Building Performance Institute, Inc.

BPI Standard

BPI-2200-S-2013

Standard for Home Performance-Related Data Collection

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Formulated under the cognizance of the BPI Standards Technical Committee.

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Introduction (Informative)

BPI-2200 is designed to facilitate communication and the exchange of information and data among all actors in the home performance industry by providing a standard vocabulary for describing terms related to buildings, energy consumption, and energy conservation measures (ECMs).

The term “home performance” is used in this standard in a broad sense of the term to indicate the practices used to increase the energy efficiency (i.e., reduce the energy consumption) of residential buildings considered as a system.

The terms “whole-house upgrade” or “upgrade” are used in this standard to indicate a comprehensive set of measures that together significantly increase the energy efficiency of a building. The synonymous term “retrofit,” although common in the home performance industry, is not used in this standard.

The terms “energy audit” and “audit” are used interchangeably to indicate an assessment of the opportunities for reducing the energy consumption of a building.

1. Scope

This standard provides requirements for the prescribed fields for collecting home performance-related data and the minimum measure description collection criteria. The scope of this standard is limited to existing detached single-family dwellings and townhouses that have independent mechanical systems for each dwelling unit (heating, cooling, water heating, and ventilation); direct access to outdoors for each dwelling unit; and were designed to have continuous party walls with no penetrations to adjacent units, with such party walls extending from ground to roof where the dwelling unit is attached to one or more adjacent single-family dwelling units.

2. Objective

The standard is intended to reduce the transactional costs associated with collecting and transferring data by making communication between systems easier, and by providing a basis for the creation of data transfer and storage standards. BPI-2200 is also intended to enhance research and evaluation efforts by facilitating comparison and analysis of information from multiple programs through data standardization.

BPI-2200 does not specify all terms used within the home performance industry. Many of the detailed terms needed for energy modeling or for quality assurance (QA), for example, are not included in this iteration of the standard. Future versions of BPI-2200 may be expanded to include such terms.

3. Alignment with Other Standards

BPI-2200 is intended to provide the data elements that form the basis of the extensible mark-up language (XML) schema defined in a separate BPI standard (BPI-2100). BPI-2100 provides a way to structure and communicate information about whole-house energy efficiency upgrades.

To promote standardization within the home performance industry, BPI-2200 is also aligned with the data needs and vocabularies of two initiatives supported by the U.S. Department of Energy: the Building Energy Performance Taxonomy and the Home Energy Score.

The Building Energy Performance Taxonomy "is designed to support analysis of the measured energy performance of commercial and residential buildings, with data fields for building characteristics, efficiency measures and energy use," and provides the data elements used in the Standard Energy Efficiency Disclosure (SEED) platform. Because of its focus on commercial as well as residential buildings, the Building Energy Performance Taxonomy contains data elements not relevant to the scope of BPI-2200; conversely, BPI-2200 contains elements specific to the home performance industry that were not included in the Building Energy Performance Taxonomy. For the subset of information relevant to both data sets, an effort was made to use the same language and to structure the data in the same way to ensure the greatest degree of compatibility.

BPI-2200 is also designed to include all terms necessary to generate a Home Energy Score (HES).

4. Data Vocabulary

BPI-2200 defines a standard vocabulary of data elements necessary to provide a general description of a whole-house energy efficiency upgrade for reporting, rebate and basic QA purposes. This vocabulary allows description of the following:

- Contractors
- Customers
- Buildings, building components and building systems
- Energy conservation measures
- Energy consumption
- Energy savings (estimated and actual)

The vocabulary allows description of both the physical properties and performance of buildings and measures.

5. Required Use of Vocabulary

Compliance with BPI-2200 requires use of these data elements in all cases in which a BPI-2200 data element is sufficient to adequately represent the person, characteristic, concept or other

home-related datum. Data can be “adequately represented” by the BPI-2200 vocabulary if BPI-2200 data elements, singly or in combination, can provide a representation of the thing or person to be described that a) could reasonably be understood by other home performance professionals, and b) does not result in significant loss of information or create significant risks of miscommunication.

6. Data Sets for Specific Use Cases

BPI-2200 is intended to define 1) a vocabulary for the home performance industry and 2) the data sets required to be collected for specific use cases, such as the energy audit or the job completion report.

This version of BPI-2200 addresses only the first objective: defining a common vocabulary for the home performance industry. Future versions of the standard will specify required or recommended data sets for specific uses.

Annex A: Guidance Regarding Use of Data Elements (Informative)

This informational annex provides additional information regarding the organization and structure of the data elements that are not evident from the list format in which they are presented in Annex B.

In this section, data elements specified in BPI-2200 are indicated in quotation marks, e.g., “auditor qualification.” Explanations are made in terms of how the data elements specified in the standard can be used: “glass type” for example, can be used to describe the nature of the glass used in a window through use of a standard set of other data elements, including “low-e,” “tinted,” “reflective,” etc.

The writing convention that the data element “glass type” can be used to indicate or describe a particular characteristic of a building or measure with a home performance upgrade is used throughout the standard. Thus, windows can be described not only with the data element “glass type,” but also with “U-factor,” “NRFC-certified,” “frame type,” and other data elements.

A.1. Relationships Between Data Elements

Some relationships between data elements are explicitly specified. Many data elements can be described by a set of other data elements. A window frame, for example, can be described as “aluminum,” “composite,” “fiberglass,” “steel,” “vinyl” or “other.”

Other relationships are implicit. Data elements describing the nature or monetary value of specific incentives, for example, could be associated with a wide range of energy conservation measures, such as insulation or duct sealing, or with an entire whole-house upgrade.

A.2. Multiple Ways to Describe Building Characteristics

In a number of cases, BPI-2200 provides more than one way to describe a specific building component or energy conservation measure. A building’s air leakage, for example, can be described either in terms of a blower door measurement (e.g., numberCFM50), or through use of a set of specified qualitative terms (“very tight,” “tight,” “average,” “leaky,” etc.).

These different pathways for describing the same characteristic reflect the fact that different users require different degrees of accuracy. If a program does not require blower door testing, for example, participating contractors will not typically be able to provide an infiltration measurement in CFM50; the standard provides an alternative way to describe building leakiness in such situations.

It is expected that users will structure the data elements defined in BPI-2200 in multiple ways, according to their specific needs.

A.3. Organization of Data Elements

The data elements listed in Annex B comprise the BPI-2200 standard vocabulary. For the sake of presentation, the data elements in Annex A are organized into a set of general categories:

- Customer information
- Contractor information
- Building information
- Systems
- Appliances
- Lighting
- Health and safety
- Project information
- Utility or fuel provider
- Consumption
- Software

A.4. Data Element Description

Much of the vocabulary in BPI-2200 is self-evident in that the name of the data element is similar or identical to a word typically used in the home performance profession. The “door” data element, for example, corresponds to what is typically referred to as a “door” in the home performance industry, i.e., a movable barrier located in an entranceway between two spaces separated by a partition.

Definitions for some of the less self-evident or self-explanatory data elements are provided in this section and in Annex B.

A.4.1 Customer

The data elements in the Customer section (B.1 – B.21) can be used to provide contact information about the customer (name, mailing address, phone number, e-mail address, etc.) or other contacts.

A.4.2 Contractor

The data elements in the Contractor (B. 22 – B.30) section can be used to provide information about contractors, subcontractors, and their businesses. This includes individual contact information, which is replicated in the customer section above, business information (business name, address, telephone number, etc.), and qualifications or certifications held by the business.

Contractors can also be identified by business type (auditor, contractor, subcontractor, property manager) and by specialization (HVAC, insulation, etc.).

A.4.3 Building Information

The data elements in the Building Information (B.31 – B.318) section enable a description of the building being upgraded, including a description of the occupants, the site, and construction details.

Data elements concerning a “site,” including address and school district, can be used to indicate the project location, but can also be used to describe other locations, such as a business office.

A site can be given a unique “Site ID.” This can be used to ensure that all sites that receive an upgrade through a program can be easily identified and distinguished.

Sites can be described in terms of their location in a number of zones, including the U.S. Department of Energy and International Energy Conservation Code climate zones, termite zones, radon zones, and others.

A.4.3.1 Zone

The “zones” and “spaces” data elements allow specific areas within a building to be identified, and for HVAC, lighting, and other systems to be associated with a specific zone or space.

Many use cases will not require the level of detail that the data elements in this section allow. However, if a detailed description of the shape of a building, or of a building’s wall assemblies, is necessary, the data elements in this section would allow a description of these elements in considerable detail.

A.4.3.2 Enclosure

This section incorporates data elements that make up a building’s enclosure or building envelope.

Air sealing

“Test ID” can be used to provide a unique test identification number if multiple tests need to be recorded.

Building leakiness can be described in two ways: either with a number indicating air leakage in terms of a specific unit (e.g., CFM50, ACHnatural), or in qualitative terms (“very tight,” “tight,” “average,” etc.)

Insulation

Insulation can be described in multiple ways. It can be described either in terms of nominal R-value or in terms of inches. It can also be described by type (e.g., fiberglass, cellulose).

The “layer” data element allows for individual layers of insulation to be described for situations in which two or more types of insulation have been installed or applied in the same area.

Data elements to indicate the location where a particular type of insulation was installed, including “attic roof,” “attic kneewall,” “crawlspace wall,” etc., are provided.

Attic and Roof

Attic and roofs can be described in terms of type, surface area, color, pitch, and slope. This subsection also includes information on rafters, including framing factor and studs.

Foundations

This section includes information on foundations including location, thermal boundary, frame floor, slab, and foundations walls. Each area or type of foundation (i.e. frame floor, slab, foundation walls) has a system ID associated with it so the date element can be referenced with other elements, for example, when there is a window on a foundation wall.

Rim Joists

Rim joists may be described in terms of surface area, proximity to other areas of the building, and stud size, material, and spacing.

Walls

Walls can be described in terms of their proximity to other rooms of a house, orientation, size, color and material.

Windows

The Window ID data element allows windows to be grouped according to type, i.e., windows with similar characteristics (similar glazing, frames, location, etc.) can be grouped together. In cases in which only very general information about all windows in a building is required, or in which all windows in a building are identical, a single Group ID can be used.

A window or window group can be described in terms of a number of characteristics, including orientation, condition, glass type, number of layers, U-factor, NFRC-certified, interior and exterior shading, etc.

The “window area” data element can be used to provide the square footage of all windows in a window group.

Subjective evaluation of window condition can be made in terms of “good,” “moderate,” or “poor.”

Window groups can be identified according to the wall in which they are located

The window-to-wall ratio of the building can be provided.

Doors

The “Door ID” data element allows doors to be organized into groups with common characteristics.

Skylights

The characteristics of glass in skylights can be described using the same data elements that allow description of windows.

A.4.4 Systems

The vocabulary (B.319 – B.492) allows HVAC systems to be identified with a system ID, which facilitates descriptions of buildings with multiple systems. This also allows for a system or systems to be:

- Associated with a building location (e.g., a CAZ or a Zone);
- Associated to one or several distribution systems;
- Associated with a control device (e.g., a device that controls both an AC and a furnace)

Data elements that can be used to describe any HVAC system are grouped together.

Data elements for describing specific types of HVAC systems are subdivided into three sections: heating, cooling, and heating and cooling. The heating and cooling section includes data elements designed specifically to describe heat pumps.

In buildings with multiple zones, HVAC systems can be identified as providing heating or cooling to a specific zone.

Data elements are provided to identify which combustion venting system and distribution system are used by an HVAC system. (Both combustion venting and distribution systems can be given a System ID.)

A standard list of fuel types is provided for all HVAC systems.

Vocabulary provided for HVAC controls includes information about control type, setpoint/setup/setback temperatures, and other information.

Several data elements allowing a general description of maintenance schedules and several common types of maintenance are provided.

A.4.4.1 Combustion Ventilation

HVAC combustion venting systems can be given a System ID, which allows the description of a situation in which HVAC or hot water systems are using a shared venting system.

A.4.4.2 HVAC Distribution Systems

The data elements in this section allow description of HVAC distribution systems. Each system can be identified with an ID, in the event that there is more than one in the building. As mentioned above, the HVAC Distribution ID can also be used to associate a single distribution system with one or more HVAC units. For example, a duct system can be associated with both an AC and a furnace. Duct improvements could then be associated with the performance characteristics of the AC and the furnace system. The zones that each system serves can also be identified.

The data elements in this section allow description of duct leakage. As with building leakage, two options for describing duct leakage are provided: a quantitative reading in CFM25 (or other units), or a qualitative description that includes the data elements “no observable leaks,” “some observable leaks,” “catastrophic leaks,” etc.

A.4.4.3 Domestic Hot Water (DHW) systems

DHW systems can be identified with a system ID if the home has several such systems.

The list of DHW types includes types that would commonly be encountered in a home performance upgrade.

As with HVAC systems, a DHW system can be identified as being in a particular zone, if necessary.

The data elements in this section allow description of DHW insulation, including pipe insulation and water heater jackets.

A.4.4.4 Photovoltaic

The data elements in this section allow for a basic description of a photovoltaic array, including “array azimuth,” “array tilt,” and “maximum power output,” the location of the PV system, inverter efficiency, ownership, and the year the inverter was manufactured.

A.4.5 Appliances

A number of data elements (B.493 – B.531) potentially relevant for describing all types of appliances are grouped together. These include manufacturer, model number, model year, serial number and third party certification.

