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, 970-221-6395
An Inside Look at Utilities’ New Administration Building
Jason Kersley, [au]workshop
Utilities Administration Building
Energy Modeling
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.”
Daylighting Analysis

LEVEL 2 - JUNE 21 - 12PM
## Daylighting Analysis

<table>
<thead>
<tr>
<th>Area</th>
<th>Illumination at 9:00 a.m.</th>
<th>Illumination at 3:00 p.m.</th>
<th>LEED Compliance at 9am and 3pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>83.30%</td>
<td>87.79%</td>
<td>84.10%</td>
</tr>
<tr>
<td>Floor1</td>
<td></td>
<td></td>
<td>85.22%</td>
</tr>
<tr>
<td>Floor2</td>
<td></td>
<td></td>
<td>85.22%</td>
</tr>
<tr>
<td>Floor3</td>
<td></td>
<td></td>
<td>85.22%</td>
</tr>
</tbody>
</table>

1 Credit
An Inside Look at Utilities’ New Administration Building

John Phelan, Utilities Energy Services Manager
Energy Performance

- 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
Energy Features

- **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
Energy Features

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

- 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
Energy Features

- 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
Leadership in Energy and Environmental Design

- 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