QUALITY ASSURANCE TESTING

January 1, 2016
FIRST WHOLE-BUILDING TEST

- 3,070 CFM75, 50% above the target
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The leakage areas needing attention can be grouped as follows:

- Curtainwall
- Windows
- Curtainwall/enclosure junctions all side including low roofs
- Bump-out
- Ceiling, especially at firewalls
- Mechanical attics
- Miscellaneous enclosure defects

My recommendation is that for each area a set of the pertinent details be assembled and are used to generate a specific work plan to address each area. As noted, I believe that the curtainwall and bump-out diagnostics should include building pressurization and theatrical fog to clearly understand the leakage paths.
FINAL WHOLE-BUILDING TEST

- Army Corps protocol, pressurization and depressurization
- 1,867 CFM75, 7% below the target
  – thank you John Averill
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0.060 CFM75 per sf of thermal enclosure
FINAL WHOLE-BUILDING TEST

The thermal enclosure was actually better than this – the vents for the ERVs and elevator vents are all behind wood louvers, so blocking them was not possible and we relied on the 18 motor dampers to seal these openings to outdoors.
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Equivalent values at 50 Pascals are:
- 1,413 CFM50
- 0.34 ACH50
- 0.046 CFM50 per sf of thermal enclosure
FINAL WHOLE-BUILDING TEST

The graph shows the dcf/ft2 enclosure - 75 pascals for various buildings identified by their ID numbers. The x-axis represents the Building ID# ranging from 1 to 65, and the y-axis represents the dcf/ft2 enclosure in 75 pascals, ranging from 0.00 to 1.50.

Legend:
- NonACE
- CAI ACE
- pre-retrofit
- post-retrofit
- MIT-E52
- MIT-E60
- E-60 excluding connector
- MIT-E62
- E-62 excluding E60 leakage
MEASUREMENT + MANAGEMENT

You can't manage what you don't measure.

-W. Edwards Deming
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It is wrong to suppose that if you can’t measure it, you can’t manage it – a costly myth.

W. Edwards Deming

source: quotes.deming.org/10147
Intent

• To provide information to support the ongoing accountability and optimization of building energy performance and identify opportunities for additional energy-saving investments.

• To provide accurate energy-use information to support energy management and identify opportunities for additional energy-saving improvements.

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• To support energy management and identify opportunities for additional energy savings by tracking building-level and system-level energy use. (repeat 4x)

• To support energy management and identify opportunities for additional energy savings by tracking building-level energy use. (repeat 2x)
LEED CREDIT EA3.1, ENERGY METERING

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Requirements

• Employ system-level metering covering 40% (1 point) or 80% (2 points) of the total expected annual energy consumption
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Resources

- There are currently no associated resources.
KERN CENTER METERING

(9) Water Meters
  • (3) Incoming: Municipal and Cisterns
  • (4) Use: Finished (total), Cold, Hot, Irrigation
  • (2) Waste: Indoor and Outdoor Planters

(25) Electricity Meters
  • (1) Main
  • (13) Subpanels
    - (1) Solar PV
    - (2) Mechanical
      * (11) Mechanical Submeters: fans, pumps, water heaters, indoor heat pumps, outdoor heat pumps
    - (5) Lighting
    - (5) Plug Loads
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