

Planning for a Green Campus Future

The Office of Physical, Environmental,
and Long Range Planning
University of Hawai'i - Mānoa

Planning a Green Campus Future

- Space Survey and Integrated Planning (SSIP)
 - Data collection and building information modeling
- Plans, Standards, and Policies for Sustainability
 - Transportation, Landscape, and Buildings

Space Survey and Integrated Planning:

Opportunities for Efficiency and Improved Decision-making

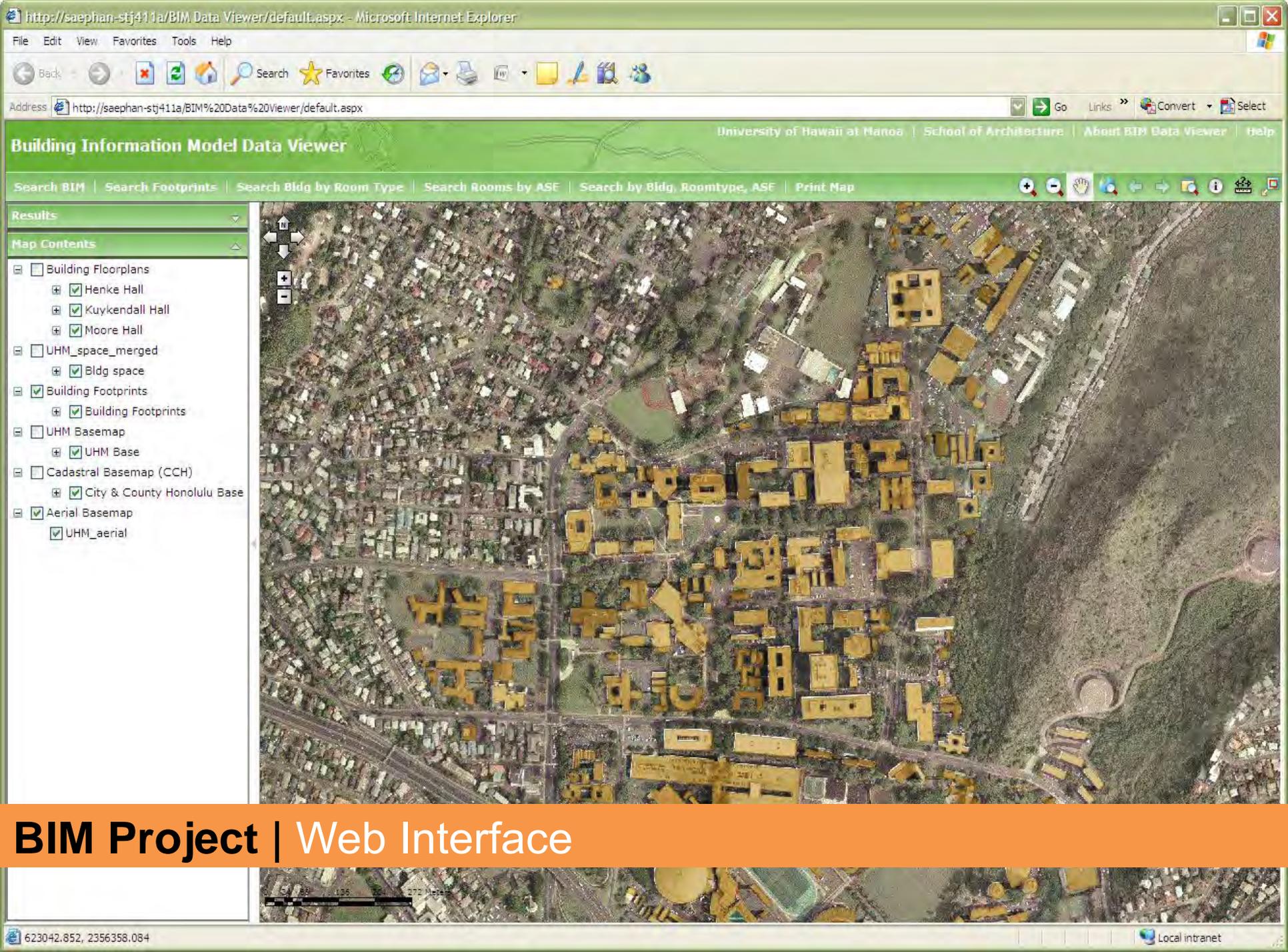


