Data Dictionary for NIST Net-Zero Energy Dataset, v1.0

Last update: November 2, 2016

Part 1. Taxonomy of Building Characteristics

* This taxonomy is intended to follow that provided by the Department of Energy in its “Building Energy Performance TAXONOMY, Version 2.1.”[[1]](#footnote-1)
* Parameters enclosed in asterisks (e.g., \*\* Parameter \*\*) are those that are listed as optional in the taxonomy.
* Parameters enclosed in hash signs (e.g., ## Parameter ##) are not included in the taxonomy but are provided to clarify characteristics of the NZERTF.

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **Parameter** | **Value** | **Unit** |
| **SITE** |  |  |  |
|  | City | Gaithersburg |  |
|  | State | Maryland |  |
|  | Postal Code | 20899 |  |
|  | County | Montgomery |  |
|  | Country | United States |  |
|  | Climate Zone | 4A, Mixed - Humid |  |
|  | Elevation | 136 (446) | m (ft) |
|  | Site Type | Suburban |  |
|  | Number of Facilities | 1 |  |
| **RESIDENTIAL FACILITY** | |  |  |
|  | Residential Facility Type | Single Family |  |
|  | Year Completed | 2012 |  |
|  | Year Occupied | 2013 |  |
|  | Surroundings | Stand-alone |  |
|  | Orientation | East-West |  |
|  | Building Footprint Area | 135 (1454) | m2 (ft2) |
|  | Footprint Shape | Rectangular |  |
|  | Perimeter | 50 (165) | m (ft) |
|  | Net Floor Area | 386 (4165) | m2 (ft2) |
|  | Rentable Floor Area | n/a |  |
|  | Occupied Floor Area | 386 (4165) | m2 (ft2) |
|  | Lighted Floor Area | 386 (4165) | m2 (ft2) |
|  | Heated Floor Area | 386 (4165) | m2 (ft2) |
|  | Cooled Floor Area | 386 (4165) | m2 (ft2) |
|  | Unconditioned Floor Area | 0 |  |
|  | Basement Floor Area | 135 (1453) | m2 (ft2) |
|  | Basement Heated Floor Area | 135 (1453) | m2 (ft2) |
|  | Basement Air-Conditioned Floor Area | 135 (1453) | m2 (ft2) |
|  | Attic Floor Area | 115 (1235) | m2 (ft2) |
|  | Attic Heated Floor Area | 115 (1235) | m2 (ft2) |
|  | Attic Air-Conditioned Floor Area | 115 (1235) | m2 (ft2) |
|  | Garage Floor Area | n/a |  |
|  | Garage Heated Floor Area | n/a |  |
|  | Garage Air-Conditioned Floor Area | n/a |  |
|  | Number of Dwelling Units | 1 |  |
|  | Number of Floors | 3 |  |
|  | Floors Above Ground | 2 |  |
|  | Floors Below Ground | 1 |  |
|  | Number of Residents | 4 |  |
|  | Number of Bedrooms | 4 |  |
|  | Number of Complete Baths | 3 |  |
|  | Number of Half Baths | 0 |  |
|  | Number of Rooms | 7 |  |
|  | Building Certification Type | USGBC LEED Certification for Homes | |
|  | Building Certification Value | Platinum |  |
|  | Certification Year | 2012 |  |
|  | Year of Last Remodel | 2012 |  |
|  | \*\* Floor-to-Floor Height \*\* | 2.7 (9) | m (ft) |
|  | \*\* Household Type \*\* | Family household |  |
|  | \*\* Number of Adults \*\* | 2 |  |
|  | \*\* Number of Children \*\* | 2 |  |
| **SYSTEMS: Lighting** | |  |  |
|  | Lighting Type | Compact Fluorescent |  |
|  |  | LED |  |
|  | Ballast Type | unknown |  |
|  | Lighting Control Type | Manual |  |
|  | Percentage of Total Floor Area Served | 100 | % |
|  | Outside Lighting | FALSE |  |
| **SYSTEMS:** | **Air Distribution (NOTE: refers only to dedicated ventilation system, not to air distribution attached to heat pump)** | | |
|  | Configuration | Packaged |  |
|  | Flow Control | Constant Volume |  |
|  | Duct Configuration | Single |  |
|  | Heating Source | None |  |
|  | Cooling Source | None |  |
|  | Preheat Source | none |  |
|  | Humidification | none |  |
|  | Dehumidification | none |  |
|  | Quantity | 1 |  |
|  | Size | 2.3 to 2.8 (80 to 100) | m3/min (ft3/min) |
|  | Power | 54 | W |
|  | Year of Manufacture | 2011 |  |
|  | Primary | TRUE |  |
|  | Percent of Total Installed Capacity | 100 | % |
|  | Percent of Floor Area Served | 100 | % |
|  | Static Air Pressure Reset Control | FALSE |  |
|  | Supply Air Temperature Reset Control | FALSE |  |
|  | Efficiency | 19 (0.54) | W/[m3/min] (W/cfm) |
|  | Efficiency Unit | W/[m3/min] (W/cfm) |  |
|  | Fan Motor Efficiency | unknown |  |
|  | Economizer | None |  |
|  | Minimum Outside Air Percentage | n/a |  |
|  | Fan Control Type | Constant/Intermittent |  |
|  | Heat Recovery Type | Air-to-Air Heat Exchanger | |
|  | Heat Recovery Efficiency | 78 | % |
|  | Duct Insulation | Excellent |  |
|  | Duct Sealing | Excellent |  |
|  | Duct Location | Conditioned Space |  |
|  | Duct Insulation R-Value | 0 |  |
| **SYSTEMS:** | **Air Distribution (NOTE: refers to air distribution attached to heat pump)** | | |
|  | Configuration | Split |  |
|  | Flow Control | Two Speed |  |
|  | Duct Configuration | Single |  |
|  | Heating Source | Electric Heat Pump |  |
|  | Cooling Source | Electric Heat Pump |  |
|  | Preheat Source | none |  |
|  | Humidification | none |  |
|  | Dehumidification | DX |  |
|  | Quantity | 1 |  |
|  | Size | 34 (1200) | m3/min (ft3/min) |
|  | Power (two speeds) | 175, 350 | W |
|  | Year of Manufacture | 2011 |  |
|  | Primary | TRUE |  |
|  | Percent of Total Installed Capacity | 100 | % |
|  | Percent of Floor Area Served | 100 | % |
|  | Static Air Pressure Reset Control | FALSE |  |
|  | Supply Air Temperature Reset Control | FALSE |  |
|  | Efficiency | unknown |  |
|  | Efficiency Unit | W/[m3/min] (W/cfm) |  |
|  | Fan Motor Efficiency | unknown |  |
|  | Economizer | None |  |
|  | Minimum Outside Air Percentage | n/a |  |
|  | Fan Control Type | Auto |  |
|  | Heat Recovery Type | None |  |
|  | Heat Recovery Efficiency | n/a | % |
|  | Duct Insulation | Excellent |  |
|  | Duct Sealing | Excellent |  |
|  | Duct Location | Conditioned Space |  |
|  | \*\* Static Pressure \*\* | 124.5 | Pa |
|  | \*\* Zone Count \*\* | 1 |  |
|  | \*\* Duct Type \*\* | Sheet Metal |  |
|  | \*\* Duct Pressure Test Leakage \*\* | 8.9 (315) | m3/min (ft3/min) |
| **SYSTEMS: Heating** | |  |  |
|  | Heating Type | Heat Pump - Air Source |  |
|  | Fuel | Electricity |  |
|  | Quantity | 1 |  |
|  | Capacity | 7.8 | kW |
|  | Year of Manufacture | 2011 |  |
|  | Primary | TRUE |  |
|  | Efficiency | 2.65 | W/W |
|  | Efficiency Unit | COP |  |
|  | Percent of Total Installed Capacity | 100 | % |
|  | Percent of Floor Area Served | 100 | % |
|  | Hot Water Reset Control | n/a |  |
|  | Control Type | Digital Thermostat |  |
|  | \*\* Distribution Type \*\* | Air |  |
|  | \*\* Location \*\* | Indoors |  |
|  | \*\* Zone Count \*\* | 1 |  |
| **SYSTEMS: COOLING** | **Cooling** |  |  |
|  | Cooling Type | Heat Pump - Air Source |  |
|  | Fuel | Electricity |  |
|  | Quantity | 1 |  |
|  | Capacity | 7.7 (2.2) | kW (tons) |
|  | Efficiency | 3.82 |  |
|  | Efficiency Unit | COP |  |
|  | Year of Manufacture | 2011 |  |
|  | Primary | TRUE |  |
|  | Energy Star | TRUE |  |
|  | Percent of Total Installed Capacity | 100 | % |
|  | Percent of Floor Area Served | 100 | % |
|  | Control Type | Digital Thermostat |  |
|  | \*\* Location \*\* | Indoors |  |
|  | \*\* Zone Count \*\* | 1 |  |
|  | \*\* Cooling Equipment Redundancy \*\* | FALSE |  |
| **SYSTEMS: Other HVAC** | |  |  |
|  | Other HVAC Type | Whole House Dehumidifier |  |
|  | Fuel | Electricity |  |
|  | Quantity | 1 |  |
|  | Capacity | 63.9 | L/day |
|  | Year of Manufacture | 2011 |  |
|  | Percent of Total Installed Capacity | 100 |  |
|  | Percent of Floor Area Served | 100 |  |
|  | Control Type | Other |  |
|  | \*\* Location \*\* | Indoors |  |
|  | \*\* Zone Count \*\* | 1 |  |
|  | ## Rated Energy Factor ## | 1.81 | L/kWh |
| **SYSTEMS: Service Hot Water** | |  |  |
|  | Service Hot Water Type | Heat pump |  |
|  |  | Other (Solar Thermal) |  |
|  |  | Storage Tank - Uncategorized | |
|  | Fuel | Electricity |  |
|  | Quantity | 1 |  |
|  | Size *(Heat Pump Water Heater)* | 189 (50) | L (gallons) |
|  | Size *(Solar Storage Tank)* | 303 (80) | L (gallons) |
|  | Capacity | 4.5 (15 354) | kW (Btu) |
|  | Year of Manufacture | 2011 |  |
|  | Energy Star | TRUE |  |
|  | Control Type | Digital Thermostat |  |
|  | Efficiency *(Heat Pump Water Heater)* | 2.5 |  |
|  | Efficiency Unit | Energy Factor |  |
|  | Efficiency *(Solar System with a single tank and electric resistance backup)* | 3.1 |  |
|  | Efficiency Unit | Solar Energy Factor |  |
|  | Storage Tank Insulation Thickness *(Heat Pump Water Heater)* | 7.6 (3) | cm (inches) |
|  | Storage Tank Insulation Thickness *(Solar Storage Tank)* | 5 (2) | cm (inches) |
|  | \*\* Location \*\* | Indoors |  |
| **SYSTEMS:** | **General Controls & Operations** |  |  |
|  | Regular HVAC Maintenance | Weekly |  |
|  |  |  |  |
|  | Heat Lowered | Never |  |
|  | AC Adjusted | Never |  |
|  | Occupied Day Setting - Heating | 21 (70) | °C (°F) |
|  | Occupied Day Setting - Cooling | 24 (75) | °C (°F) |
|  | Unoccupied Day Setting - Heating | 21 (70) | °C (°F) |
|  | Unoccupied Day Setting - Cooling | 24 (75) | °C (°F) |
|  | Sleeping Hours Setting - Heating | 21 (70) | °C (°F) |
|  | Sleeping Hours Setting - Cooling | 24 (75) | °C (°F) |
| **SYSTEMS:** | **Wall** |  |  |
|  | Type of exterior wall construction | Frame Wall |  |
|  | Wall R-Value | 7.9 (45) | m2∙59 (R-V2∙59 (R-Va |
|  | Wall Insulation Type - Cavity | Loose Fill |  |
|  | Wall Insulation Type - Exterior | Rigid |  |
|  | Wall Insulation Thickness *(Cavity)* | 14 (5.5) | cm (inches) |
|  | Wall Insulation Thickness *(Exterior)* | 10 (4) | cm (inches) |
|  | Basement wall insulation thickness | 10 (4) | cm (inches) |
|  | Tightness | Excellent |  |
|  | ## Basement Wall R-Value ## | 4.1 (23) | m2∙.1 (23)2∙.1 (23) |
|  | ## Basement Insulation Type ## | Rigid |  |
| **SYSTEMS:** | **Roof/Ceiling** |  |  |
|  | Roof Type | Asphalt shingles |  |
|  | Roof Color | Dark |  |
|  | Deck Type | Wood |  |
|  | Roof R-Value | 12.7 (72) | m2∙2.7 (-V2∙2.7 (-Va |
|  | Percentage of Total Roof Area | 100 | % |
|  | Roof Insulation Type - *Cavity* | Loose Fill |  |
|  | Roof Insulation Type - *Exterior* | Rigid |  |
|  | Roof Insulation Thickness *(Cavity)* | 30 (11 7/8) | cm (inches) |
|  | Roof Insulation Thickness *(Exterior)* | 13 (5) | cm (inches) |
|  | Attic/Ceiling R-value | 0 |  |
|  | Attic/Ceiling Insulation Thickness | 0 |  |
|  | Attic/Ceiling Insulation Type | None |  |
|  | Radiant Barrier | FALSE |  |
|  | \*\* Roof Slope \*\* | <2:12 |  |
| **SYSTEMS:** | **Fenestration** |  |  |
|  | Window Glass Type | Low-e |  |
|  | Operable Windows | TRUE |  |
|  | Windows Gas Filled | TRUE |  |
|  | Window Glass Layers | Double-pane |  |
|  | Window R-value | 0.9 (5) | m2∙.9 (w R2∙.9 (w R- |
|  | Solar Heat Gain Coefficient | 0.25 |  |
|  | Window Visible Transmittance | 0.4 |  |
|  | Window to Wall Ratio | 0.13 |  |
|  | Window Frame Type | Vinyl |  |
|  | Exterior Shading Type | External Overhangs |  |
|  | Exterior Shading Orientation | South |  |
|  | Interior Shading Type | Shades |  |
|  | Skylights | FALSE |  |
|  | Windows Weather-Stripped | TRUE |  |
|  | Exterior Door Type | Solid Wood/Glass |  |
|  | Doors Weather-Stripped | TRUE |  |
| **SYSTEMS:** | **Floor/Ground Coupling** |  |  |
|  | Ground Coupling | Full Heated Basement |  |
|  | Perimeter Insulated | TRUE |  |
|  | Floor insulation thickness (*between 1st floor and basement)* | 0 |  |
|  | Floor R-value *(between 1st floor and basement)* | 0 |  |
|  | ## Under Foundation R-value ## | 1.8 (10) | m2∙.8 (10)2∙.8 (10)u |
|  | ## Under Foundation insulation type ## | Rigid |  |
|  | \*\* Carpet \*\* | FALSE |  |
|  | \*\* Plumbing Penetration Sealing \*\* | TRUE |  |
| **SYSTEMS:** | **Cooking** |  |  |
|  | Cooking Type | Residential Kitchen |  |
|  | Fuel | Electricity |  |
| **SYSTEMS:** | **Refrigeration** |  |  |
|  | Refrigeration Type | Residential - Full-Sized, One Door | |
|  | Quantity | 1 |  |
|  | Size | 0.52 (18.3) | m3 (ft3) |
|  | Year of Manufacture | 2011 |  |
|  | Energy Star | TRUE |  |
|  | Doors | Top and bottom |  |
| **SYSTEMS:** | **Dishwasher** |  |  |
|  | Dishwasher Type | Residential - Built-in under counter | |
|  | Fuel | Electricity |  |
|  | Year of Manufacture | 2011 |  |
|  | Energy Star | TRUE |  |
| **SYSTEMS:** | **Laundry** |  |  |
|  | Laundry type | Washer - Residental |  |
|  |  | Dryer - Residential |  |
|  | Fuel | Electricity |  |
|  | Year of Manufacture | 2011 |  |
|  | Energy Star | TRUE |  |
| **SYSTEMS:** | **On-Site Generation** |  |  |
|  | On-Site Generation Type | PV |  |
|  | Fuel Generated | Electricity (Renewable) |  |
|  | Quantity | 1 |  |
|  | Capacity | 10.24 | kW |
|  | Capacity Unit | kW |  |
|  | On-Site Generation Type | Solar Thermal |  |
|  | Fuel Generated | Solar Hot Water |  |
|  | Quantity | 1 |  |
|  | Capacity | 303 (80) | L (gallons) |
|  | Capacity Unit | L (gallons) |  |
| **ENERGY USE:** | |  |  |
|  | Fuel | Electricity |  |
|  | Complete Fuel | TRUE |  |
|  | End Use Type | Whole Building |  |
|  | Complete End Use | TRUE |  |
|  | Units | kWh |  |
|  | Interval Type | Minutely |  |
|  | Reading Time Zone Code | EST, EDT |  |
|  | Reading Type | Point, Average |  |