Vocabulary or data elements specific for describing different types of appliances are shown under the heading of the appropriate appliance.

Several data elements address behavioral phenomena, such as “Usage” in loads per week for dishwashers.

A.4.6 Lighting and Miscellaneous Loads

(B.532 – B.559) The “Lighting ID” data element allows lights with common characteristics, such as type and average wattage, to be grouped together. Other common characteristics of the lighting group can be described, including average wattage, third party certification, and floor area served.

Two different ways to describe lighting usage are provided: either average hours per day per bulb can be indicated, or usage can be indicated by a series of ranges (1-4 hours per day, 4-12 hours per day, etc.).

The “attached to space” data element allows a light or lighting group to be identified as located within a specific space in the building (as described with the “space” data element).

Data elements for describing lighting controls are provided.

Data elements for a set of major plug loads (e.g., plasma TV, computer, space heater, water bed, electric vehicle, etc.) are provided. The “other” data element allows plug loads to be indicated as necessary.

A.4.7 Health and Safety

The data elements in the Health and Safety section (B.567 – B.674) concern ventilation (whole-house and spot), Combustion Appliance Zone (CAZ) testing, combustion appliance testing, lead paint, asbestos, radon, source pollutants and pests.

BPI standards were used as guidance for the vocabulary for the CAZ and appliance testing sections, and a number of U.S. Environmental Protection Agency documents were used as guidance for the vocabulary for environmental hazards.

A.4.7.1 Ventilation Design

Fans can be identified by ID number if multiple fans need to be described.

A.4.7.2 Combustion Appliance Zone Testing

If multiple CAZ are present, they can be identified by ID number. These ID numbers can be used to indicate in which CAZ a specific combustion appliance is located.

The term “poor case” is used rather than “worst case” to indicate a number of testing conditions, as it cannot usually be proven that a given set of conditions represents a “worst case.”

A.4.7.3 Moisture Control

The data elements in this section allow identification of areas within the building where water damage is located and several common moisture control measures.

A.4.8 Project Information

A project (B.675 – B.736) can be assigned a unique Project ID to distinguish it from all other projects. The Project ID can be used to distinguish between projects conducted in two different dwelling units in the same building, or two projects done at different times in the same building or dwelling unit.

The program name and sponsor can be identified, if applicable.

The “Project Status” data element can be used to indicate what phase of the upgrade process a particular set of data pertains to. Options include the audit, the proposed workscope, the approved workscope, test out/job completion and QA. “Start date,” “estimated completion date,” and “actual completion date” data elements can be used to provide additional information about the timing of a project.

“Project cost” can be used to specify the total cost of the project, and incentives can be used to detail one or more incentives associated with the project.

Energy savings data elements can be used to provide information about projected or actual (measured) energy savings associated with a project or measure. Savings can be expressed in a number of ways, including total savings, cost savings or savings by dollars, as well as savings by particular fuel. End use savings can also be provided for specific fuels.

Detail about the measures proposed or implemented as part of the upgrade can be described in detail. A number of data elements can be associated with each measure, as necessary, including:

- Quantity
- Location within the building
- Estimated life
- Installation date
- Cost
- Incentives associated with the measure
- Resources savings
- Energy savings
- Water savings
- Installing contractor (or subcontractor)
- Status (recommended, installed, not installed)
- QA status (passed, failed, not tested, comments)
- Repaired
- Replaced

A.4.9 Utility or Fuel Provider

The vocabulary (B.737 – B.741) allows details about the utility or fuel/resource provider to be collected, including meter and account numbers, and whether permission was granted to access the data.

Utility or fuel service providers may be identified by a unique ID number if there are multiple service providers per project or building.

A.4.10 Consumption

The data elements in this section (B.742 – B.780) can be used to describe water and energy savings and consumption. Water and energy consumption can be described in a number of ways, including unit of measurement, cost, reading type, and interval type.

This section also contains data elements that describe the information necessary for the “true-up” calculations specified in BPI-2400-2012 (Standard Practice for Standardized Qualification of Whole-House Energy Savings Predictions by Calibration to Energy Use History).

Data elements for detailing water consumption are also provided.

A.4.11 Software

The data elements in this section (B.781 – B.782) include information on the type of software used for modeling and its version.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.1	Personal contact	Prefix			Text		Element can be replicated for business and customer contacts
B.2	Personal contact	First name			Text		Element can be replicated for business and customer contacts
B.3	Personal contact	Middle name			Text		Element can be replicated for business and customer contacts
B.4	Personal contact	Last name			Text		Element can be replicated for business and customer contacts
B.5	Personal contact	Suffix			Text		Element can be replicated for business and customer contacts
B.6	Personal contact	Individual type			Enumeration	Owner-occupant, Owner-non-occupant, Property manager, Real estate agent, Tenant, Other	Element can be replicated for business and customer contacts
B.7	Personal contact	Telephone type			Enumeration	Day, Evening, Mobile	Element can be replicated for business and customer contacts
B.8	Personal contact	Telephone number			Text		Element can be replicated for business and customer contacts
B.9	Personal contact	Is telephone the preferred contact method?			Boolean		Element can be replicated for business and customer contacts
B.10	Personal contact	Telephone extension			Text		Element can be replicated for business and customer contacts
B.11	Personal contact	Email type			Enumeration	Personal, Work, Other	Element can be replicated for business and customer contacts
B.12	Personal contact	Email address			Text		Element can be replicated for business and customer contacts
B.13	Personal contact	Is email the preferred contact method?			Boolean		Element can be replicated for business and customer contacts
B.14	Personal contact	Other contact			Text		Element can be replicated for business and customer contacts
B.15	Mailing address	Address type			Enumeration	Street, Mailing	
B.16	Mailing address	Address 1			Text		
B.17	Mailing address	Address 2			Text		
B.18	Mailing address	City or municipality			Text		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.19	Mailing address	State			State code		2-letter state abbreviation. Entities designated can include a state, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Commonwealth of the North Mariana Islands, the United States Virgin Islands, or any other territory or possession of the United States.
B.20	Mailing address	Zip Code			Number		5-digit or 9-digit zip code may be entered.
B.21	Mailing address	USPS bar code			Number		
B.22	Business information	Business name			Text		Element can be replicated for contractor and subcontractor.
B.23	Business information	Business type			Enumeration	Contractor, Auditor, Subcontractor, Property manager	Element can be replicated for contractor and subcontractor.
B.24	Business information	Business specialization			Enumeration	Energy audit, HVAC, insulation, carpentry, plumbing, electrical, painting, other	Element can be replicated for contractor and subcontractor.
B.25	Business information	Certification			Enumeration	BPI, RESNET, Other	Element can be replicated for contractor and subcontractor.
B.26	Business information	Business contact			Enumeration	Owner, Auditor, Implementer, Other	Element can be replicated for contractor and subcontractor.
B.27	Business information	Auditor qualification			Enumeration	PE, CEM, BPI-BA, RESNET-Home Partner, RA, Other	Element can be replicated for contractor and subcontractor.
B.28	Business information	Implementer qualification			Enumeration	PE, CEM, BPI-BA, BPI-MFBA, RESNET-Home Partner, RA, Refrigerating system operating engineer, High pressure boiler operating engineer, HEP-EA, HEP-QCI, Other	Element can be replicated for contractor and subcontractor.
B.29	Business information	State where qualification held			State code		2-letter state abbreviation. Entities designated can include a state, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Commonwealth of the North Mariana Islands, the United States Virgin Islands, or any other territory or possession of the United States.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.30	Business information	Years of experience			Number		Element can be replicated for contractor and subcontractor.
B.31	Site information	Address type			Enumeration	Street, Mailing	
B.32	Site information	Address 1			Text		
B.33	Site information	Address 2			Text		
B.34	Site information	City or municipality			Text		
B.35	Site information	State			State code		2-letter state abbreviation. Entities designated can include a state, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Commonwealth of the North Mariana Islands, the United States Virgin Islands, or any other territory or possession of the United States.
B.36	Site information	Zip Code			Number		5-digit or 9-digit zip code may be entered.
B.37	Site information	USPS bar code			Number		
B.38	Site information	School district			Text		
B.39	Site information	eGRID region			Enumeration	Alaska, Eastern, ERCOT, Hawaii, Western	The U.S. EPA's Emissions & Generation Resource Integrated Database (eGRID) groups the 26 eGRID subregions into 5 regions. For each region, eGRID calculates a loss factor which represents the percent difference between electricity generation and imports and electricity consumption and exports. This is the percent of electricity within the region that is lost during transmission and distribution through power lines.
B.40	Site information	Site type			Enumeration	Rural, Suburban, Urban	Rural is defined as a place having fewer than 2,500 inhabitants; or a county or parish with an urban population of 20,000 inhabitants or less; or any place with a population not in excess of 20,000 inhabitants and not located in a Metropolitan Statistical Area (Rural Housing and Economic Development, www.HUD.gov)
B.41	Site information	Surroundings			Enumeration	Stand-alone, Attached on one side, Attached on two sides, Attached on three sides	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.42	Site information	Shielding of home			Enumeration	Well-shielded, Normal, Exposed	
B.43	Site information	Orientation of the front of home			Enumeration	North, Northwest, West, Southwest, South, Southeast, East, Northeast	
B.44	Site information	Azimuth of front of home			Number		
B.45	Site information	Distance from subway		Linear feet	Number		
B.46	Site information	Distance from bus		Linear feet	Number		
B.47	Site information	Distance from train		Linear feet	Number		
B.48	Site information	Walking score			Number		
B.49	Site information	Walking score source			Text		
B.50	Building occupancy	Household type			Enumeration	Family household, Married couple, no children, Male household, no spouse, Female household, no spouse, Nonfamily household, Single male, Single female, Other	
B.51	Building occupancy	Year occupied			Number		The year the current occupants moved into the building.
B.52	Building occupancy	Resident population type			Enumeration	No specific resident population, Student, Military, Senior, Special accessibility needs, Young children, At risk, Other	
B.53	Building occupancy	Occupancy			Enumeration	Owner-occupied, Renter-occupied, Owner-and-renter-occupied	
B.54	Building occupancy	Number of residents			Number		
B.55	Building occupancy	Number of adults			Number		Aged 18 or older
B.56	Building occupancy	Number of children			Number		
B.57	Building occupancy	Publicly subsidized			Boolean		Housing that receives or received public funding for construction or operations (this does not include Section 8 or similar vouchers received by individual tenants).
B.58	Building occupancy	Low Income			Boolean		Household at or below the federal poverty level (LIHEAP Clearinghouse, http://www.liheap.ncat.org/profiles/povertytables/FY2013/popstate.htm)
B.59	Building occupancy	Occupant income range			Fraction		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.60	Building occupancy	Percent AMI (area median income)			Fraction		
B.61	Building occupancy	Percent FPL (federal poverty level)			Fraction		
B.62	Building occupancy	Highest level of occupant education			Enumeration	No high school, Some high school, High school graduate, Some college, Vocational/technical/associates degree, Bachelor's degree, Some post graduate, Master's degree, Professional degree, Doctoral degree	
B.63	Building construction	Year built			Number		
B.64	Building construction	Year built known or estimated			Enumeration	Known, Estimated	
B.65	Building construction	Year of last remodel			Number		
B.66	Building construction	Residential facility type			Enumeration	Single-family detached, Single-family attached, Manufactured home, 2-4 unit building, 5+ unit building, Multi-family - uncategorized, Multi-family - town homes, Multi-family - condos, Apartment unit, Studio unit, Other, Unknown	
B.67	Building construction	Passive solar			Boolean		Passive solar design—also known as climatic design—involves using a building's windows, walls, and floors to collect, store, and distribute solar energy in the form of heat in the winter and reject solar heat in the summer. (http://www.eere.energy.gov/basics/buildings/passive_solar_design.html)
B.68	Building construction	Building height		Linear feet	Number		
B.69	Building construction	Number of units			Number		
B.70	Building construction	Number of floors			Number	Total number of floors including a basement, conditioned or unconditioned.	Number of surfaces of a building that are horizontal or near horizontal and form the bottom surface of a space (conditioned or unconditioned).