Sustainable Space Use and Allocation

- Ensure efficient use of space
 - Highest and best use
 - Fair allocation
- Avoid excessive new construction
 - Meeting current and future demands without unnecessary expense

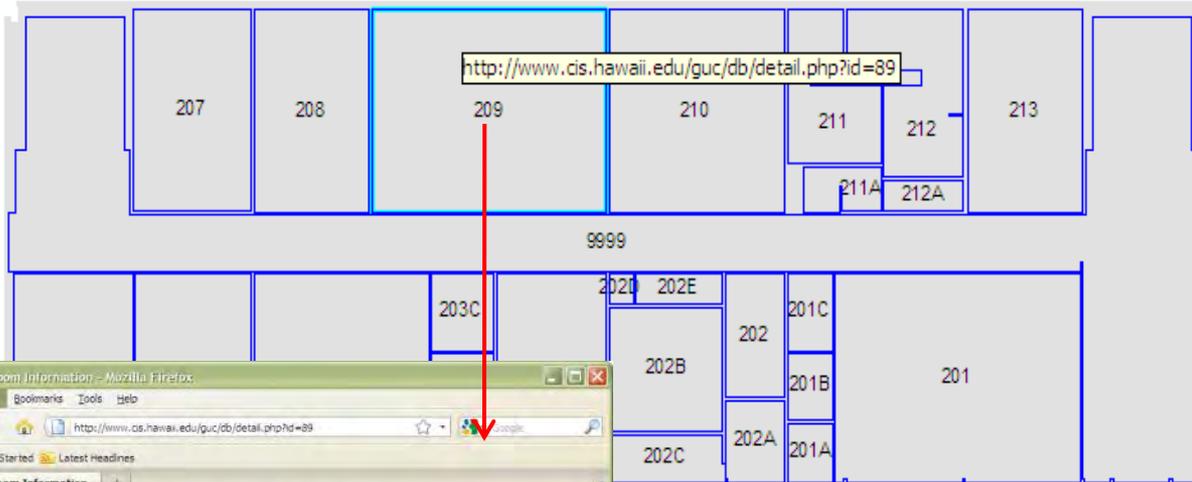
Integrated Planning

- Together with a large team of students, creating a comprehensive database of space on campus for space planning and future building information modeling (BIM)
- Data will eventually permit extensive scenario planning and analysis



