

Worksheet #1:

Characteristics, Energy Sources, and Equipment (*Buildings*)

2012 Commercial Buildings Energy Consumption Survey
Sponsored by the U.S. Energy Information Administration
Conducted by Westat

The following are *some* of the topics that will be discussed in the upcoming interview. Completing this worksheet and having it available will facilitate and shorten the interview.

Thinking of *calendar year 2012*, please provide the following for the building listed above:

<p>Box 1. Gross/Total Square Footage of Building</p> <p><input type="text"/></p> <p>(Both finished and unfinished, including basements, hallways, lobbies, stairways, elevator shafts, and indoor parking levels.)</p> <p>Year of Construction of Building</p> <p><input type="text"/></p> <p>(If there have been major additions, provide the year the largest portion of the building was constructed.)</p>	<p>Box 2. Number of Businesses or Organizations in Building</p> <p><input type="text"/></p> <p>Number of Employees</p> <p><input type="text"/></p> <p>(The number of employees that work in the building during its main shift, the shift when most employees are in the building. Include volunteers; do not include employees who always work outside of the building, customers, patients, students, or institutionalized residents.)</p>	<p>Box 3. Heating Energy Sources</p> <p>Which energy sources, if any, were used for heating during 2012?</p> <p>Check all that apply:</p> <p><input type="checkbox"/> Electricity</p> <p><input type="checkbox"/> Natural Gas</p> <p><input type="checkbox"/> Fuel oil/Diesel/Kerosene</p> <p><input type="checkbox"/> Bottled Gas/LPG/Propane</p> <p><input type="checkbox"/> District Steam</p> <p><input type="checkbox"/> District Hot water</p> <p><input type="checkbox"/> Other (specify)</p> <p><input type="text"/></p> <p>Which of these was the main energy source for heating? (Please circle the energy source used to heat most of the square footage in the building most of the time.)</p>
<p>Box 4. Heating Equipment</p> <p>Check all that apply:</p> <p><input type="checkbox"/> Furnaces that heat air directly</p> <p><input type="checkbox"/> Packaged central units</p> <p><input type="checkbox"/> Boilers inside (or directly adjacent to) the building to produce steam or hot water</p> <p><input type="checkbox"/> District steam or hot water piped into the building from outside the building</p> <p><input type="checkbox"/> Heat pumps for heating</p> <p><input type="checkbox"/> Individual space heaters</p> <p><input type="checkbox"/> Some other type (specify)</p> <p><input type="text"/></p>	<p>Box 5. Type of Packaged Heating (if applicable)</p> <p>Check all that apply:</p> <p>Type of Packaged Unit(s)</p> <p><input type="checkbox"/> Factory-assembled unitary unit</p> <p><input type="checkbox"/> Custom built-up unit</p> <p>Heating Component of Packaged Unit(s)</p> <p><input type="checkbox"/> Furnace</p> <p><input type="checkbox"/> Heat pump</p> <p><input type="checkbox"/> Heating coil</p> <p><input type="checkbox"/> Powered induction unit (PIU)</p> <p><input type="checkbox"/> Duct reheat</p>	<p>Box 6. Boiler or District Steam/ Hot Water Distribution System (if applicable)</p> <p>Check all that apply:</p> <p><input type="checkbox"/> Radiators</p> <p><input type="checkbox"/> Fan coil units</p> <p><input type="checkbox"/> Induction units</p> <p><input type="checkbox"/> Water loop heat pump</p> <p><input type="checkbox"/> Central air handler (hydronic/steam coils)</p> <p><input type="checkbox"/> Packaged unit (hydronic/steam coils)</p> <p><input type="checkbox"/> Duct reheat (hydronic/steam coils)</p> <p style="text-align: right;">Go to Box 7</p>

Box 7. Type of Heat Pump Used for Heating (if applicable)

Check all that apply:

Heat Pump System

- Packaged unit
- Split system (residential-type)
- Individual room heat pump (packaged terminal heat pump)
- Ductless mini-split system
- Variable refrigerant flow (VRF)

Type of Heat Pump

- Air source
- Ground source or ground water (geothermal)
- Dual source (combination of air source and geothermal)
- Water loop

Box 8. Individual Space Heater (if applicable)

Check all that apply:

- Infrared radiant heater (permanent)
- Baseboard heater (permanent)
- Portable space heater
- Wall heater
- Individual furnace
- Unit heater
- Heating element in packaged terminal air conditioner (PTAC)

Box 9. Cooling Energy Sources

Which energy sources, if any, were used for cooling during 2012?