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.71	Building construction	Number of conditioned floors			Number		Number of floors that are heated or cooled, including the basement if heated or cooled (see conditioned floor area for definition).
B.72	Building construction	Number of conditioned floors above grade			Number		Number of floors above grade that are heated or cooled.
B.73	Building construction	Average ceiling height		Linear feet	Number		
B.74	Building construction	Floor-to-floor height		Linear feet	Number		Distance in feet between floors.
B.75	Building construction	Number of rooms			Number		
B.76	Building construction	Number of bedrooms			Number		
B.77	Building construction	Number of bathrooms			Number		
B.78	Building construction	Number of full or complete bathrooms			Number		
B.79	Building construction	Building footprint area		Square feet	Number		Building footprint is the area on a project site used by the building structure, defined by the perimeter of the building plan. Parking lots, parking garages, landscapes, and other nonbuilding facilities are not included in the building footprint (http://www.leeduser.com/glossary/term/4695).
B.80	Building construction	Footprint shape			Enumeration	Rectangular, Square, Circular, L-shaped, U-shaped, I-shaped, V-shaped, Other	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.81	Building construction	Gross floor area		Square feet	Number		Gross floor area is the sum of the floor areas of the spaces within the building, including basements, mezzanine and intermediate-floored tiers, and penthouses with the headroom height of 7.5 ft. (2.2 meters) or greater. Measurements must be taken from the exterior faces of exterior walls OR from the centerline of walls separating buildings, OR from the centerline of walls separating spaces. Excludes non-enclosed (or non-enclosable) roofed-over areas such as exterior covered walkways, porches, terraces or steps, roof overhangs, and similar features. Excludes air shafts, pipe trenches, and chimneys. Excludes floor area dedicated to the parking and circulation of motor vehicles (ASHRAE).
B.82	Building construction	Net floor area		Square feet	Number		Net occupiable floor area: the floor area of an occupiable space defined by the inside surfaces of its walls but excluding shafts, column enclosures, and other permanently enclosed, inaccessible, and unoccupiable areas. Obstructions in the space such as furnishings, display or storage racks, and other obstructions, whether temporary or permanent, may not be deducted from the space are considered to be part of the net occupiable area (ANSI/ASHRAE Standard 62.1-2007)
B.83	Building construction	Conditioned floor area		Square feet	Number		All finished space that is within the (insulated) conditioned space boundary (i.e., within the insulated envelope), regardless of HVAC configuration (RESNET Formal Interpretation 2010-02 http://www.resnet.us/standards/Floor_Area_Interpretation.pdf).

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.84	Building construction	Finished floor area		Square feet	Number		An enclosed area in a house that is suitable for year-round use, embodying walls, floors, and ceilings that are similar to the rest of the house (RESNET Formal Interpretation 2010-02 http://www.resnet.us/standards/Floor_Area_Interpretation.pdf).
B.85	Building construction	Number of stories above grade			Number		
B.86	Building construction	Cooled floor area		Square feet	Number		The total area of all enclosed spaces measured to the internal face of the external walls. Included are areas of sloping surfaces such as staircases, galleries, raked auditoria, and tiered terraces where the area taken is from the area on the plan. Excluded are areas that are not enclosed such as open floors, covered ways and balconies.
B.87	Building construction	Heated floor area		Square feet	Number		The total area of all enclosed spaces measured to the internal face of the external walls. Included are areas of sloping surfaces such as staircases, galleries, raked auditoria, and tiered terraces where the area taken is from the area on the plan. Excluded are areas that are not enclosed such as open floors, covered ways and balconies.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.88	Building construction	Unconditioned floor area		Square feet	Number		An enclosed space within a building that does not meet the requirements of a conditioned space. Spaces that have no control over thermal conditions but intentionally or unintentionally receive thermal energy from adjacent spaces are considered unconditioned spaces (such as an attached garage on a house or a vestibule with no thermal comfort criteria). Spaces that are ventilated only to maintain air quality are considered unconditioned spaces (such as a parking garage with no thermal comfort criteria) (Standard Definitions of Building Geometry for Energy Evaluation, http://www.nrel.gov/docs/fy06osti/38600.pdf) .
B.89	Building construction	Building volume		Cubic feet	Number		A volume of a building surrounded by solid surfaces such as walls, roofs, floors, fenestration, and doors where the total opening area to the outside can be reduced to less than 1% of the Gross Interior Floor Area of the space. Spaces that are temporarily enclosed, such as patios enclosed with tenting, are not considered Enclosed Spaces for annual building analysis. These spaces should be treated as exterior to the building (Standard Definitions of Building Geometry for Energy Evaluation, http://www.nrel.gov/docs/fy06osti/38600.pdf) .

