

# An Inside Look at Utilities' New Administration Building

April 7, 2016

## Integrated Design Assistance Program

- Design, Construction and Performance incentives for new construction and major renovation
- Buildings as systems
- Early application critical
- [www.fcgov.com/idap](http://www.fcgov.com/idap)
- Contact Gary Schroeder, [gschroeder@fcgov.com](mailto:gschroeder@fcgov.com), 970-221-6395



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Jason Kersley, [au]workshop



Diagram 1



Diagram 2



Diagram 3



Diagram 4

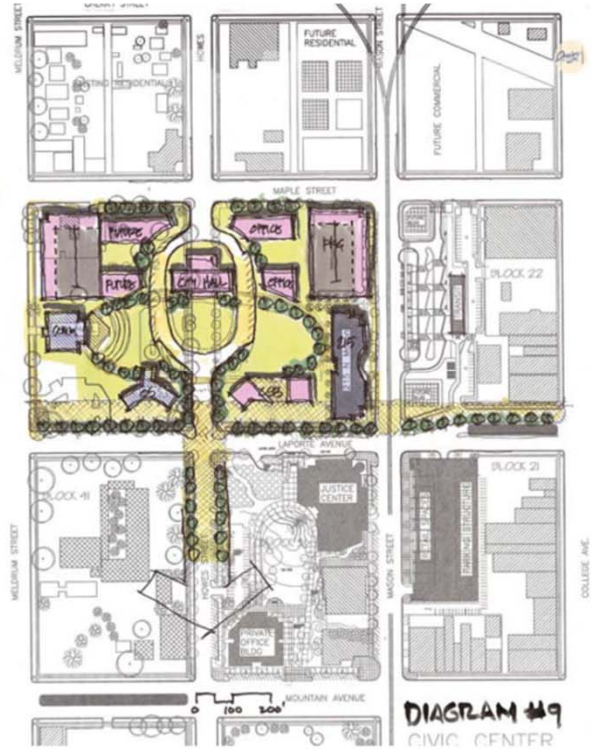


Diagram 5

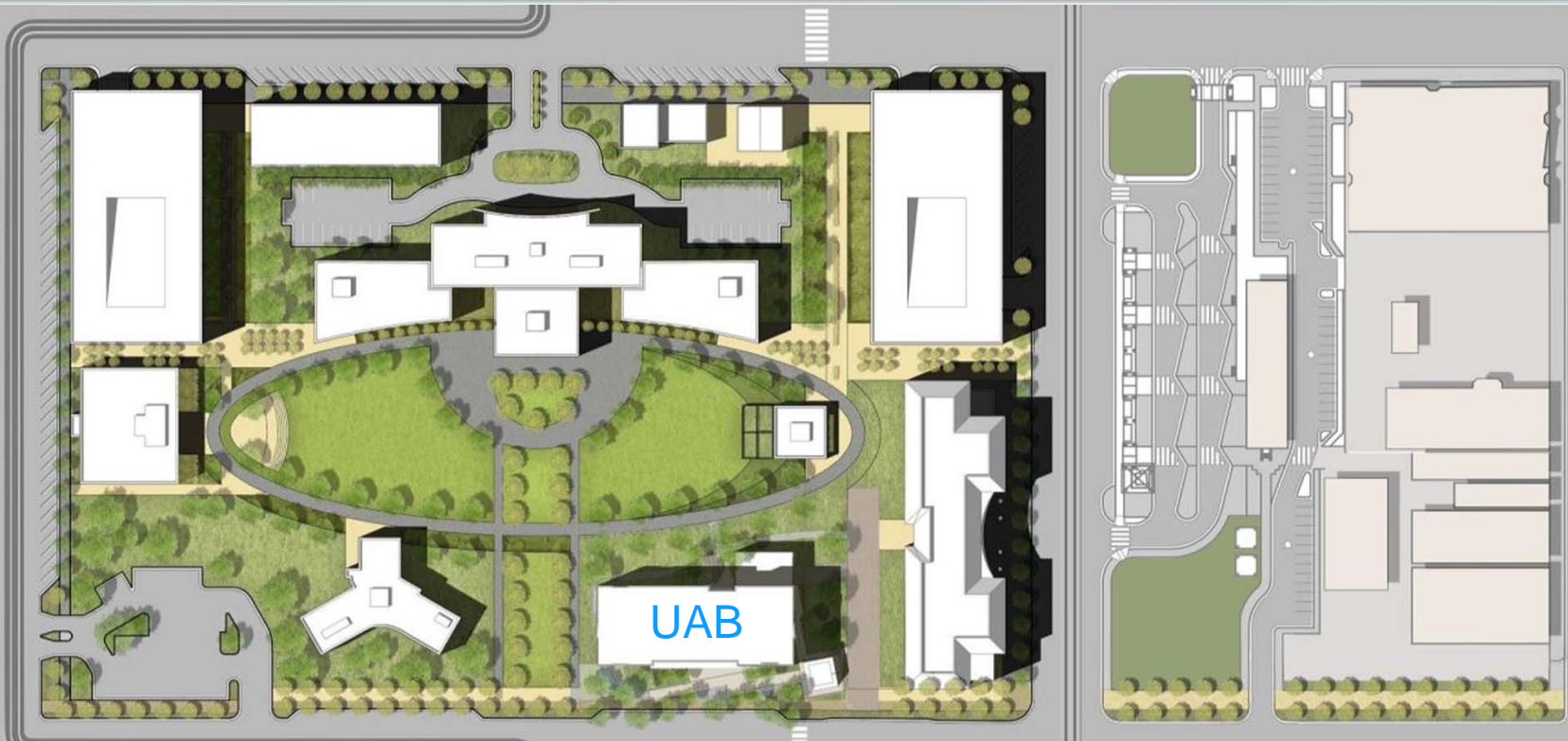


Diagram 6