BIM Project | Web Interface

Campus 3D Model with Building Information Management



<http://www.cis.hawaii.edu/guc/db/detail.php?id=89>

UHM General Classroom Information - Mozilla Firefox

http://www.cis.hawaii.edu/guc/db/detail.php?id=89

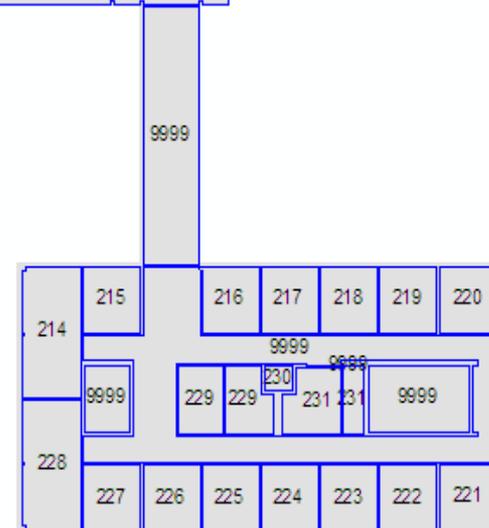
UHM General Classroom Information

Kuykendall Hall
KUY 209

CAMPUS MA

Room Specifications		Media Equipment Specifications	
Room Size (w x l)	30' x 40'	Audio Visual Equipment	DV Proj.
Seating Capacity	52	Video/Data Projector	DLP Data Projector
Seating Type	Tablet-Arm Chairs	Data Projector Capabilities	VGA, SVGA, XGA, SXGA (native)
Lighting Type	Fluorescent	TV Monitor	PC
Windows	Yes	Computer	PC
Window Treatment	Mini Blinds	Video Sources	VHS VCR, DVD Player, TV Tuner
Writing Surface - Width	Chalkboard - 16'	Auxiliary Inputs/Outputs	Video/Audio (RCA), PC USB (2) Ethernet, VGA Cable w/audio

Hyperlinked to CIS's webpage with specifics about room of interest.