Part 2. Description of each data channel available in the NZERTF database.

Subsystem Key:

DHW: Domestic Hot Water

SHW: Solar Hot Water

Loads: Electrical and Thermal Loads by equipment and people

HVAC: Heating and Cooling System

IndEnv: Indoor Environment

PV: Photovoltaic

OutEnv: Outdoor Environment

Ventilation: Ventilation

Lighting: Lighting

Electrical: Electrical

Instr: Instrumentation

Measurement Location Key:

Bath1: First floor bathroom

Bath2: Hallway bathroom located on 2nd floor

Bedroom2: Second floor bedroom, west side of house

Bedroom3: Second floor bedroom, east side of house

Bedroom4: First floor bedroom/office

Kitchen: First floor kitchen

Dining Room: First floor dining room

Living Room: First floor living room

MBath: Master bathroom located on 2nd floor

Master Bedroom: Master bedroom located on 2nd floor

Mudroom: Mudroom located on first floor adjacent to west door

Utility: Utility closet on first floor adjacent to kitchen

Measured Parameter Key:

Current: Electric current from photovoltaic system

Flow: Flow of water, glycol (glycol/water mixture in solar water heating system), or air; either total amount or a rate

Frequency: Frequency of alternating current on circuits from the photovoltaic system

Temp: Temperature measurements of either water, glycol (glycol/water mixture in solar water heating system), air, or photovoltaic modules; for air, temperature is dry bulb unless noted as a dewpoint (DewP) or radiant temperature (Rad)