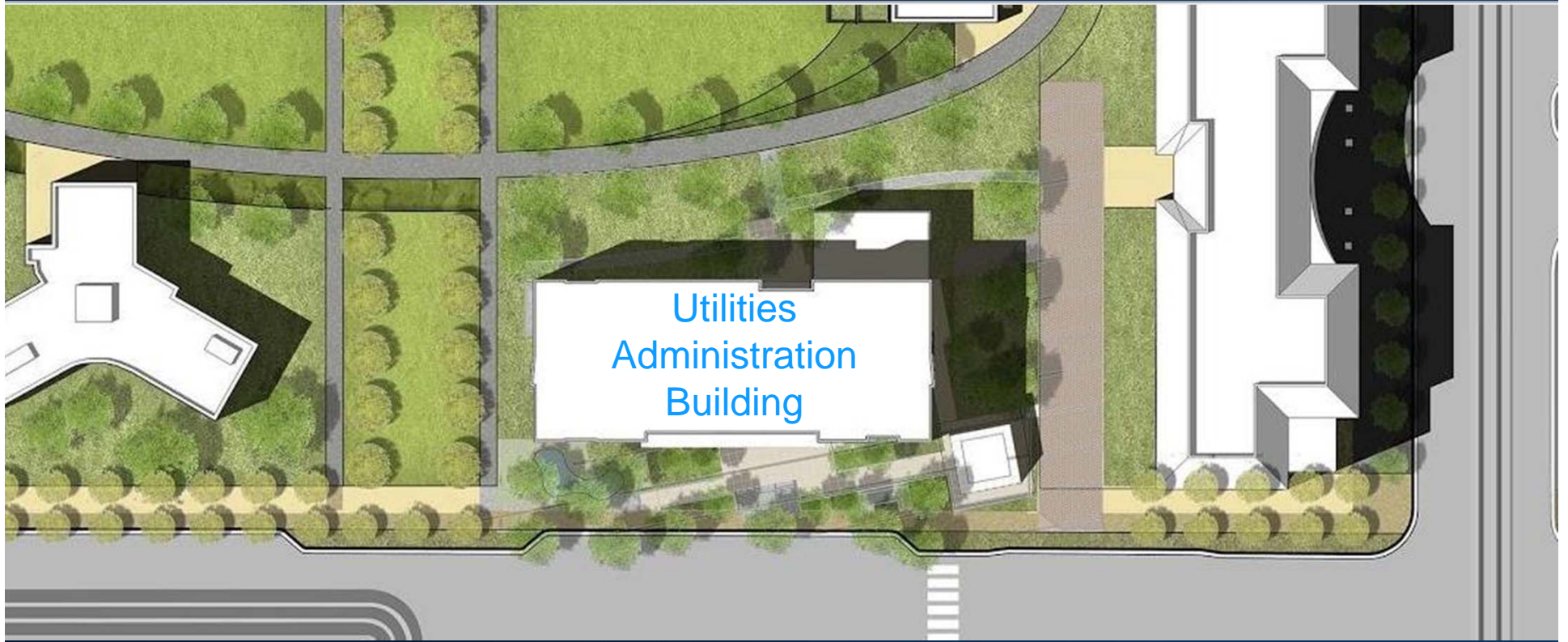


# Selected Master Plan



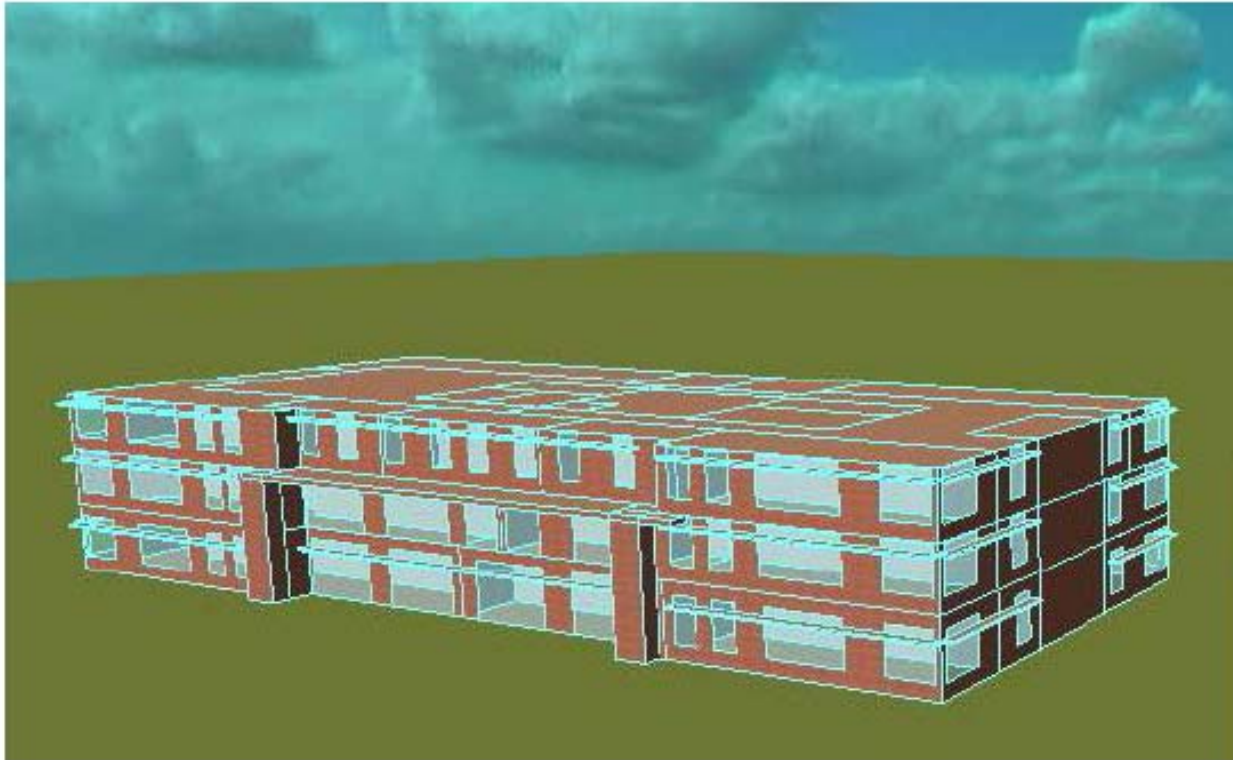


# Utilities Administration Building









## CITY OF FORT COLLINS IECC AMENDMENTS

FENESTRATION (FIXED) -  $U = 0.35$

AREA-WEIGHTED AVERAGE MAXIMUM FENESTRATION U-FACTOR -  $U = 0.40$   
(compared to  $U = 0.48$  for climate zone 5)