BIM Project | ACA Models in

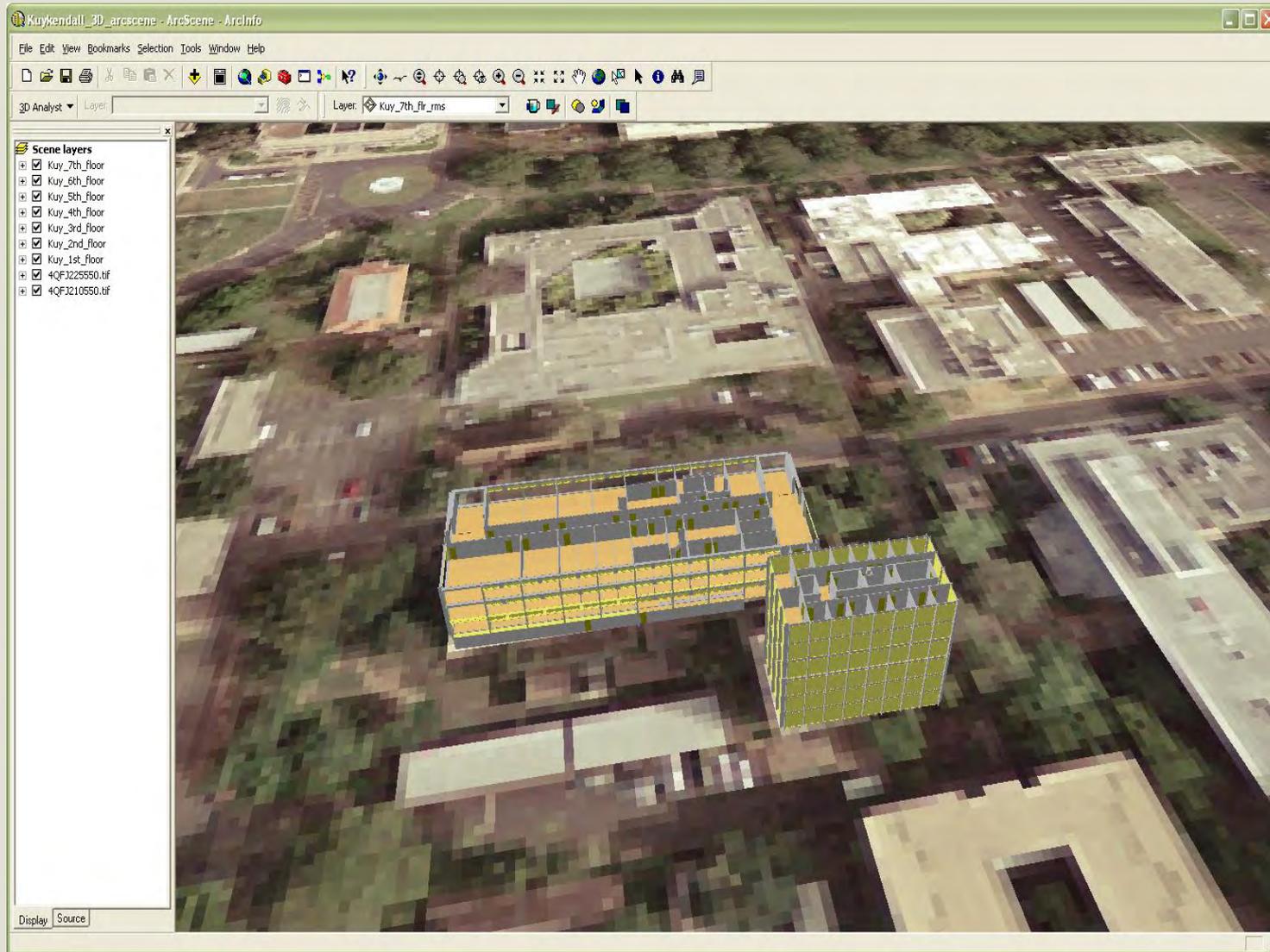
GIS

The screenshot shows the ArcScene GIS interface. On the left, the 'Scene layers' panel lists various BIM elements: A-Door, A-Glaz, P-Flor-Fixt, A-Flor-Strs, A-Wall, A-Area-Spce, A-Slab, and Kuy1192_1stflr. The main view displays a 3D cutaway of a building with classrooms. A callout window for room 209 is open, showing a table of attributes. A smaller 3D view of the classroom is shown to the right, connected to the main model by a line.

Field Name	Field Value
Room_num	209
Room_ID	1192_209
gen_use	Yes
BLDG_ID	1192
BLDG_NM	Kuykendall Hall
ROOMID	1192_209
ROOM	KUY 209
CAPACITY	62
PROJECTOR	DLP Data Projector
COMPUTER	PC
VIDEO_EQUI	VHS VCR, DVD Player, TV Tuner
CAD_PDF	..\CAD_pdf\kuy2nflrplan.pdf
CIS_LINK	http://www.cis.hawaii.edu/guc/db/detail.php?id=89