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.90	Building construction	Conditioned building volume		Cubic feet	Number		Volume inside the building envelope of the conditioned spaces. This metric can be calculated as the volume of the building if every space is conditioned or on a floor-by-floor basis. For spaces with vertical walls and horizontal ceilings and floors, this is calculated as the Gross Conditioned Floor Area times the height from the top surface of the finished floor to the top surface of the finished floor separating levels of the building or to the inside surface of the roof for the top floor. The volume of spaces that have nonvertical walls or nonhorizontal ceilings of floors should be calculated separately to properly account for the non-rectangular geometry. This metric does include the volume of floor or ceiling return air plenums (Standard Definitions of Building Geometry for Energy Evaluation, http://www.nrel.gov/docs/fy06osti/38600.pdf) .
B.91	Building construction	Garage present			Boolean		
B.92	Building construction	Garage location			Enumeration	Basement, First floor, Detached	
B.93	Building construction	Space above garage			Enumeration	Conditioned area, Unconditioned attic, Crawlspace	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.94	Building construction	Energy score type			Enumeration	RESNET, U.S. DOE, Other	The Home Energy Rating System (HERS) index is a measure of a home's energy efficiency. It can also be used to inspect and calculate a home's energy performance. The lower a home's HERS Index Score, the greater its efficiency (RESNET). The Home Energy Score is an asset rating for homes, developed and administered by the U.S. Department of Energy. After conducting a brief walk thru of a home, a qualified assessor calculates a home's score on a 10 point scale using a standard scoring tool, with 10 reflecting homes that use the least amount of energy assuming standard operating conditions (US DOE).
B.95	Building construction	Energy score			Number		
B.96	Climate and risk zones	Climate zone DOE			Enumeration	Subarctic, Marine, Hot-dry, Mixed-dry, Hot-humid, Mixed-humid, Cold, Very cold	
B.97	Climate and risk zones	Climate zone IECC year			Enumeration	2012, 2009, 2006, 2003	
B.98	Climate and risk zones	Climate zone IECC			Enumeration	1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, 4C, 5A, 5B, 5C, 6A, 6B, 6C, 7, 8	
B.99	Climate and risk zones	Radon zone			Number		
B.100	Climate and risk zones	Termite zone			Enumeration	None to slight, Slight to moderate, Moderate to heavy, Very heavy	
B.101	Climate and risk zones	Hurricane zone			Boolean		
B.102	Climate and risk zones	Flood zone			Boolean		
B.103	Climate and risk zones	Earthquake zone			Boolean		
B.104	Building zone	Zone name			Text		
B.105	Building zone	Zone type			Enumeration	Conditioned, Unconditioned	
B.106	Building spaces	Space name			Text		
B.107	Building spaces	Number of bedrooms			Number		
B.108	Building spaces	Floor area		Square feet	Number		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.109	Building spaces	Volume		Cubic feet	Number		
B.110	Building spaces	Ceiling height		Linear feet	Number		
B.111	Air infiltration	Date			Date		
B.112	Air infiltration	Business conducting test			System identifier		
B.113	Air infiltration	Individual conducting test			System identifier		
B.114	Air infiltration	Outside temperature		Degrees Fahrenheit	Number		
B.115	Air infiltration	Wind conditions			Enumeration	Windy, Normal	
B.116	Air infiltration	Type of infiltration measurement			Enumeration	Blower door, Tracer gas, Estimate, Checklist	
B.117	Air infiltration	Type of blower door test			Enumeration	Pressurization, Depressurization	
B.118	Air infiltration	House pressure			Number		
B.119	Air infiltration	Fan pressure			Number		
B.120	Air infiltration	Fan ring used			Enumeration	Open, A, B	
B.121	Air infiltration	Building leakiness description			Enumeration	Very tight, Tight, Average, Leaky, Very leaky	
B.122	Air infiltration	Building air leakage unit			Enumeration	CFM, CFMnatural, ACH, ACHnatural	
B.123	Air infiltration	Building air leakage			Number		
B.124	Air infiltration	Effective leakage area		Square inches	Number		The Effective Leakage Area is defined as the area of a special nozzle-shaped hole (similar to the inlet of a blower door fan) that would leak the same amount of air as the building does at a pressure of 4 Pascals.
B.125	Air infiltration	Air sealing hours			Number		
B.126	Air infiltration	Attic air sealed			Enumeration	Attic floor, top plates, attic kneewall transitions, plumbing wet walls, chimney/flue chases, recessed lights, attic access, dropped soffit, attic level transitions, mechanical chases, other	
B.127	Air infiltration	Basement/crawlspace air sealed			Enumeration	Plumbing penetrations, access, wiring penetrations, chimney/flue chase, mechanical chases, rim joists, windows and doors, foundation service penetrations, cantilevers, other	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.128	Air infiltration	Living space air sealed			Enumeration	Home-garage connection, rim joists, baseboards, windows and doors, plumbing penetrations, HVAC registers, interior sheathing voids, cantilevers, other	
B.129	Roof	Roof color			Enumeration	Light, Medium, Dark, Reflective	
B.130	Roof	Roof type			Enumeration	Shingles, Slate or tile shingles, Wood shingles or shakes, Asphalt or fiberglass shingles, Metal surfacing, Expanded polystyrene sheathing, Plastic/rubber/synthetic sheeting, Concrete, Cool roof, Green roof, No one major type, Other	
B.131	Roof	Deck type			Enumeration	Concrete, Metal, Wood, Other	
B.132	Roof	Roof pitch			Fraction		
B.133	Roof	Roof area		Square feet	Number		
B.134	Roof	Radiant barrier			Boolean	Radiant barriers are installed in homes, usually in attics, to reduce summer heat gain and reduce cooling costs. The barriers consist of a highly reflective material that reflects radiant heat rather than absorbing it.	
B.135	Roof	Radiant barrier location			Enumeration	Top side of truss under sheathing, Below bottom cord of truss, Attic floor, Other	
B.136	Attic	Exterior adjacent to			Enumeration	Ambient, Garage, Attic, Crawlspace, Ground, Living space, Unconditioned basement, Other	
B.137	Attic	Interior adjacent to			Enumeration	Ambient, Garage, Attic, Crawlspace, Ground, Living space, Unconditioned basement, Other	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.138	Attic	Attic knee wall			Enumeration		
B.139	Attic	Attic type			Enumeration	Cape cod, Cathedral ceiling, Flat roof, Unvented attic, Vented attic, Venting unknown, Other	
B.140	Attic	Surface area		Square feet	Number		
B.141	Attic	Rafters	Stud size		Enumeration	2x2, 2x4, 2x6, 2x8, 2x10, 2x12, 2x14, 2x16, Other	
B.142	Attic	Rafters	Spacing	Inches	Number		
B.143	Attic	Rafters	Framing factor		Fraction		
B.144	Attic	Rafters	Stud material		Enumeration	Wood, Metal	
B.145	Attic floor insulation	Insulation grade			Number		For attic floor insulation that covers the rafters, two layers should be defined: 1) a cavity layer with thickness equal to the rafter height, and 2) a continuous layer above that.
B.146	Attic floor insulation	Insulation condition			Enumeration	Good, Fair, Poor	For attic floor insulation that covers the rafters, two layers should be defined: 1) a cavity layer with thickness equal to the rafter height, and 2) a continuous layer above that.
B.147	Attic floor insulation	Insulation location			Enumeration	Interior, Exterior	For attic floor insulation that covers the rafters, two layers should be defined: 1) a cavity layer with thickness equal to the rafter height, and 2) a continuous layer above that.
B.148	Attic floor insulation	Misaligned insulation			Boolean		For attic floor insulation that covers the rafters, two layers should be defined: 1) a cavity layer with thickness equal to the rafter height, and 2) a continuous layer above that.
B.149	Attic floor insulation layer	Insulation type			Enumeration	Cavity, Continuous	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.150	Attic floor insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.151	Attic floor insulation layer	Insulation nominal R-value			Number		
B.152	Attic floor insulation layer	Insulation thickness		Inches	Number		
B.153	Attic roof insulation	Insulation grade			Number		
B.154	Attic roof insulation	Insulation condition			Enumeration	Good, Fair, Poor	
B.155	Attic roof insulation	Insulation location			Enumeration	Interior, Exterior	
B.156	Attic roof insulation	Misaligned insulation			Boolean		
B.157	Attic roof insulation layer	Insulation type			Enumeration	Cavity, Continuous	
B.158	Attic roof insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.159	Attic roof insulation layer	Insulation nominal R-value			Number		
B.160	Attic roof insulation layer	Insulation thickness		Inches	Number		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.161	Foundation	Foundation type			Enumeration	Basement (Finished, Conditioned); Crawlspace (Vented or Conditioned); Slab on grade; Garage (Conditioned); Above apartment; Combination; Ambient; Rubble stone; Other)	
B.162	Foundation	Thermal boundary			Enumeration	Frame floor, Foundation wall	
B.163	Frame floor	Floor joists	Stud size		Enumeration	2x2, 2x4, 2x6, 2x8, 2x10, 2x12, 2x14, 2x16 Other	
B.164	Frame floor	Floor joists	Spacing	Inches	Number		
B.165	Frame floor	Floor joists	Framing factor		Fraction		
B.166	Frame floor	Floor joists	Stud material		Enumeration	Wood, metal	
B.167	Frame floor	Floor trusses	Stud size		Enumeration	2x2, 2x4, 2x6, 2x8, 2x10, 2x12, 2x14, 2x16 Other	
B.168	Frame floor	Floor trusses	Spacing	Inches	Number		
B.169	Frame floor	Floor trusses	Framing factor		Fraction		
B.170	Frame floor	Floor trusses	Stud material		Enumeration	Wood, metal	
B.171	Frame floor	Floor covering			Enumeration	Carpet, Tile, Hardwood, Vinyl	
B.172	Frame floor	Surface area		Square feet	Number		
B.173	Frame floor insulation	Insulation grade			Number		
B.174	Frame floor insulation	Insulation condition			Enumeration	Good, Fair, Poor	
B.175	Frame floor insulation	Insulation location			Enumeration	Interior, Exterior	
B.176	Frame floor insulation	Misaligned insulation			Boolean		
B.177	Frame floor insulation layer	Insulation type			Enumeration	Cavity, Continuous	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.178	Frame floor insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.179	Frame floor insulation layer	Insulation nominal R-value			Number		
B.180	Frame floor insulation layer	Insulation thickness		Inches	Number		
B.181	Foundation wall	Type			Enumeration	Solid concrete, Concrete block, Concrete block foam core, Concrete block vermiculite core, Double brick, Wood	
B.182	Foundation wall	Length		Linear feet	Number		
B.183	Foundation wall	Height		Linear feet	Number		
B.184	Foundation wall	Surface area		Square feet	Number		
B.185	Foundation wall	Thickness		Inches	Number		Thickness of the wall assembly
B.186	Foundation wall	Below grade depth		Linear feet	Number		
B.187	Foundation wall	Adjacent to foundation			Enumeration	Ambient, Garage, Attic, Crawlspace, Ground, Living space, Unconditioned basement, Other housing unit, Other	
B.188	Foundation wall	Interior studs	Stud size		Enumeration	2x2, 2x4, 2x6, 2x8, 2x10, 2x12, 2x14, 2x16, Other	
B.189	Foundation wall	Interior studs	Spacing	Inches	Number		
B.190	Foundation wall	Interior studs	Framing factor		Fraction		
B.191	Foundation wall	Interior studs	Stud material		Enumeration	Wood, metal	
B.192	Foundation wall insulation	Insulation grade			Number		
B.193	Foundation wall insulation	Insulation condition			Enumeration	Good, Fair, Poor	
B.194	Foundation wall insulation	Insulation location			Enumeration	Interior, Exterior	
B.195	Foundation wall insulation	Misaligned insulation			Boolean		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.196	Foundation wall insulation layer	Insulation type			Enumeration	Cavity, Continuous	
B.197	Foundation wall insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.198	Foundation wall insulation layer	Insulation nominal R-value			Number		
B.199	Foundation wall insulation layer	Insulation thickness		Inches	Number		
B.200	Slab	Area		Square feet	Number		
B.201	Slab	Perimeter		Linear feet	Number		
B.202	Slab	Exposed perimeter		Linear feet	Number		
B.203	Slab	Perimeter insulation depth		Linear feet	Number		
B.204	Slab	Under slab insulation width		Inches	Number		
B.205	Slab	On grade exposed perimeter		Linear feet	Number		
B.206	Slab	Depth below grade		Linear feet	Number		
B.207	Slab	Floor covering			Enumeration	Carpet, Tile, Hardwood, Vinyl	
B.208	Perimeter insulation	Insulation grade			Number		
B.209	Perimeter insulation	Insulation condition			Enumeration	Good, Fair, Poor	
B.210	Perimeter insulation	Insulation location			Enumeration	Interior, Exterior	
B.211	Perimeter insulation	Misaligned insulation			Boolean		
B.212	Perimeter insulation layer	Insulation type			Enumeration	Cavity, Continuous	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.213	Perimeter insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.214	Perimeter insulation layer	Insulation nominal R-value			Number		
B.215	Perimeter insulation layer	Insulation thickness		Inches	Number		
B.216	Under slab insulation	Insulation grade			Number		
B.217	Under slab insulation	Insulation condition			Enumeration	Good, Fair, Poor	
B.218	Under slab insulation	Insulation location			Enumeration	Interior, Exterior	
B.219	Under slab insulation	Misaligned insulation			Boolean		
B.220	Under slab insulation layer	Insulation type			Enumeration	Cavity, Continuous	
B.221	Under slab insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.222	Under slab insulation layer	Insulation nominal R-value			Number		
B.223	Under slab insulation layer	Insulation thickness		Inches	Number		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.224	Rim joists	Exterior Adjacent To			Enumeration	Ambient, Garage, Attic, Crawlspace, Ground, Living space, Unconditioned basement, Other housing unit, Other	
B.225	Rim joists	Interior Adjacent To			Enumeration	Ambient, Garage, Attic, Crawlspace, Ground, Living space, Unconditioned basement, Other housing unit, Other	
B.226	Rim joists	Surface area		Square feet	Number		
B.227	Rim joist insulation	Insulation grade			Number		
B.228	Rim joist insulation	Insulation condition			Enumeration	Good, Fair, Poor	
B.229	Rim joist insulation	Insulation location			Enumeration	Interior, Exterior	
B.230	Rim joist insulation	Misaligned insulation			Boolean		
B.231	Rim joist insulation layer	Insulation type			Enumeration	Cavity, Continuous	
B.232	Rim joist insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.233	Rim joist insulation layer	Insulation nominal R-value			Number		
B.234	Rim joist insulation layer	Insulation thickness		Inches	Number		
B.235	Floor joists	Size			Enumeration	2x2, 2x4, 2x6, 2x8, 2x10, 2x12, 2x14, 2x16, Other	
B.236	Floor joists	Spacing		Inches	Number		Spacing on center
B.237	Floor joists	Framing factor			Fraction		Percent of the total wall area occupied by framing members.
B.238	Floor joists	Stud material			Enumeration	Wood, metal	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.239	Walls	Exterior adjacent to			Enumeration	Ambient, Garage, Attic, Crawlspace, Ground, Living space, Unconditioned basement, Other housing unit, Other	
B.240	Walls	Interior adjacent to			Enumeration	Ambient, Garage, Attic, Crawlspace, Ground, Living space, Unconditioned basement, Other housing unit, Other	
B.241	Walls	Wall type			Enumeration	Wood stud (Expanded Polystyrene Sheathing or Optimum value engineering); Double wood stud (Staggered); Concrete masonry unit; Structurally insulated panel; Insulated concrete forms; Steel frame; Solid concrete; Structural brick; Straw bale; Stone, Log wall; Other	
B.242	Walls	Thickness		Inches	Number		Thickness of the wall assembly
B.243	Walls	Surface area		Square feet	Number		Gross wall area
B.244	Walls	Orientation			Enumeration	North, Northwest, West, Southwest, South, Southeast, East, Northeast	
B.245	Walls	Azimuth		Degrees	Number		Number between 0 and 360
B.246	Walls	Size of studs			Enumeration	2x2, 2x4, 2x6, 2x8, 2x10, 2x12, 2x14, 2x16,Other	
B.247	Walls	Spacing		Inches	Number		
B.248	Walls	Framing factor			Fraction		Percent of the total wall area occupied by framing members
B.249	Walls	Material			Enumeration	Wood, metal	
B.250	Walls	Siding			Enumeration	Wood siding, Stucco, Synthetic stucco, Vinyl siding, Aluminum siding, Brick veneer, Asbestos siding, Fiber cement siding, Composite shingle siding, Masonite siding, Other	Material, such as boards or shingles, used for surfacing the outside walls of a frame building
B.251	Walls	Wall color			Enumeration	Light, Medium, Dark, Reflective	
B.252	Wall insulation	Insulation grade			Number		
B.253	Wall insulation	Insulation condition			Enumeration	Good, Fair, Poor	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.254	Wall insulation	Insulation location			Enumeration	Interior, Exterior	
B.255	Wall insulation	Misaligned insulation			Boolean		
B.256	Wall insulation layer	Insulation type			Enumeration	Cavity, Continuous	
B.257	Wall insulation layer	Insulation material			Enumeration	Batt (Fiberglass, Rockwool, Recycled cotton, Loose fill, Unknown); Loose fill (Cellulose, Fiberglass, Rockwool, Vermiculite, Unknown); Rigid (Rigid Polyisocyanurate, XPS, Expanded Polystyrene, Unknown); Spray foam (Open Cell, Closed Cell, Unknown); Other (Describe); Unknown	
B.258	Wall insulation layer	Insulation nominal R-value			Number		
B.259	Wall insulation layer	Insulation thickness		Inches	Number		
B.260	Windows	Area		Square feet	Number		Total surface window area for this group of windows.
B.261	Windows	Quantity			Number		Number of windows in the group
B.262	Windows	Azimuth		Degrees	Number		
B.263	Windows	Orientation			Enumeration	North, Northwest, West, Southwest, South, Southeast, East, Northeast	
B.264	Windows	Frame type			Enumeration	Aluminum (Thermal break); Composite; Fiberglass; Metal; Vinyl; Wood; Other	
B.265	Windows	Glass layers			Enumeration	Single-pane, Double-pane, Triple-pane, Multi-layered (>3 layers), Single-paned with storms, Single-paned with low-e storms, Other	
B.266	Windows	Glass type			Enumeration	Low-e, Tinted, Reflective, Tinted/reflective, Other	
B.267	Windows	Gas fill			Enumeration	Air, Argon, Other	
B.268	Windows	Window treatments			Enumeration	Window film, Solar screen, Shading	
B.269	Windows	Window condition			Enumeration	Good, Moderate, Poor	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.270	Windows	U-factor			Number		Rate of heat loss indicated in terms of the U-factor (U-value) of a window assembly. The lower the U-factor, the greater a window's resistance to heat flow and the better its insulating properties.
B.271	Windows	Solar heat gain coefficient (SHGC)			Fraction		
B.272	Windows	NFRC-certified			Boolean		
B.273	Windows	Third party certification			Enumeration	ENERGY STAR, Other	Independent organization has verified that product or appliance meets or exceeds the standard in question (ENERGY STAR, CEE, or other)
B.274	Windows	Visible transmittance			Fraction		Optical property that indicates the amount of visible light transmitted.
B.275	Windows	Interior shading			Enumeration	Light blinds, Dark blinds, Light shades, Dark shades, Light curtains, Dark curtains, None	
B.276	Windows	Interior shading factor			Fraction		A measure of the ability of a window or skylight to transmit solar heat, relative to that ability for 3 mm (1/8-inch) clear, double-strength, single glass. Shading coefficient is being phased out in favor of the solar heat gain coefficient (SHGC), and is approximately equal to the SHGC multiplied by 1.15.
B.277	Windows	Exterior shading type			Enumeration	External overhangs, Awnings, Solar screens, Solar film, Deciduous tree, Evergreen tree, Building, Other, None	
B.278	Windows	Overhangs	Depth	Inches	Number		
B.279	Windows	Overhangs	Distance to top of window	Inches	Number		
B.280	Windows	Overhangs	Distance to bottom of window	Inches	Number		
B.281	Windows	Weather stripping			Boolean		
B.282	Windows	Operable			Boolean		
B.283	Windows	Window to wall ratio			Fraction		
B.284	Skylights	Area		Square feet	Number		
B.285	Skylights	Quantity			Number		
B.286	Skylights	Azimuth		Degrees	Number		Number between 0 and 360.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.287	Skylights	Orientation			Enumeration	North, Northwest, West, Southwest, South, Southeast, East, Northeast	
B.288	Skylights	Frame type			Enumeration	Aluminum (Thermal break); Composite; Fiberglass; Metal; Vinyl; Wood; Other	
B.289	Skylights	Glass layers			Enumeration	Single-pane, Double-pane, Triple-pane, Multi-layered, Single-paned with storms, Single-paned with low-e storms, Other	
B.290	Skylights	Glass type			Enumeration	Low-e, Tinted, Reflective, Tinted/reflective, Other	
B.291	Skylights	Gas fill			Enumeration	Air, Argon, Other	
B.292	Skylights	Window treatments			Enumeration	Window film, Solar screen, Shading	
B.293	Skylights	Window condition			Enumeration	Good, Moderate, Poor	
B.294	Skylights	U-factor			Number		
B.295	Skylights	Solar heat gain coefficient (SHGC)			Fraction		Fraction of incident solar radiation admitted through a window, both directly transmitted and absorbed and subsequently released inward.
B.296	Skylights	NFRC-certified			Boolean		
B.297	Skylights	Third party certification			Enumeration	ENERGY STAR, Other	Independent organization has verified that product or appliance meets or exceeds the standard in question (ENERGY STAR, CEE, or other)
B.298	Skylights	Visible transmittance			Fraction		
B.299	Skylights	Interior shading			Enumeration	Light blinds, Dark blinds, Light shades, Dark shades, Light curtains, Dark curtains, None	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.300	Skylights	Interior shading factor			Fraction	A measure of the ability of a window or skylight to transmit solar heat, relative to that ability for 3 mm (1/8-inch) clear, double-strength, single glass. Shading coefficient is being phased out in favor of the solar heat gain coefficient (SHGC), and is approximately equal to the SHGC multiplied by 1.15.	
B.301	Skylights	Exterior shading type			Enumeration	External overhangs, Awnings, Solar screens, Solar film, Deciduous tree, Evergreen tree, Building, Other, None	
B.302	Skylights	Overhangs	Depth	Inches	Number		
B.303	Skylights	Overhangs	Distance to top of window	Inches	Number		Vertical distance from overhang to top of window.
B.304	Skylights	Overhangs	Distance to bottom of window	Inches	Number		Vertical distance from overhang to bottom of window.
B.305	Skylights	Weather stripping			Boolean		
B.306	Skylights	Operable			Boolean		
B.307	Skylights	Solar tube			Boolean		
B.308	Skylights	Pitch			Fraction		
B.309	Doors	Number of doors			Number		
B.310	Doors	Surface area		Square feet	Number		
B.311	Doors	Azimuth		Degrees	Number		
B.312	Doors	Orientation			Enumeration	North, Northwest, West, Southwest, South, Southeast, East, Northeast	
B.313	Doors	Door type			Enumeration	Interior, Exterior, Storm	
B.314	Doors	Door material			Enumeration	Solid wood, Hollow wood, Non-insulated metal, Insulated metal, Glass. Other	
B.315	Doors	Weather Stripping			Boolean		
B.316	Doors	Storm door			Boolean		
B.317	Doors	R-Value			Number		
B.318	Doors	Third party certification			Enumeration	ENERGY STAR, Other	Independent organization has verified that product or appliance meets or exceeds the standard in question (ENERGY STAR, CEE, or other)