Energy: Accumulated energy consumption or delivery, either electrical or thermal

Light\_Solar: Solar insolation

Power: Instantaneous power consumption or delivery, either electrical or thermal

PowerFactor: Power factor on circuits from the photovoltaic system

Pressure: Air pressure differential readings

RH: Relative humidity

Status\_OnOff: Indicator to show whether a particular device is activated

Voltage: Voltage on circuits from the photovoltaic system

| **Data Label** | **Subsystem** | **Measurement Location** | **Measured**  **Parameter** | **Description** | **Units** |
| --- | --- | --- | --- | --- | --- |
| DHW\_ClothesWasherColdFlow | DHW | Utility | Flow\_  Water | The cumulative volume of cold water flowing into the clothes washer starting at midnight | Gallons |
| DHW\_ClothesWasherHotFlow | DHW | Utility | Flow\_  Water | The cumulative volume of hot water flowing into the clothes washer starting at midnight | Gallons |
| DHW\_DishwasherHotFlow | DHW | Kitchen | Flow\_  Water | The cumulative volume of hot water flowing into the dishwasher starting at midnight | Gallons |
| DHW\_SHWGlycolTempIn | DHW | Basement | Temp\_  Glycol | The instantaneous temperature of the glycol-water solution on the inlet side of the heat exchanger of the solar water heating system (from the solar panels) | °C |
| DHW\_SHWGlycolTempOut | DHW | Basement | Temp\_  Glycol | The instantaneous temperature of the glycol-water solution on the outlet side of the heat exchanger of the solar water heating system (returning to the solar panels) | °C |
| DHW\_  HeatPumpWaterHeaterEnergyTotal | DHW | Basement | Energy\_  Electrical | Cumulative energy consumption by heat pump water heater starting from midnight | Wh |
| DHW\_  HeatPumpWaterHeaterPowerTotal | DHW | Basement | Power\_  Electrical | Instantaneous power consumption by heat pump water heater | W |
| DHW\_ManifoldColdFlow | DHW | Basement | Flow\_  Water | The cumulative volume of water flowing into the cold side of the plumbing distribution manifold starting at midnight | Gallons |
| DHW\_ManifoldHotFlow | DHW | Basement | Flow\_  Water | The cumulative volume of water flowing into the hot side of the plumbing distribution manifold starting at midnight | Gallons |
| DHW\_MixValveColdFlow | DHW | Basement | Flow\_  Water | The cumulative volume of mains water flowing into the mixing valve that is positioned downstream of the solar thermal storage tank starting at midnight | Gallons |
| DHW\_RoomTempBasementHPWH | DHW | Basement | Temp\_  Air | The dry bulb air temperature located two feet from the surface of the heat pump water heater at a vertical distance halfway up the tank | °C |
| DHW\_SHWPumpsEnergywithStandby | DHW | Basement | Energy\_  Electrical | Cumulative energy consumption by solar water heating system pumps starting from midnight | Wh |
| DHW\_SHWPumpsPowerwithStandby | DHW | Basement | Power\_  Electrical | Instantaneous power consumption by solar water heating system pumps | W |
| DHW\_StatusSolenoidColdMBATub | DHW | MBath | Status\_  OnOff | Number to indicate whether cold water is flowing in master bath tub (1: Yes, O: No) |  |
| DHW\_  StatusSolenoidColdMBAShower | DHW | MBath | Status\_  OnOff | Number to indicate whether cold water is flowing in master bath shower (1: Yes, O: No) |  |
| DHW\_StatusSolenoidColdKitchenSink | DHW | Kitchen | Status\_  OnOff | Number to indicate whether cold water is flowing in kitchen sink (1: Yes, O: No) |  |
| DHW\_StatusSolenoidHotKitchenSink | DHW | Kitchen | Status\_  OnOff | Number to indicate whether hot water is flowing in kitchen sink (1: Yes, O: No) |  |
| DHW\_StatusSolenoidHotMBATub | DHW | MBath | Status\_  OnOff | Number to indicate whether hot water is flowing in master bath tub (1: Yes, O: No) |  |
| DHW\_StatusSolenoidHotMBAShower | DHW | MBath | Status\_  OnOff | Number to indicate whether hot water is flowing in master bath shower (1: Yes, O: No) |  |
| DHW\_WaterTempBAShowerMixed | DHW | Bath2 | Temp\_  Water | The instantaneous temperature of the water in the shower faucet of the bathroom located off the hallway on the second floor after the mixing valve | °C |
| DHW\_WaterTempBAShwCold | DHW | Bath2 | Temp\_  Water | The instantaneous temperature of the water in the cold water line at the shower in the bathroom located off the hallway on the second floor | °C |
| DHW\_WaterTempBAShwHot | DHW | Bath2 | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the shower in the bathroom located off the hallway on the second floor | °C |
| DHW\_WaterTempBASinkCold | DHW | Bath2 | Temp\_  Water | The instantaneous temperature of the water in the cold water line at the sink in the bathroom located off the hallway on the second floor | °C |
| DHW\_WaterTempBASinkHot | DHW | Bath2 | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the sink in the bathroom located off the hallway on the second floor | °C |
| DHW\_WaterTempBASinkMixed | DHW | Bath2 | Temp\_  Water | The instantaneous temperature of the water in the sink faucet of the bathroom located off the hallway on the second floor after the mixing valve | °C |
| DHW\_WaterTempDishwasher | DHW | Kitchen | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the dishwasher | °C |
| DHW\_WaterTempHPWHIn | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water on the inlet side of the heat pump water heater | °C |
| DHW\_WaterTempHPWHOut | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water on the exit side of the heat pump water heater | °C |
| DHW\_WaterTempKSinkCold | DHW | Kitchen | Temp\_  Water | The instantaneous temperature of the water in the cold water line at the kitchen sink | °C |
| DHW\_WaterTempKSinkHot | DHW | Kitchen | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the kitchen sink | °C |
| DHW\_WaterTempKSinkMix | DHW | Kitchen | Temp\_  Water | The instantaneous temperature of the water in the kitchen sink faucet after the mixing valve | °C |
| DHW\_WaterTempManifoldColdIn | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water entering the cold side of the plumbing manifold | °C |
| DHW\_WaterTempManifoldHotIn | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water entering the hot side of the plumbing manifold | °C |
| DHW\_WaterTempMBAShwCold | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the cold water line at the shower in the Master Bathroom | °C |
| DHW\_WaterTempMBAShwHot | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the shower in the Master Bathroom | °C |
| DHW\_WaterTempMBAShwMix | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the master bath shower after the mixing valve | °C |
| DHW\_WaterTempMBASinkRMixed | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the master bath sink located on the right after the mixing valve | °C |
| DHW\_WaterTempMBASinkRCold | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the cold water line at the right sink in the Master Bathroom | °C |
| DHW\_WaterTempMBASinkRHot | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the right sink in the Master Bathroom | °C |
| DHW\_WaterTempMBATubCold | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the cold water line at the tub in the Master Bathroom | °C |
| DHW\_WaterTempMBATubHot | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the tub in the Master Bathroom | °C |
| DHW\_WaterTempMBATubMix | DHW | MBath | Temp\_  Water | The instantaneous temperature of the water in the tub faucet after the mixing valve | °C |
| DHW\_WaterTempMixValveColdIn | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water from the main entering the mixing valve downstream of the solar preheat tank | °C |
| DHW\_WaterTempMixValveHotIn | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water from the solar preheat tank entering the mixing valve downstream of that tank | °C |
| DHW\_WaterTempSHWHX80galIn | DHW | Basement | Temp\_  Water | The instantaneous temperature of the potable water on the inlet side of the heat exchanger of the solar water heating system (from the storage tank) | °C |
| DHW\_WaterTempSHWHX80galOut | DHW | Basement | Temp\_  Water | The instantaneous temperature of the potable water on the exit side of the heat exchanger of the solar water heating system (returning to the storage tank) | °C |
| DHW\_  WaterTempSHWTank80galIn | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water entering the 80 gallon solar preheat tank | °C |
| DHW\_  WaterTempSHWTank80galOut | DHW | Basement | Temp\_  Water | The instantaneous temperature of the water leaving the 80 gallon solar preheat tank | °C |
| DHW\_WaterTempWasherCold | DHW | Utility | Temp\_  Water | The instantaneous temperature of the water in the cold water line at the clothes washer | °C |
| DHW\_WaterTempWasherHot | DHW | Utility | Temp\_  Water | The instantaneous temperature of the water in the hot water line at the clothes washer | °C |
| Elec\_EnergyHeatPumpWH1of2 | DHW | Basement | Energy\_  Electrical | Cumulative energy consumption of one leg of electrical supply to heat pump water heater from midnight; note that energy consumption from other leg is needed to get total energy consumption by heat pump water heater | Wh |
| Elec\_EnergyHeatPumpWH2of2 | DHW | Basement | Energy\_  Electrical | Cumulative energy consumption of one leg of electrical supply to heat pump water heater from midnight; note that energy consumption from other leg is needed to get total energy consumption by heat pump water heater | Wh |
| Elec\_PowerHeatPumpWH1of2 | DHW | Basement | Power\_  Electrical | Instantaneous power consumption of one leg of electrical supply to heat pump water heater; note that power from other leg is needed to get total power consumption by heat pump water heater | W |
| Elec\_PowerHeatPumpWH2of2 | DHW | Basement | Power\_  Electrical | Instantaneous power consumption of one leg of electrical supply to heat pump water heater; note that power from other leg is needed to get total power consumption by heat pump water heater | W |
| Elec\_  EnergyPlugsBaseAHeliodyneHXs | Elec | Basement | Energy\_  Electrical | Cumulative energy used by solar water heater pumps from midnight | Wh |
