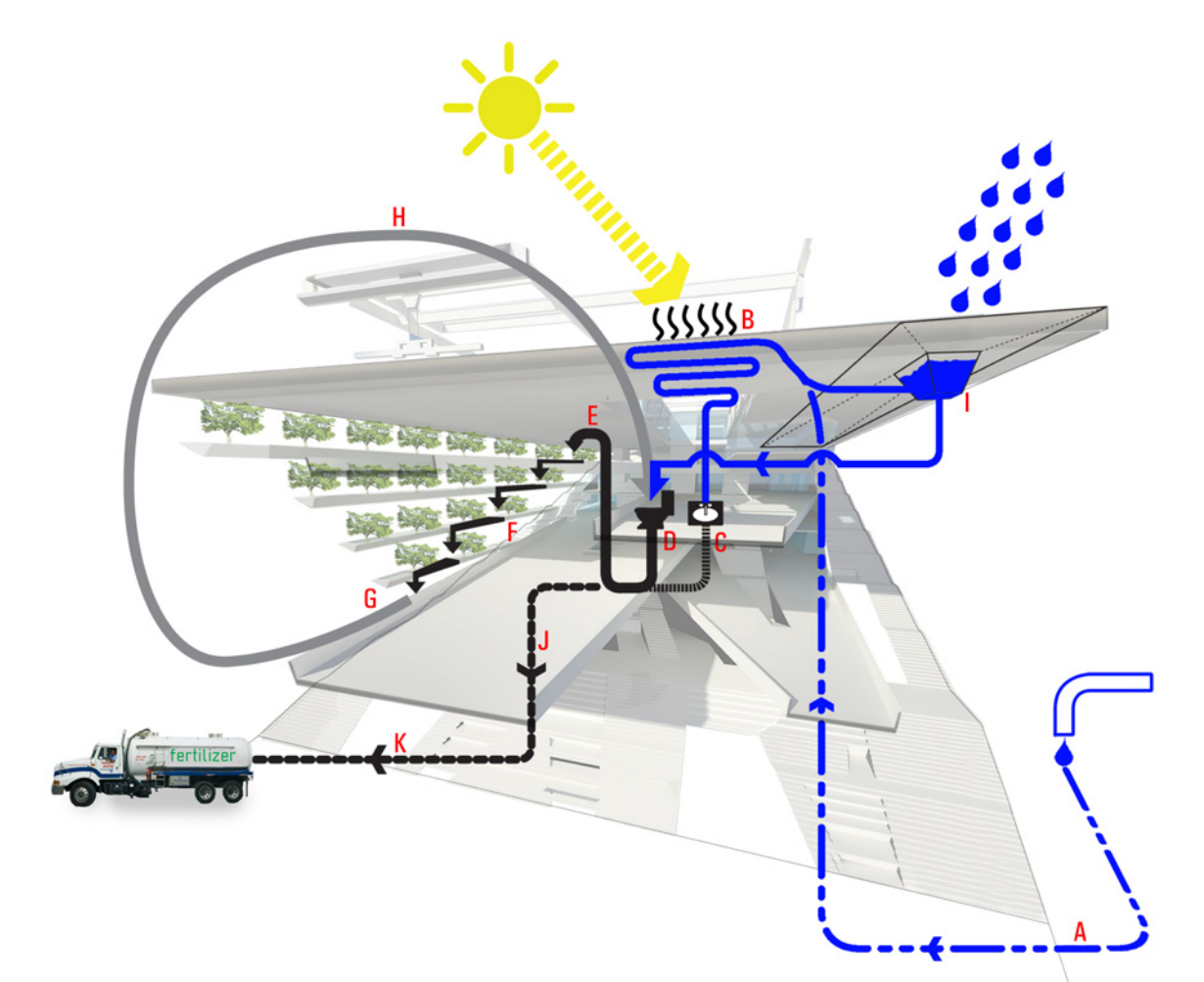
HVAC: At the foot of the inclined plane a ground-coupled labyrinth under Union Lawn will draw in outdoor air to be cooled or heated and fed through a displacement air system in the studio trays. The trays will have nozzles located in the smart floor to locally control the temperature and air movement. Supplementary heating and cooling, when temperatures fall outside the labyrinth's natural range, may be provided by a closed loop ground source heat pump (GSHP) system. These wells would be serviced from the labyrinth. Both the labyrinth and GSHP's would be permanent additions to the University's general infrastructure. Evaporative cooling, an effective method for Melbourne's hot and dry summers, will serve the faculty offices. At the top of the inclined plane, direct evaporative cooling tubes will utilize storm water, stored in roof cisterns, to cool fan-driven fresh air. Operable windows in the office suite will also provide natural ventilation.

Water: Facing droughts, the building will reduce water demand by up to 85%, with municipal service delivering only necessary potable water. Storm water collected from the roof and adjacent landscapes will supply the rooftop evaporative cooling system. Waterless and low-flow fixtures will be used throughout the building. Grey/black water from will be treated in gravity-fed organic purification tanks and re-circulated for toilets. At the north facade botanic wall, stacked specimen landscape plantings symbiotically cleanse gray water and are irrigated by it. An evacuated-tube solar water heating system provides primary domestic water heating.

