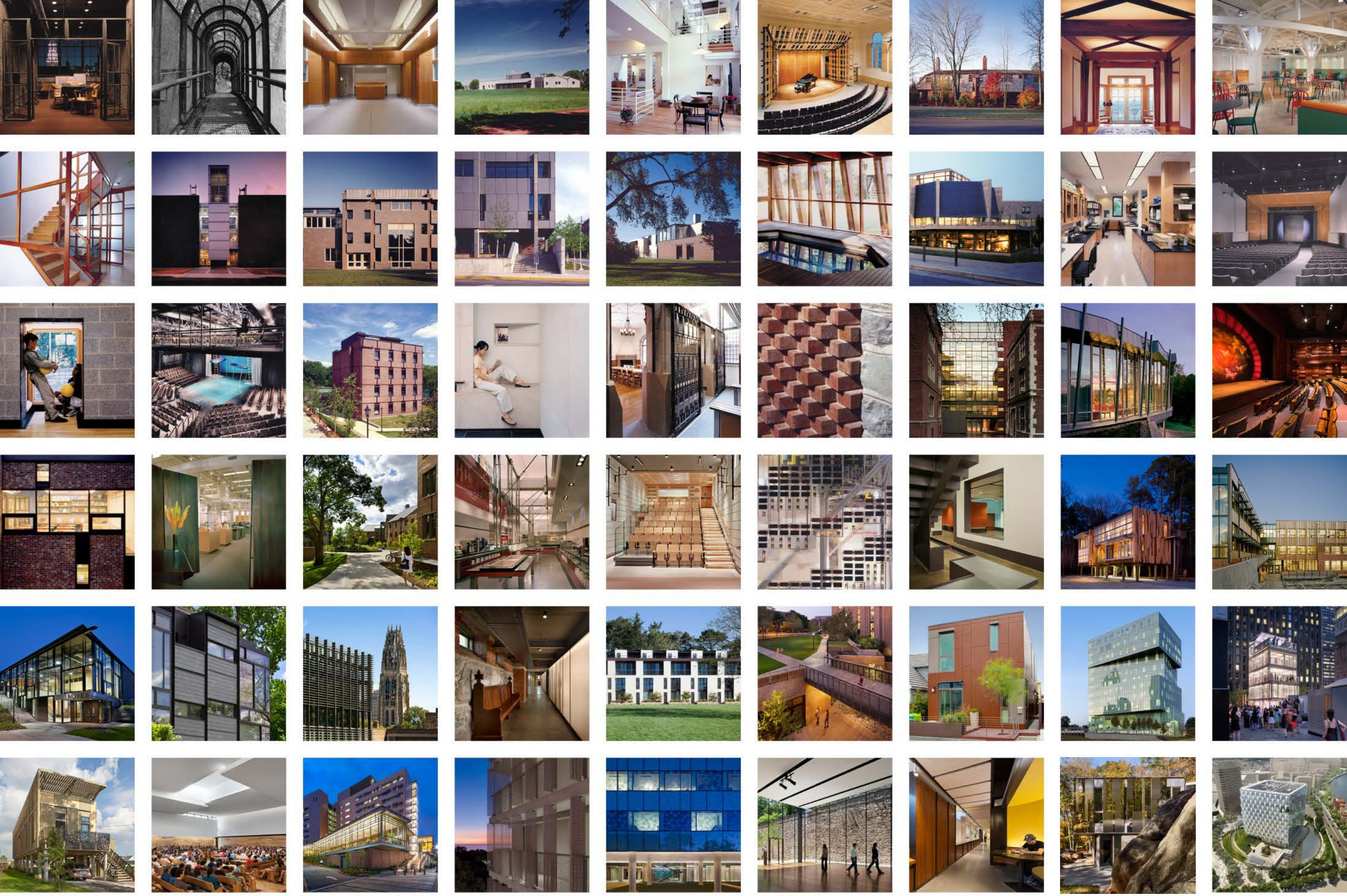
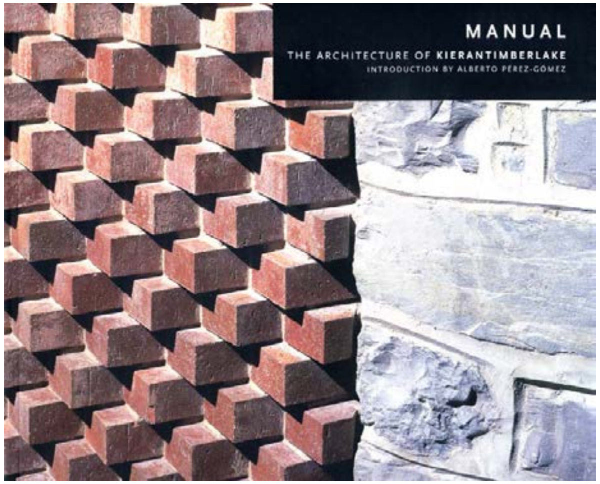
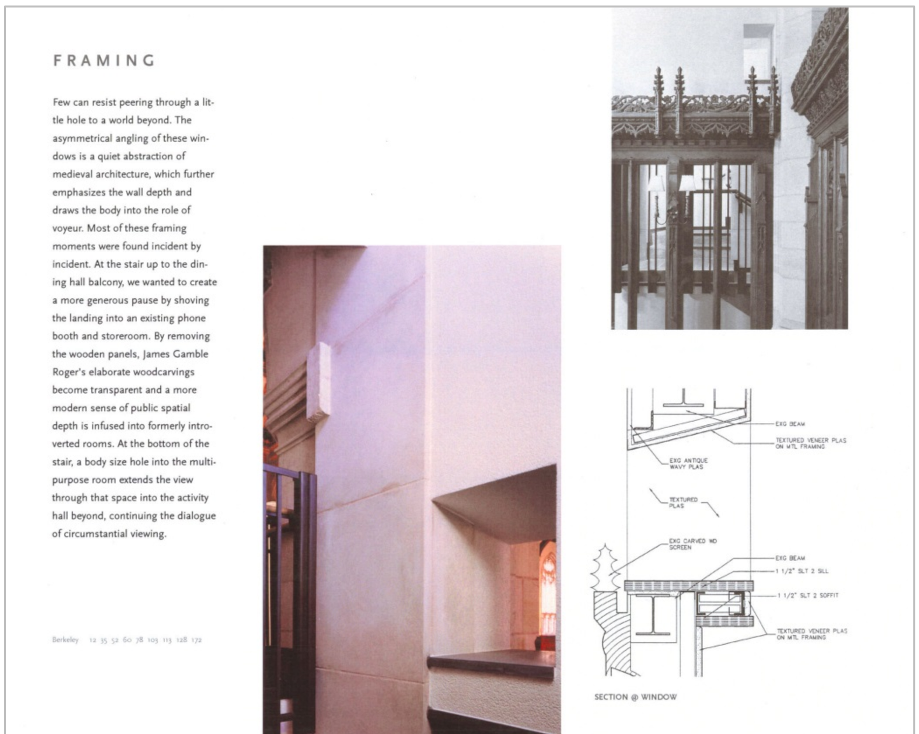


KieranTimberlake

WEST MIDDLE SCHOOL, THE SHIPLEY SCHOOL (1993)



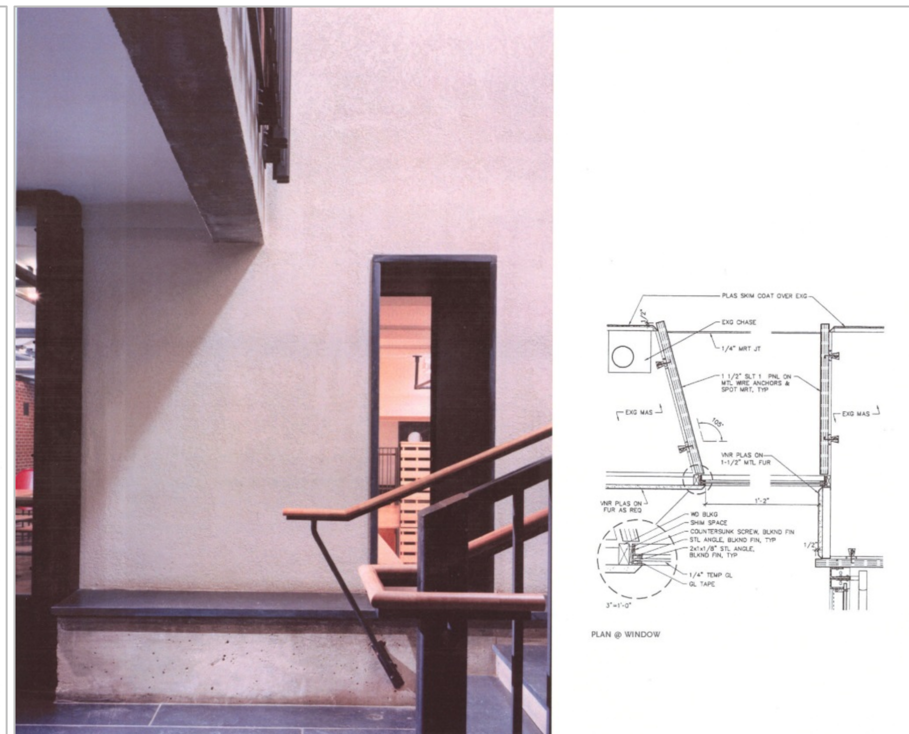


FRAMING

Few can resist peering through a little hole to a world beyond. The asymmetrical angling of these windows is a quiet abstraction of medieval architecture, which further emphasizes the wall depth and draws the body into the role of voyeur. Most of these framing moments were found incident by incident. At the stair up to the dining hall balcony, we wanted to create a more generous pause by shoving the landing into an existing phone booth and storeroom. By removing the wooden panels, James Gamble Roger's elaborate woodcarvings become transparent and a more modern sense of public spatial depth is infused into formerly introverted rooms. At the bottom of the stair, a body size hole into the multi-purpose room extends the view through that space into the activity hall beyond, continuing the dialogue of circumstantial viewing.

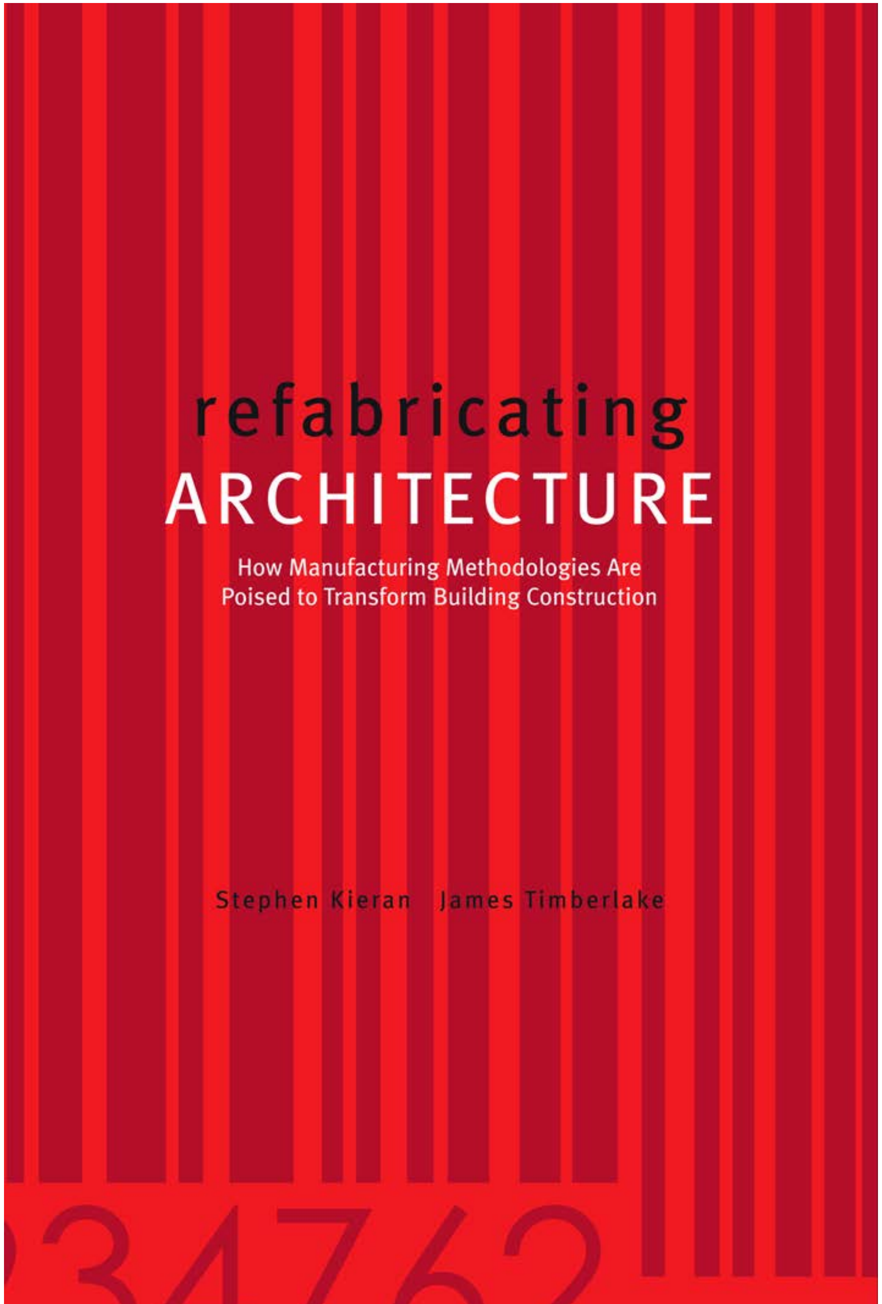
Berkeley 12 35 52 60 78 103 113 128 172

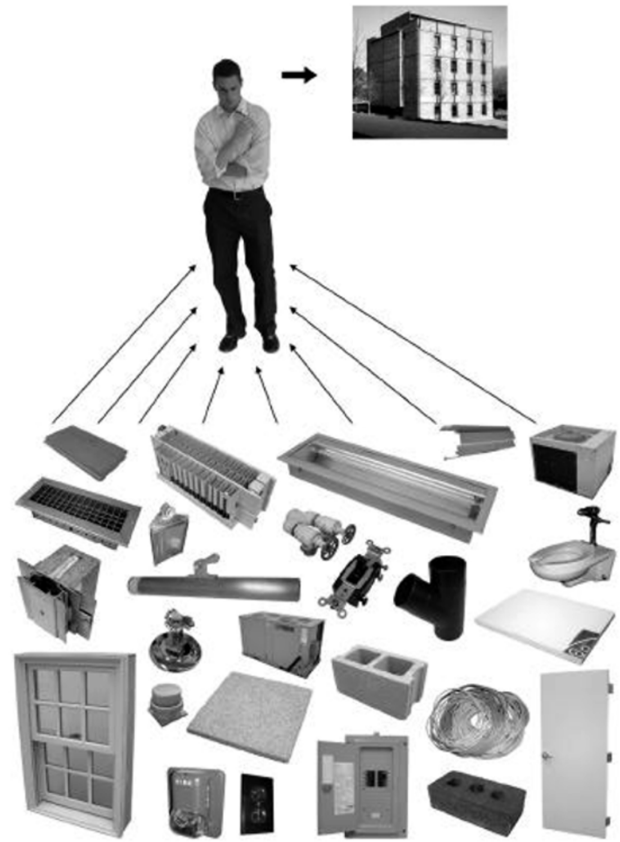
SECTION @ WINDOW



PLAN @ WINDOW

MANUAL (2002)