| Elec\_EnergyPlugsDR | Electrical | Dining Room | Energy\_  Electrical | Cumulative energy consumption at receptacles of dining room from midnight | Wh |
| Elec\_EnergyPlugsBR4 | Electrical | Bedroom4 | Energy\_  Electrical | Cumulative energy consumption at receptacles of bedroom 4 from midnight | Wh |
| Elec\_EnergyPlugsEntryHall | Electrical | Entry Hallway | Energy\_  Electrical | Cumulative energy consumption at receptacles in entry hallway from midnight | Wh |
| Elec\_EnergyPlugsLR | Electrical | Living Room | Energy\_  Electrical | Cumulative energy consumption at receptacles of living room from midnight | Wh |
| Elec\_EnergyClothesWasher | Electrical | Utility | Energy\_  Electrical | Cumulative energy consumption of clothes washer from midnight | Wh |
| Elec\_EnergyDryer1of2 | Electrical | Utility | Energy\_  Electrical | Cumulative energy consumption of one leg of electrical supply to dryer from midnight; note that energy consumption from other leg is needed to get total energy consumption by dryer | Wh |
| Elec\_EnergyDryer2of2 | Electrical | Utility | Energy\_  Electrical | Cumulative energy consumption of one leg of electrical supply to dryer from midnight; note that energy consumption from other leg is needed to get total energy consumption by dryer | Wh |
| Elec\_EnergyPlugsBaseB | Electrical | Basement | Energy\_  Electrical | Cumulative energy consumption at receptacle B in basement from midnight | Wh |
| Elec\_EnergyPlugsBaseC | Electrical | Basement | Energy\_  Electrical | Cumulative energy consumption at receptacle C in basement from midnight | Wh |
| Elec\_EnergySumpPump | Electrical | Basement | Energy\_  Electrical | Cumulative energy consumption of sump pump in basement from midnight | Wh |
| Elec\_EnergySpare1 | Electrical | Basement | Energy\_  Electrical | Cumulative energy consumption of standby electrical load in basement from midnight | Wh |
| Elec\_EnergyPlugsBA1 | Electrical | Bath1 | Energy\_  Electrical | Cumulative energy consumption at receptacles of bathroom 1 from midnight | Wh |
| Elec\_EnergyGarbageDisposal | Electrical | Kitchen | Energy\_  Electrical | Cumulative energy consumption by garbage disposal from midnight | Wh |
| Elec\_EnergyPlugsKitRange | Electrical | Kitchen | Energy\_  Electrical | Cumulative energy consumption by blender from midnight | Wh |
| Elec\_EnergyPlugsKitPeninsula | Electrical | Kitchen | Energy\_  Electrical | Cumulative energy consumption by hand mixer and can opener from midnight | Wh |
| Elec\_EnergyMicrowave | Electrical | Kitchen | Energy\_  Electrical | Cumulative energy consumption by microwave oven from midnight | Wh |
| Elec\_EnergyPlugs2ndFloor | Electrical | Bath2 | Energy\_  Electrical | Cumulative energy consumption from receptacles in bathroom 2 from midnight | Wh |
| Elec\_EnergySpare2 | Electrical | Basement | Energy\_  Electrical | Cumulative energy consumption by computer network hardware in basement from midnight | Wh |
| Elec\_EnergyPlugsBR2 | Electrical | Bedroom2 | Energy\_  Electrical | Cumulative energy consumption from receptacles in bedroom 2 from midnight | Wh |
| Elec\_EnergyPlugsMBR | Electrical | MBedroom | Energy\_  Electrical | Cumulative energy consumption from receptacles in master bedroom from midnight | Wh |
| Elec\_EnergyPlugsMBAEast | Electrical | MBath | Energy\_  Electrical | Cumulative energy consumption from receptacles on east side of master bathroom from midnight | Wh |
| Elec\_EnergyDishwasher | Electrical | Kitchen | Energy\_  Electrical | Cumulative energy consumption by dishwasher from midnight | Wh |
| Elec\_EnergyPlugsBA2South | Electrical | Bath2 | Energy\_  Electrical | Cumulative energy consumption from receptacles on south side of bathroom 2 from midnight | Wh |
| Elec\_EnergyPlugsMBAWest | Electrical | MBath | Energy\_  Electrical | Cumulative energy consumption from receptacles on west side of master bathroom from midnight | Wh |
| Elec\_EnergyPlugsBA2North | Electrical | Bath2 | Energy\_  Electrical | Cumulative energy consumption from receptacles on north side of bathroom 2 from midnight | Wh |
| Elec\_EnergyPlugsBR3 | Electrical | Bedroom3 | Energy\_  Electrical | Cumulative energy consumption from receptacles in bedroom 3 from midnight | Wh |
| Elec\_EnergyRefrigerator | Electrical | Kitchen | Energy\_  Electrical | Cumulative energy consumption by refrigerator from midnight | Wh |
| Elec\_EnergyPlugsKitSink | Electrical | Kitchen | Energy\_  Electrical | Cumulative energy consumption by toaster from midnight | Wh |
| Elec\_EnergyPlugsDRB | Electrical | Dining Room | Energy\_  Electrical | Cumulative energy consumption from receptacles in dining room from midnight | Wh |
| Elec\_EnergyPlugsAttic | Electrical | Attic | Energy\_  Electrical | Cumulative energy consumption from receptacles in attic from midnight | Wh |
| Elec\_PowerPlugsDR | Electrical | Dining Room | Power\_  Electrical | Instantaneous power used at receptacles of dining room | W |
| Elec\_PowerPlugsBR4 | Electrical | Bedroom4 | Power\_  Electrical | Instantaneous power used at receptacles of bedroom 4 | W |
| Elec\_PowerPlugsEntryHall | Electrical | Entry Hallway | Power\_  Electrical | Instantaneous power used at receptacles in entry hallway | W |
| Elec\_PowerPlugsLR | Electrical | Living Room | Power\_  Electrical | Instantaneous power used at receptacles of living room | W |
| Elec\_PowerClothesWasher | Electrical | Utility | Power\_  Electrical | Instantaneous power used by clothes washer | W |
| Elec\_PowerDryer1of2 | Electrical | Utility | Power\_  Electrical | Instantaneous power used by one leg of electrical supply to dryer; note that power from other leg is needed to get total power consumption by dryer | W |
| Elec\_PowerDryer2of2 | Electrical | Utility | Power\_  Electrical | Instantaneous power consumption of one leg of electrical supply to dryer; note that power from other leg is needed to get total power consumption by dryer | W |
| Elec\_PowerPlugsBaseB | Electrical | Basement | Power\_  Electrical | Instantaneous power used at receptacle B in basement | W |
| Elec\_PowerPlugsBaseC | Electrical | Basement | Power\_  Electrical | Instantaneous power used at receptacle C in basement | W |
| Elec\_PowerSumpPump | Electrical | Basement | Power\_  Electrical | Instantaneous power used by sump pump in basement | W |
| Elec\_PowerSpare1 | Electrical | Basement | Power\_  Electrical | Instantaneous power used by standby load in basement | W |
| Elec\_PowerPlugsBA1 | Electrical | Bath1 | Power\_  Electrical | Instantaneous power used by receptacles of bathroom 1 | W |
| Elec\_PowerGarbageDisposal | Electrical | Kitchen | Power\_  Electrical | Instantaneous power consumption by garbage disposal | W |
| Elec\_PowerPlugsKitRange | Electrical | Kitchen | Power\_  Electrical | Instantaneous power consumption by blender | W |
| Elec\_PowerPlugsKitPeninsula | Electrical | Kitchen | Power\_  Electrical | Instantaneous power consumption by mixer and can opener | W |
| Elec\_PowerMicrowave | Electrical | Kitchen | Power\_  Electrical | Instantaneous power consumption by microwave oven | W |
| Elec\_PowerPlugs2ndFloor | Electrical | Bath2 | Power\_  Electrical | Instantaneous power consumption from receptacles in bathroom 2 | W |
| Elec\_PowerSpare2 | Electrical | Basement | Power\_  Electrical | Instantaneous power consumption by computer network connection in basement | W |
| Elec\_PowerPlugsBR2 | Electrical | Bedroom2 | Power\_  Electrical | Instantaneous power consumption from receptacles in bedroom 2 | W |
| Elec\_PowerPlugsMBR | Electrical | MBedroom | Power\_  Electrical | Instantaneous power consumption from receptacles in master bedroom | W |
| Elec\_PowerPlugsMBAEast | Electrical | MBath | Power\_  Electrical | Instantaneous power consumption from receptacles on east side of master bathroom | W |
| Elec\_PowerDishwasher | Electrical | Kitchen | Power\_  Electrical | Instantaneous power consumption by dishwasher | W |
| Elec\_PowerPlugsBA2South | Electrical | Bath2 | Power\_  Electrical | Instantaneous power consumption from receptacles on south side of bathroom 2 | W |
| Elec\_PowerPlugsMBAWest | Electrical | MBath | Power\_  Electrical | Instantaneous power consumption from receptacles on west side of master bathroom | W |
| Elec\_PowerPlugsBA2North | Electrical | Bath2 | Power\_  Electrical | Instantaneous power consumption from receptacles on north side of bathroom 2 | W |
| Elec\_PowerPlugsBR3 | Electrical | Bedroom3 | Power\_  Electrical | Instantaneous power consumption from receptacles in bedroom 3 | W |
| Elec\_PowerRefrigerator | Electrical | Kitchen | Power\_  Electrical | Instantaneous power consumption by refrigerator | W |
| Elec\_PowerPlugsKitSink | Electrical | Kitchen | Power\_  Electrical | Instantaneous power consumption by toaster | W |
| Elec\_PowerPlugsDRB | Electrical | Dining Room | Power\_  Electrical | Instantaneous power consumption from receptacles in dining room | W |
| Elec\_PowerPlugsAttic | Electrical | Attic | Power\_  Electrical | Instantaneous power consumption from receptacles in attic | W |
| Elec\_EnergyHRV | HVAC | Basement | Energy\_  Electrical | Cumulative energy consumption of heat recovery ventilator from midnight | Wh |
| Elec\_PowerHRV | HVAC | Basement | Power\_  Electrical | Instantaneous power consumption of heat recovery ventilator | W |
| HVAC\_DehumidifierAirflow | HVAC | Basement | Flow\_  Air | Average airflow through dedicated dehumidifier over the course of the minute | ft3/min |
| HVAC\_DehumidifierExitAirTemp | HVAC | Basement | Temp\_  Air | Average temperature of air in outlet duct from dedicated dehumidifier over the course of the minute | °F |
| HVAC\_DehumidifierInletAirTemp | HVAC | Basement | Temp\_  Air | Average temperature of air in inlet duct to dedicated dehumidifier over the course of the minute | °F |
| HVAC\_DehumidifierPower | HVAC | Basement | Power\_  Electrical | Average power consumption of dedicated dehumidifier over the course of the minute | W |
| HVAC\_HeatPumpIndoorUnitPower | HVAC | Basement | Power\_  Electrical | Average power consumption of heat pump indoor unit (blower, controls, resistance heat) over the course of the minute | W |