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.319	HVAC system information	Primary heating system identifier			System identifier		
B.320	HVAC system information	Primary cooling system identifier			System identifier		
B.321	HVAC system information	Unit location			Enumeration	Conditioned attic, Unconditioned attic, Conditioned basement, Unconditioned basement, Conditioned space, Vented crawlspace, Unvented crawlspace, Conditioned garage, Unconditioned garage, Mechanical closet, Other interior, Other exterior, Roof deck	This element is repeated for heating, cooling, and heat pump systems.
B.322	HVAC system information	Year installed		Year	Number		This element is repeated for heating, cooling, and heat pump systems.
B.323	HVAC system information	Model year		Year	Number		This element is repeated for heating, cooling, and heat pump systems.
B.324	HVAC system information	Manufacturer			Text		This element is repeated for heating, cooling, and heat pump systems.
B.325	HVAC system information	Model number			Text		This element is repeated for heating, cooling, and heat pump systems.
B.326	HVAC system information	Serial number			Text		This element is repeated for heating, cooling, and heat pump systems.
B.327	HVAC system information	AHRI number			Text		This element is repeated for heating, cooling, and heat pump systems.
B.328	HVAC system information	Performance adjustment			Fraction		This element is repeated for heating, cooling, and heat pump systems.
B.329	HVAC system information	Third party certification			Enumeration	ENERGY STAR, CEE Tier 1, CEE Tier 2, CEE Tier 3, Other	This element is repeated for heating, cooling, and heat pump systems.
B.330	HVAC system information	Has shared combustion ventilation			Boolean		This element is repeated for heating, cooling, and heat pump systems.
B.331	HVAC system information	HVAC installation standard			Enumeration	ACCA 5 QI HVAC, Other	This element is repeated for heating, cooling, and heat pump systems.
B.332	HVAC system information	Calculation used to size new/replacement system			Enumeration	Manual J, Manual J and Manual D, Other	This element is repeated for heating, cooling, and heat pump systems.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.333	HVAC system information	Air sealing and insulation implemented prior to replacement and used in calculations for sizing new/replacement system			Boolean		This element is repeated for heating, cooling, and heat pump systems.
B.334	HVAC system information	Tune and repair			Boolean		This element is repeated for heating, cooling, and heat pump systems.
B.335	HVAC system information	Number of coils replaced			Number		This element is repeated for heating, cooling, and heat pump systems.
B.336	HVAC system information	Number of air handlers replaced			Number		This element is repeated for heating, cooling, and heat pump systems.
B.337	Heating system	Heating system type	Furnace		Enumeration	Sealed combustion, Condensing system, Atmospheric burner, Power burner	
B.338	Heating system	Heating system type	Wall furnace		Enumeration	Sealed combustion, Atmospheric burner, Power burner	
B.339	Heating system	Heating system type	Boiler		Enumeration	Hot water, Steam, Sealed combustion, Condensing system, Atmospheric burner, Power burner, Rotary cup	
B.340	Heating system	Heating system type	Electric distribution		Enumeration	Baseboard, Radiant floor, Radiant ceiling	
B.341	Heating system	Heating system type	Fireplace		Boolean		
B.342	Heating system	Heating system type	Stove		Boolean		
B.343	Heating system	Heating system type	Portable heater		Boolean		
B.344	Heating system	Heating system type	Solar thermal		System identifier		
B.345	Heating system	Heating system type	District steam heating		Enumeration	1-pipe, 2-pipe, Other	
B.346	Heating system	Heating system type	Other		Text		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.347	Heating system	Fuel Type			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.348	Heating system	Heating capacity		Btuh	Number		Input heating capacity
B.349	Heating system	Annual heating efficiency units			Enumeration	HSPF, COP, AFUE, Percent	
B.350	Heating system	Annual heating efficiency value			Number		
B.351	Heating system	Fraction of heating load served			Fraction		
B.352	Heating system	Floor area served		Square feet	Number		
B.353	Cooling system	Cooling system type			Enumeration	Central air conditioning, Mini-split, Room air conditioner, Evaporative cooler, Other	
B.354	Cooling system	Fuel			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.355	Cooling system	Capacity		Btuh	Number		
B.356	Cooling system	Fraction of cooling load served			Fraction		
B.357	Cooling system	Floor area served		Square feet	Number		
B.358	Cooling system	Annual cooling efficiency units			Enumeration	SEER, EER, COP, kW/ton	
B.359	Cooling system	Annual cooling efficiency value			Number		
B.360	Cooling system	Sensible heat fraction			Fraction		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.361	Heat pump	Heat pump type			Enumeration	Water-to-air, Water-to-water, Air-to-air, Mini-split, Ground-to-air	
B.362	Heat pump	Heating capacity		Btuh	Number		Input heating capacity
B.363	Heat pump	Heating capacity 17F		Btuh	Number		
B.364	Heat pump	Cooling capacity		Btuh	Number		
B.365	Heat pump	Cooling sensible heat fraction			Fraction		
B.366	Heat pump	Geothermal loop			Enumeration	Open, Closed	
B.367	Heat pump	Backup system fuel			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.368	Heat pump	Backup AFUE			Number		
B.369	Heat pump	Backup heating capacity		Btuh	Number		
B.370	Heat pump	Backup heating switchover temperature		Degrees Fahrenheit	Number		
B.371	Heat pump	Fraction heat load served			Fraction		
B.372	Heat pump	Fraction cool load served			Fraction		
B.373	Heat pump	Floor area served		Square feet	Number		
B.374	Heat pump	Annual cooling efficiency units			Enumeration	SEER, EER, COP, kW/ton	
B.375	Heat pump	Annual cooling efficiency value			Number		
B.376	Heat pump	Annual heating efficiency units			Enumeration	HSPF, COP, AFUE, Percent	
B.377	Heat pump	Annual heating efficiency value			Number		
B.378	Controls	Control type			Enumeration	Programmable thermostat, Manual thermostat, Digital thermostat, Timer, EMCS, Other	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.379	Controls	Setpoint temperature heating season		Degrees Fahrenheit	Number	Actual setting used in the space when heating is required.	
B.380	Controls	Setback temperature heating season		Degrees Fahrenheit	Number	Temperature used at night, weekends and other holidays during the heating season.	
B.381	Controls	Total setback hours per week during heating season		Hours	Number		
B.382	Controls	Setup temperature cooling season		Degrees Fahrenheit	Number	Temperature used at night, weekends, and other holidays during the heating season.	
B.383	Controls	Setpoint temperature cooling season		Degrees Fahrenheit	Number	Actual setting used in the space when cooling is required.	
B.384	Controls	Total setup hours per week during cooling season		Hours	Number		
B.385	Controls	Hot water reset control			Enumeration	Seasonal, Other	
B.386	Controls	Heat lowered	Day		Boolean		
B.387	Controls	Heat lowered	Night		Boolean		
B.388	Controls	AC adjusted	Day		Boolean		
B.389	Controls	AC adjusted	Night		Boolean		
B.390	Controls	Percent of rooms controlled by thermostatic radiator valves			Fraction		
B.391	Controls	Percent of rooms controlled by electronic zone valves with thermostats			Fraction		
B.392	Distribution system	Air distribution	Air distribution type		Enumeration	Regular velocity, High velocity, Gravity	
B.393	Distribution system	Air distribution	Air handler motor type		Enumeration	PSC single speed, PSC multi speed, ECM	
B.394	Distribution system	Air distribution	Leakiness observed through visual inspection		Enumeration	Connections sealed with mastic, No observable leaks, Some observable leaks, Significant leaks, Catastrophic leaks	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.395	Distribution system	Air distribution	Duct leakage test method		Enumeration	Duct leakage tester, Blower door subtract, Pressure pan, Visual inspection	
B.396	Distribution system	Air distribution	Duct leakage test unit of measurement		Enumeration	CFM, CFM per Standard 152	
B.397	Distribution system	Air distribution	Measured duct leakage	CFM	Number		
B.398	Distribution system	Air distribution	Effective leakage area	Square inches	Number		The Leakage Area is defined in TECBLAST as the size of a sharp edged orifice which would leak at the same flow rate as the measured leakage, if the orifice were subjected to the Test Pressure. Leakage Area [sq in] = Duct System Leakage Rate [CFM] / (1.06 * (Test Pressure [Pa]) ^ 0.5)
B.399	Distribution system	Air distribution	Duct system sizing appropriate		Boolean		
B.400	Distribution system	Air distribution	Duct type		Enumeration	Supply, Return	
B.401	Distribution system	Air distribution	Duct material		Enumeration	Duct board, Sheet metal, Galvanized, Flexible, Fiberboard, Other	
B.402	Distribution system	Air distribution	Duct insulation R value		Number		
B.403	Distribution system	Air distribution	Duct insulation thickness	Inches	Number		
B.404	Distribution system	Air distribution	Duct Insulation condition		Enumeration	Good, Fair, Poor	
B.405	Distribution system	Air distribution	Duct location		Enumeration	Conditioned space, Unconditioned space, Unconditioned basement, Unvented crawlspace, Vented crawlspace, Unconditioned attic, Interstitial space, Garage, Outside	
B.406	Distribution system	Air distribution	Fraction duct area		Fraction		If a DuctType of supply or return is specified above, this is the fraction of the supply or return duct area. If DuctType is omitted above, this is the fraction of the total duct area.
B.407	Distribution system	Air distribution	Duct surface area	Square feet	Number		
B.408	Distribution system	Air distribution	Number of return registers		Number		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.409	Distribution system	Hydronic distribution	Percent of hydronic pipe insulated		Fraction		
B.410	Distribution system	Hydronic distribution	Hydronic distribution type		Enumeration	Radiator, Baseboard, Radiant floor, Radiant ceiling, Other	
B.411	Distribution system	Hydronic distribution	System pump and zone valve corrections made		Boolean		
B.412	Distribution system	Hydronic distribution	Thermostatic radiator valves		Boolean		
B.413	Distribution system	Hydronic distribution	Variable speed pump		Boolean		
B.414	Distribution system	Other distribution type			Text		
B.415	Distribution system	Conditioned floor area served		Square feet	Number		Conditioned floor area that this distribution system serves.
B.416	Distribution system	HVAC distribution improvements	Duct system sealed		Boolean		
B.417	Distribution system	HVAC distribution improvements	Duct outside envelope insulated as part of retrofit		Boolean		
B.418	Distribution system	HVAC distribution improvements	Duct system replaced		Boolean		
B.419	Distribution system	HVAC distribution improvements	System pump and zone valve corrections made		Boolean		
B.420	HVAC maintenance	Schedule			Enumeration	None, Yes (Unspecified, As needed, Daily, Weekly, Bi-weekly, Monthly, Semi-quarterly, Quarterly, Semi-annually, Annually)	
B.421	HVAC maintenance	AC replaced in last 10 years			Boolean		
B.422	Mechanical ventilation	Ventilation fan	Manufacturer		Text		
B.423	Mechanical ventilation	Ventilation fan	Serial Number		Text		
B.424	Mechanical ventilation	Ventilation fan	Fan type		Enumeration	Exhaust only, Supply only, Heat recovery ventilator, Energy recovery ventilator	
B.425	Mechanical ventilation	Ventilation fan	Rated flow rate	CFM	Number		
B.426	Mechanical ventilation	Ventilation fan	Calculated flow rate	CFM	Number		Using a prescriptive approach to calculate duct size.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.427	Mechanical ventilation	Ventilation fan	Tested flow rate	CFM	Number		
B.428	Mechanical ventilation	Ventilation fan	Hours in operation	Hours	Number		
B.429	Mechanical ventilation	Ventilation fan	Delivered ventilation	CFM	Number		
B.430	Mechanical ventilation	Ventilation fan	Fan control properly labeled		Enumeration	True, False, N/A	
B.431	Mechanical ventilation	Ventilation fan	Fan properly vented		Enumeration	True, False, N/A	Considers duct length, duct size, excessive duct turns, ducts vent to outdoors, and/or duct connections are well sealed and durable.
B.432	Mechanical ventilation	Ventilation fan	Fan location		Enumeration	Bath, Kitchen, Hallway, Garage, Other	
B.433	Mechanical ventilation	Ventilation fan	Used for local ventilation		Boolean		
B.434	Mechanical ventilation	Ventilation fan	Used for whole building ventilation		Boolean		
B.435	Mechanical ventilation	Ventilation fan	Used for garage ventilation		Boolean		
B.436	Mechanical ventilation	Ventilation fan	Rated noise	Sones	Number		From manufacturer's information
B.437	Mechanical ventilation	Ventilation fan	Tested noise	Sones	Number		As tested in the field
B.438	Mechanical ventilation	Ventilation fan	Total recovery efficiency		Fraction		The net total energy (sensible plus latent, also called enthalpy) recovered by the supply airstream adjusted by electric consumption, case heat loss or heat gain, air leakage and airflow mass imbalance between the two airstreams, as a percent of the potential total energy that could be recovered plus the exhaust fan energy. Values for some products can be found at the Home Ventilating Institute (hvi.org).