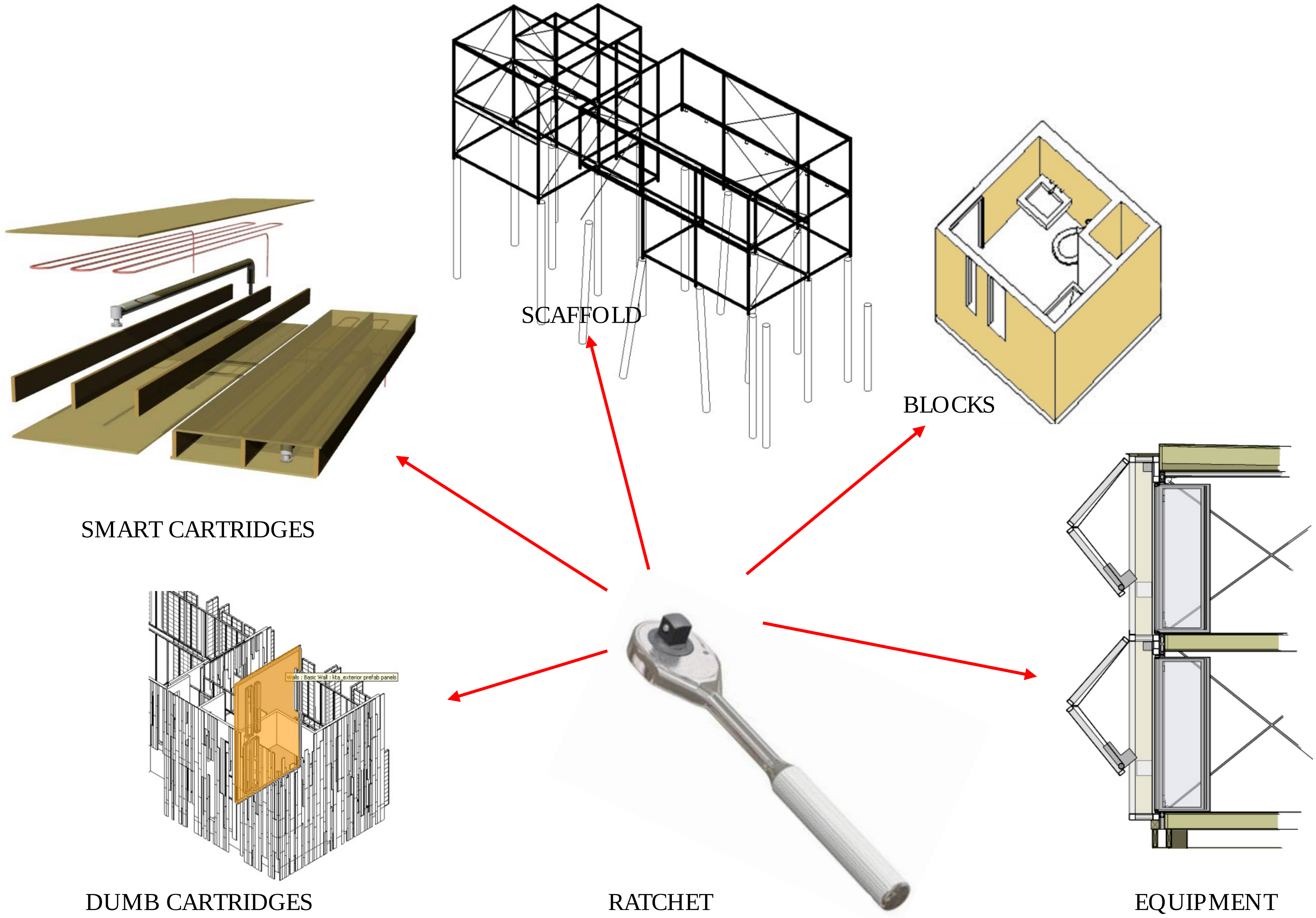
MASTER CONTROLLER

LOSING CONTROL *The last century witnessed an unprecedented development of new materials and improved environmental systems, as well as a new understanding of old topics, such as acoustics. This expansion of choices has added up to infinitely more complex and specialized buildings that require expertise in more subjects than one architect can master. The architect cnow coordinates the many diverse consultants who are able to master their own specialties.*

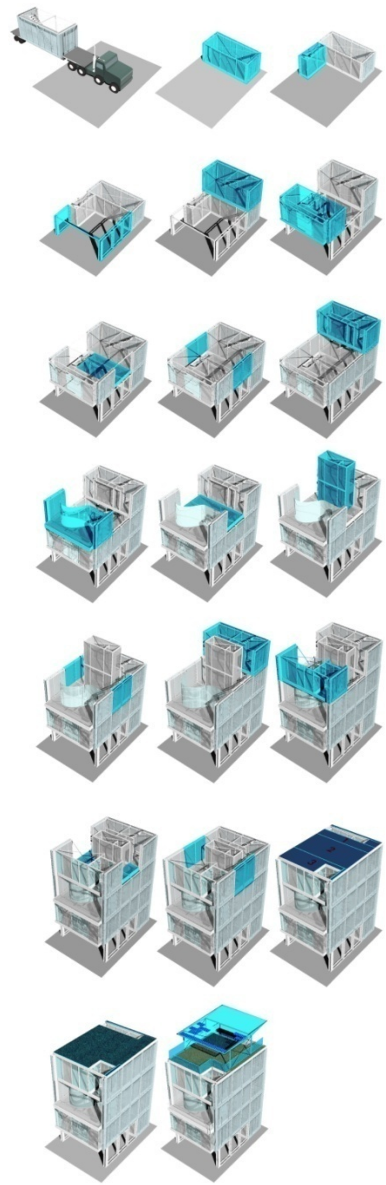
REFABRICATING ARCHITECTURE (2004)

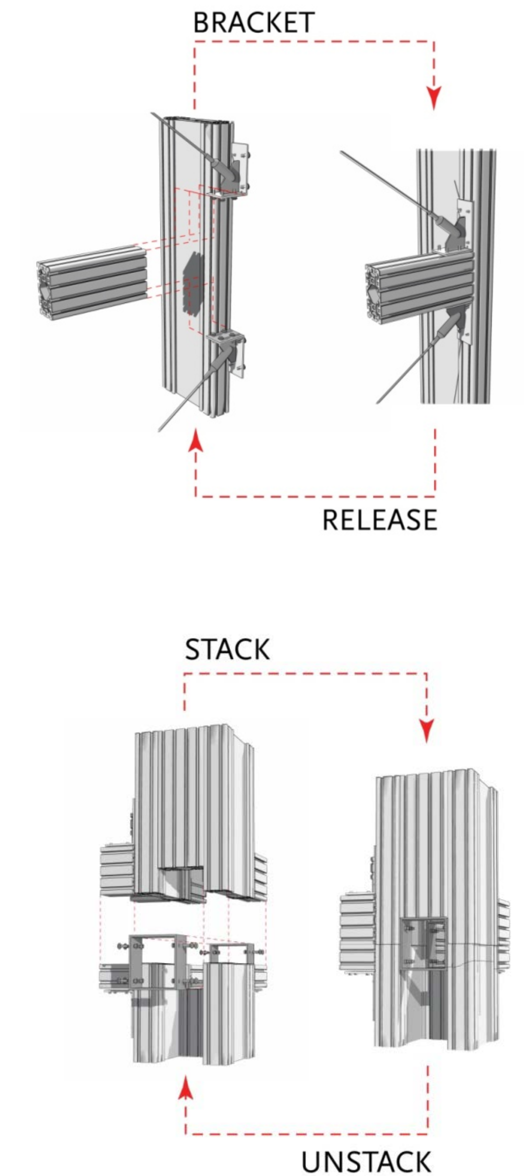
SMARTWRAP™ (1999)

LOBLOLLY HOUSE (2006)



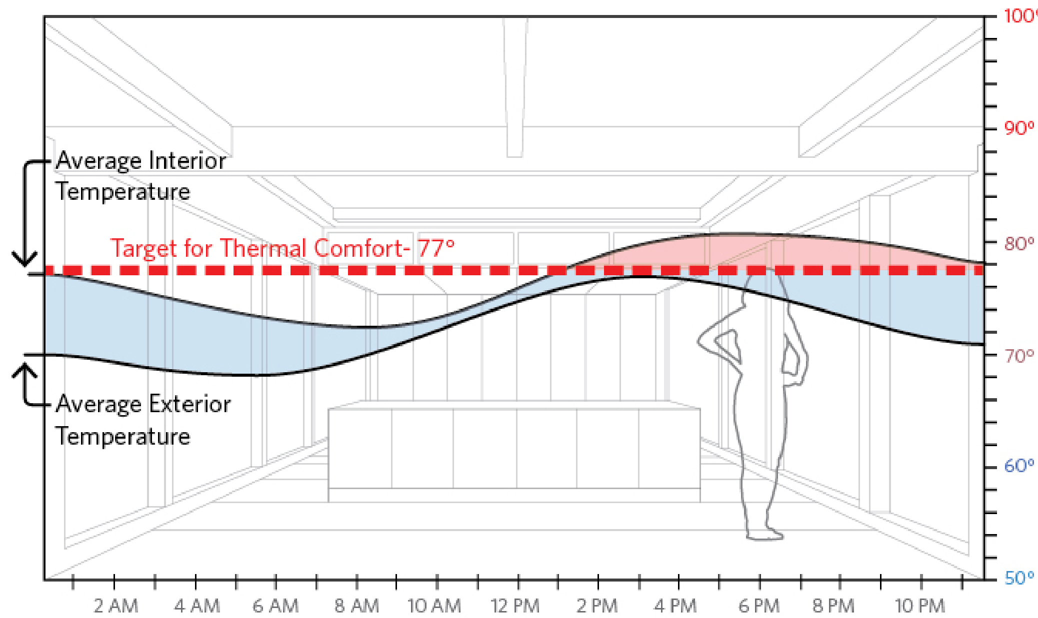
LOBLOLLY HOUSE (2006)

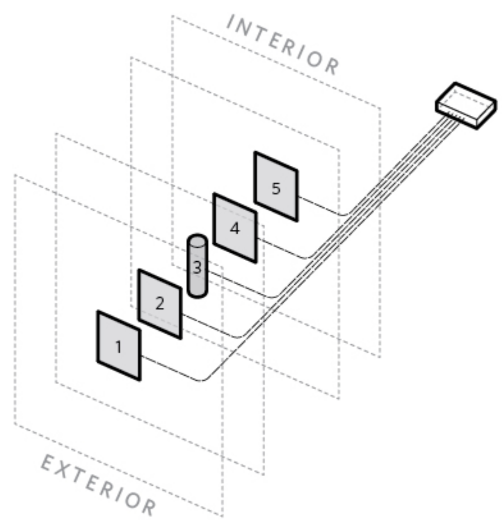




CELLOPHANE HOUSE™ (2008)

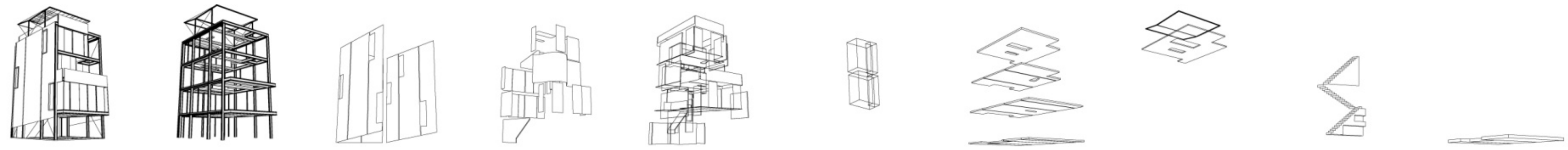
CELLOPHANE HOUSE™ (2008)





1. **THERMOCOUPLE**
   Measures exterior surface temperatures, reflecting ambient temperatures and heat gain
2. **THERMOCOUPLE**
   Measures rate of thermal transfer from interior to exterior
3. **PENDANT SENSOR**
   Measures the temperature of the air within the cavity
4. **THERMOCOUPLE**
   Monitors the degree to which the cavity space buffers the interior from exterior temperature
5. **THERMOCOUPLE**
   Measures the thermal transfer from the cavity to interior surface

CELLOPHANE HOUSE™ (2008)