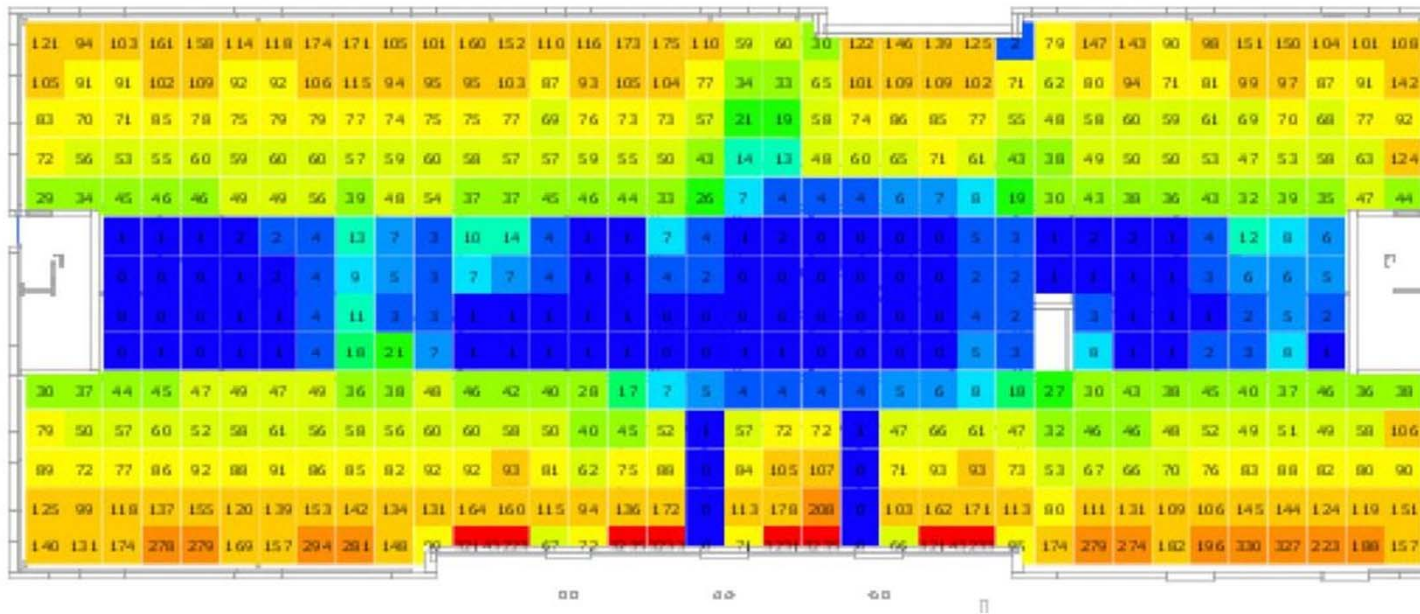
AIR BARRIER MUST BE CONTINUOUS AND MUST BE TESTED FOR A TOTAL BUILDING LEAKAGE RATE THAT DOES NOT EXCEED 0.25 CFM/SQFT @ 75 PASCALS OF PRESSURE

ACCORDING TO IECC 402.4.1: “uncontrolled air movement through the building envelope (infiltration and exfiltration) can account for less than or equal to 50% of heating and a significant part of cooling loads, representing less than or equal to 30% of a building’s annual HVAC costs.”



AIR BARRIER SURFACE AREA	
Location	Area (SF)
North Elevation	7963
East Elevation	3073
South Elevation	7888
West Elevation	3054
Ground Floor	12995
Roof	12910
<b>TOTAL AIR BARRIER SURFACE AREA 47883 SF</b>	





LEVEL 2 - JUNE 21 - 12PM

	LightStanza Area	Illumination at 9:00 a.m.	Illumination at 3:00 p.m.	LEED Compliance at 9am and 3pm
<b>Total</b>				<b>85.22%</b> <i>1 Credit</i>
✓ Floor1				83.30%
✓ Floor2				87.79%
✓ Floor3				84.10%

# Daylighting Control







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John Phelan, Utilities Energy Services Manager

