BUILDING *performance* LAB

OAT Verification

Measure Description

Almost all building systems (i.e., central plants, air handling units, etc.) use the outside air temperature (OAT) as a parameter for their controls. Thus, an accurate OAT reading is essential for proper building operation. Measurements of outside air conditions have a major influence on building operations and therefore how energy is consumed. If sensors are inaccurate, the BAS would not know,and would operate as if the sensor values are accurate, which could lead to serious control issues. This measure validates the accuracy of your OAT sensors by comparing them to logger and localized weather data.

Note: National Oceanic & Atmospheric Administration (NOAA), has weather data here: https://www.ncdc.noaa.gov/cdo-web/datatools/lcd

Kit Contents

- (1+) HOBO® waterproof temp/RH loggers: MX2301 – for OAT
    - Make sure to place the logger as close to the BAS OAT sensor as possible
- Phone or tablet with Bluetooth (e.g. iPad)
- HOBOConnect® mobile app

HOBO® waterproof temp/RH logger

1. Configure: https://youtu.be/sbUBDB2eg_U
    a. Best practice: Configure with 15-minute time intervals and “Wrap” recording
2. Install: https://youtu.be/R9MDkohMD-E
3. Extract data: https://youtu.be/-vxr8pnguIQ
4. Use the HOBOConnect® mobile app to visualize data

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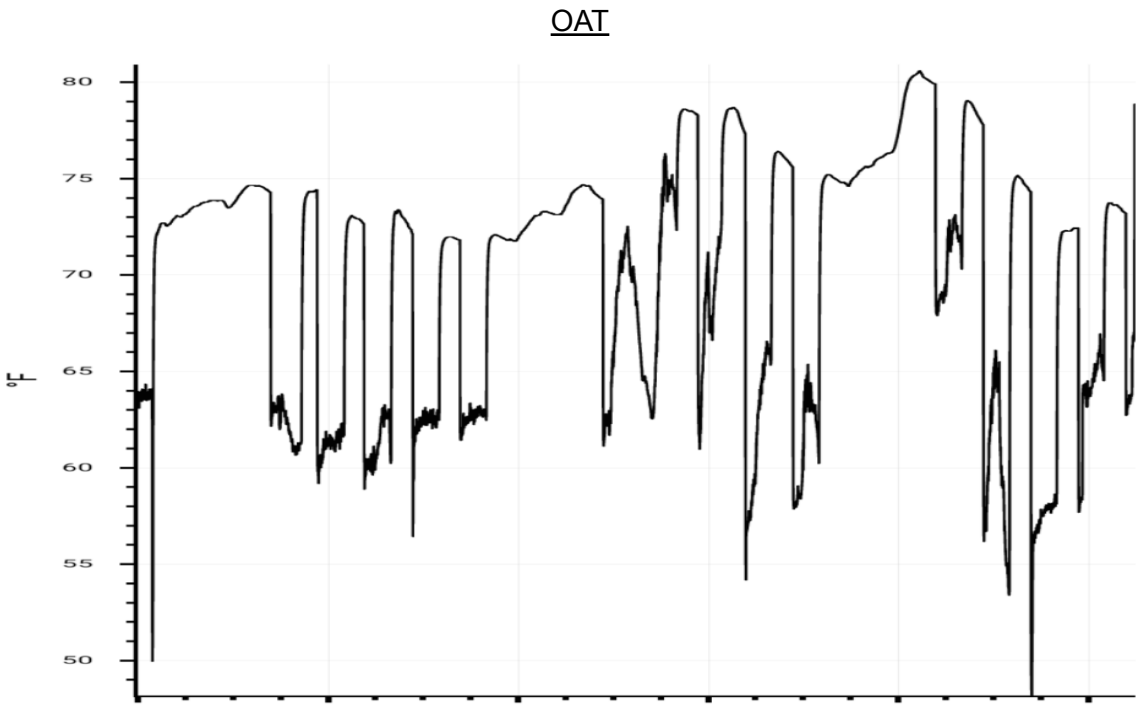
Trend Chart Example



Analysis

Looking at the trend chart above vs. historical data from your closest weather station, use the following Q&A to analyze the data for opportunities for energy savings.

1. Is the OAT sensor exposed to direct sunlight during the day or close to warm equipment / a fan?
    a. If NO, then this is a good operation.
    b. If YES, visually inspect the sensor itself. Is there any visible damage/debris? Check if the sensor is never in direct sunlight. Check if the sensor is near a source of heat (e.g., a cooling tower basin, a condensing unit, or an exhaust damper from a rooftop unit). If necessary, relocate the OAT sensor.
2. Does the OAT sensor need to be calibrated?
    a. If NO, then this is a good operation.
    b. If YES, visually inspect the sensor itself. Is there any visible damage/debris? Check if the sensor is never in direct sunlight. Check if the sensor is near a source of heat (i.e. cooling tower basin or exhaust).

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