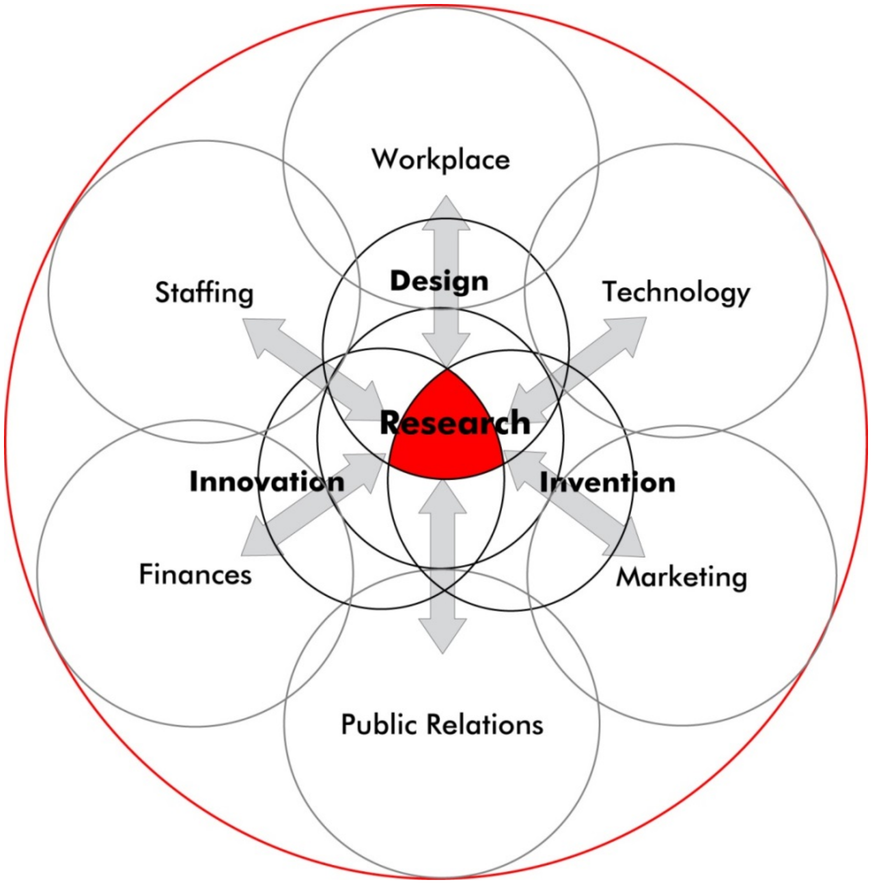


COMPONENT	FRAME	SKIN	GLAZING	WALL PANELS	BATHROOM PODS	FLOORS	ROOF	STAIRS	FOUNDATION	TOTALS 1,800 sf building
MATERIAL	Bosch Aluminum Framing; Steel Connectors; Steel Bolts	NextGen Smart Wrap ™ (PET); Aluminum Louvers	Schüco Glass; Schüco Aluminum Frame	3-Form Varia (PETG)	Fiberglass	Aluminum Grate; 3-Form Stage (PC)	PVC Downspouts; Steel Gutters; Danpalon (PC)	Acrylic	Concrete; Steel Rebar	
TOTAL EMBODIED ENERGY	955,631 kWh	22,224 kWh	71,423 kWh	22,577 kWh	71,448 kWh	146,008 kWh	8,214 kWh	235,001 kWh	15,264 kWh	1,547,790 kWh 860 kWh/sf
PERCENT RECOVERED	99.99%	100%	100%	100%	100%	100%	100%	100%	0%	98.95%
EMBODIED ENERGY RECOVERED	954,675 kWh	22,224 kWh	71,423 kWh	22,577 kWh	71,448 kWh	146,008 kWh	8,214 kWh	235,001 kWh	0 kWh	1,531,570 kWh 851 kWh/sf

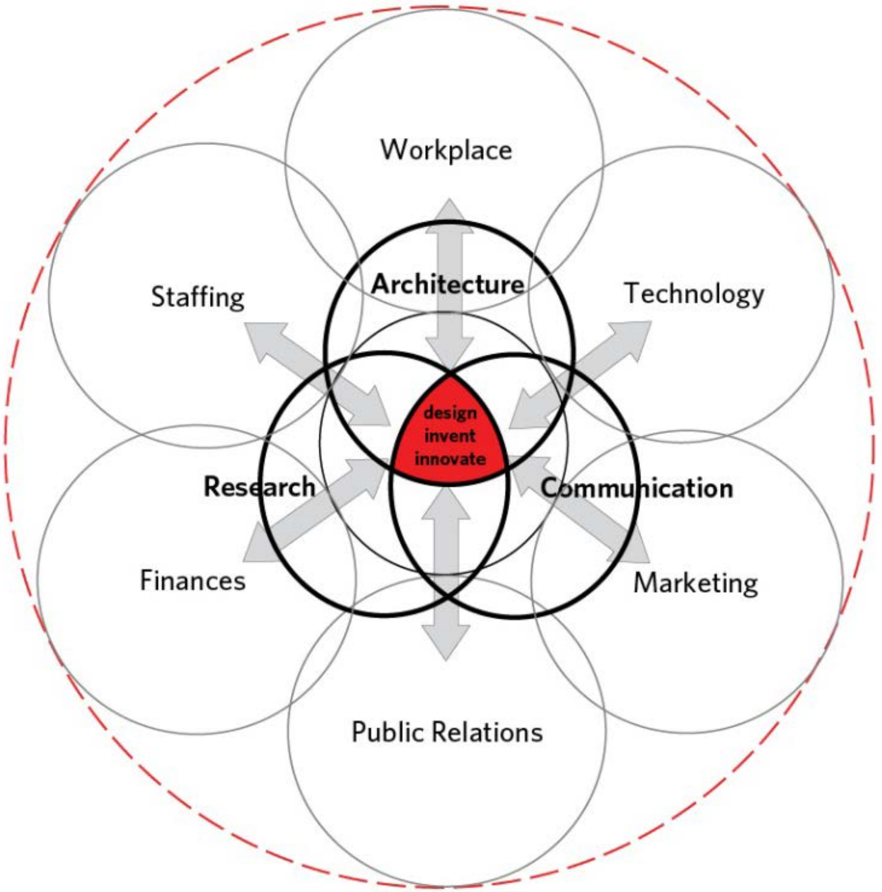
MATERIAL	Bosch Aluminum Framing; Steel Connectors; Steel Bolts	NextGen Smart Wrap ™ (PET); Aluminum Louvers	Schüco Glass; Schüco Aluminum Frame
TOTAL EMBODIED ENERGY	955,631 kWh	22,224 kWh	71,423 kWh
PERCENT RECOVERED	99.99%	100%	100%
EMBODIED ENERGY RECOVERED	954,675 kWh	22,224 kWh	71,423 kWh

TOTALS 1,800 sf building
1,547,790 kWh 860 kWh/sf
98.95%
1,531,570 kWh 851 kWh/sf

CELLOPHANE HOUSE™ (2008)



2008



2013

RESEARCH CORE

tally®

About Support Download News

Introducing Tally

The first LCA app that lets you calculate the environmental impacts of your building material selections directly in an Autodesk® Revit® model.

Click to download a free trial

WHOLE BUILDING LCA

Assess the embodied environmental impact of your entire building. Benchmark your impact throughout design.

DESIGN OPTION COMPARISON

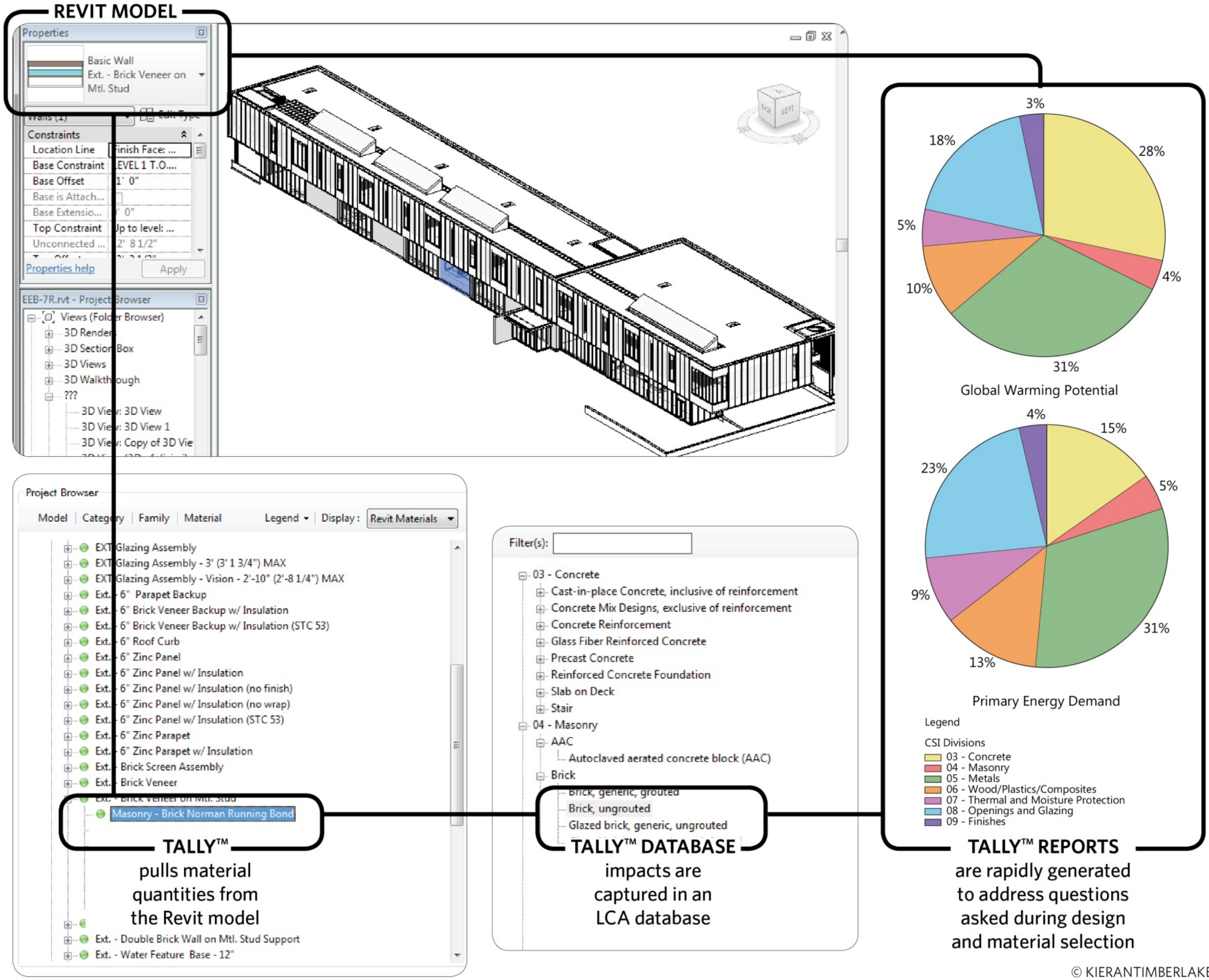
Compare two or more distinct sets of building components side by side.

MATERIAL SELECTION

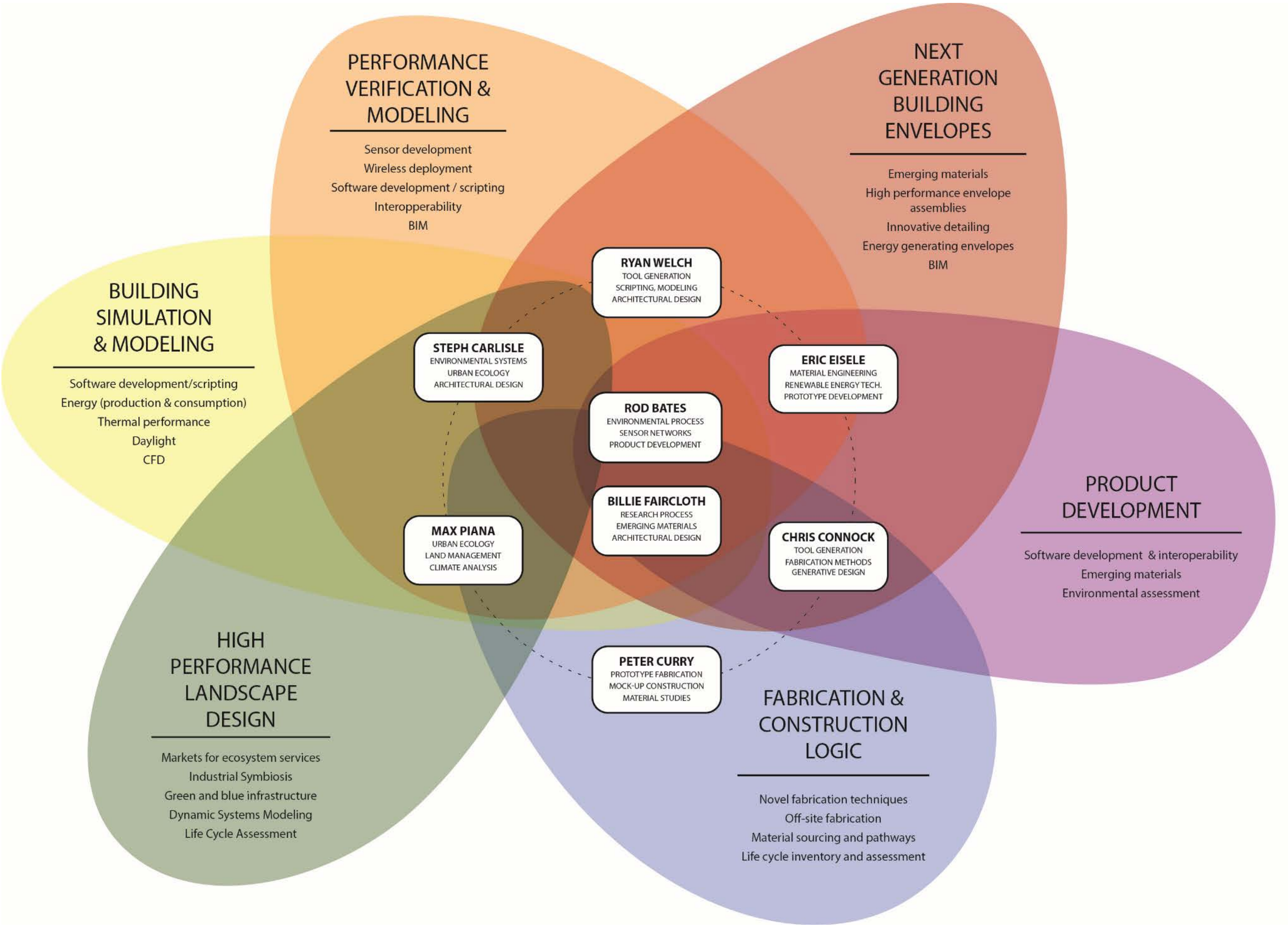
Compare LCA impacts and ingredients of materials and assemblies, including information from manufacturer EPDs.