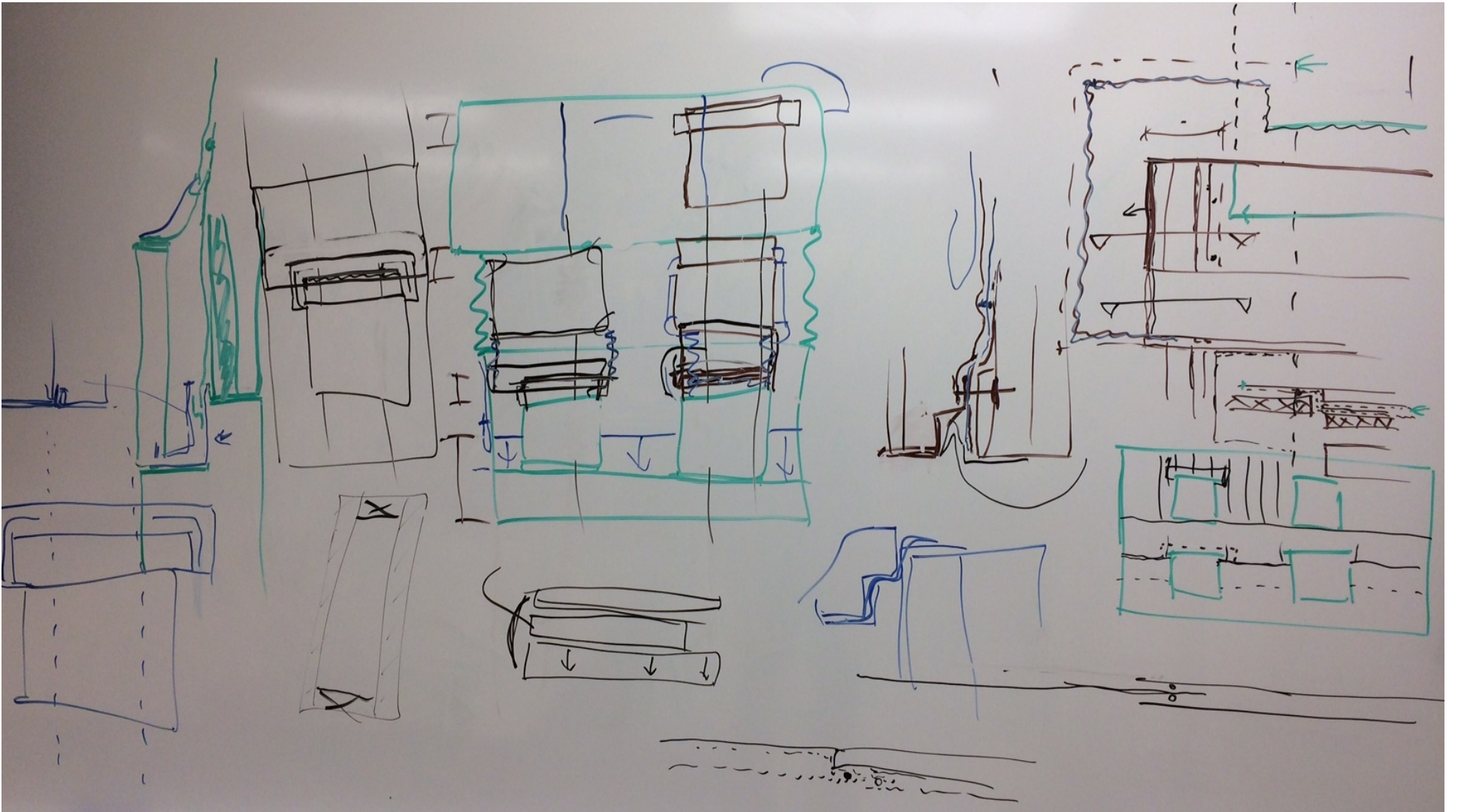


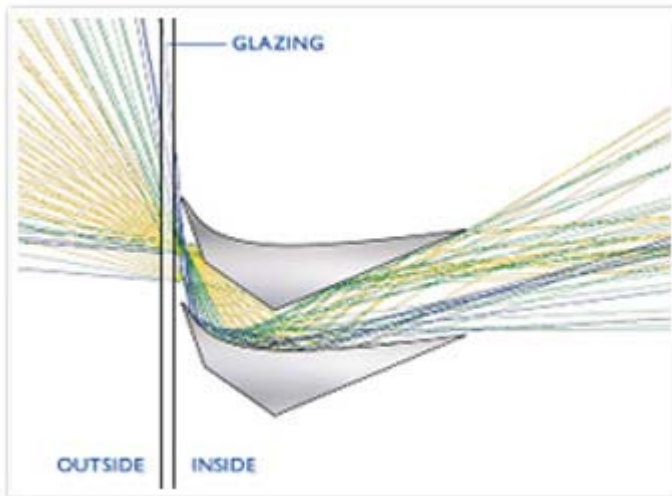
- Setting design targets
  - < 30 kBtu per square foot per year
  - Achieve **all** LEED energy points
- Use modeling as a design tool
  - Energy models
  - Daylighting models
- LEED submission model results  
**28 kBtu per square foot per year**



- Envelope
  - Syntheon panel system
  - + entire wall assembly
  - Fiberglass frame high performance windows (R 5.8)
  - Glazing tuned by orientation and purpose
  - Exterior shading
  - Air sealing details + envelope commissioning + leakage testing

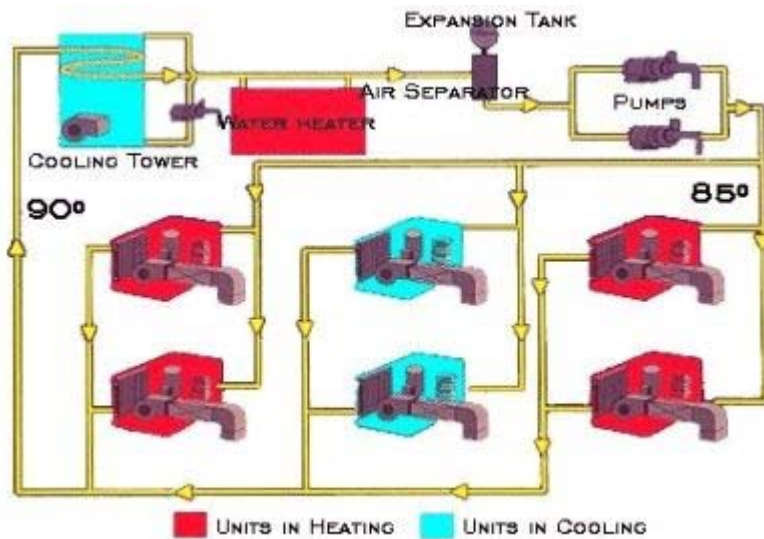






- Daylighting system
  - Building orientation
  - Vision and daylight glazing specs
  - LightLouver on south, east, west
  - LED fixtures with dimming





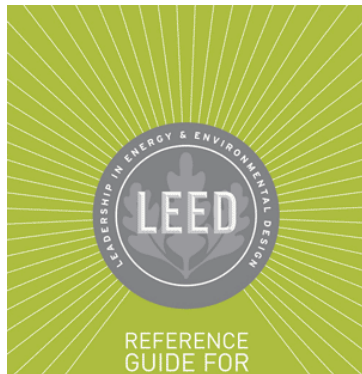
- Mechanical system
  - Water loop heat pumps
  - Dedicated outside air system with heat recovery
  - Future connection to shared ground source loop
  - Roof free of mechanical equipment





- Electrical system
  - All LED lighting
  - Task / ambient lighting design
  - Dimming ambient lighting with daylighting
  - Occupancy controls
  - Submetering of all lighting, plug and HVAC panels
  - 110 kilowatt rooftop solar





- LEED Version 4!
  - First for City of Fort Collins, Institute for the Built Environment and Adolfson and Peterson
  - Just over the Platinum level right now
  - Challenges with information availability for materials specifications

33	0	0	Energy and Atmosphere	33
Y			Prereq Fundamental Commissioning and Verification	Required
Y			Prereq Minimum Energy Performance	Required
Y			Prereq Building-Level Energy Metering	Required
Y			Prereq Fundamental Refrigerant Management	Required
6			Credit Enhanced Commissioning	6
18			Credit Optimize Energy Performance	18
1			Credit Advanced Energy Metering	1
2			Credit Demand Response	2
3			Credit Renewable Energy Production	3
1			Credit Enhanced Refrigerant Management	1
2			Credit Green Power and Carbon Offsets	2