| HVAC\_HeatPumpOutdoorUnitPower | HVAC | Outdoor | Power\_  Electrical | Average power consumption of heat pump outdoor unit (compressor, fan, controls, defrost) over the course of the minute | W |
| HVAC\_HVACDewpointReturnAir | HVAC | Basement | Temp\_  DewP | Instantaneous dewpoint temperature of air in return duct prior to indoor unit | °C |
| HVAC\_HVACDewpointSupplyAir | HVAC | Basement | Temp\_  DewP | Instantaneous dewpoint temperature of air in supply duct after indoor unit | °C |
| HVAC\_HVACTempReturnAir | HVAC | Basement | Temp\_  Air | Instantaneous dry bulb temperature of air in return duct prior to indoor unit | °C |
| HVAC\_HVACTempSupplyAir | HVAC | Basement | Temp\_  Air | Instantaneous dry bulb temperature of air in supply duct after indoor unit | °C |
| IndEnv\_BasementRH | IndEnv | Basement | RH | Relative humidity in basement, on a scale of 0 to 1 |  |
| IndEnv\_Bedroom2RH | IndEnv | Bedroom2 | RH | Relative humidity in bedroom 2 on second floor, on a scale of 0 to 1 |  |
| IndEnv\_Bedroom3RH | IndEnv | Bedroom3 | RH | Relative humidity in bedroom 3 on second floor, on a scale of 0 to 1 |  |
| IndEnv\_KitchenRH | IndEnv | Kitchen | RH | Relative humidity in kitchen, on a scale of 0 to 1 |  |
| IndEnv\_LivingRmRH | IndEnv | Living Room | RH | Relative humidity in living room, on a scale of 0 to 1 |  |
| IndEnv\_MastBedRmRH | IndEnv | Master Bedroom | RH | Relative humidity in master bedroom, on a scale of 0 to 1 |  |
| IndEnv\_MBARH | IndEnv | MBath | RH | Relative humidity in master bathroom, on a scale of 0 to 1 |  |
| IndEnv\_RadiantTempBR2 | IndEnv | Bedroom2 | Temp\_  Rad | Instantaneous drybulb temperature within the radiant temperature sensor in bedroom 2 on second floor | °C |
| IndEnv\_RadiantTempBR3 | IndEnv | Bedroom3 | Temp\_  Rad | Instantaneous drybulb temperature within the radiant temperature sensor in bedroom 3 on second floor | °C |
| IndEnv\_RadiantTempKitchen | IndEnv | Kitchen | Temp\_  Rad | Instantaneous drybulb temperature within the radiant temperature sensor in the kitchen | °C |
| IndEnv\_RadiantTempLR | IndEnv | Living Room | Temp\_  Rad | Instantaneous drybulb temperature within the radiant temperature sensor in the living room | °C |
| IndEnv\_RadiantTempMBR | IndEnv | Master Bedroom | Temp\_  Rad | Instantaneous drybulb temperature within the radiant temperature sensor in the master bedroom | °C |
| IndEnv\_RoomTempAtticNE | IndEnv | Attic | Temp\_  Air | Instantaneous drybulb temperature in northeast quadrant of attic | °C |
| IndEnv\_RoomTempAtticNW | IndEnv | Attic | Temp\_  Air | Instantaneous drybulb temperature in northwest quadrant of attic | °C |
| IndEnv\_RoomTempAtticSE | IndEnv | Attic | Temp\_  Air | Instantaneous drybulb temperature in southeast quadrant of attic | °C |
| IndEnv\_RoomTempAtticSW | IndEnv | Attic | Temp\_  Air | Instantaneous drybulb temperature in southwest quadrant of attic | °C |
| IndEnv\_RoomTempBA1Temp | IndEnv | Bath1 | Temp\_  Air | Instantaneous drybulb temperature in bathroom 1 on first floor | °C |
| IndEnv\_RoomTempBA2Temp | IndEnv | Bath2 | Temp\_  Air | Instantaneous drybulb temperature in bathroom 2 on second floor | °C |
| IndEnv\_RoomTempBasementNE | IndEnv | Basement | Temp\_  Air | Instantaneous drybulb temperature in middle of northeast quadrant of basement | °C |
| IndEnv\_RoomTempBasementNW | IndEnv | Basement | Temp\_  Air | Instantaneous drybulb temperature in middle of northwest quadrant of basement | °C |
| IndEnv\_RoomTempBasementSE | IndEnv | Basement | Temp\_  Air | Instantaneous drybulb temperature in middle of southeast quadrant of basement | °C |
| IndEnv\_RoomTempBasementSW | IndEnv | Basement | Temp\_  Air | Instantaneous drybulb temperature in middle of southwest quadrant of basement | °C |
| IndEnv\_RoomTempBR2Temp | IndEnv | Bedroom2 | Temp\_  Air | Instantaneous drybulb temperature in bedroom 2 on second floor | °C |
| IndEnv\_RoomTempBR3Temp | IndEnv | Bedroom3 | Temp\_  Air | Instantaneous drybulb temperature in bedroom 3 on second floor | °C |
| IndEnv\_RoomTempBR4Temp | IndEnv | Bedroom4 | Temp\_  Air | Instantaneous drybulb temperature in bedroom 4 | °C |
| IndEnv\_RoomTempDRTemp | IndEnv | Dining Room | Temp\_  Air | Instantaneous drybulb temperature in dining room | °C |
| IndEnv\_RoomTempHallLowerMid | IndEnv | Entry Hallway | Temp\_  Air | Instantaneous drybulb temperature in center hallway, measured at a height of 1.8 m | °C |
| IndEnv\_RoomTempHallLowest | IndEnv | Entry Hallway | Temp\_  Air | Instantaneous drybulb temperature in center hallway, measured at a height of 0.6 m | °C |
| IndEnv\_RoomTempHallMiddle | IndEnv | Entry Hallway | Temp\_  Air | Instantaneous drybulb temperature in center hallway, measured at a height of 3.0 m | °C |
| IndEnv\_RoomTempHallUpper | IndEnv | Entry Hallway | Temp\_  Air | Instantaneous drybulb temperature in center hallway, measured at a height of 5.5 m | °C |
| IndEnv\_RoomTempHallUpperMid | IndEnv | Entry Hallway | Temp\_  Air | Instantaneous drybulb temperature in center hallway, measured at a height of 4.3 m | °C |
| IndEnv\_RoomTempKitchenTemp | IndEnv | Kitchen | Temp\_  Air | Instantaneous drybulb temperature in kitchen | °C |
| IndEnv\_RoomTempLRTemp | IndEnv | Living Room | Temp\_  Air | Instantaneous drybulb temperature in living room | °C |
| IndEnv\_RoomTempMBATemp | IndEnv | MBath | Temp\_  Air | Instantaneous drybulb temperature in master bathroom on second floor | °C |
| IndEnv\_RoomTempMBRTemp | IndEnv | Master Bedroom | Temp\_  Air | Instantaneous drybulb temperature in master bedroom on second floor | °C |
| IndEnv\_RoomTempWDTemp | IndEnv | Kitchen | Temp\_  Air | Instantaneous drybulb temperature in utility closet holding clothes washer and dryer | °C |
| Elec\_EnergyPlugsInstBR4A | Instr | Bedroom4 | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in bedroom 4 | Wh |
| Elec\_EnergyPlugsInstBR4B | Instr | Bedroom4 | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in bedroom 4 | Wh |
| Elec\_EnergyPlugsInstLRA | Instr | Living Room | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in living room | Wh |
| Elec\_EnergyPlugsInstLRB | Instr | Living Room | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in living room | Wh |
| Elec\_EnergyPlugsInstBA2 | Instr | Bath2 | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in bathroom 2 | Wh |
| Elec\_EnergyPlugsInstMBAB | Instr | MBath | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in master bathroom | Wh |
| Elec\_  EnergyPlugsGSHPInstrumentation | Instr | Basement | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation connected to ground source heat pump test apparatus | Wh |
| Elec\_EnergyPlugsInstMBRA | Instr | Master Bedroom | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in the master bedroom | Wh |
| Elec\_EnergyPlugsInstBR2Hall | Instr | Bedroom 2 | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in bedroom 2 | Wh |
| Elec\_EnergyPlugsInstHall | Instr | Entry Hallway | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in entry hallway | Wh |
| Elec\_  EnergyLightingControlPanelRPS1 | Instr | Basement | Energy\_  Electrical | Cumulative energy consumption from midnight by lighting control panel located in basement | Wh |
| Elec\_EnergyPlugsInstBR3 | Instr | Bedroom3 | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in bedroom 3 | Wh |
| Elec\_EnergyHeatLoadforRefrigerator | Instr | Kitchen | Energy\_  Thermal | Cumulative heat energy added to compartment of refrigerator to simulate opening and adding warm items | Wh |
| Elec\_EnergyPlugsInstMudroomA | Instr | Mudroom | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in mudroom | Wh |
| Elec\_  EnergyLightingControlPanelRPS2 | Instr | Basement | Energy\_  Electrical | Cumulative energy consumption from midnight by lighting control panel located in basement | Wh |
| Elec\_  EnergyPlugsHVACInstrumentation | Instr | Basement | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation connected to heat pump | Wh |
| Elec\_EnergyPlugsInstKitD | Instr | Kitchen | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation located in kitchen | Wh |
| Elec\_EnergyPlugsInstBA1 | Instr | Bath1 | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in bathroom 1 | Wh |
| Elec\_EnergyPlugsInstKitA | Instr | Kitchen | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in kitchen | Wh |
| Elec\_EnergyPlugsInstMudroomB | Instr | Mudroom | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in mudroom | Wh |
| Elec\_EnergyPlugsInstDRA | Instr | Dining Room | Energy\_  Electrical | Cumulative energy consumption from midnight by instrumentation plugged into receptacles in dining room | Wh |
| Elec\_PowerPlugsInstBR4A | Instr | Bedroom4 | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in bedroom 4 | W |
| Elec\_PowerPlugsInstBR4B | Instr | Bedroom4 | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in bedroom 4 | W |
| Elec\_PowerPlugsInstLRA | Instr | Living Room | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in living room | W |
| Elec\_PowerPlugsInstLRB | Instr | Living Room | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in living room | W |
| Elec\_PowerPlugsInstBA2 | Instr | Bath2 | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in bathroom 2 | W |
| Elec\_PowerPlugsInstMBAB | Instr | MBath | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in master bathroom | W |
| Elec\_  PowerPlugsGSHPInstrumentation | Instr | Basement | Power\_  Electrical | Instantaneous power consumption by instrumentation connected to ground source heat pump test apparatus | W |
| Elec\_PowerPlugsInstMBRA | Instr | Master Bedroom | Power\_  Electrical | Instantaneous power by instrumentation plugged into receptacles in the master bedroom | W |
| Elec\_PowerPlugsInstBR2Hall | Instr | Bedroom 2 | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in bedroom 2 | W |
| Elec\_PowerPlugsInstHall | Instr | Entry Hallway | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in entry hallway | W |
| Elec\_  PowerLightingControlPanelRPS1 | Instr | Basement | Power\_  Electrical | Instantaneous power consumption by lighting control panel located in basement | W |