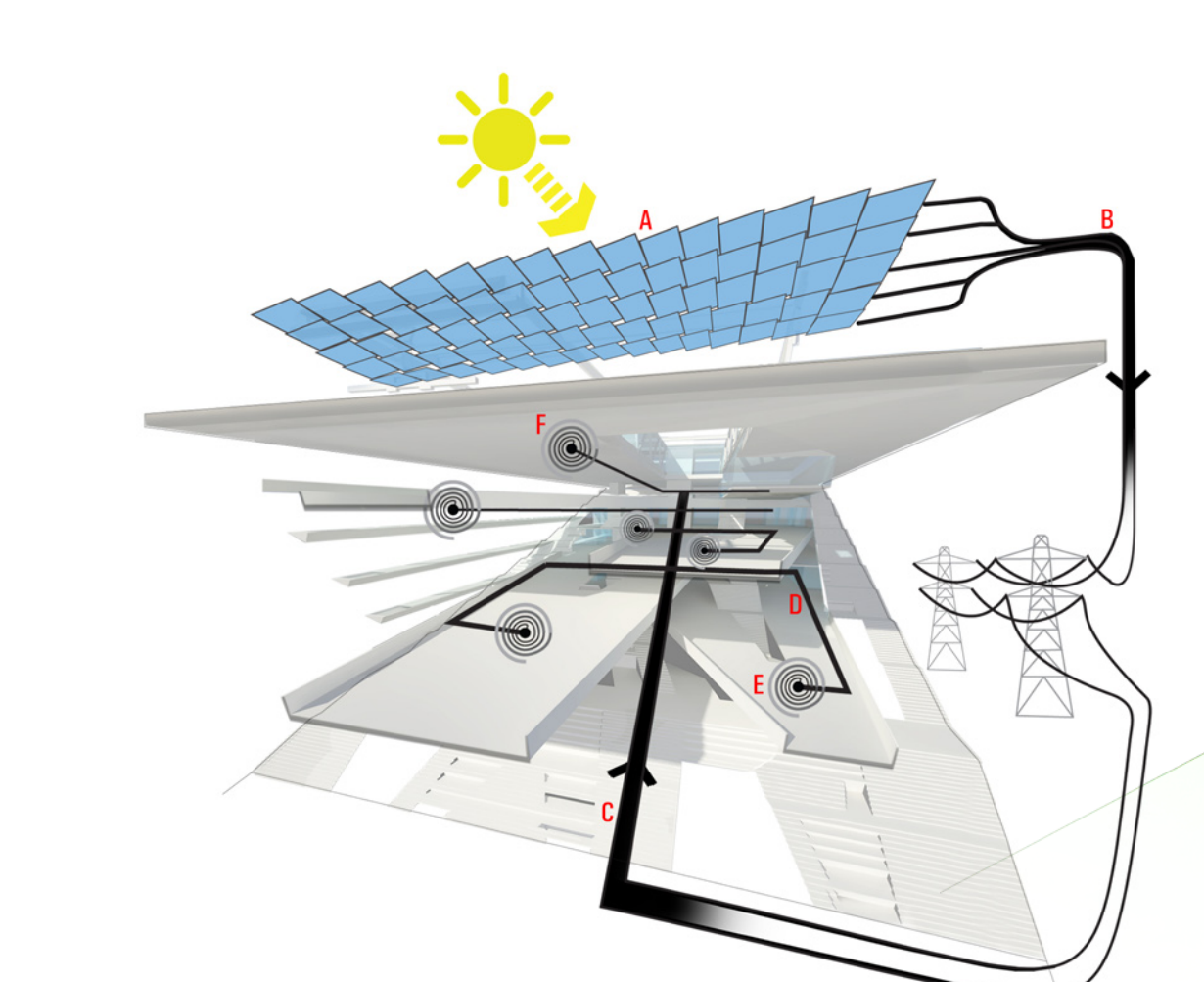
Power / Lighting: An approximately 750m² photovoltaic array on the roof provides 20% electricity needs of the building while also shading the 1:1 rooftop work spaces. This array will utilize standard-size PV panels, enabling easy system upgrades. Lighting throughout the studio-trays is limited to high-efficiency, long-life LEDs at balustrades, regulated by daylight sensors. Overhead lighting is minimized in favor of task-lighting. Seminar and office spaces provide high-output, warm color rendition fluorescents.