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.439	Mechanical ventilation	Ventilation fan	Sensible recovery efficiency		Fraction		The net sensible energy recovered by the supply airstream as adjusted by electric consumption, case heat loss or heat gain, air leakage, airflow mass imbalance between the two airstreams and the energy used for defrost (when running the Very Low Temperature Test), as a percent of the potential sensible energy that could be recovered plus the exhaust fan energy. Values for some products can be found at the Home Ventilating Institute (hvi.org).
B.440	Mechanical ventilation	Ventilation fan	Fan power	Watts	Number		
B.441	Combustion ventilation	Venting system type			Enumeration	Atmospheric, Induced draft, Power vented (at unit), Power vented (at exterior), Direct vented, Sealed combustion	
B.442	Water heating	Fuel type			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.443	Water heating	Water heater type			Enumeration	Storage water heater, Dedicated boiler w storage tank, Instantaneous water heater, Heat pump water heater, Space-heating boiler with storage tank, Space-heating boiler with tankless coil	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.444	Water heating	Location			Enumeration	Conditioned attic, Unconditioned attic, Conditioned basement, Unconditioned basement, Conditioned space, Vented crawlspace, Unvented crawlspace, Conditioned garage, Unconditioned garage, Mechanical closet, Other interior, Other exterior, Roof deck	
B.445	Water heating	Year installed			Number		
B.446	Water heating	Model year			Number		
B.447	Water heating	Manufacturer			Text		
B.448	Water heating	Model number			Text		
B.449	Water heating	AHRI Number			Number		
B.450	Water heating	Serial number			Text		
B.451	Water heating	Third party certification			Enumeration	ENERGY STAR, CEE Tier 1, CEE Tier 2, CEE Tier 3, Other	Independent organization has verified that product or appliance meets or exceeds the standard in question (ENERGY STAR, CEE, or other)
B.452	Water heating	Tank volume		Gallons	Number		
B.453	Water heating	Fraction DHW load served			Fraction		
B.454	Water heating	Heating capacity		Btuh	Number		Input heating capacity
B.455	Water heating	Energy factor			Fraction		The amount of energy delivered as heated water in a day divided by the total daily energy consumption of a residential water heater, as determined following standardized DOE testing procedure.
B.456	Water heating	Recovery efficiency			Fraction		The ratio of energy delivered to heat cold water compared to the energy consumed by the water heater, as determined following standardized DOE testing procedure.
B.457	Water heating	Thermal efficiency		Btu/(ft2day) rating	Number		Ratio of square feet required for collector to heat water.
B.458	Water heating	Water heater insulation	Jacket R value		Number		
B.459	Water heating	Water heater insulation	Pipe R value		Number		
B.460	Water heating	Water heater insulation	Length of insulated pipe	Linear feet	Number		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.461	Water heating	Water heater insulation	Fraction of total pipe insulated		Fraction		
B.462	Water heating	Meets ACCA 5 QI HVAC specification			Boolean		
B.463	Water heating	Hot water temperature		Degrees Fahrenheit	Number		
B.464	Water heating	Has shared combustion ventilation			Boolean		
B.465	Water heating	Combustion ventilation system orphaned			Boolean		
B.466	Water heating	Installation standard			Enumeration	ACCA 5 QI HVAC, Other	
B.467	Water heating	Water heater improvement	Jacket installed indicator		Boolean		
B.468	Water heating	Water heater improvement	Existing system disposed		Boolean		
B.469	Water heating	Water heater improvement	Description of repairs		Text		
B.470	Water heating	Water heater improvement	Pipe insulated		Boolean		
B.471	Water heating	Water heater improvement	Length of insulated pipe	Linear feet	Number		
B.472	Water heating	Water heater improvement	System replaced		Boolean		
B.473	Solar thermal system	Manufacturer			Text		
B.474	Solar thermal system	Model number			Text		
B.475	Solar thermal system	System type			Enumeration	Hot water, Hot water and space heating, Space heating, Hybrid system	
B.476	Solar thermal system	Collector area		Square feet	Number		
B.477	Solar thermal system	Collector loop type			Enumeration	Air direct, Air indirect, Liquid direct, Liquid indirect, Passive thermosyphon	
B.478	Solar thermal system	Collector type			Enumeration	Single glazing black, Single glazing selective, Double glazing black, Double glazing selective, Evacuated tube, Integrated collector storage	
B.479	Solar thermal system	Collector orientation			Enumeration	North, Northwest, West, Southwest, South, Southeast, East, Northeast	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.480	Solar thermal system	Collector azimuth		Degrees	Number		
B.481	Solar thermal system	Collector tilt		Degrees	Number		
B.482	Solar thermal system	Storage volume		Gallons	Number		
B.483	Photovoltaic system	Location			Enumeration	Roof, Ground, Other	
B.484	Photovoltaic system	Ownership			Enumeration	Leased, owned	
B.485	Photovoltaic system	Array orientation			Enumeration	North, Northwest, West, Southwest, South, Southeast, East, Northeast	
B.486	Photovoltaic system	Array azimuth		Degrees	Number		
B.487	Photovoltaic system	Array tilt		Degrees	Number		
B.488	Photovoltaic system	Maximum power output		DC Watts	Number		Peak power as supplied by the manufacturer
B.489	Photovoltaic system	Collector area		Square feet	Number		
B.490	Photovoltaic system	Inverter efficiency			Text		Percentage of power that is converted to usable AC efficiency.
B.491	Photovoltaic system	Year inverter manufactured			Number		
B.492	Photovoltaic system	Year modules manufactured			Number		
B.493	Appliance type summary information	Number of units			Number		
B.494	Appliance type summary information	Manufacturer			Text		
B.495	Appliance type summary information	Model number			Text		
B.496	Appliance type summary information	AHRI number			Text		
B.497	Appliance type summary information	Serial number			Text		
B.498	Appliance type summary information	Model year		Year	Number		
B.499	Appliance type summary information	Third party certification			Enumeration	ENERGY STAR, ENERGY STAR Most Efficient, CEE Tier 1, CEE Tier 2, CEE Tier 3	Independent organization has verified that product or appliance meets or exceeds the standard in question (ENERGY STAR, CEE, or other)
B.500	Appliances	Clothes washer	Type		Enumeration	Top loader, Front loader, All-in-one combination washer/dryer, Unitized/stacked washer-dryer pair	
B.501	Appliances	Clothes washer	Location		Enumeration	Laundry room, Living space, Basement, Other	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.502	Appliances	Clothes washer	Modified energy factor		Number		Considers the amount of dryer energy used to remove the remaining moisture content in washed items, in addition to the machine energy and water heating energy of the washer. Modified energy factor (MEF) is the energy performance metric for ENERGY STAR qualified clothes washers. The higher the MEF, the more efficient the clothes washer.
B.503	Appliances	Clothes washer	Water factor		Number		Number of gallons per cycle per cubic foot that the clothes washer uses.
B.504	Appliances	Clothes washer	Usage	Loads/week	Number		
B.505	Appliances	Clothes dryer	Type		Enumeration	Dryer, All-in-one combination washer/dryer, Unitized/stacked washer-dryer pair	
B.506	Appliances	Clothes dryer	Location		Enumeration	Laundry room, Living space, Basement, Other	
B.507	Appliances	Clothes dryer	Fuel		Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.508	Appliances	Clothes dryer	Usage	Loads/week	Number		
B.509	Appliances	Dishwasher	Type		Enumeration	Uncategorized, Built-in under counter, Portable, Counter-top, Single tank, Conveyor	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.510	Appliances	Dishwasher	Fuel		Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.511	Appliances	Dishwasher	Heat dry default off		Boolean		
B.512	Appliances	Dishwasher	Auxiliary water heater default off		Boolean		
B.513	Appliances	Dishwasher	Rated annual kWh	kWh	Number		
B.514	Appliances	Dishwasher	Energy factor		Number		
B.515	Appliances	Dishwasher	Rated water gallons per cycle	Gallons	Number		
B.516	Appliances	Dishwasher	Usage	Loads/week	Number		
B.517	Appliances	Refrigerator	Type		Enumeration	Side-by-side, Top freezer, Bottom freezer, Single door, Full-size one door, Full-size two doors, Half or quarter size, Walk-in, Open case, Closed case, Uncategorized	
B.518	Appliances	Refrigerator	Location		Enumeration	Kitchen, Living space, Basement, Garage, Other	
B.519	Appliances	Refrigerator	Rated annual kWh	kWh	Number		
B.520	Appliances	Refrigerator	Primary refrigerator		Boolean		True if it is the primary refrigerator
B.521	Appliances	Refrigerator	Volume	Cubic feet	Number		
B.522	Appliances	Refrigerator	Fresh volume	Cubic feet	Number		Volume of refrigerator for keeping food at less than freezing.
B.523	Appliances	Refrigerator	Frozen volume	Cubic feet	Number		Freezer volume
B.524	Appliances	Freezer	Location		Enumeration	Kitchen, Living space, Basement, Garage, Other	
B.525	Appliances	Freezer	Rated annual kWh	kWh	Number		
B.526	Appliances	Freezer	Configuration		Enumeration	Uncategorized, Manual defrost, Frost free, Walk-in, Case	
B.527	Appliances	Freezer	Volume	Cubic feet	Number		
B.528	Appliances	Dehumidifier	Location		Enumeration	Living space, Basement, Other	
B.529	Appliances	Dehumidifier	Efficiency	Liters/kWh	Number		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.530	Appliances	Cooking range	Fuel type		Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.531	Appliances	Oven type	Fuel type		Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.532	Lighting group	Location			Enumeration	Interior, Exterior, Common Area	
B.533	Lighting group	Number of units			Number		
B.534	Lighting group	Lighting Type			Enumeration	Incandescent (Halogen); Fluorescent tube; Compact Fluorescent; Light emitting diode; High intensity discharge (Mercury vapor, Sodium, Sodium - high pressure, Sodium - low pressure, Metal halide, Other - describe); Other (describe)	
B.535	Lighting group	Fluorescent tube	Tube type		Enumeration	T5, T8, Super T8, T12	
B.536	Lighting group	Fluorescent tube	Ballast type		Enumeration	Electronic, Magnetic, Instant start, Rapid start, Programmed start	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.537	Lighting group	Average lumens			Number		Lumens is a measure of light output (brightness) as opposed to watts, which measures energy consumption. The EPA and DOE encourages people to determine the amount of light they need (or brightness) first before purchasing a light bulb. Once brightness is determined, you can look for the bulb with the lowest watts.
B.538	Lighting group	Average wattage			Number		Wattage per lamp (i.e., 60W bulb)
B.539	Lighting group	Third party certification			Enumeration	ENERGY STAR, Other	Independent organization has verified that product or appliance meets or exceeds the standard in question (ENERGY STAR, CEE, or other)
B.540	Lighting group	Average hours per day			Number		
B.541	Lighting group	Lighting daily hours			Enumeration	1 to 4 hours per day, 4 to 12 hours per day, More than 12 hours per day, All day	
B.542	Lighting group	Total floor area served		Square feet	Number		
B.543	Lighting control	Lighting control type			Enumeration	Daylight dimming, Occupancy sensors, Vacancy sensors, Manual dimming, Bi-level control, Timers, Manual, Advanced controls, Part of emcs	Bi-level controls are bi-level fixtures that operate at different levels of light output to meet the lighting need and are triggered by passive infrared (PIR) sensors, ultrasonic sensors, and photo-sensors.
B.544	Lighting control	Number of lighting controls installed			Number		
B.545	Lighting control	Location			Enumeration	Interior, Exterior, Common Area	
B.546	Lighting fractions	Incandescent			Fraction		Fraction of lights that are incandescent.
B.547	Lighting fractions	Compact fluorescent light (CFL)			Fraction		Fraction of lights that are CFLs.
B.548	Lighting fractions	Linear fluorescent light (LFL)			Fraction		Fraction of lights that are linear fluorescent.
B.549	Lighting fractions	Light-emitting diode (LED)			Fraction		Fraction of lights that are LED.
B.550	Ceiling fan	Airflow	Fan speed		Enumeration	Low, Medium, High	
B.551	Ceiling fan	Airflow	Airflow	CFM	Number		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.552	Ceiling fan	Airflow	Efficiency	CFM/watt	Number		The efficiency rating of a ceiling fan as determined by the test procedure defined by the Environmental Protection Agency's ENERGY STAR Testing Facility Guidance Manual: Building a Testing Facility and Performing the Solid State Test Method for ENERGY STAR Qualified Ceiling Fans, Version 1.1, December 9, 2002. This is generally printed on the box in which the ceiling fan is shipped.
B.553	Ceiling fan	Third party certification			Enumeration	ENERGY STAR, ENERGY STAR Most Efficient, CEE Tier 1, CEE Tier 2, CEE Tier 3	Independent organization has verified that product or appliance meets or exceeds the standard in question (ENERGY STAR, CEE, or other)
B.554	Miscellaneous Loads	Plug load control	Count		Number		
B.555	Miscellaneous Loads	Plug load control	Plug load control type		Enumeration	Advanced power strip for AV, Advanced power strip for IT, Whole-house energy management system, Other	
B.556	Miscellaneous Loads	Plug load	Plug load type		Enumeration	TV plasma, TV CRT, TV other, Computer, Space heater, Water bed, Aquarium, Electric vehicle charging, Other	
B.557	Miscellaneous Loads	Plug load	Count		Number		
B.558	Miscellaneous Loads	Plug load	Units		Enumeration	kWh/year, W	
B.559	Miscellaneous Loads	Plug load	Value		Number		
B.560	Modeled usage	Fuel type			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.561	Modeled usage	Unit of measure			Enumeration	cmh (cubic meters per hour), ccf (hundred cubic feet), kcf (thousand cubic feet), MCF (million cubic feet), cfh (cubic feet per hour), kWh (thousand Watt-hours), MWh (million Watt-hours), Btu, kBtu (thousand Btu), MBtu (million Btu), therms, Lbs. (pounds), KLbs. (thousand pounds), MLbs. (million pounds), Tonnes, Cords (Full Cord), Gal, KGal (thousand gallons), ton hour	
B.562	Modeled usage	Annual consumption			Number		Energy (kWh) consumed per year.
B.563	Modeled usage	Annual fuel cost			Number		
B.564	Modeled usage	Consumption by end use	End use type		Enumeration	Heating, Cooling, Hot water, Appliance, Lighting, PV, Solar thermal, Other	
B.565	Modeled usage	Consumption by end use	End use value		Number		Energy use will be negative for energy producing end uses such as PV and Solar Thermal.
B.566	Modeled usage	Baseload			Number		Baseload power is the energy consumed for the day-to-day operation of a home that is not used as a response to outside weather (i.e. excludes heating and cooling) (Krigger and Dorsi, 2009).
B.567	Health and safety	Tests completed			Boolean		
B.568	Health and safety	Tests passed			Boolean		
B.569	Whole building ventilation design	Requirement method			Enumeration	ASHRAE 62.2-1989, ASHRAE 62.2-2007, ASHRAE 62.2-2010, ASHRAE 62.2-2013	
B.570	Whole building ventilation design	Infiltration credit applied			Boolean	True, False, NA	ASHRAE 62.2-2010 has an infiltration credit. ASHRAE 62-89 and 62.2-2013 do not have infiltration credits.
B.571	Whole building ventilation design	Local weather factor			Number		
B.572	Whole building ventilation design	N-Factor			Number		
B.573	Whole building ventilation design	Infiltration credit CFM-natural			Number		The number of the calculated infiltration credit.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.574	Whole building ventilation design	Required ventilation rate			Number		This is the net amount of continuous ventilation needed AFTER infiltration credit is applied (if any)
B.575	Whole building ventilation design	Required ventilation rate units			Enumeration	ACH, CFMnat	
B.576	Whole building ventilation design	Ventilation improvement recommendation			Enumeration	Require, Recommend, No recommendation	
B.577	Spot ventilation design	Location			Enumeration	Kitchen, Bath, Garage, Other	
B.578	Spot ventilation design	Intermittent Exhaust Rate			Number		This is amount without taking into consideration any infiltration credit
B.579	Spot ventilation design	Continuous Exhaust Rate			Number		This is amount without taking into consideration any infiltration credit
B.580	Spot ventilation design	Window Opening Credit		CFM	Number		Should be 20 cfm, if the local AHJ permits windows to be used for local exhaust
B.581	Spot ventilation design	Required Intermittent Exhaust Rate			Number		This is the net amount of continuous ventilation needed AFTER window credit is applied (if any)
B.582	Spot ventilation design	Required Continuous Exhaust Rate			Number		This is the net amount of continuous ventilation needed AFTER window credit is applied (if any)
B.583	Spot ventilation design	Initial Airflow Deficit			Number		The airflow deficit for each bathroom or kitchen is the required airflow less the airflow rating of the exhaust equipment. If there is no exhaust device or if the existing device cannot be measured nor read it, the exhaust device airflow is assumed to be zero.
B.584	Spot ventilation design	Airflow Rate Units			Enumeration	CFM, ACH, L/s	Air changes per hour (ACH); cubic feet per minute (CFM).
B.585	Other ventilation issues	Does a proper air barrier separate the house from the garage?	Yes		Boolean	Installed	
B.586	Other ventilation issues	Does a proper air barrier separate the house from the garage?	No		Boolean	Recommended	
B.587	Other ventilation issues	Does a proper air barrier separate the house from the garage?	N/A		Boolean		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.588	Other ventilation issues	Are the ducts and air handlers that are located in the garage properly air sealed?	Yes		Boolean	Installed	
B.589	Other ventilation issues	Are the ducts and air handlers that are located in the garage properly air sealed?	No		Boolean	Recommended	
B.590	Other ventilation issues	Are the ducts and air handlers that are located in the garage properly air sealed?	N/A		Boolean		
B.591	Other ventilation issues	Is the clothes dryer properly vented?	Yes		Boolean	Installed	
B.592	Other ventilation issues	Is the clothes dryer properly vented?	No		Boolean	Recommended	
B.593	Other ventilation issues	Is the clothes dryer properly vented?	N/A		Boolean		
B.594	Other ventilation issues	Other ventilation issues	Description		Text		
B.595	Other ventilation issues	Other ventilation issues	Yes		Boolean	Installed	
B.596	Other ventilation issues	Other ventilation issues	No		Boolean	Recommended	
B.597	Other ventilation issues	Other ventilation issues	N/A		Boolean		
B.598	Ventilation improvements	Garage ducts and air handlers air sealed			Boolean		
B.599	Ventilation improvements	Mechanical ventilation system installed			Boolean		
B.600	Moisture control	Exterior locations of water intrusion damage			Enumeration	Roof, Interior ceiling, Foundation, Basement, Crawlspace, Walls, Around windows, Other	
B.601	Moisture control	Locations of interior water leaks or water damage			Enumeration	Kitchen, Bathroom, Basement, Other	
B.602	Moisture control improvement	Vapor retarders installed			Boolean		
B.603	Moisture control improvement	Gutters installed or repaired			Boolean		
B.604	Moisture control improvement	Flashing installed or repaired			Boolean		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.605	Moisture control improvement	Foundation grading improved			Boolean		
B.606	Moisture control improvement	Other measures implemented			Text		
B.607	Combustion appliance zone	CAZ depressurization limit		Pa	Number		Pulled from industry standards by users (e.g. BPI Gold Sheet) or via software program
B.608	Combustion appliance zone	Baseline test	Items running		Enumeration	Bath exhaust fan, Kitchen exhaust fan, Clothes dryer, Central vacuum, Air handler	Baseline pressure is read under the following conditions: no items running, all fans off, all exterior doors closed, and all interior doors are opened.
B.609	Combustion appliance zone	Baseline test	Doors opened		Enumeration	Basement doors, Other doors	
B.610	Combustion appliance zone	Baseline test	Doors closed		Enumeration	Basement doors, Other doors	
B.611	Combustion appliance zone	Baseline Pressure		Pa	Number		
B.612	Combustion appliance zone	Poor case test	Items running			Bath exhaust fan, Kitchen exhaust fan, Clothes dryer, Central vacuum, Air handler	The poor case CAZ depressurization test is configured by determining the largest combustion appliance zone depressurization attainable at the time of testing due to the combined effects of door position, exhaust appliance operation, and air handler fan operation. A base pressure must be measured with all fans off and doors open. The poor case CAZ depressurization measurement is the pressure difference between the largest depressurization attained at the time of testing and the base pressure.
B.613	Combustion appliance zone	Poor case test	Doors opened			Basement doors, Other doors	
B.614	Combustion appliance zone	Poor case test	Doors closed			Basement doors, Other doors	
B.615	Combustion appliance zone	Poor case test	Pressure	Pa	Number		
B.616	Combustion appliance zone	Net pressure change		Pa	Number		With respect to the baseline pressure (e.g. no fans running, all exterior doors closed, and all interior doors opened)
B.617	Combustion appliance zone	Depressurization finding poor case			Enumeration	Pass, Fail	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.618	Combustion appliance zone	Amount ambient CO in CAZ during testing		ppm	Number		
B.619	Combustion appliance zone	Ambient CO in CAZ exceeded 35 ppm during testing			Boolean		
B.620	Combustion appliance test	Flue visual condition			Enumeration	Pass, Fail	
B.621	Combustion appliance test	Flue condition notes			Text		
B.622	Combustion appliance test	Outside temperature at time of flue draft test		Degrees Fahrenheit	Number		
B.623	Combustion appliance test	Flue draft test	Poor scenario	Pa	Number		
B.624	Combustion appliance test	Flue draft test	Current condition	Pa	Number		This element is formerly known as "spillage, draft, and CO readings under natural conditions" as explained in BPI's Gold Sheet "Combustion Safety Test Procedure for Vented Appliances."
B.625	Combustion appliance test	Flue draft test	Test result type		Enumeration	Pass, Fail, Not tested	
B.626	Combustion appliance test	Spillage test	Poor scenario	Seconds	Number		
B.627	Combustion appliance test	Spillage test	Current condition	Seconds	Number		
B.628	Combustion appliance test	Spillage test	Test result type		Enumeration	Pass, Fail, Not tested	
B.629	Combustion appliance test	Carbon monoxide test	Poor scenario	ppm	Number		
B.630	Combustion appliance test	Carbon monoxide test	Current condition	ppm	Number		
B.631	Combustion appliance test	Carbon monoxide test	Test result type		Enumeration	Pass, Fail, Not tested	
B.632	Combustion appliance test	Max ambient CO in living space during audit		ppm	Number		Monitored throughout assessment, not just appliance testing
B.633	Combustion appliance test	Ambient CO action during CAZ testing		ppm	Number		BPI Gold Sheet is one example that shows action levels based upon decision logic
B.634	Combustion appliance test	Stack temperature		Degrees Fahrenheit	Number		After 10 minutes of run time

