

Pay for Performance - EB Technical Tip

Example Measure Descriptions

All measure descriptions in the “Recommended Measures” section of the ERP shall include all *key model inputs* for all measures. Any input used in the simulation software that corresponds to an energy reduction measure shall be included with the description of the measure. Key model inputs include but are not limited to the following:

- equipment capacity
- equipment size
- equipment efficiency
- appliance and lighting power density
- R-values, U-factors, SHGC, etc.

In the ‘Changes Made to Previous Model Run’ column of the *Measure Simulation* tab, the existing and proposed model inputs must be clearly identified and must be consistent with the energy model.

If the space provided in the ERP excel file is too small to contain the information requested for that measure, supplemental documents or spreadsheets can be submitted if they are clearly labeled.

Energy Reduction Plans missing a significant number of key model inputs will not be accepted.

Some examples of the level of detail required for measure descriptions and key model inputs are shown on the following pages:

Key Inputs for Measures

Replace Windows

Description of Improvement

- Triple Pane
- Metal frame
- U-0.33
- SHGC 0.37
- Window to wall ratio = 27%

Existing Conditions:

Windows	Measure?	Window Type	Frame Type	Condition	Typical Size (H x W)	# of Panes	Gas Filled	Glass Coating	U-value	Weather-stripping	Age (yrs)	Qty.
Window Type 1	Yes	Casement	Wood	Average	6'-9" x 4'-3"	Single	No	None	1.2	Fair	~30	47

Changes Made to Previous Run:

Changed U-value from U-1.2 to U-0.33 and changed SHGC from 0.87 to 0.37.

Key Inputs for Measures

Boiler Replacement

Description of Improvement

Measure Name	Measure Type	Measure Category	Measure Details	Location	Capacity	Capacity Units	Quantity	Efficiency	Efficiency Units	Fuel Affected	Existing Conditions (Equipment Replaced/Modified)
4 Boiler Replacement	Boiler Improvement	Hot Water Boiler (Gas)	Replace atmospheric boilers with condensing boilers	Boiler Room #1	1,750	MBH	2	90	Et	Natural Gas	Boilers 1-2, to be replaced per mechanical tab

Existing Conditions

Boiler or DHW ID	Measure?	Location	HVAC or Area Served	Number of Identical Units	Manufacturer	Model Number	Year of Mfr	Equipment Type	Distribution Type	Fuel Type	Capacity (mbh)	Efficiency	
Boiler-1,2	Yes	Main Boiler Room	Classrooms and cafeteria spaces	2	H. B. Smith	M450A	1996	Hot Water Boiler	Hot Water	Natural Gas	2,000	80.0%	Et

Changes Made to Previous Run:

For Boilers 1 and 2, changed capacity from 2,000 MBH to 1,750 MBH, changed efficiency from 80% Et (HIR 1.25) to 90% Et (HIR 1.11), and changed boiler type from atmospheric to condensing. Note: boiler efficiency modeled in the proposed design reflects full load capacity at 80°F return water temperature.

Key Inputs for Measures

VFDs on Motors

Description of Improvement

Measure Name	Measure Type	Measure Category	Measure Details	Location	Capacity	Capacity Units	Quantity	Efficiency	Efficiency Units	Fuel Affected	Existing Conditions (Equipment Replaced/Modified)	
5	HW Pump VFD	VFDs on Pump Motors	Custom Electric	Put VFD on HW circulation pumps.	Boiler Room #1	N/A	N/A	2	N/A	N/A	Electric	One-speed 15 hp HW circulation pumps serving hot water loop.

Changes Made to Previous Run:

Changed pump control from 'one-speed' to 'variable speed' for (2) 15 HP HW circulation pumps.

Thermostat Setback

Description of Improvement

Measure Name	Measure Type	Measure Details	Location	Existing Conditions (Equipment Replaced/Modified)
BAS - Setback Thermostat	Programmable Thermostat	Use time-of-day scheduling as part of DDC upgrade. Remove pneumatic controls air compressor. Modeled in accordance with P4P Guidelines Section 4.6.3 Programmable Thermostats. 3°F setback heating, 2°F offset cooling	Classrooms, offices, media center, gym, auditorium, cafeteria	Pneumatic thermostats set at 72°F year round.

Changes Made to Previous Run:

Existing heating and cooling schedule is 72°F year round. Proposed heating schedule is 72°F from 6am to 10pm with 3°F setback from 10 pm to 6am for all day types, year round (included in model as schedule "HEAT_SETBACK_SCH"). Cooling schedule is 72°F from 12am to 6pm with 2°F offset from 6pm to 12am for all day types, year round (included in model as "COOL_SETBACK_SCH").