3D view of classrooms in ArcScene GIS

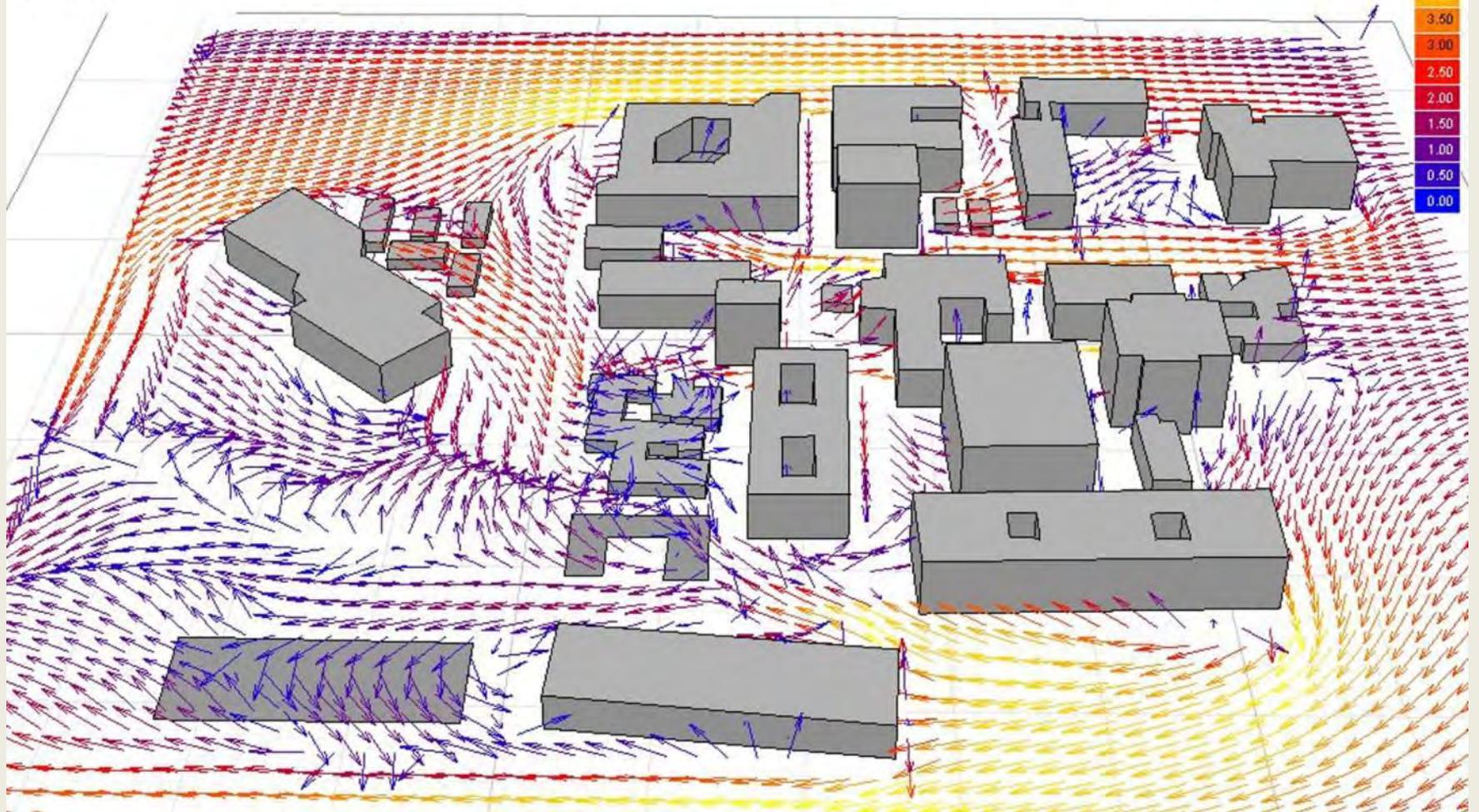
BIM Project | ACA Models in Kuykendall Hall GIS