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.635	Combustion appliance test	Fuel leaks	Fuel type		Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.636	Combustion appliance test	Fuel leaks	Fuel leaks identified		Boolean		
B.637	Combustion appliance test	Fuel leaks	Leaks addressed		Boolean		
B.638	Combustion appliance test	Fuel leaks	Notes		Text		
B.639	Stove test	Stove fuel			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.640	Stove test	Heating stove properly vented			Boolean		
B.641	Stove test	CO reading			Number		
B.642	Stove test	Time of CO reading			DateTime		
B.643	Stove test	Gas leaks identified			Boolean		
B.644	Stove test	Actions taken			Text		
B.645	Lead paint	Did the contracted scope of work disturb greater than 6 sf of interior painted surfaces?			Boolean		For a home built before 1978.
B.646	Lead paint	Did the contracted scope of work disturb greater than 20 sf of exterior painted surfaces?			Boolean		For a home built before 1978.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.647	Lead paint	Did the contracted scope of work include window replacement?			Boolean		
B.648	Lead paint	EPA Lead-Safe Certification Number of firm that performed work			Text		
B.649	Radon	Radon tested			Boolean		
B.650	Radon	Radon test	Start date time		DateTime		
B.651	Radon	Radon test	End date time		DateTime		
B.652	Radon	Radon test	Radon test location		Enumeration	Kitchen, Crawlspace, Basement, Bedroom, Living room, Other	
B.653	Radon	Radon test	Radon test results	pCi/L	Number		
B.654	Radon	Radon test	Radon test method		Enumeration	Activated charcoal absorption, Alpha-track detectors, Unfiltered track detection, Short term electret ion chamber, Long term electret ion chamber, Continuous radon monitoring	
B.655	Radon	Education materials provided to homeowner?			Boolean		
B.656	Radon	Actions taken			Text		
B.657	Radon	Actions meet industry specifications?			Boolean		If moisture management of a crawlspace (e.g., installation of polyethylene sheeting) or radon mitigation measures were a part of the scope of work, were measures installed to be compliant with one of the following: - Specifications of EPA's Indoor airPLUS program - Techniques detailed in EPA's Radon-Resistant New Construction - ASTM E2121, Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings (section 7.3)
B.658	Radon	Result less than 4 pCi/L			Boolean		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.659	Source pollutants	Are there unvented combustion heating or hearth appliances present in the living area?			Boolean		
B.660	Source pollutants	If yes, does the appliance conform with ANSI Z21.11.2?			Boolean		
B.661	Source pollutants	If yes, is the appliance used as a primary source of heating?			Boolean		
B.662	Source pollutants	Does home have attached garage?			Boolean		
B.663	Source pollutants	If yes, is there a continuous air barrier between garage and living space?			Boolean		
B.664	Source pollutants	If yes, is there an exhaust fan in garage?			Boolean		
B.665	Pests	Indications of pest entry or damage?			Boolean		
B.666	Pests	Evidence of pesticide or insecticide use?			Boolean		
B.667	Pests	Do measures comply with industry standards to prevent pest entry?			Boolean		For ALL measures that may create entry points for vermin. For example, air sealing measures identified to reduce infiltration should have proper sealants even if those measures were not recommended or installed for pest control purposes.
B.668	Asbestos	Was asbestos suspected?			Boolean		
B.669	Asbestos	Was substance tested for asbestos?			Boolean		
B.670	Asbestos	Was asbestos found?			Boolean		
B.671	Asbestos	Type of blower door test			Enumeration	Pressurization, Depressurization	
B.672	Asbestos	Actions taken			Text		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.673	Asbestos	Actions meet industry specifications?			Boolean		
B.674	Spray foam	Was spray foam polyurethane foam and/or other potential sources of indoor pollutants installed or applied as part of the scope of work?			Boolean		
B.675	Project	Program name			Text		
B.676	Project	Program sponsor			Text		
B.677	Project	Certifying organization			Enumeration	US Green Building Council (LEED Rating System), Home Innovation Research Labs, Local program, ENERGY STAR Certified New Home, Passive House Institute US (PHUIS)	
B.678	Project	Certifying organization URL			Text		
B.679	Project	Year certified			Text		
B.680	Project	Program certificate			Enumeration	Home Performance with ENERGY STAR, Certified, Silver, Bronze, Gold, Platinum, Emerald, 1-Star, 2-Star, 3-Star, 4-Star, 5-Star, Net-zero, PHIUS+	
B.681	Project	ENERGY STAR Certified New Home Version			Text		
B.682	Project	Project type			Text		
B.683	Project	Title			Text		
B.684	Project	Project status	Event type		Enumeration	Audit, Proposed workscope, Approved workscope, Construction period testing/daily test out, Job completion testing/final inspection, Quality assurance/monitoring	Quality assurance: The observation techniques and activities used externally by an organization to evaluate the effectiveness of their quality management system and to provide feedback that may result in quality improvements (BPI, 2006).
B.685	Project	Project status	Date		Date		
B.686	Project	Notes			Text		
B.687	Project	Project start date			Date		Start date of the project