| Elec\_PowerPlugsInstBR3 | Instr | Bedroom3 | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in bedroom 3 | W |
| Elec\_  PowerHeatLoadforRefrigerator | Instr | Kitchen | Power\_  Thermal | Instantaneous power of heat load in refrigerator to simulate opening and adding warm items | W |
| Elec\_PowerPlugsInstMudroomA | Instr | Mudroom | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in mudroom | W |
| Elec\_  PowerLightingControlPanelRPS2 | Instr | Basement | Power\_  Electrical | Instantaneous power consumption by lighting control panel located in basement | W |
| Elec\_  PowerPlugsHVACInstrumentation | Instr | Basement | Power\_  Electrical | Instantaneous power consumption by instrumentation connected to heat pump | W |
| Elec\_PowerPlugsInstKitD | Instr | Kitchen | Power\_  Electrical | Instantaneous power consumption by instrumentation located in kitchen | W |
| Elec\_PowerPlugsInstBA1 | Instr | Bath1 | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in bathroom 1 | W |
| Elec\_PowerPlugsInstKitA | Instr | Kitchen | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in kitchen | W |
| Elec\_PowerPlugsInstMudroomB | Instr | Mudroom | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in mudroom | W |
| Elec\_PowerPlugsInstDRA | Instr | Dining Room | Power\_  Electrical | Instantaneous power consumption by instrumentation plugged into receptacles in dining room | W |
| Elec\_EnergyLightsBasementStair | Lighting | Basement | Energy\_  Electrical | Cumulative energy consumption of lights over basement stairs from midnight | Wh |
| Elec\_EnergyLights2ndFloor | Lighting | Bath2 | Energy\_  Electrical | Cumulative energy consumption of lighting in bathroom 2 from midnight | Wh |
| Elec\_EnergyLights1stFloorA | Lighting | Multiple | Energy\_  Electrical | Cumulative energy consumption by a subset of lighting on first floor from midnight; includes living room, hallway, and bedroom 4. | Wh |
| Elec\_EnergyLights1stFloorB | Lighting | Multiple | Energy\_  Electrical | Cumulative energy consumption by a subset of lighting on first floor from midnight; includes hallway, bathroom, kitchen, and dining room | Wh |
| Elec\_EnergyLightsBasement | Lighting | Basement | Energy\_  Electrical | Cumulative energy consumption from midnight by lights activated in basement | Wh |
| Elec\_EnergyLightsAttic | Lighting | Attic | Energy\_  Electrical | Cumulative energy consumption from midnight by lights activated in attic | Wh |
| Elec\_PowerLightsBasementStair | Lighting | Basement | Power\_  Electrical | Instantaneous power used by lights over basement stairs | W |
| Elec\_PowerLights2ndFloor | Lighting | Bath2 | Power\_  Electrical | Instantaneous power consumption of lighting in bathroom 2 | W |
| Elec\_PowerLights1stFloorA | Lighting | Multiple | Power\_  Electrical | Instantaneous power consumption by a subset of lighting on first floor from midnight; includes living room, hallway, and bedroom 4. | W |
| Elec\_PowerLights1stFloorB | Lighting | Multiple | Power\_  Electrical | Instantaneous power consumption by a subset of lighting on first floor from midnight; includes hallway, bathroom, kitchen, and dining room | W |
| Elec\_PowerLightsBasement | Lighting | Basement | Power\_  Electrical | Instantaneous power consumption by lights activated in basement | W |
| Elec\_PowerLightsAttic | Lighting | Attic | Power\_  Electrical | Instantaneous power consumption by lights activated in attic | W |
| Elec\_EnergyChildBDownstairs | Loads | Dining Room | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of child B in the dining room | Wh |
| Elec\_EnergyChildADownstairs | Loads | Living Room | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of child A in the living room | Wh |
| Elec\_EnergyParentAUpstairs | Loads | Master Bedroom | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of parent A in the master bedroom | Wh |
| Elec\_EnergyChildAUpstairs | Loads | Bedroom2 | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of child A in bedroom 2 | Wh |
| Elec\_EnergyChildBUpstairs | Loads | Bedroom3 | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of child B in bedroom 3 | Wh |
| Elec\_EnergyParentBUpstairs | Loads | Master Bedroom | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of parent B in master bedroom | Wh |
| Elec\_EnergyParentBDownstairs | Loads | Dining Room | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of parent B in dining room | Wh |
| Elec\_EnergyParentADownstairs | Loads | Kitchen | Energy\_  Thermal | Cumulative heat energy given off from midnight by emulator of parent A in the kitchen | Wh |
| Elec\_PowerChildBDownstairs | Loads | Dining Room | Power\_  Thermal | Instantaneous power consumption by emulator of child B in the dining room | W |
| Elec\_PowerChildADownstairs | Loads | Living Room | Power\_  Thermal | Instantaneous power consumption by emulator of child A in the living room | W |
| Elec\_PowerParentAUpstairs | Loads | Master Bedroom | Power\_  Thermal | Instantaneous power consumption by emulator of parent A in the master bedroom | W |
| Elec\_PowerChildAUpstairs | Loads | Bedroom2 | Power\_  Thermal | Instantaneous power consumption by emulator of child A in bedroom 2 | W |
| Elec\_PowerChildBUpstairs | Loads | Bedroom3 | Power\_  Thermal | Instantaneous power consumption by emulator of child B in bedroom 3 | W |
| Elec\_PowerParentBUpstairs | Loads | Master Bedroom | Power\_  Thermal | Instantaneous power consumption by emulator of parent B in master bedroom | W |
| Elec\_PowerParentBDownstairs | Loads | Dining Room | Power\_  Thermal | Instantaneous power consumption by emulator of parent B in dining room | W |
| Elec\_PowerParentADownstairs | Loads | Kitchen | Power\_  Thermal | Instantaneous power consumption by emulator of parent A in the kitchen | W |
| Load\_1stFloorLightsEnergyUsage | Loads | Multiple | Energy\_  Electrical | Cumulative energy consumption starting at midnight by lights on first floor | Wh |
| Load\_1stFloorLightsPowerUsage | Loads | Multiple | Power\_  Electrical | Instantaneous power consumption by lights on first floor | W |
| Load\_1stFloorSensHeatEnergyUsage | Loads | Multiple | Energy\_  Thermal | Cumulative energy consumption starting at midnight by sensible heat generators on first floor | Wh |
| Load\_1stFloorSensHeatPowerUsage | Loads | Multiple | Power\_  Thermal | Instantaneous power consumption by sensible heat emulators on first floor | W |
| Load\_2ndFloorLightsEnergyUsage | Loads | Multiple | Energy\_  Electrical | Cumulative energy consumption starting at midnight by lights on second floor | Wh |
| Load\_2ndFloorLightsPowerUsage | Loads | Multiple | Power\_  Electrical | Instantaneous power consumption by lights on second floor | W |
| Load\_2ndFloorSensHeatEnergyUsage | Loads | Multiple | Energy\_  Thermal | Cumulative energy consumption starting at midnight by sensible heat generators on second floor | Wh |
| Load\_2ndFloorSensHeatPowerUsage | Loads | Multiple | Power\_  Thermal | Instantaneous power consumption by sensible heat emulators on second floor | W |
| Load\_  BasementPlugLoadsEnergyUsage | Loads | Basement | Energy\_  Electrical | Cumulative energy consumption starting at midnight by plug loads in basement | Wh |
| Load\_  BasementPlugLoadsPowerUsage | Loads | Basement | Power\_  Electrical | Instantaneous power consumption by plug loads in basement | W |
| Load\_  BR2PlugLoadsEnergyUsage | Loads | Bedroom2 | Energy\_  Electrical | Cumulative energy consumption starting at midnight by plug loads in bedroom 2 | Wh |
| Load\_BR2PlugLoadsPowerUsage | Loads | Bedroom2 | Power\_  Electrical | Instantaneous power consumption by plug loads in bedroom 2 | W |
| Load\_  BR3PlugLoadsEnergyUsage | Loads | Bedroom3 | Energy\_  Electrical | Cumulative energy consumption starting at midnight by plug loads in bedroom 3 | Wh |
| Load\_BR3PlugLoadsPowerUsage | Loads | Bedroom3 | Power\_  Electrical | Instantaneous power consumption by plug loads in bedroom 3 | W |
| Load\_  BR4PlugLoadsEnergyUsage | Loads | Bedroom4 | Energy\_  Electrical | Cumulative energy consumption starting at midnight by plug loads in bedroom 4 | Wh |
| Load\_BR4PlugLoadsPowerUsage | Loads | Bedroom4 | Power\_  Electrical | Instantaneous power consumption by plug loads in bedroom 4 | W |
| Load\_  ClothesWasherEnergywithStandby | Loads | Utility | Energy\_  Electrical | Cumulative energy consumption starting at midnight by clothes washer | Wh |
| Load\_  ClothesWasherPowerWithStandby | Loads | Utility | Power\_  Electrical | Instantaneous power consumption by clothes washer | W |
| Load\_DryerEnergyTotal | Loads | Utility | Energy\_  Electrical | Cumulative energy consumption starting at midnight by dryer | Wh |
| Load\_DryerPowerTotal | Loads | Utility | Power\_  Electrical | Instantaneous power consumption by dryer | W |
| Load\_RefrigeratorTemp | Loads | Kitchen | Temp\_  Air | Instantaneous temperature within refrigerator compartment | °C |
| Load\_KPlugLoadsEnergyUsage | Loads | Kitchen | Energy\_  Electrical | Cumulative energy consumption starting at midnight by plug loads in kitchen | Wh |
| Load\_KPlugLoadsPowerUsage | Loads | Kitchen | Power\_  Electrical | Instantaneous power consumption by plug loads in kitchen | W |
| Load\_LatentHeatEnergyUsage | Loads | Kitchen | Energy\_  Thermal | Cumulative energy consumption starting at midnight by moisture generators | Wh |
| Load\_LatentHeatPowerUsage | Loads | Kitchen | Power\_  Thermal | Instantaneous power consumption by moisture generator | W |
| Load\_LatentHeatWaterVolume | Loads | Kitchen | Flow\_  Water | Cumulative volume of water injected into space by humidifier to simulate moisture addition by occupant behavior | Gallons |
| Load\_LRPlugLoadsEnergyUsage | Loads | Living Room | Energy\_  Electrical | Cumulative energy consumption starting at midnight by plug loads in living room | Wh |
| Load\_LRPlugLoadsPowerUsage | Loads | Living Room | Power\_  Electrical | Instantaneous power consumption by plug loads in living room | W |
| Load\_MBRPlugLoadsEnergyUsage | Loads | Master Bedroom | Energy\_  Electrical | Cumulative energy consumption starting at midnight by plug loads in master bedroom | Wh |