TALLY® LCA APP FOR REVIT (2012)

Tally™ pulls material quantities from the Revit model and creates an accurate bill of materials.

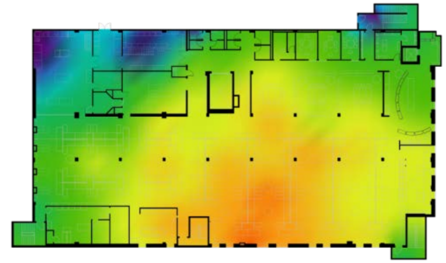


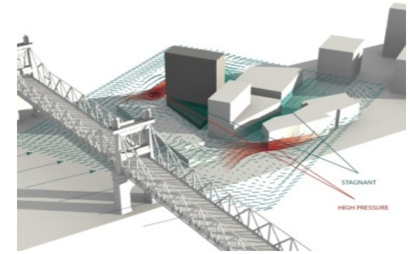
TALLY® LCA APP FOR REVIT (2012)



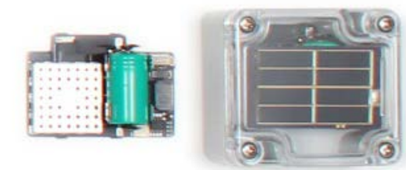
RESEARCH PROCESS

MODELING &
SIMULATION

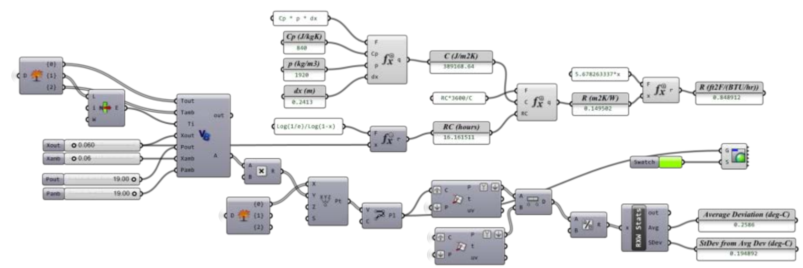




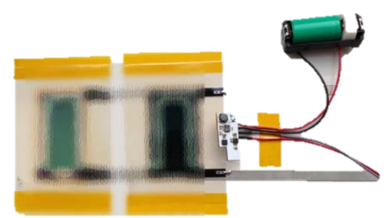
FIELD ASSESSMENT
& DATA COLLECTION

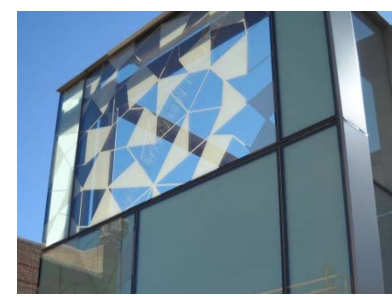


TOOL DEVELOPMENT
& DATA PROCESSING



PROTOTYPING &
MATERIALS RESEARCH





RESEARCH METHODOLOGIES

RED REPORT

1. Client Goals
2. Program Analysis
   - Typologies
   - Building occupancy and use
   - Schedule
3. Site
   - Site & campus
   - Regional infrastructure
   - Facilities management
4. Climate
   - Regional climate
   - Micro climate
   - Thermal comfort
5. Landscape and Ecology
   - Geology
   - Stormwater and flooding
   - Vegetation and biodiversity
   - Ecosystem services
6. Local Resources
   - Energy
   - Atmosphere
   - Waste
   - Water
   - Building materials
7. Code/Regulations and Standards
   - Sustainability guidelines
   - Energy policy and incentives

06 PERFORMANCE & RESOURCES

KT	JH/EF		section needs updating		Section Summary
				Energy	
KT/BH	RB	2	revision needed	6.1	What is Brown's local source of energy (natural gas, coal, etc.)? What is the availability of power, gas, or thermal networks? What is the carbon factor of the grid?
KT	EF	2	ready for review	6.2	What is the local utility provider for power and gas? How are the rates structured? Are there provisions for energy buyback?
KT/BH	EF	2	ready for review	6.3	How can sustainable systems or strategies be considered in relation to the other existing and planned buildings on the engineering campus? Are there any opportunities for shared energy infrastructure or load sharing with adjacent buildings/facilities?
KT/BH	EF	2	ready for review	6.4	What is the potential for on-site renewable energy generation (PV, wind, etc.)?
BH	MK	1	ready for review	6.5	What is the anticipated baseline energy consumption for the building based on comparable buildings in this region?
BH	MK	1	ready for review	6.6	Are there emerging technologies or systems relevant to managing the heavy energy use of laboratory buildings?
KT/BH	EF	3	ready for review	6.7	How might alternate energy reporting formats be applicable to the project?
				Water	
KT	JH	2	ready for review	6.8	What is Brown's water source and treatment infrastructure? What are associated costs?
				Atmosphere	
KT	EF	3	ready for review	6.90	What are the airborne pollutants present on site? Do any onsite pollutants preclude particular façade materials?
				Waste	
KT	MD/EK	2	started	6.10	What is the solid waste management infrastructure on site?
KT	EF	1	ready for review	6.11	How do we dispose of hazardous laboratory waste?

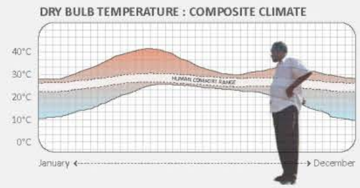
CLIMATE

COMPOSITE ZONE

CURRENT CONDITIONS

SEASON	TEMP. (HIGH)	TEMP. (LOW)	RELATIVE HUMIDITY	AVG RAINFALL
Hot & Dry	43°C	28°C	20-25%	35mm
Hot & Humid	34°C	21°C	55-95%	900mm
Cool & Dry	25°C	5°C	20-25%	50mm

COMFORT



GOAL

MAINTAIN A YEAR ROUND INTERIOR TEMPERATURE RANGE OF 21°C TO 29°C

RESOURCE CONSERVATION

WATER

CURRENT CONDITIONS

	WATER ACCESS PER PERSON (%)	MUNICIPAL WATER AVAILABILITY (hours/day)
Amritsar	75.7%	11 hrs
Indore	77.3%	.75 hrs
Rajkot	91.5%	5 hrs
Nagpur	98.1%	.3 hrs

GOAL

COLLECT AND RECYCLE WATER, INCREASE WATER AVAILABILITY TO 24 HOURS

ENERGY

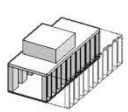
ENERGY DEMAND	CONSUMPTION (kwh/day)
Plug Loads:	6.6 kwh/day
Lighting Loads:	3.7 kwh/day
Mechanical Equipment:	16 kwh/day
Hot Water Heating:	9 kwh/day
BASELINE TOTAL:	35.3 kwh/day

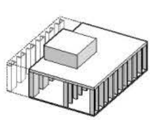
17.3 kwh/day

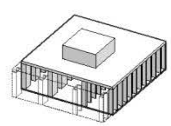
REDUCE HOUSE ENERGY CONSUMPTION BY 50%

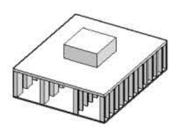
COST

32m²	60m²	82m²	98m²









PROVIDE AFFORDABLE HOUSING EXPANSION AT 9,677 Rs/m² ($20/ft²)

COST : 225,000 Rs. ($5,000)	COST : 450,000 Rs. ($10,000)	COST : 675,000 Rs. ($15,000)	COST : 900,000 Rs. ($20,000)

LOGISTICS

MATERIAL

AVG TIME FOR HOUSE COMPLETION

CURRENT CONDITIONS

BRICK CONSTRUCTION

2 YEARS

GOAL

PRECAST COMPONENTS

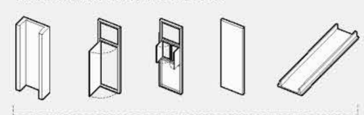
2 MONTHS

REDUCE ON-SITE CONSTRUCTION TIME BY 90%

MANUFACTURING

TRANSPORT TO SITE

MODULAR COMPONENTS



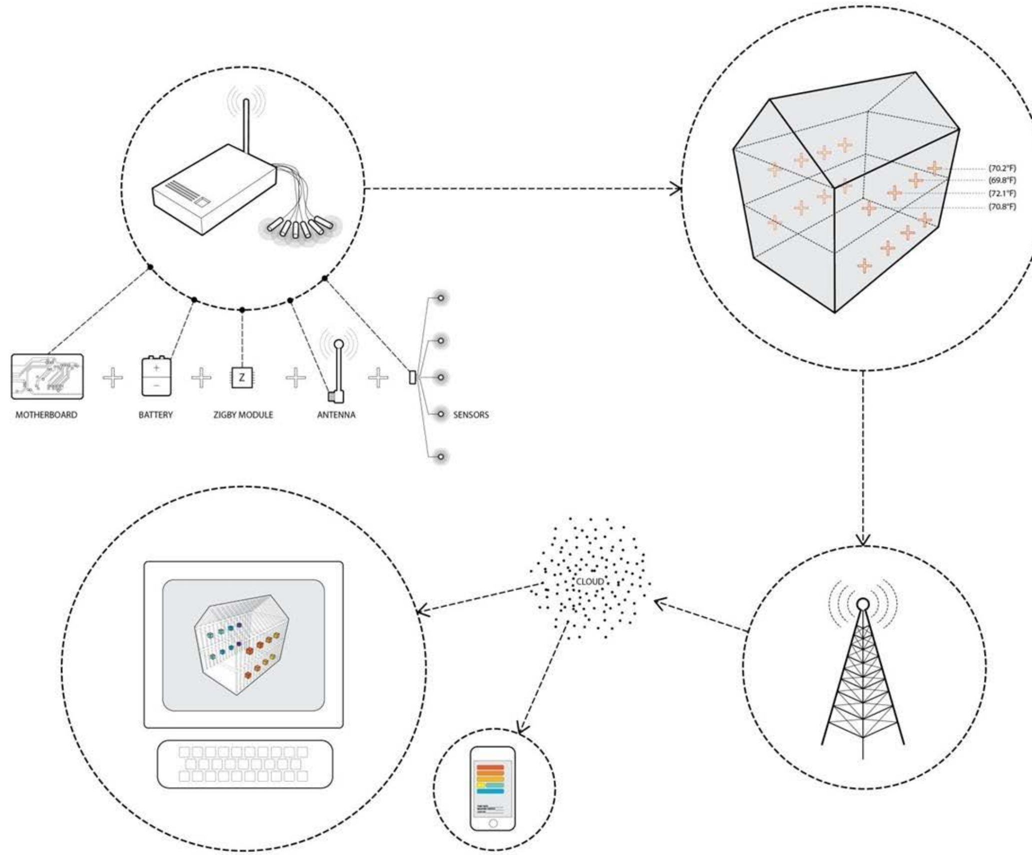
DIMENSIONED FOR TRANSPORT AND LIFTED BY HAND

*Sources : "2007 Benchmarking and Data Book of Water Utilities in India"
"2005 National Building Code : India"

AFFORDABLE, SOLID, QUICK-TO-BUILD, SUSTAINABLE HOUSING SOLUTION FOR INDIA'S COMPOSITE CLIMATE ZONE

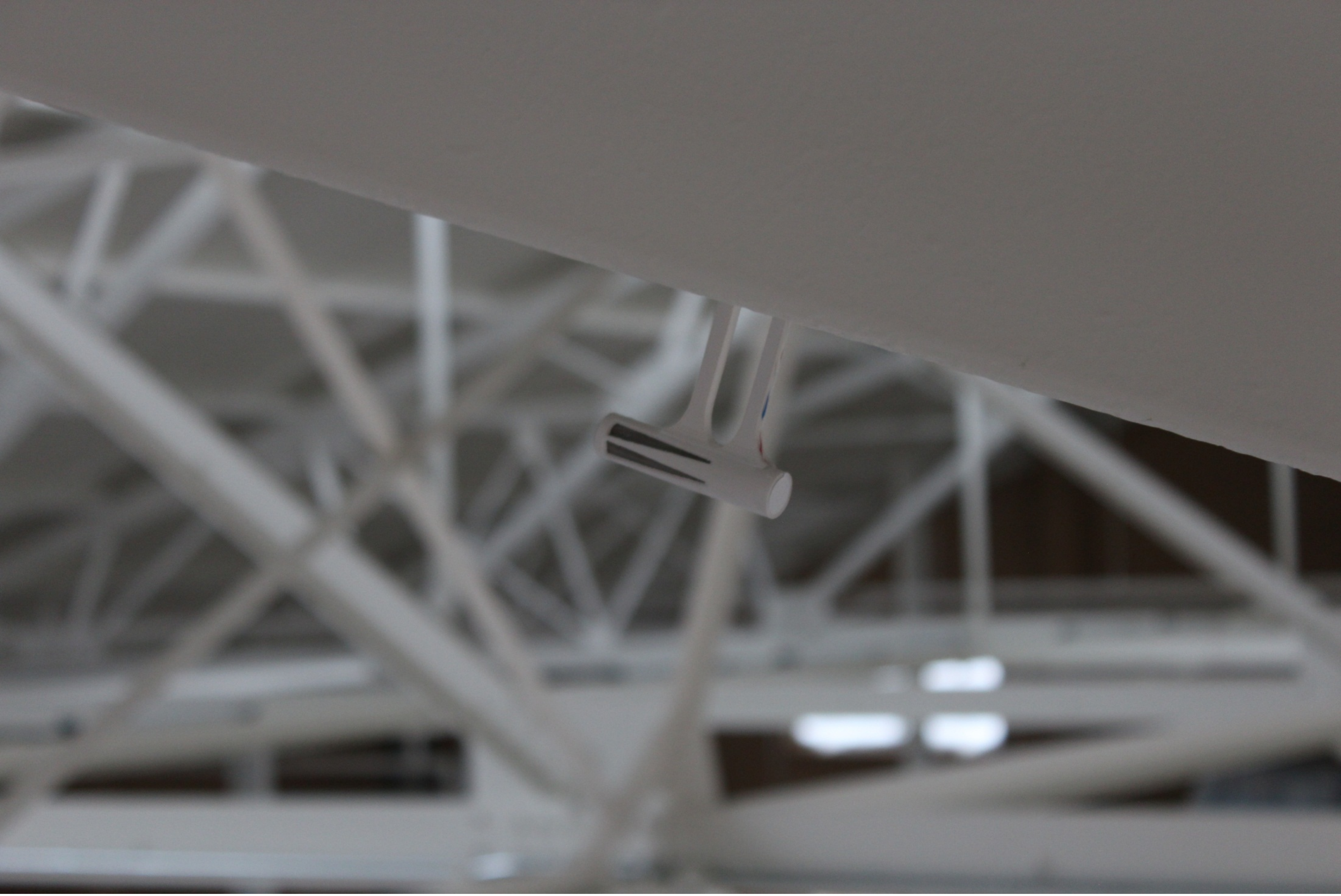
IDEAL CHOICE HOMES™

IDEAL CHOICE HOMES™



WIRELESS SENSOR NETWORKS

KIERANTIMBERLAKE STUDIO

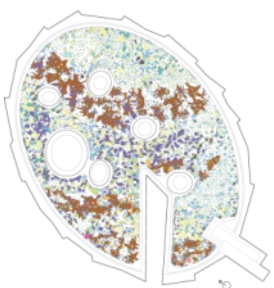
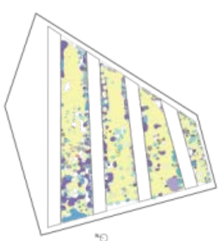
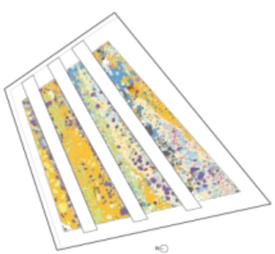
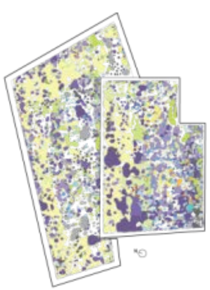