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.688	Project	Estimated project completion date			Date		Estimated completion date
B.689	Project	Actual project completion date			Date		Actual project completion date
B.690	Project	Hours			Number		Amount of time contractor spent on this stage of project.
B.691	Project	Fees associated with audit or other project activities		Dollars	Number		
B.692	Project	Project cost	Health and safety measures	Dollars	Number		Cost of all work performed or proposed
B.693	Project	Project cost	Qualifying energy measures	Dollars	Number		Cost of all work performed or proposed
B.694	Project	Incentive type			System identifier		Element can be replicated for project and by measure
B.695	Project	Funding source code			Text		Element can be replicated for project and by measure
B.696	Project	Funding source name			Text		Element can be replicated for project and by measure
B.697	Project	Incentive amount		Dollars	Number		Element can be replicated for project and by measure
B.698	Energy savings information	Energy savings type			Enumeration	Estimated, Measured	Element can be replicated for project and by measure
B.699	Energy savings information	Energy savings reported			Enumeration	Gross, Net	Element can be replicated for project and by measure
B.700	Energy savings information	Fuel savings	Fuel		Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	Element can be replicated for project and by measure

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.701	Energy savings information	Fuel savings	Units		Enumeration	cmh (cubic meters per hour), ccf (hundred cubic feet), kcf (thousand cubic feet), MCF (million cubic feet), cfh (cubic feet per hour), kWh (thousand Watt-hours), MWh (million Watt-hours), Btu, kBtu (thousand Btu), MBtu (million Btu), therms, Lbs. (pounds), KLbs. (thousand pounds), MLbs. (million pounds), Tonnes, Cords (Full Cord), Gal, KGal (thousand gallons), ton hour	Element can be replicated for project and by measure
B.702	Energy savings information	Fuel savings	Total savings		Number		Element can be replicated for project and by measure
B.703	Energy savings information	Fuel savings	Total dollar savings	Dollars	Number		Element can be replicated for project and by measure
B.704	Energy savings information	Fuel savings	Percent reduction		Fraction		Element can be replicated for project and by measure
B.705	Energy savings information	Fuel savings	End use		Enumeration	Heating, Cooling, Hot water, Appliance, Lighting, PV, Solar thermal, Other	Element can be replicated for project and by measure
B.706	Energy savings information	Fuel savings	End use value		Number		Element can be replicated for project and by measure
B.707	Energy savings information	Demand savings		kW or MW	Number		Element can be replicated for project and by measure
B.708	Energy savings information	Annual percent reduction			Fraction		Element can be replicated for project and by measure
B.709	Water savings information	Water savings type			Enumeration	Estimated, Measured	Element can be replicated for project and by measure
B.710	Water savings information	Units			Enumeration	Gallon, KGal (thousand Gallons), MGal (million Gallons), cf (cubic feet), ccf (hundred cubic feet), kcf (thousand cubic feet), MCF (million cubic feet)	Element can be replicated for project and by measure
B.711	Water savings information	Total savings			Number		Element can be replicated for project and by measure
B.712	Water savings information	Total dollar savings		Dollars	Number		Element can be replicated for project and by measure
B.713	Water savings information	Percent reduction			Fraction		Element can be replicated for project and by measure

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.714	Water savings information	Rain barrels			Number		Element can be replicated for project and by measure
B.715	Water savings information	Reclaimed water system			Boolean		Element can be replicated for project and by measure
B.716	Measures	Measure code			Text		
B.717	Measures	Measure description			Text		
B.718	Measures	Quantity	Units		Text		The number of measures installed or repaired as part of the program
B.719	Measures	Quantity	Value		Value		
B.720	Measures	Unit location			Enumeration	Attic - conditioned, Attic - unconditioned, Basement - conditioned, Basement - unconditioned, Conditioned space, Crawlspace - vented, Crawlspace - unvented, Garage - conditioned, Garage - unconditioned, Mechanical closet, Other interior, Other exterior, Roof deck	
B.721	Measures	Estimated Life			Number		
B.722	Measures	Installation date			Date		
B.723	Measures	Cost		Dollars	Number		
B.724	Measures	Unit pricing indicator			Boolean		
B.725	Measures	Resources saved	Resource type code		Number		
B.726	Measures	Resources saved	Load profile		Number		A load profile is created using measurements of a customer's electricity use at regular intervals, typically one hour or less, and provides an accurate representation of a customer's usage pattern over time.
B.727	Measures	Resources saved	Quantity		Number		
B.728	Measures	Resources saved	Annual amount	Dollars	Number		
B.729	Measures	Customer notes			Text		
B.730	Measures	Workscope notes			Text		
B.731	Measures	Work status			Enumeration	Installed, Not installed, Recommended	
B.732	Measures	Reason for not installing measure			Text		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.733	Measures	Quality assurance test result			Enumeration	Passed, Failed, Not tested	Quality assurance: The observation techniques and activities used externally by an organization to evaluate the effectiveness of their quality management system and to provide feedback that may result in quality improvements (BPI, 2006).
B.734	Measures	Quality assurance notes			Text		
B.735	Measures	Replaced component system identifier			System identifier		
B.736	Measures	Installed component system identifier			System identifier		
B.737	Utility or Fuel Provider	Utility name			Text		
B.738	Utility or Fuel Provider	Meter number			Number		
B.739	Utility or Fuel Provider	Utility account number			Number		
B.740	Utility or Fuel Provider	Permission			Boolean		
B.741	Utility or Fuel Provider	Utility service type provided			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.742	Energy Consumption	Fuel type			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.743	Energy Consumption	Unit of measurement			Enumeration	cmh (cubic meters per hour), ccf (hundred cubic feet), kcf (thousand cubic feet), MCF (million cubic feet), cfh (cubic feet per hour), kWh (thousand Watt-hours), MWh (million Watt-hours), Btu, kBtu (thousand Btu), MBtu (million Btu), therms, Lbs. (pounds), KLbs. (thousand pounds), MLbs. (million pounds), Tonnes, Cords (Full Cord), Gal, KGal (thousand gallons), ton hour	
B.744	Energy Consumption	Metering configuration			Enumeration	Direct metering, Master meter without sub-metering, Master meter with sub-metering	direct metering = tenants directly metered; master meter without sub-metering = tenants not sub metered; master meter with sub-metering = tenant sub-metered by building owner
B.745	Energy Consumption	Emissions type			Enumeration	Carbon dioxide (CO2), Methane (CH4), Nitrous Oxide (N2O), CO2 equivalent	
B.746	Energy Consumption	Emissions units			Enumeration	Kilograms (kg), Ton, Metric ton, Pound	
B.747	Energy Consumption	Emissions			Number		
B.748	Energy Consumption	Fuel interruptibility			Enumeration	Interruptible, Firm, N/A	Energy flow that can be reduced or completely stopped with little or no notice. Interruptible rate is the agreed-upon rate for energy sold as interruptible.
B.749	Energy Consumption	Shared energy system			Enumeration	Yes, No, Common meter	
B.750	Energy Consumption	Interval type			Enumeration	15-minute, Hourly, Daily, Monthly, Annual	
B.751	Energy Consumption	Reading time zone			Text		
B.752	Energy Consumption	Marginal energy cost rate		$/energy unit	Number		The cost of providing an additional unit of output
B.753	Energy Consumption	Energy use intensity		kBtu/ft^2	Number		Energy use intensity (EUI) is a unit of measurement that describes a building's energy use. EUI represents the energy consumed by a building relative to its size.

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.754	Energy Consumption	Peak season			Enumeration	Summer, Winter	Period during which electrical power is expected to be provided at a significantly higher than average supply level.
B.755	Water consumption	Water type			Enumeration	Indoor and outdoor water, Indoor water, Outdoor water, Wastewater/sewer	
B.756	Water consumption	Unit of measurement			Enumeration	Gallon, kGal (thousand Gallons), MGal (million Gallons), cf (cubic feet), ccf (hundred cubic feet), kcf (thousand cubic feet), MCF (million cubic feet)	
B.757	Water consumption	Marginal water cost rate			Number		The cost of providing an additional unit of output
B.758	Water consumption	Water use intensity units			Enumeration	gal/sq.ft., gal/day/person	Water use intensity is defined as annual water use divided by total gross square footage of facility space reported in gallons per square foot (DOE, 2013). This element may also be reported as gallons, per day, per person.
B.759	Water consumption	Water use intensity value			Number		Water use intensity is defined as annual water use divided by total gross square footage of facility space reported in gallons per square foot (DOE, 2013). This element may also be reported as gallons, per day, per person.
B.760	Water consumption	Consumption			Number		Negative number for renewable generation. Positive number for consumption.
B.761	Water consumption	Start date time			DateTime		Date/time stamp in the ISO 8601 format when the usage measured began.
B.762	Water consumption	End date time			DateTime		Date/time stamp of the meter reading.
B.763	Water consumption	Meter reading type			Enumeration	Point, Median, Average, Total, Estimate, Other	
B.764	Water consumption	Consumption cost		Dollars	Number		
B.765	Water consumption	Marginal Rate			Number		
B.766	Water consumption	Baseload			Number		
B.767	BPI-2400 inputs	Baseload billing period start date			Date		

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.768	BPI-2400 inputs	Baseload billing period end date			Date		
B.769	BPI-2400 inputs	Detailed calibration baseload weather regression CV-RMSE			Fraction		Detailed Calibration Baseload Weather Regression CV-RMSE. Eqn. 3.2.2.G.i of BPI-2400. Percentage expressed as a fraction (i.e., 10% = 0.1).
B.770	BPI-2400 inputs	Baseload heating fuel type			Enumeration	Electricity, Renewable electricity, Natural gas, Renewable natural gas, Fuel oil (1, 2, 4, 5/6), District steam, District hot water, District chilled water, Solar hot water, Propane, Kerosene, Diesel, Anthracite coal, Bituminous coal, Coke, Wood, Wood pellets, Combination, Other	
B.771	BPI-2400 inputs	Baseload heating units			Enumeration	cmh (cubic meters per hour), ccf (hundred cubic feet), kcf (thousand cubic feet), MCF (million cubic feet), cfh (cubic feet per hour), kWh (thousand Watt-hours), MWh (million Watt-hours), Btu, kBtu (thousand Btu), MBtu (million Btu), therms, Lbs. (pounds), KLbs. (thousand pounds), MLbs. (million pounds), Tonnes, Cords (Full Cord), Gal, KGal (thousand gallons), ton hour	
B.772	BPI-2400 inputs	Baseload weather-normalized annual heating usage			Number		
B.773	BPI-2400 inputs	Baseload weather normalized annual cooling usage			Number		
B.774	BPI-2400 inputs	Baseload weather normalized annual baseload usage			Number		
B.775	BPI-2400 inputs	Detailed model calibration heating bias error			Fraction		Eqn. 3.2.3.A.i of BPI-2400

No.	Data category	Element	Sub-element	Unit of Measure	Data Type	Enumerations	Definition
B.776	BPI-2400 inputs	Detailed model calibration baseload absolute error			Fraction		Eqn. 3.2.3.A.i of BPI-2400
B.777	BPI-2400 inputs	Detailed model calibration cooling bias error			Fraction		
B.778	BPI-2400 inputs	Detailed model calibration cooling absolute error			Fraction		
B.779	BPI-2400 inputs	Detailed model calibration baseload bias error			Fraction		
B.780	BPI-2400 inputs	Detailed model calibration heating absolute error			Fraction		Eqn. 3.2.3.A.ii of BPI-2400
B.781	Software program used				Text		
B.782	Software program version				Text		