| Load\_MBRPlugLoadsPowerUsage | Loads | Master Bedroom | Power\_  Electrical | Instantaneous power consumption by plug loads in master bedroom | W |
| Load\_MicrowaveEnergywithStandby | Loads | Kitchen | Energy\_  Electrical | Cumulative energy consumption starting at midnight by microwave oven | Wh |
| Load\_MicrowavePowerWithStandby | Loads | Kitchen | Power\_  Electrical | Instantaneous power consumption by microwave oven | W |
| Load\_OvenEnergyTotal | Loads | Kitchen | Energy\_  Electrical | Cumulative energy consumption starting at midnight by oven | Wh |
| Load\_OvenPowerTotal | Loads | Kitchen | Power\_  Electrical | Instantaneous power consumption by oven | W |
| Load\_RefrigeratorEnergywithStandby | Loads | Kitchen | Energy\_  Electrical | Cumulative energy consumption starting at midnight by refrigerator | Wh |
| Load\_RefrigeratorPowerWithStandby | Loads | Kitchen | Power\_  Electrical | Instantaneous power consumption by refrigerator | W |
| Load\_StatusApplianceCooktop | Loads | Kitchen | Status\_  OnOff | Number to indicate whether cooktop is activated (1: Yes, O: No) |  |
| Load\_StatusApplianceDishwasher | Loads | Kitchen | Status\_  OnOff | Number to indicate whether dishwasher is activated (1: Yes, O: No) |  |
| Load\_StatusApplianceOven | Loads | Kitchen | Status\_  OnOff | Number to indicate whether oven is activated (1: Yes, O: No) |  |
| Load\_StatusApplianceRangeHood | Loads | Kitchen | Status\_  OnOff | Number to indicate whether range hood is activated (1: Yes, O: No) |  |
| Load\_StatusLatentload | Loads | Kitchen | Status\_  OnOff | Number to indicate whether moisture generator is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadBlender | Loads | Kitchen | Status\_  OnOff | Number to indicate whether blender is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadBR2Laptop | Loads | Bedroom2 | Status\_  OnOff | Number to indicate whether laptop computer in bedroom 2 is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadBR3Laptop | Loads | Bedroom3 | Status\_  OnOff | Number to indicate whether laptop computer in bedroom 3 is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadCanOpener | Loads | Kitchen | Status\_  OnOff | Number to indicate whether can opener is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadCoffeeMaker | Loads | Kitchen | Status\_  OnOff | Number to indicate whether coffee maker is activated (1: Yes, O: No) |  |
| Load\_  StatusPlugLoadDesktopPCMonitor | Loads | Bedroom4 | Status\_  OnOff | Number to indicate whether desktop computer and monitor in first floor bedroom is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadFan | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether fan in master bedroom is activated (1: Yes, O: No) |  |
| Load\_  StatusPlugLoadHairDryerCurlIron | Loads | MBath | Status\_  OnOff | Number to indicate whether hair dryer or curling iron is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadHandMixer | Loads | Kitchen | Status\_  OnOff | Number to indicate whether hand mixer is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadHeatingPad | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether heating pad is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadIron | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether iron is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadLRBlueRay | Loads | Living Room | Status\_  OnOff | Number to indicate whether BluRay player in living room is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadLRTV | Loads | Living Room | Status\_  OnOff | Number to indicate whether television in living room is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadMBRBlueRay | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether BluRay player in master bedroom is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadMBRTV | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether television in master bedroom is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadSlowCooker | Loads | Kitchen | Status\_  OnOff | Number to indicate whether slow cooker is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadToaster | Loads | Kitchen | Status\_  OnOff | Number to indicate whether toaster is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadToasterOven | Loads | Kitchen | Status\_  OnOff | Number to indicate whether toaster oven is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadVacuum | Loads | Bedroom4 | Status\_  OnOff | Number to indicate whether vacuum is activated (1: Yes, O: No) |  |
| Load\_StatusPlugLoadVideoGame | Loads | Living Room | Status\_  OnOff | Number to indicate whether video game console in living room is activated (1: Yes, O: No) |  |
| Load\_StatusBR4Lights | Loads | Bedroom4 | Status\_  OnOff | Number to indicate whether lights in bedroom 4 are activated (1: Yes, O: No) |  |
| Load\_StatusMBALights | Loads | MBath | Status\_  OnOff | Number to indicate whether lights in master bathroom are activated (1: Yes, O: No) |  |
| Load\_StatusMBRLights1 | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether lights A in master bedroom are activated (1: Yes, O: No) |  |
| Load\_StatusMBRLights2 | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether lights B in master bedroom are activated (1: Yes, O: No) |  |
| Load\_StatusBA2Lights | Loads | Bath2 | Status\_  OnOff | Number to indicate whether lights 2nd floor bathroom located off hallway are activated (1: Yes, O: No) |  |
| Load\_StatusBR2Lights | Loads | Bedroom2 | Status\_  OnOff | Number to indicate whether lights in bedroom 2 are activated (1: Yes, O: No) |  |
| Load\_StatusBA1Lights | Loads | Bath1 | Status\_  OnOff | Number to indicate whether lights in 1st floor bathroom are activated (1: Yes, O: No) |  |
| Load\_StatusBR3Lights | Loads | Bedroom3 | Status\_  OnOff | Number to indicate whether lights in bedroom 3 are activated (1: Yes, O: No) |  |
| Load\_  StatusSensHeatPrntBDOWN | Loads | Dining Room | Status\_  OnOff | Number to indicate whether parent B is simulated as being downstairs (1: Yes, O: No) |  |
| Load\_  StatusSensHeatPrntAUP | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether parent A is simulated as being upstairs (1: Yes, O: No) |  |
| Load\_  StatusKitchenLightsA | Loads | Kitchen | Status\_  OnOff | Number to indicate whether lights A in kitchen are activated (1: Yes, O: No) |  |
| Load\_  StatusSensHeatPrntBUP | Loads | Master Bedroom | Status\_  OnOff | Number to indicate whether parent B is simulated as being upstairs (1: Yes, O: No) |  |
| Load\_  StatusSensHeatChildAUP | Loads | Bedroom2 | Status\_  OnOff | Number to indicate whether child A is simulated as being upstairs (1: Yes, O: No) |  |
| Load\_  StatusSensHeatChildBUP | Loads | Bedroom3 | Status\_  OnOff | Number to indicate whether child B is simulated as being upstairs (1: Yes, O: No) |  |
| Load\_StatusKitchen LightsB | Loads | Kitchen | Status\_  OnOff | Number to indicate whether lights B in kitchen are activated (1: Yes, O: No) |  |
| Load\_  StatusSensHeatChildBDOWN | Loads | Dining Room | Status\_  OnOff | Number to indicate whether child B is simulated as being downstairs (1: Yes, O: No) |  |
| Load\_StatusLRLights1 | Loads | Living Room | Status\_  OnOff | Number to indicate whether lights in living room are activated (1: Yes, O: No) |  |
| Load\_  StatusSensHeatPrntADOWN | Loads | Kitchen | Status\_  OnOff | Number to indicate whether parent A is simulated as being downstairs (1: Yes, O: No) |  |
| Load\_  StatusSensHeatChildADOWN | Loads | Living Room | Status\_  OnOff | Number to indicate whether child A is simulated as being downstairs (1: Yes, O: No) |  |
| Load\_StatusKitchenLightsC | Loads | Kitchen | Status\_  OnOff | Number to indicate whether lights C in kitchen are activated (1: Yes, O: No) |  |
| Load\_StatusLRLights2 | Loads | Living Room | Status\_  OnOff | Number to indicate whether lights in living room are activated (1: Yes, O: No) |  |
| Load\_StatusDRLights | Loads | Dining Room | Status\_  OnOff | Number to indicate whether lights in dining room are activated (1: Yes, O: No) |  |
| Load\_StatusLRLights3 | Loads | Living Room | Status\_  OnOff | Number to indicate whether lights in living room are activated (1: Yes, O: No) |  |
| Load\_StatusEntryHallLights | Loads | Entry Hallway | Status\_  OnOff | Number to indicate whether lights in entry hallway are activated (1: Yes, O: No) |  |
| OutEnv\_OutdoorAmbTemp | OutEnv | Outdoor | Temp\_  Air | Instantaneous dry bulb temperature measured above the roof's peak | °C |
| OutEnv\_RooftopWindDirection | OutEnv | Outdoor | Flow\_  Air | Instantaneous wind direction measured above the roof's peak; 0° means wind is blowing from true north; all other readings are taken relative to clockwise from true north. For example, 90° means wind is blowing from true east to true west. | degrees |
| OutEnv\_RooftopWindSpeed | OutEnv | Outdoor | Flow\_  Air | Instantaneous wind speed measured above the roof's peak | m/s |
| Elec\_EnergyPV1of2 | PV | Basement | Energy\_  Electrical | Cumulative energy fed into breaker panel by one leg of electrical supply from PV inverters from midnight; note that energy supplied from other leg is needed to get total energy supply from inverters | Wh |
| Elec\_EnergyPV2of2 | PV | Basement | Energy\_  Electrical | Cumulative energy fed into breaker panel by one leg of electrical supply from PV inverters from midnight; note that energy supplied from other leg is needed to get total energy supply from inverters | Wh |
| Elec\_PowerPV1of2 | PV | Basement | Power\_  Electrical | Instantaneous power fed into breaker panel by one leg of electrical supply from PV inverters; note that power supplied from other leg is needed to get total power supply from inverters | W |
| Elec\_PowerPV2of2 | PV | Basement | Power\_  Electrical | Instantaneous power fed into breaker panel by one leg of electrical supply from PV inverters; note that power supplied from other leg is needed to get total power supply from inverters | W |
| PV\_AmpsAIA1 | PV | Attic | Current\_  Electrical | Instantaneous current produced from the Phase A wire from inverter 1 (AC) | A |
| PV\_AmpsAIA2 | PV | Attic | Current\_  Electrical | Instantaneous current produced from the Phase A wire from inverter 2 (AC) | A |