WIRELESS SENSOR NETWORKS

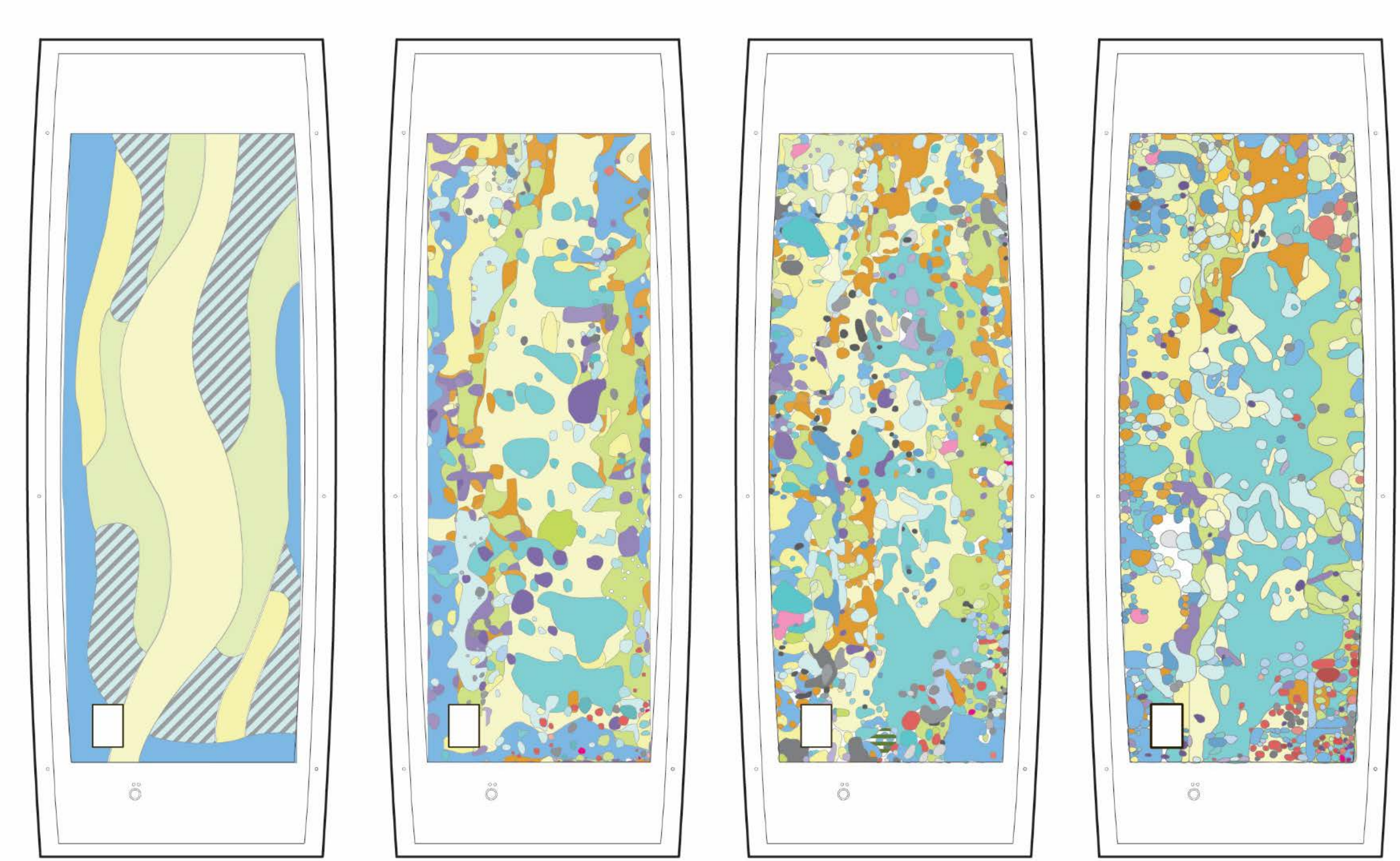






GREEN ROOF VEGETATION STUDY



2006	2011	2012	2013
11 SPECIES	44 SPECIES	54 SPECIES	48 SPECIES
100% PLANTED	52% PLANTED	56% PLANTED	60% PLANTED
	48% RUDERAL	44% RUDERAL	40% RUDERAL

GREEN ROOF VEGETATION STUDY


Google earth

Values

INFLUENCE the industry to design, implement, and operate integrated energy-efficient renovations.

REPEATABLE DEMONSTRATION incorporating replicable energy-efficient technology, processes, and procedures that are affordable, workable and efficient.

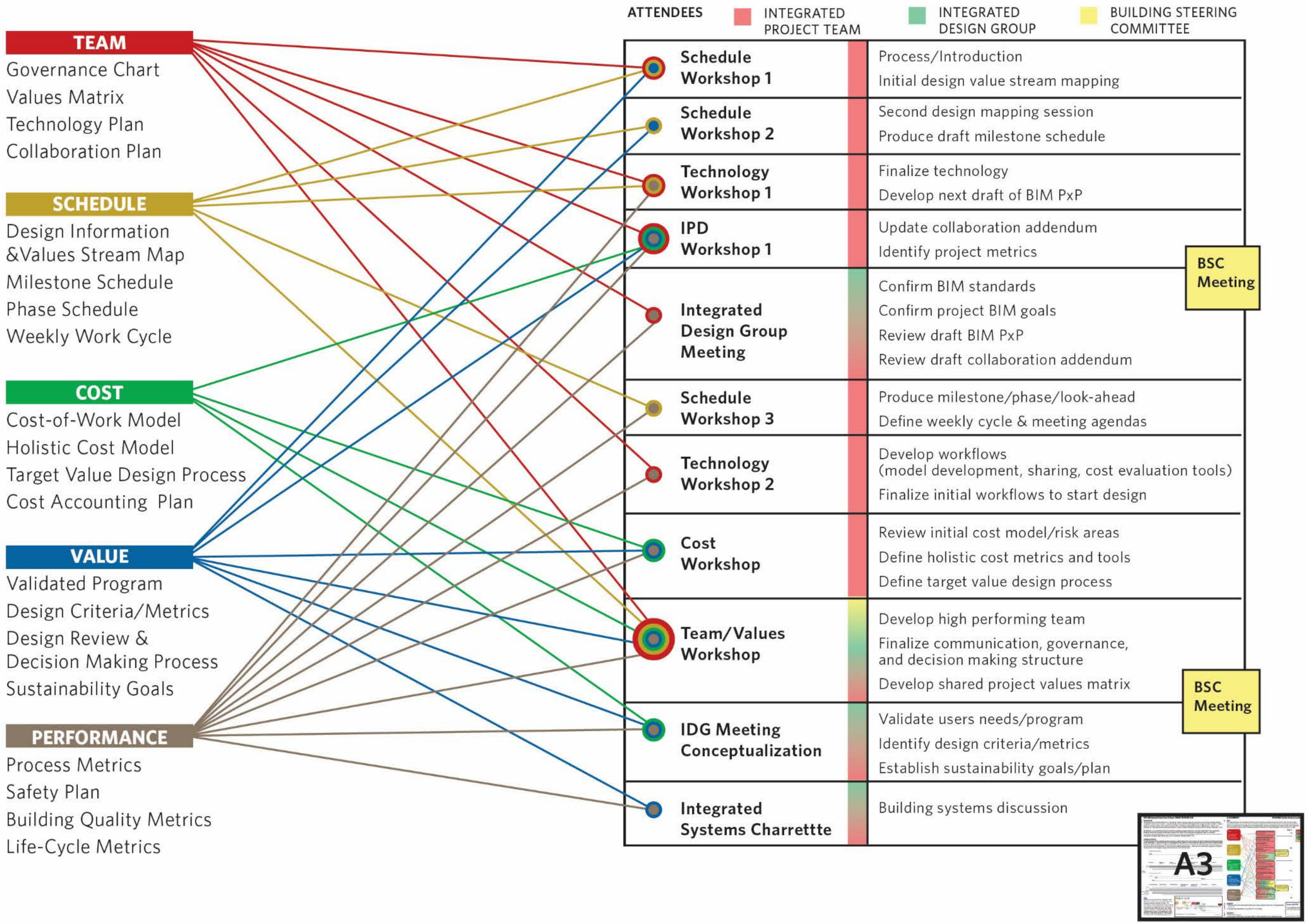
LEARNING about the efficacy, affordability, repeatability and constructability of efficient and effective energy retrofits.

COLLABORATIVE ENVIRONMENTS to provide a nexus for regional demonstration, learning, and influence.

SYSTEMS INTEGRATION for efficient and effective energy retrofits through synergistic integration of dependable components and subsystems.

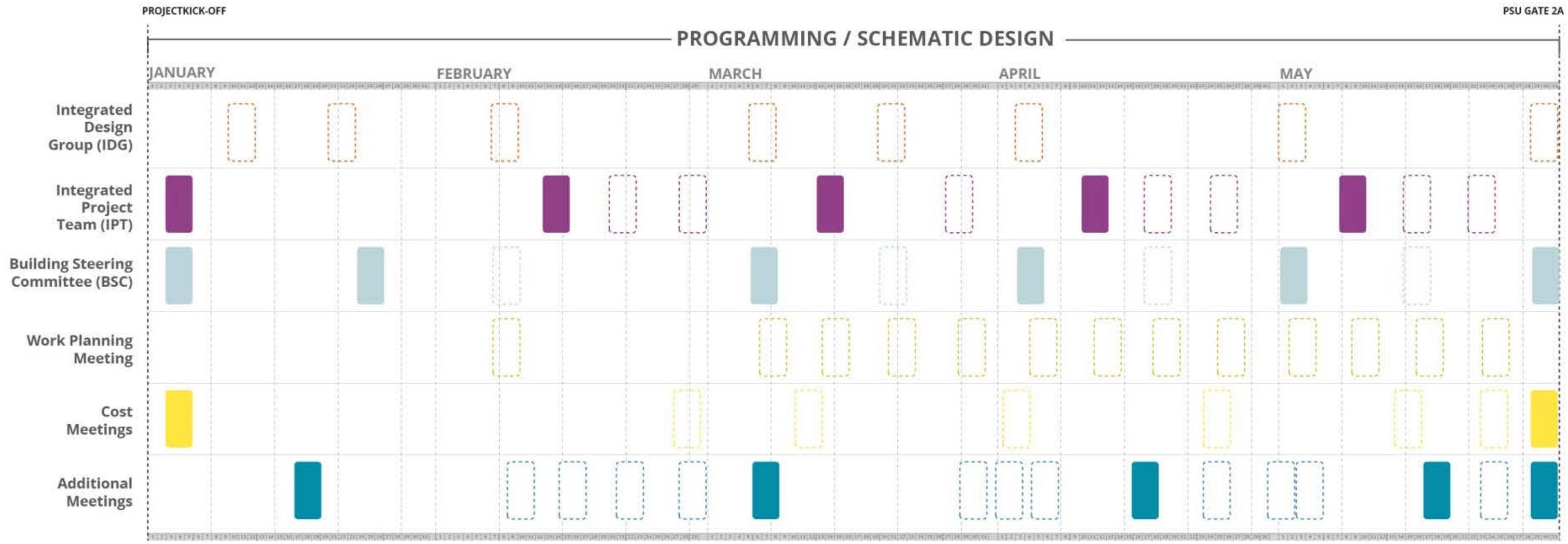
COST CERTAINTY to use available funds to maximize scope and minimize long-term facility costs with constant consideration of premium and affordability.

TIME RELIABILITY make decisions at the most responsible moment and create a safe and quality work environment.