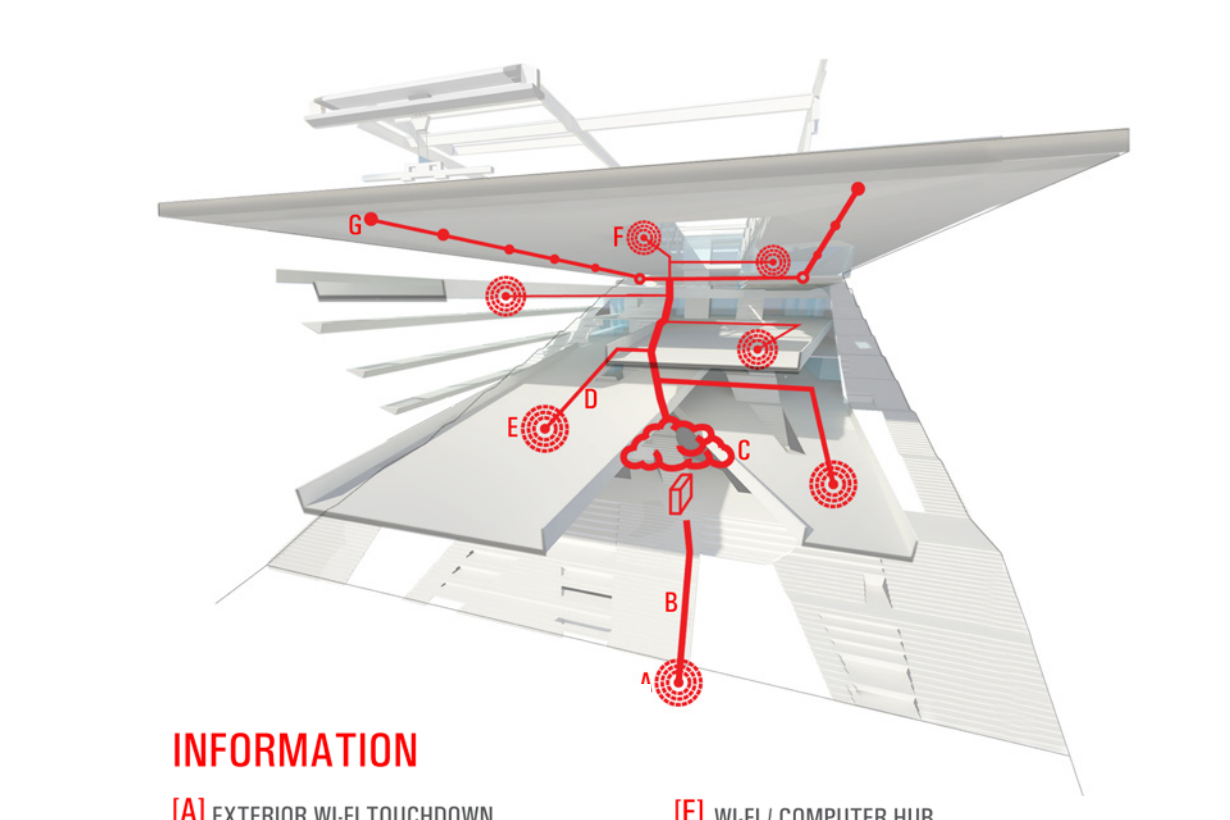
- AIR**
- (A) THERMAL HEATING + COOLING LABYRINTH
 - (B) GROUND SOURCE HEAT PUMPS
 - (C) LABYRINTH FAN
 - (D) GLYCOL HEAT EXCHANGE
 - (E) BOOSTER FAN
 - (F) DISPLACEMENT AIR FLOOR PLENUM WITH OPERABLE NOZZLES FOR LOCAL COMFORT CONTROL
 - (G) VERTICAL TREE SHAPE FOR SOLAR SHADING
 - (H) ROOF EXHAUST AIR
 - (I) WATER CISTERN + RAIN WATER COLLECTION
 - (J) EVAPORATIVE COOLING W/ RAINWATER
 - (K) ROOF FAN
 - (L) AIR DISTRIBUTION TO OFFICES



- WATER**
- (A) MAIN WATER FEED FROM CITY
 - (B) SOLAR HOT WATER HEATING
 - (C) HIGH EFFICIENT FRESH WATER FIXTURES
 - (D) BLACK / GREY WATER FEED
 - (E) BIO-FILTRATION TRAYS
 - (F) PURIFICATION COMPLETE
 - (G) GREY WATER RE-USE
 - (H) WATER CISTERN + RAIN WATER COLLECTION
 - (I) SLUDGE DISCHARGE
 - (J) SLUDGE RE-USE FOR LOCAL AGRICULTURE



- ENERGY**
- (A) SUNSCREEN LAYER + 750 SQ. METER
 - (B) INTEGRATED PHOTOVOLTAIC
 - (C) ELECTRICAL SUPPLY LINE TO CITY
 - (D) BRANCH FEED TO STUDIO TRAYS
 - (E) ELECTRICITY INTEGRATED STUDIO TRAYS
 - (F) THE WORKSHOP ELECTRICAL HUB



- INFORMATION**
- (A) EXTERIOR WI-FI TOUCHDOWN
 - (B) FIBER OPTIC BACKBONE
 - (C) CLOUD SERVERS
 - (D) CROSS OVER STANDS FOR EACH STUDIO TRAY
 - (E) WI-FI / COMPUTER HUB
 - (F) THE WORKSHOP WI-FI HUB
 - (G) CEILING MOUNTED CARBON DIOXIDE SENSORS