| PV\_AmpsBIB1 | PV | Attic | Current\_  Electrical | Instantaneous current produced from the Phase B wire from inverter 1 (AC) | V |
| PV\_AmpsBIB2 | PV | Attic | Current\_  Electrical | Instantaneous current produced from the Phase B wire from inverter 2 (AC) | V |
| PV\_FrequencyF1 | PV | Attic | Frequency\_  Electrical | Instantaneous frequency of AC electricity output from inverter 1 | Hz |
| PV\_FrequencyF2 | PV | Attic | Frequency\_  Electrical | Instantaneous frequency of AC electricity output from inverter 2 | Hz |
| PV\_PowerFactor3PhTotalPF3PhT1 | PV | Attic | PowerFactor\_  Electrical | Instantaneous power factor of electricity output from inverter 1 (Single Phase AC) |  |
| PV\_PowerFactor3PhTotalPF3PhT2 | PV | Attic | PowerFactor\_  Electrical | Instantaneous power factor of electricity output from inverter 2 (Single Phase AC) |  |
| PV\_PVBacksideTemp2 | PV | Outdoor | Temp\_  PV | Instantaneous temperature on the backside of module at location 2 of the photovoltaic array. Location 2 is on the 3rd string from the bottom of the array, the fourth module from the west side of the array. | °C |
| PV\_PVBacksideTemp3 | PV | Outdoor | Temp\_  PV | Instantaneous temperature on the backside of module at location 3 of the photovoltaic array. Location 3 is on the 3rd string from the bottom of the array, the fourth module from the west side of the array. | °C |
| PV\_PVBacksideTemp4 | PV | Outdoor | Temp\_  PV | Instantaneous temperature on the backside of module at location 4 of the photovoltaic array. Location 4 is on the 3rd string from the bottom of the array, the fourth module from the west side of the array. | °C |
| PV\_PVBacksideTemp7 | PV | Outdoor | Temp\_  PV | Instantaneous temperature on the backside of module at location 7 of the photovoltaic array. Location 7 is on the top string of the array, the west-most module of the array. | °C |
| PV\_PVInsolationHArray | PV | Outdoor | Light\_  Solar | The amount of sunlight impacting the array during the past minute. | kWh |
| PV\_  PVSystem1ACEnergyOSEACPV1OS | PV | Attic | Energy\_  Electrical | Cumulative AC energy generation out of inverter 1 of the photovoltaic array; data collected with an inline meter. | Wh |
| PV\_  PVSystem1ACPowerOSPACPV1OS | PV | Attic | Power\_  Electrical | Instantaneous AC power reading from inverter 1 as measured by an inline meter | W |
| PV\_  PVSystem2ACEnergyOSEACPV2OS | PV | Attic | Energy\_  Electrical | Cumulative AC energy generation out of the inverter 2 of the photovoltaic array; data collected with an inline meter. | Wh |
| PV\_  PVSystem2ACPowerOSPACPV2OS | PV | Attic | Power\_  Electrical | Instantaneous AC power reading from inverter 1 as measured by an inline meter | W |
| PV\_StringCurrentIStr1 | PV | Attic | Current\_  Electrical | Instantaneous direct current from string 1 feeding into inverter 1 | A |
| PV\_StringCurrentIStr2 | PV | Attic | Current\_  Electrical | Instantaneous direct current from string 2 feeding into inverter 1 | A |
| PV\_StringCurrentIStr3 | PV | Attic | Current\_  Electrical | Instantaneous direct current from string 3 feeding into inverter 2 | A |
| PV\_StringCurrentIStr4 | PV | Attic | Current\_  Electrical | Instantaneous direct current from string 4 feeding into inverter 2 | A |
| PV\_StringVoltageUStr2 | PV | Attic | Voltage\_  Electrical | Instantaneous voltage from Strings 1 and 2 of photovoltaic array into inverter 1 (DC) | V |
| PV\_StringVoltageUStr4 | PV | Attic | Voltage\_  Electrical | Instantaneous voltage from Strings 3 and 4 of photovoltaic array into inverter 2 (DC) | V |
| PV\_VoltsANUAN1 | PV | Attic | Voltage\_  Electrical | Instantaneous voltage difference between the Phase A wire and the neutral wire for inverter 1 (AC) | V |
| PV\_VoltsANUAN2 | PV | Attic | Voltage\_  Electrical | Instantaneous voltage difference between the Phase A wire and the neutral wire for inverter 2 (AC) | V |
| PV\_VoltsBNUBN1 | PV | Attic | Voltage\_  Electrical | Instantaneous voltage difference between the Phase B wire and the neutral wire for inverter 1 (AC) | V |
| PV\_VoltsBNUBN2 | PV | Attic | Voltage\_  Electrical | Instantaneous voltage difference between the Phase B wire and the neutral wire for inverter 2 (AC) | V |
| PV\_Watts3PhTotalW3PhT1 | PV | Attic | Power\_  Electrical | Instantaneous power produced from Inverter 1 (1-phase AC); meter uses remotely located current transformers | W |
| PV\_Watts3PhTotalW3PhT2 | PV | Attic | Power\_  Electrical | Instantaneous power produced from Inverter 2 (1-phase AC); meter uses remotely located current transformers | W |
| PV\_WhoursDeliveredWhD1 | PV | Attic | Energy\_  Electrical | Cumulative energy delivered by inverter 1 from beginning of operation as measured by meter using current transformers | Wh |
| PV\_WhoursDeliveredWhD2 | PV | Attic | Energy\_  Electrical | Cumulative energy delivered by inverter 2 from beginning of operation as measured by meter using current transformers | Wh |
| Elec\_  PowerPlugsBaseAHeliodyneHXs | SHW | Basement | Power\_  Electrical | Instantaneous power used by solar water heater pumps | W |
| SHW\_GlycolFlowHXCoriolisSHW | SHW | Basement | Flow\_  Glycol | Cumulative volume of glycol/water solution flowing through the heat exchanger of the solar water heating system starting from midnight | Gallons |
| SHW\_  GlycolFlowRateHXCoriolisSHW | SHW | Basement | Flow\_  Glycol | Instantaneous flow rate of glycol/water solution flowing through the heat exchanger of the solar water heating system | Gallons Per Minute |
| SHW\_  GlycolTempSHWPanel80galOut | SHW | Outdoor | Temp\_  Glycol | Instantaneous temperature of glycol/water solution leaving solar panel on roof; temperature is measured with a surface RTD mounted on the surface of the pipe and wrapped in insulation | °C |
| SHW\_PSPSHW | SHW | Outdoor | Light\_  Solar | Solar broadband insolation measured adjacent to and in the plane of the solar thermal collectors | W/m2 |
| SHW\_SHWHX80galWaterFlow | SHW | Basement | Flow\_  Water | Cumulative volume of potable water flowing through the heat exchanger of the solar water heating system starting from midnight (as measured by the heat exchanger’s internal flow meter) | Gallons |
| SHW\_WaterFlowHXCoriolisSHW | SHW | Basement | Flow\_  Water | Cumulative volume of potable water flowing through the heat exchanger of the solar water heating system starting from midnight | Gallons |
| SHW\_WaterFlowRateHXCoriolisSHW | SHW | Basement | Flow\_  Water | Instantaneous flow rate of potable water flowing through the heat exchanger of the solar water heating system | Gallons Per Minute |
| Elec\_EnergyMakeUpAirDamper | Ventilation | Attic | Energy\_  Electrical | Cumulative energy consumption of make-up air damper located in attic from midnight | Wh |
| Elec\_PowerMakeUpAirDamper | Ventilation | Attic | Power\_  Electrical | Instantaneous power consumption of make-up air damper located in attic | W |
| Vent\_  HRVDewpointTemperatureExhaust | Ventilation | Basement | Temp\_  DewP | Instantaneous dew point temperature in the exhaust duct outlet from the heat recovery ventilator; refers to indoor air being exhausted from the house | °C |
| Vent\_  HRVDewpointTemperatureOutdoor | Ventilation | Basement | Temp\_  DewP | Instantaneous dew point temperature in the outdoor inlet duct to the heat recovery ventilator; refers to outdoor air being brought into the house | °C |
| Vent\_  HRVDewpointTemperatureReturn | Ventilation | Basement | Temp\_  DewP | Instantaneous dew point temperature in the return duct inlet to the heat recovery ventilator; refers to indoor air being returned to the HRV from the house | °C |
| Vent\_  HRVDewpointTemperatureSupply | Ventilation | Basement | Temp\_  DewP | Instantaneous dew point temperature in the supply duct outlet from the heat recovery ventilator; refers to outdoor air being brought into the heat recovery ventilator | °C |
| Vent\_HRVexhaustflowrate | Ventilation | Basement | Flow\_  Air | Instantaneous flow rate of air in the exhaust duct outlet from the heat recovery ventilator; refers to indoor air being exhausted from the house | ft3/min |
| Vent\_  HRVfreshairpressuredifferential | Ventilation | Basement | Pressure\_  Air | Instantaneous pressure differential across heat recovery ventilator of the outdoor air stream | Inches H2O |
| Vent\_HRVoutdoorflowrate | Ventilation | Basement | Flow\_  Air | Instantaneous flow rate of air in the outdoor inlet duct to the heat recovery ventilator; refers to outdoor air being brought into the house | ft3/min |
| Vent\_HRVreturnflowrate | Ventilation | Basement | Flow\_  Air | Instantaneous flow rate of air in the return flow duct entering the heat recovery ventilator; refers to indoor air being returned to HRV from the house | ft3/min |
| Vent\_  HRVstaleairpressuredifferential | Ventilation | Basement | Pressure\_  Air | Instantaneous pressure differential across heat recovery ventilator of the exhaust air stream | Inches H2O |
| Vent\_HRVTempExhaustOut | Ventilation | Basement | Temp\_  Air | Instantaneous dry bulb temperature in the exhaust duct outlet from the heat recovery ventilator; refers to indoor air being exhausted from the house | °C |
| Vent\_HRVTempOutdoorin | Ventilation | Basement | Temp\_  Air | Instantaneous dry bulb temperature in the outdoor inlet duct to the heat recovery ventilator; refers to outdoor air being brought into the house | °C |
| Vent\_HRVTempReturnIn | Ventilation | Basement | Temp\_  Air | Instantaneous dry bulb temperature in the return duct inlet to the heat recovery ventilator; refers to indoor air being returned to HRV from the house | °C |
| Vent\_HRVTempSupplyOut | Ventilation | Basement | Temp\_  Air | Instantaneous dry bulb temperature in the supply duct outlet from the heat recovery ventilator; refers to outdoor air being brought into the heat recovery ventilator | °C |

1. United States Department of Energy (2012) DOE Building Energy Performance Taxonomy. Available at: https://www1.eere.energy.gov/buildings/commercial/pdfs/doe\_building\_energy\_performance\_taxonomy.pdf [Accessed November 3, 2016]. [↑](#footnote-ref-1)