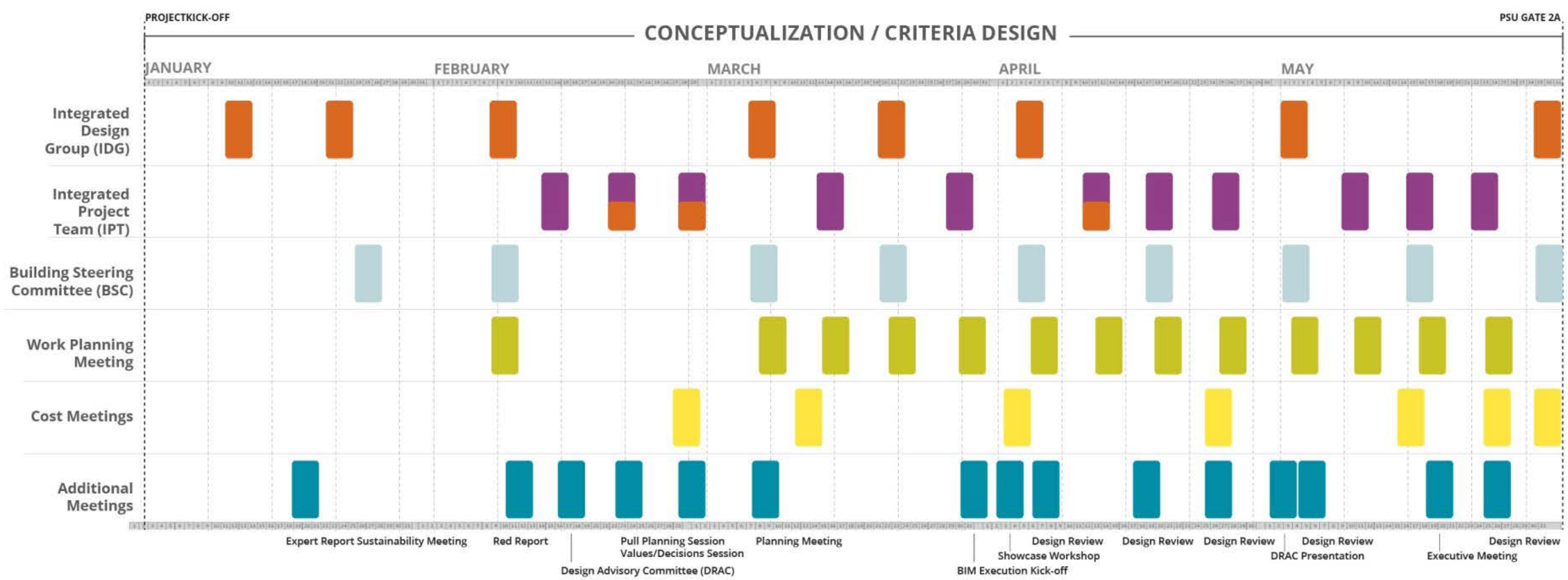


PROJECT INITIATION

TRADITIONAL PROCESS



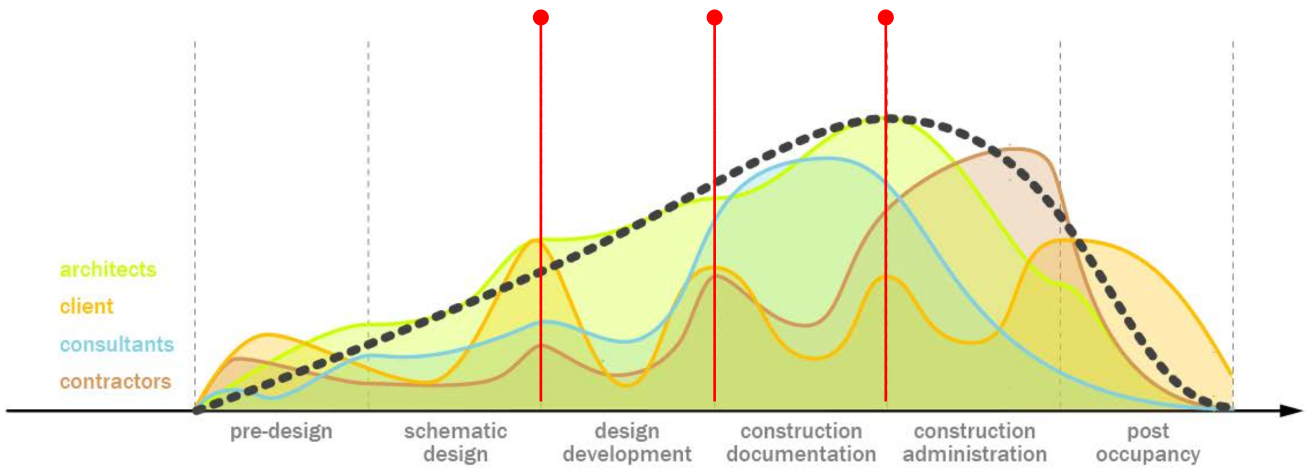
INTEGRATED PROCESS



INTEGRATED PROJECT SCHEDULE

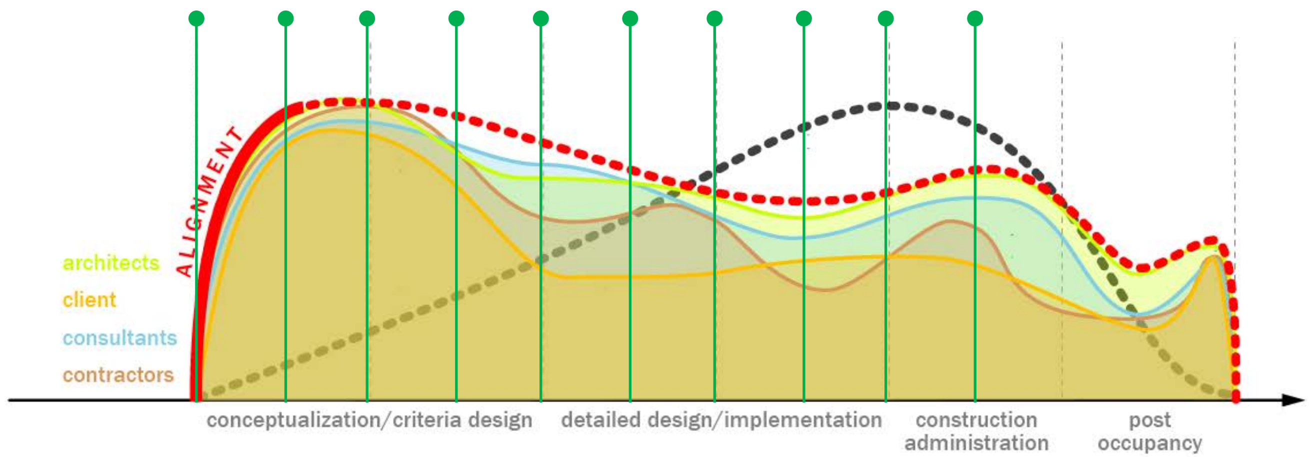
TRADITIONAL WORK PLAN

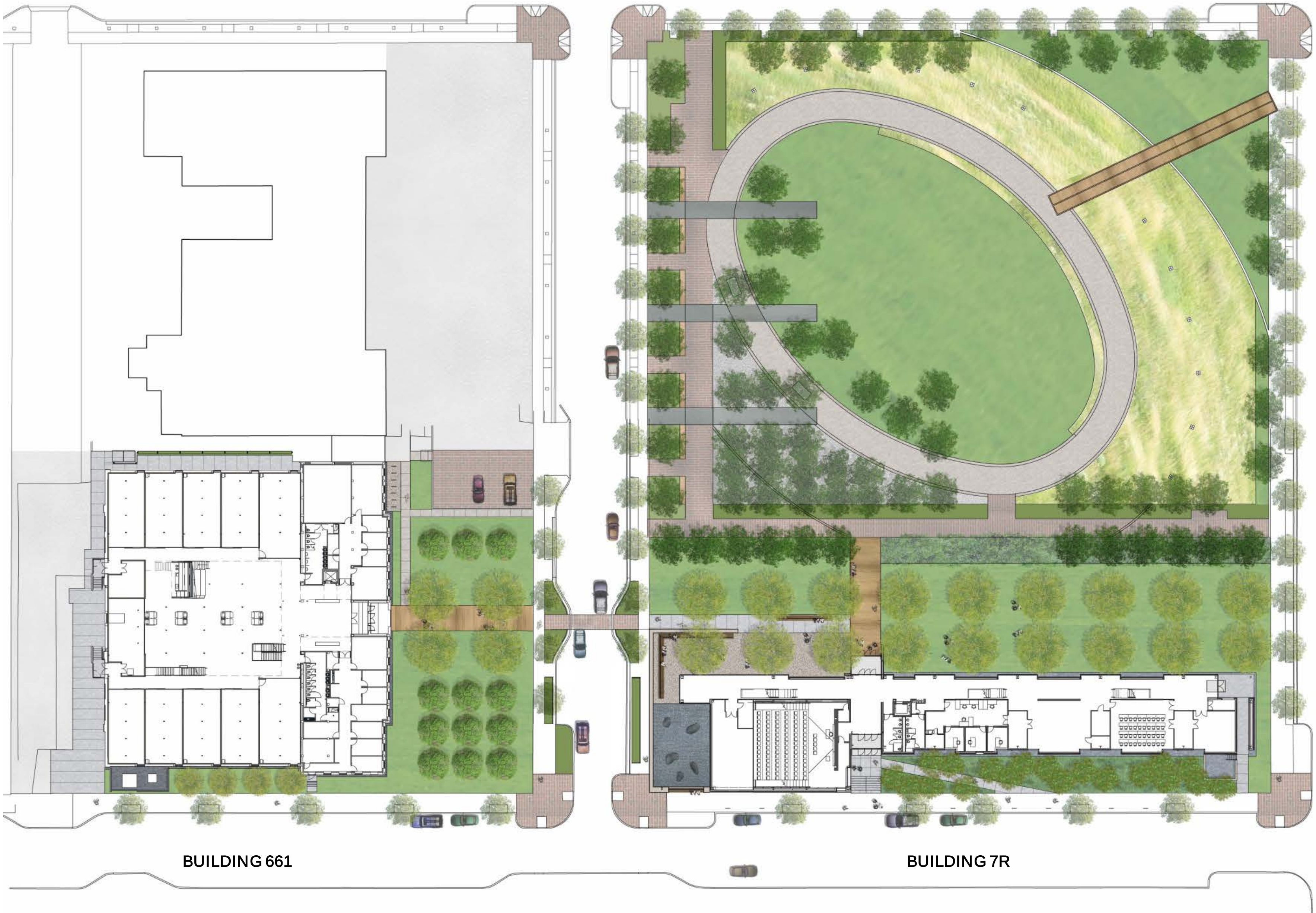
Cost estimating at end of phase results in value engineering and redesign effort



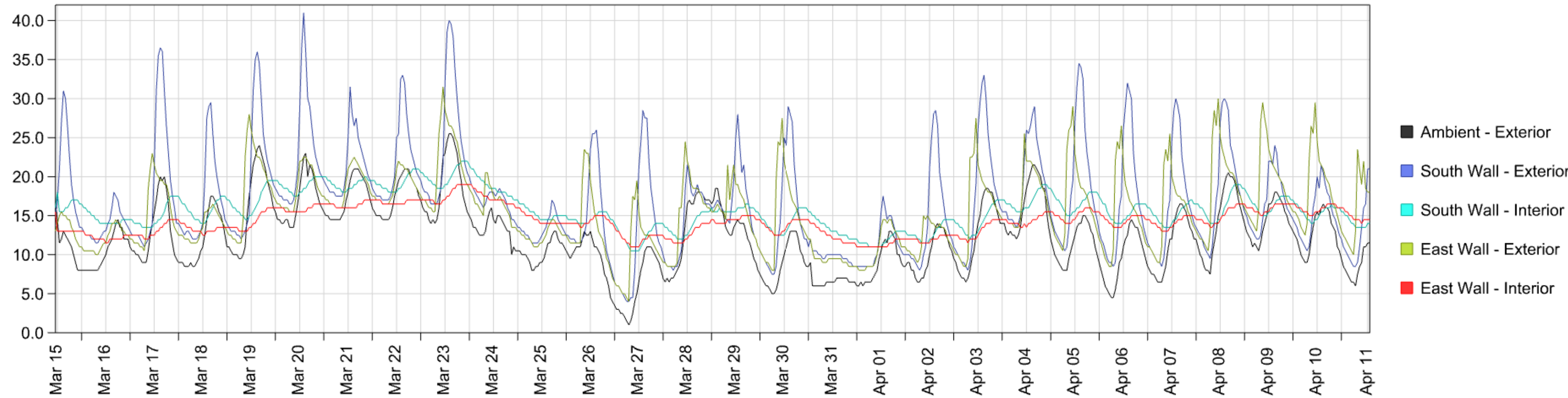
INTEGRATED WORK PLAN

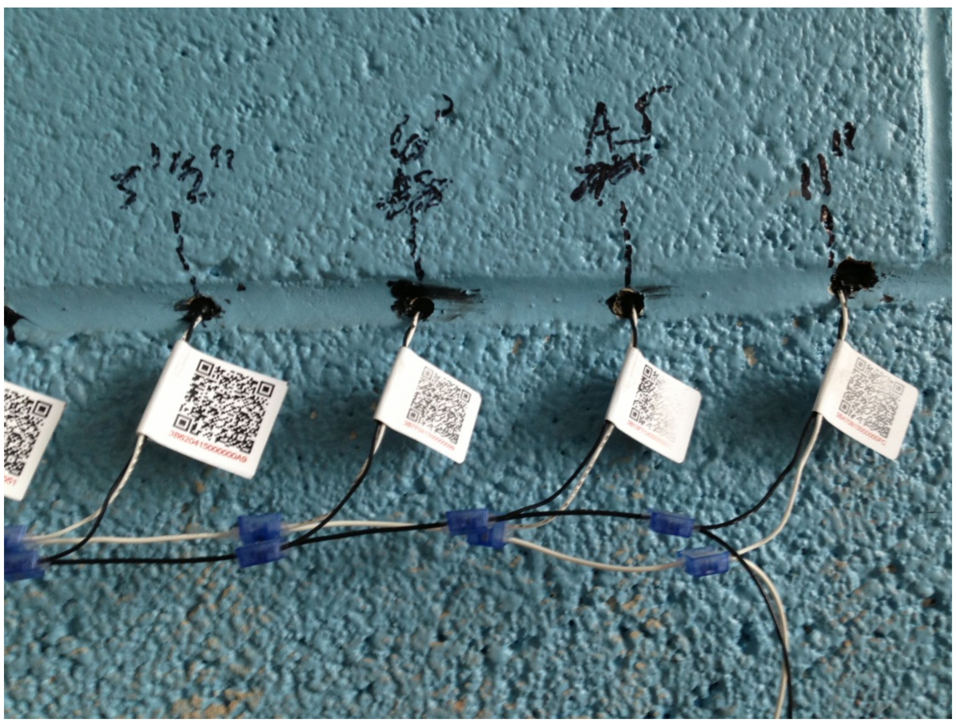
Cost modeling to inform design results in target value design