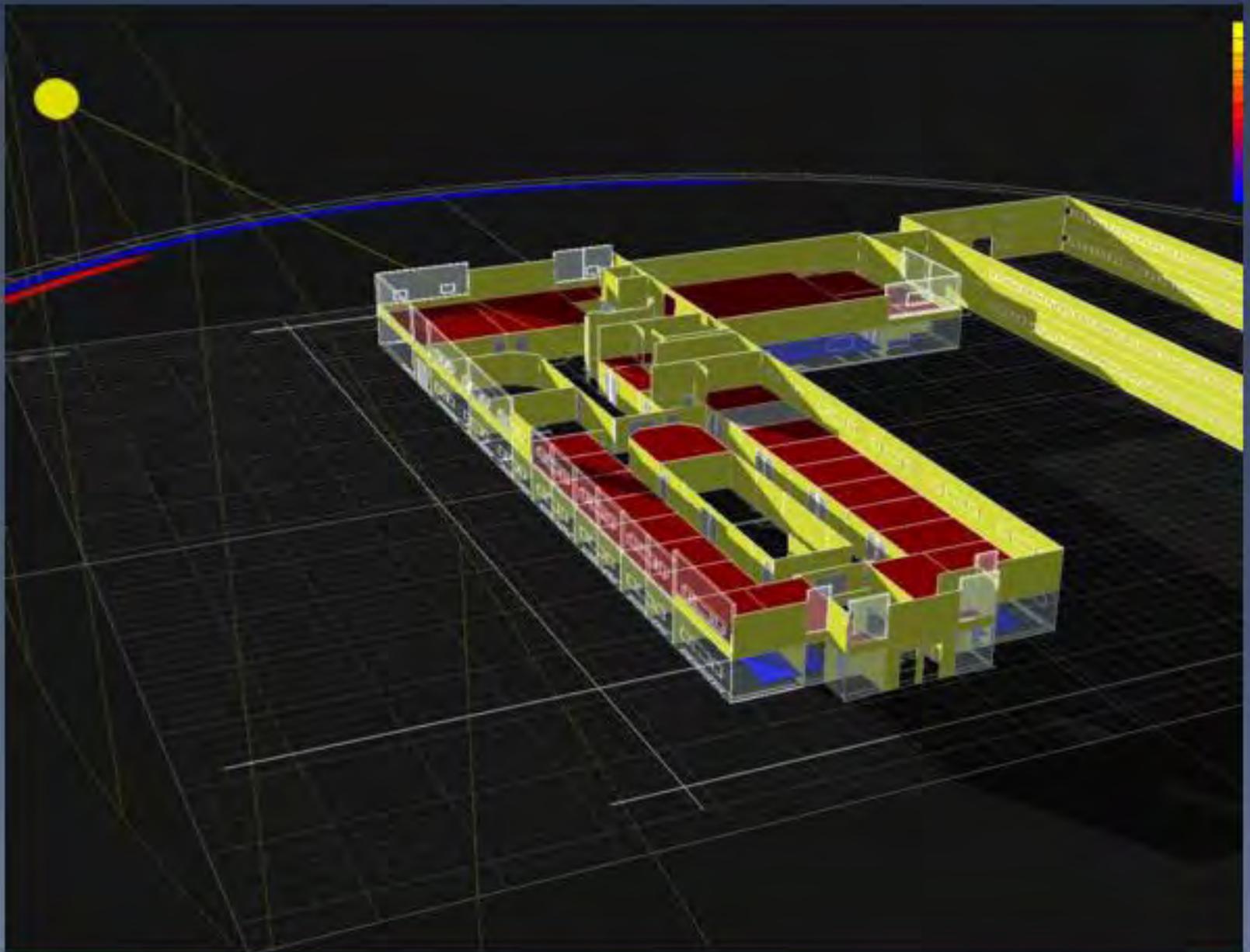


CFD Analysis

Flow Vector

Value Range: 0.00 - 5.00 m/s
(c) ECOTECT v5





Ecotect model generated from ACA model

Developing Plans, Standards, and Policies to Promote Campus Sustainability

Transportation

- Transportation Demand Management Plan
 - Shift commuting from SOV to ridesharing, bicycling, transit, and walking
 - Avoid construction of additional parking
 - New multi-modal transportation coordinator and outreach specialist positions
- Accommodation of and planning for electric vehicles

Landscape

- Comprehensive Landscape Plan
 - Maintain and develop tree canopy
 - Green practices for landscaping
 - Organic waste reduction
 - Non-vehicular circulation improvements
 - Edible plants and food production
 - Permeable paving, rainwater harvesting, storm water management, bio-swales, drainage improvements

Building Design and Performance

- Planning stages to develop comprehensive standards that will ensure campus buildings:
 - Take advantage of benign Hawaiian climate
 - Passive cooling, natural ventilation, day-lighting
 - Use resources efficiently
 - Energy-efficient products, renewable energy generation
 - Integrate with landscape
 - Promote pedestrianism, provide shade, enhance campus aesthetic
- Low Energy Demonstration project at Kuykendall Hall

Existing Conditions: Classroom Bldg Exterior



Diamond Head/Mauka view from Correa Road

Ewa/Makai view from Legacy Path



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KUYKENDALL RENOVATION
CFPB PRESENTATION April 7, 2011

Benjamin Woo Architects

Lawrence Berkeley National Laboratories

Future rendering



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Benjamin Woo Architects

Lawrence Berkeley National Laboratories

Developing Plans, Standards, and Policies to Promote Campus Sustainability

- In process of developing approach to integrate the breadth of plans, standards, and guidelines on the campus and apply them systematically to all future endeavors
- Make sustainable practices an intrinsic part of activity and development on campus