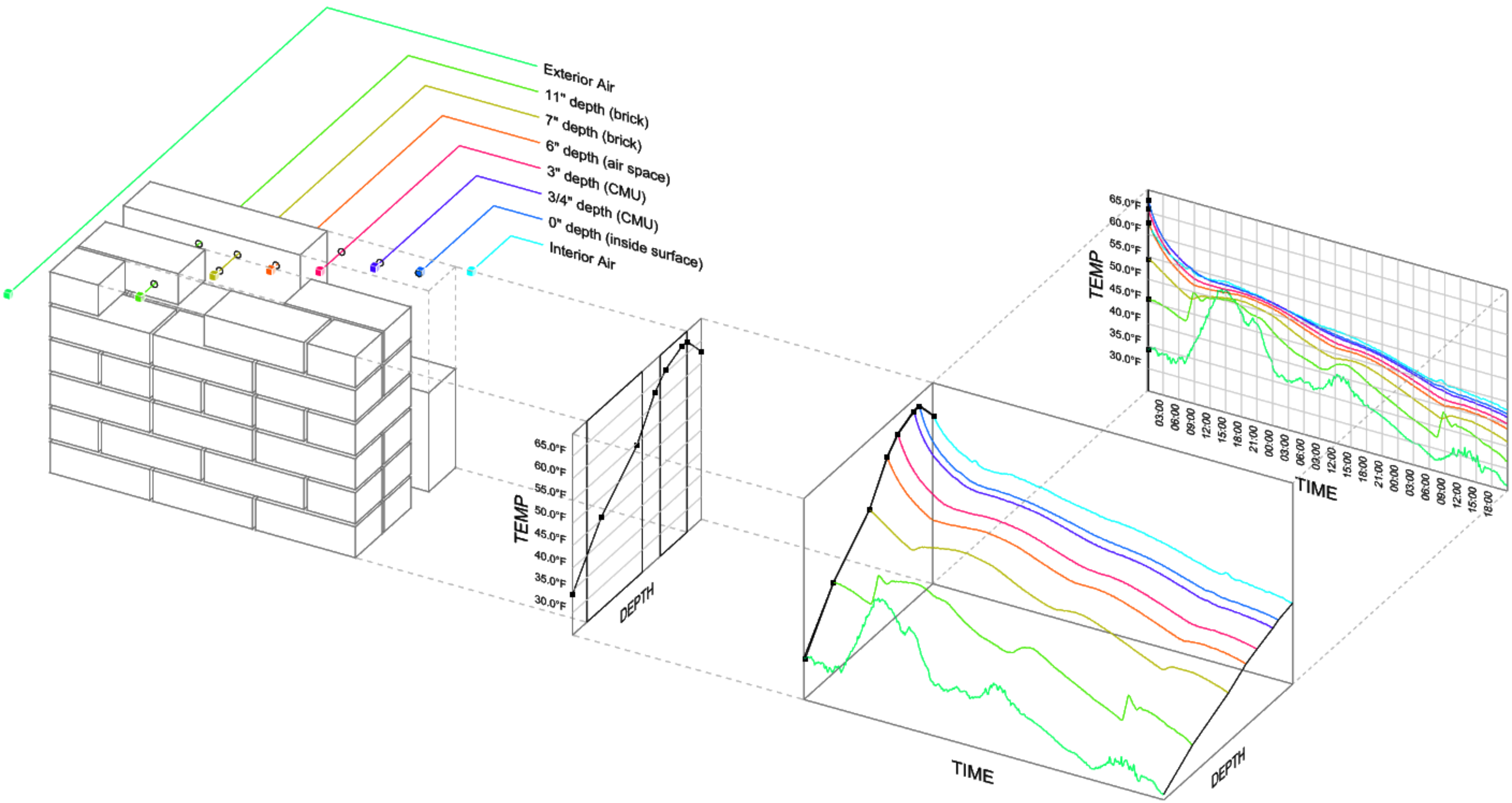


SITE PLAN

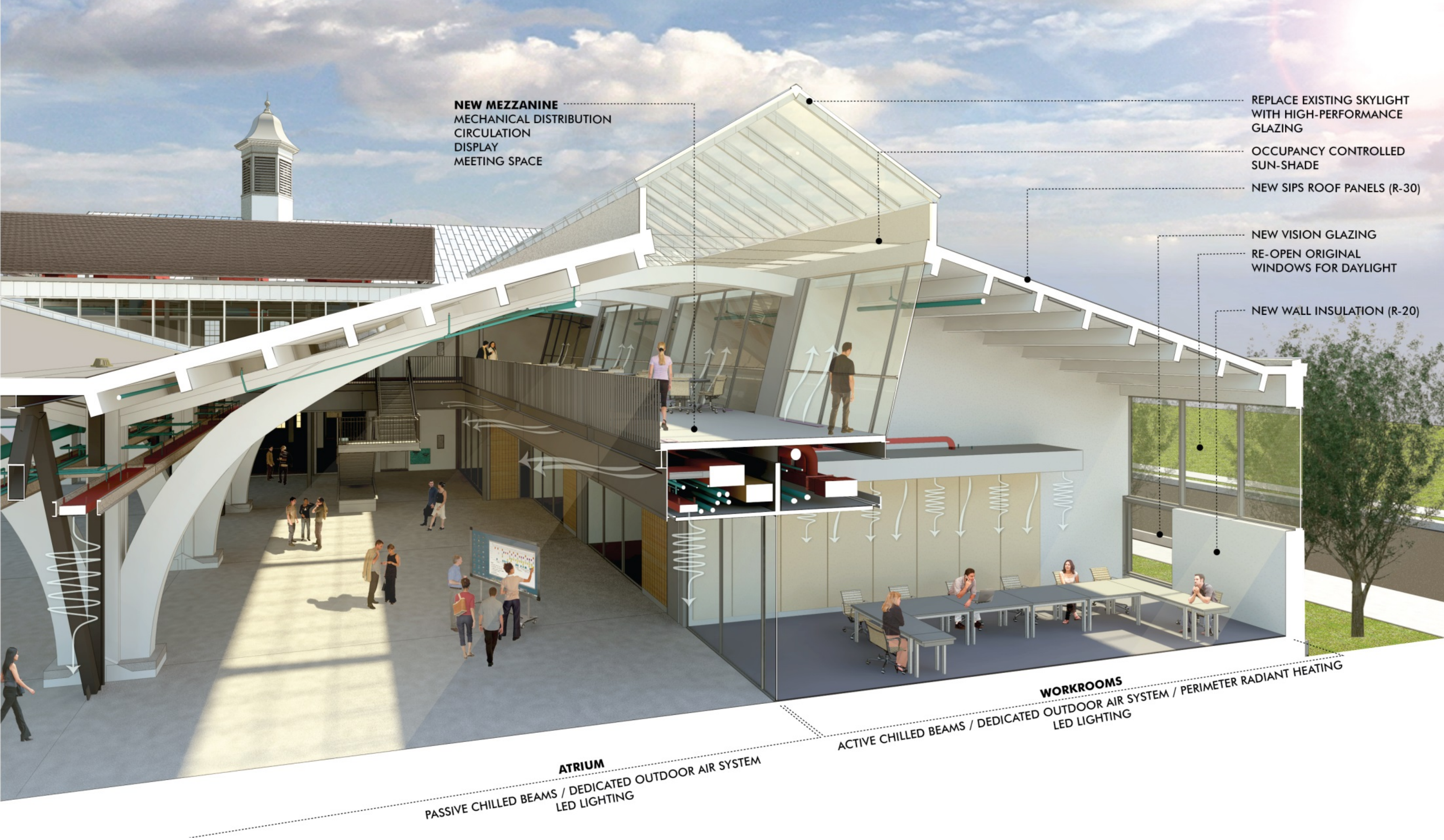




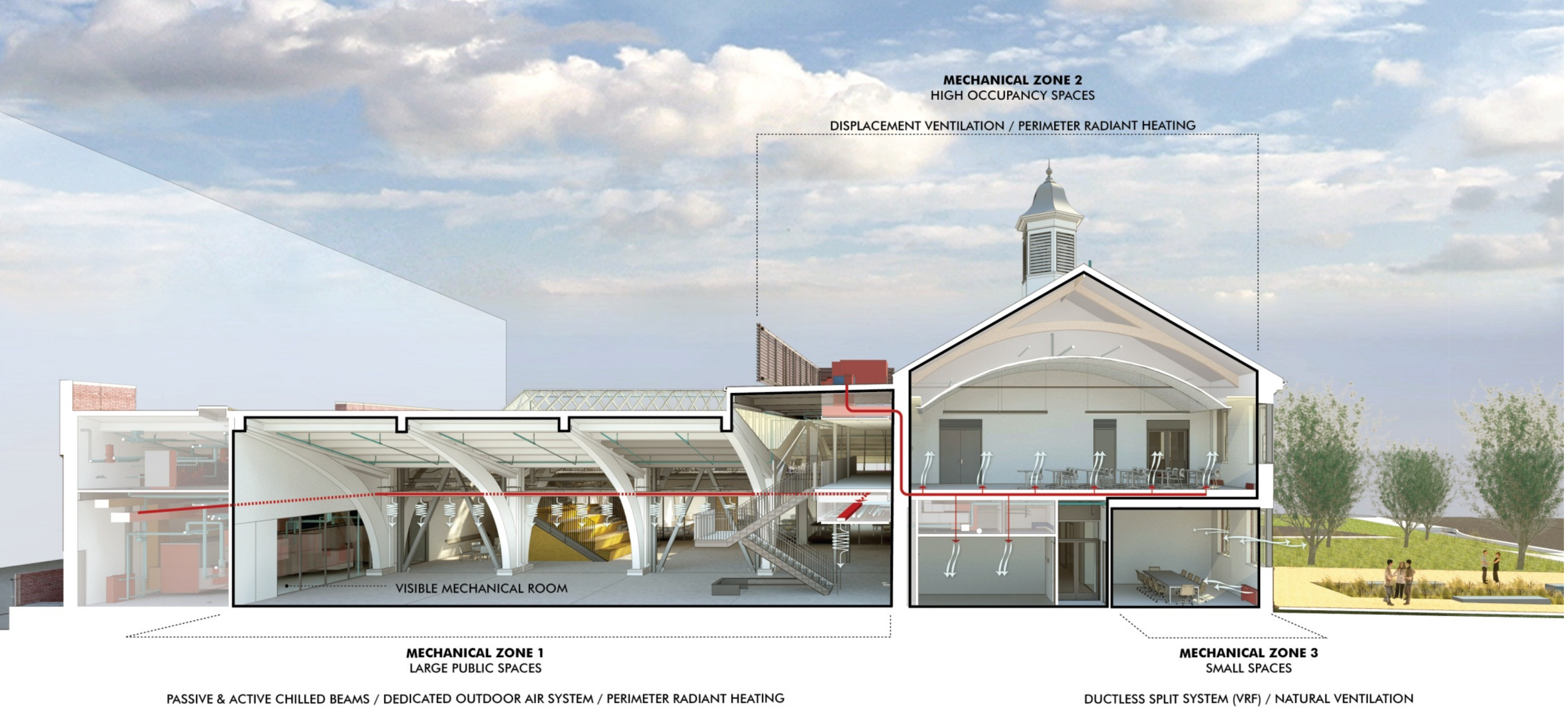
DATA COLLECTION



THERMAL PERFORMANCE ANALYSIS – EXISTING BUILDING ENVELOPE



ENERGY EFFICIENT RETROFIT



Baseline	71 kBtu/sf-yr
Energy Reduction	**52.5%** (+75% than target)
EUI	**34 kBtu/sf-yr**
E Cost Reduction	**37.5%** (+25% than target)
LEED EAc1	**15 out of 19 points**
Energy Star Rating	**94-97**

BUILDING 661 MECHANICAL SYSTEMS AND PERFORMANCE

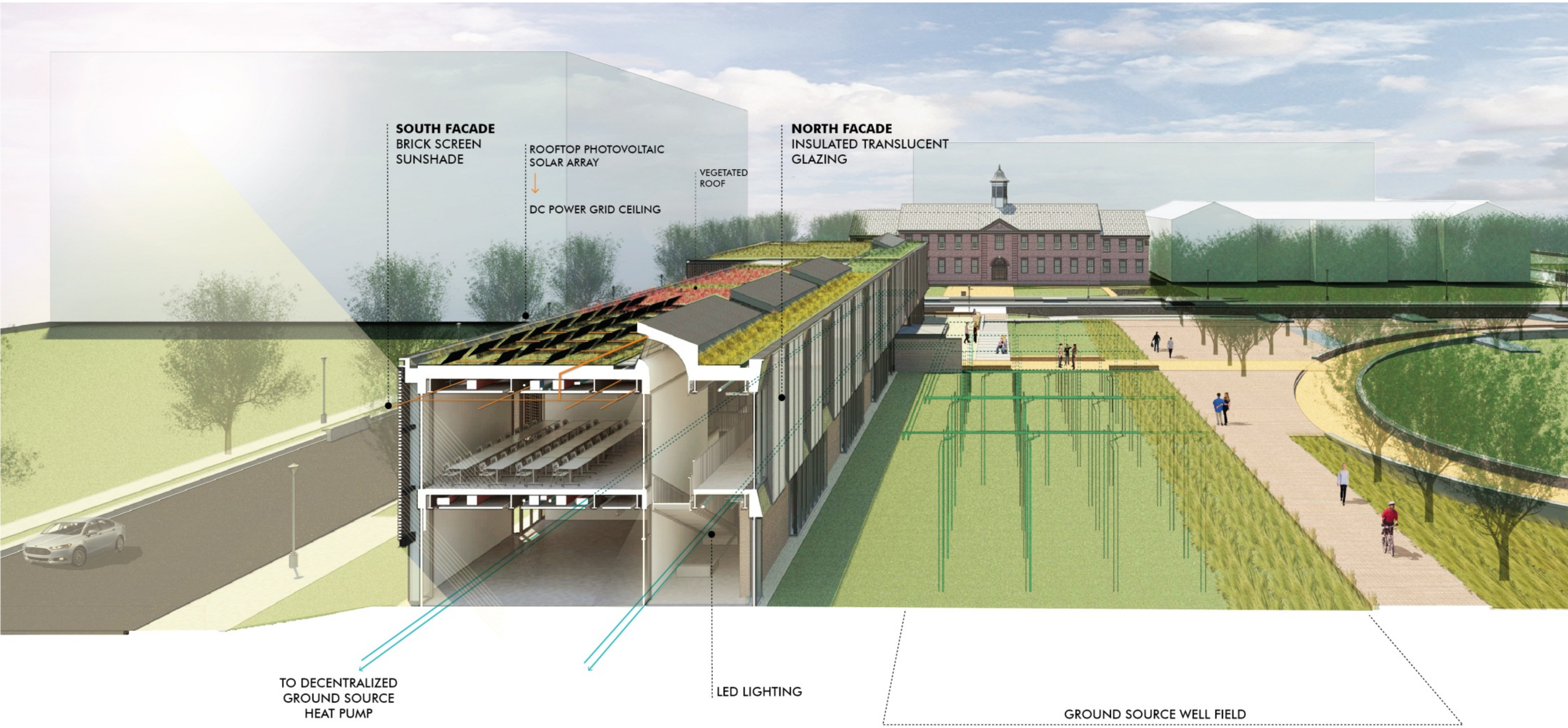
BUILDING 661 INTERIOR

BUILDING 661 INTERIOR

BUILDING 661 INTERIOR

BUILDING 7R NEW CLASSROOM BUILDING

BUILDING 7R SOUTH FACADE



Baseline	53 kBtu/sf-yr
Energy Reduction	**36.2%** (+20% than target)
EUI	**34 kBtu/sf-yr**
E Cost Reduction	**39.3%** (+31% than target)
LEED EAc1	**14 out of 19 points**

BUILDING 7R INTEGRATED SYSTEMS

RAINSCREEN DESIGN **(REDUCED R-VALUE)**

	R- Value	**North** (Level 1)	**North** (Level 2)	**West** (Level 1)	**West** (Level 2)	**South**	**East**	**Building Total**	**Systems**
Total Façade		**3,550**	**5,550**	**850**	**850**	**9,100**	**1,700**	**21,600**	
Opaque Wall	**20**	1,825 51%	**1,790** 32%	510 60%	**275** 32%	6,605 73%	1,085 64%	12,090 56%	12,090 Solid wall
Clear Glazing	**4**	1,725 49%	1,035 19%	340 40%	160 19%	2,495 27%	615 36%	6,370 29%	9,510 Curtainwall / Storefront
Translucent Insulated Glazing	**8.5**		2,725 49%		415 49%			3,140 15%	
Avgerage R-Value		12.2	11.4	13.6	11.4	15.6	14.2	13.6	

BUILDING 7R FACADE STUDIES

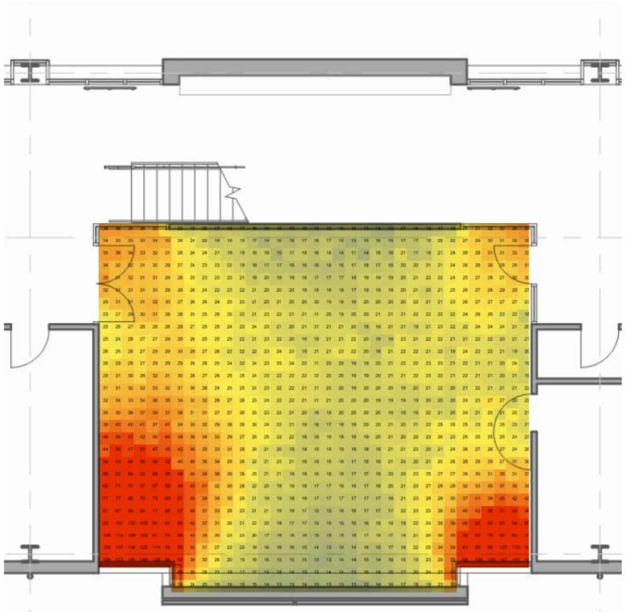
TWIN WALL ACRYLIC PANEL

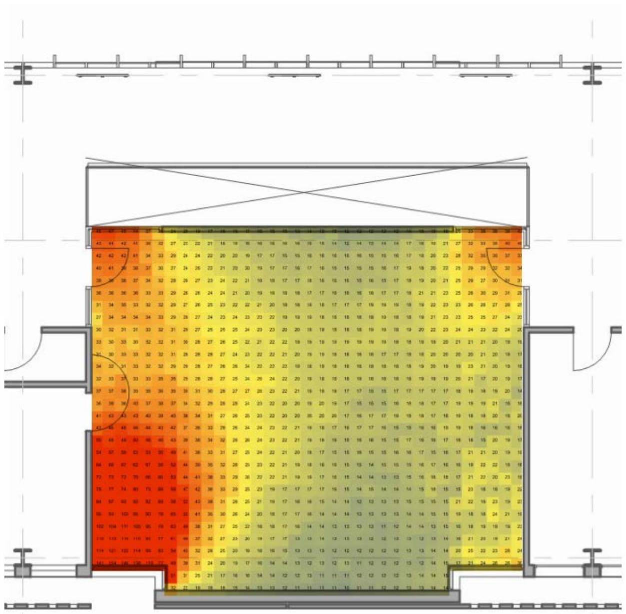
INSULATED TRANSLUCENT PANEL

BUILDING 7R RAINSCREEN MOCKUP

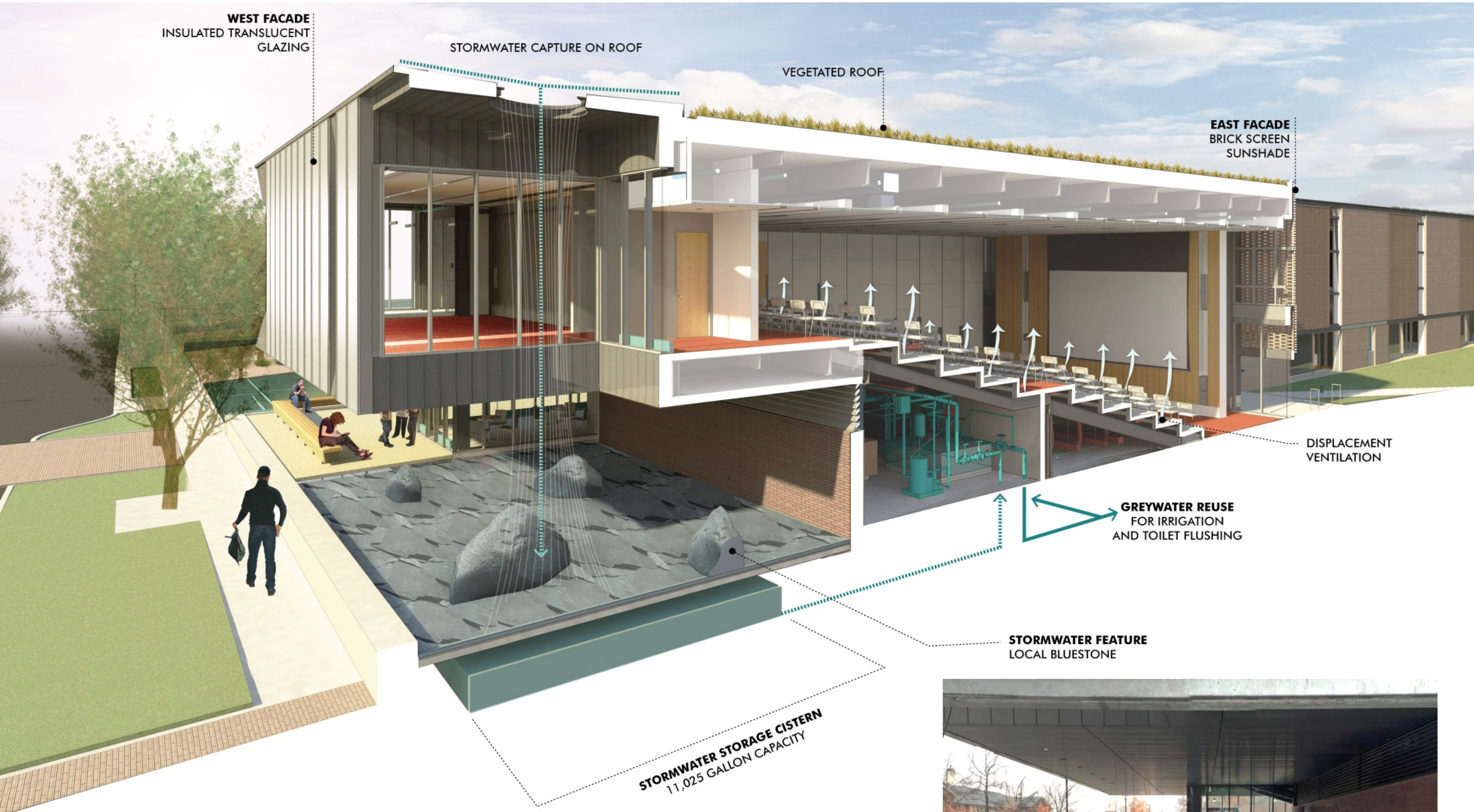
BUILDING 7R NORTH FACADE

BUILDING 7R SOUTH FACADE



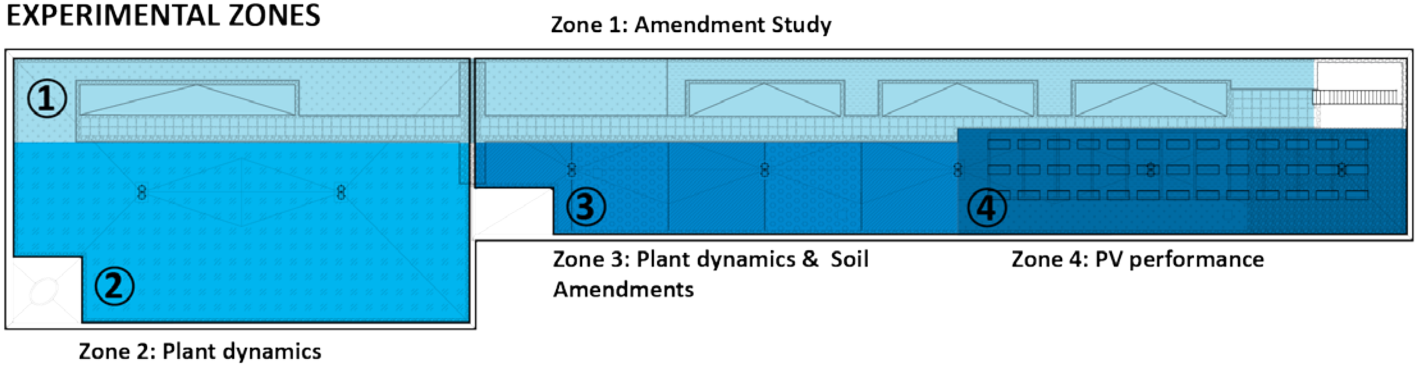


BUILDING 7R CLASSROOM DAY LIGHTING ANALYSIS

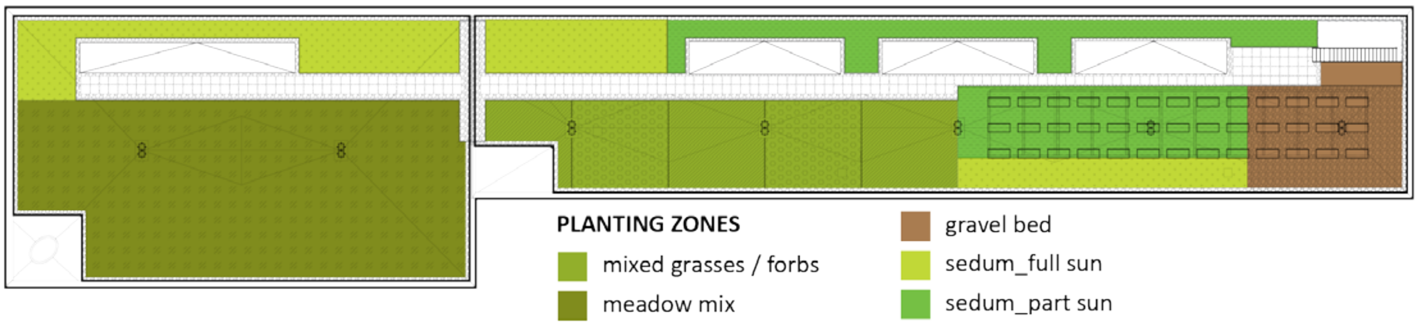


BUILDING 7R MECHANICAL SYSTEMS DETAIL

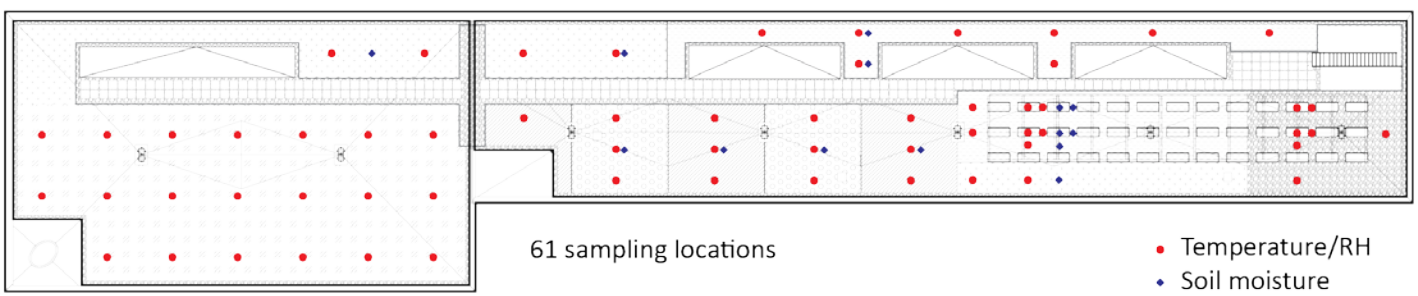
EXPERIMENTAL ZONES

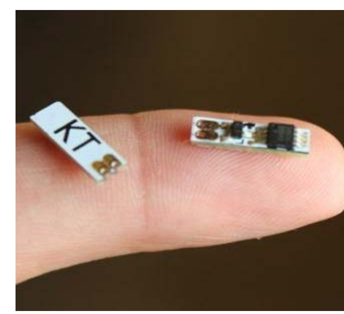


PLANTING PLAN



SENSOR DEPLOYMENT PLAN






DO NOT PULL WIRES
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