Check all that apply:

- Electricity
- Natural Gas
- District Chilled Water
- Other (specify)

Box 10. Cooling Equipment

Check all that apply:

- Residential-type central air conditioners (other than heat pumps)
- Packaged air conditioning units (other than heat pumps)
- Central chillers inside (or directly adjacent to) the building that chill water for air conditioning
- District chilled water piped into the building from outside the building
- Heat pumps for cooling
- Individual room air conditioners (other than heat pumps)
- "Swamp coolers" or evaporative coolers
- Some other type (specify)

Box 11. Type of Packaged Cooling (if applicable)

Check all that apply:

Type of Packaged Unit(s)

- Factory-assembled unitary packaged unit
- Custom built-up unit

Box 12. Type of Chiller (if applicable)

Check all that apply:

Type of Chiller

- Air-cooled
- Water-cooled
- Absorption
- Check if absorption chiller can operate as a "heater chiller"

Box 13. Chiller or District Chilled Water Distribution System (if applicable)

Check all that apply:

- Central air handler (hydronic coils)
- Fan coil units
- Induction units
- Water loop heat pump
- Chilled beam
- Packaged unit (hydronic coils)
- Duct reheat

Box 14. Type of Heat Pump Used for Cooling (if applicable)

Check all that apply:

Heat Pump System

- Packaged unit
- Split system (residential-type)
- Individual room heat pump (packaged terminal heat pump)
- Ductless mini-split system
- Variable refrigerant flow (VRF)

Type of Heat Pump

- Air source
- Ground source or ground water (geothermal)
- Dual source (combination of air source and geothermal)
- Water loop

Go to Box 15

Box 15. Ventilation and Distribution Equipment for Heating and Cooling

Indicate all that apply:
 B—heating and cooling
 H—heating only
 C—cooling only

- Central air handling unit(s) with constant air volume (CAV) control
- Central air handling unit(s) with variable air volume (VAV) control
- Underfloor air distribution
- Dedicated outside air system (DOAS)
- Demand controlled ventilation
- None of these types

Does the building use either of the following?

- Air-side economizer
- Water-side economizer

Box 16. Water Heating Energy Sources

Which energy sources, if any, were used for water heating during 2012?

- Electricity
- Natural Gas
- Fuel Oil/Diesel/Kerosene
- Bottled Gas/LPG/Propane
- District Steam
- District Hot Water
- Other (specify)

Box 17. Cooking Energy Sources

Which energy sources, if any, were used for cooking during 2012?

- Electricity
- Natural Gas
- Fuel Oil/Diesel/Kerosene
- Bottled Gas/LPG/Propane
- District Steam
- District Hot Water
- Other (specify)

Box 18. Sources for On-Site Electricity Generation

Which energy sources, if any, were used for on-site electricity generation during 2012?

Check all that apply:

- Natural Gas
- Fuel Oil/Diesel/Kerosene
- Bottled Gas/LPG/Propane
- Wood
- Coal
- Solar
- Other (specify)

Box 19. Areas for Food Preparation or Service

Check all of the types of food preparation or serving areas found in the building and indicate their total square footage (include seating areas in square footage, if any):

- | | | |
|--|-------------|----------------------|
| <input type="checkbox"/> Snack bar or concession stand | Square feet | <input type="text"/> |
| <input type="checkbox"/> Fast food or small restaurant | | <input type="text"/> |
| <input type="checkbox"/> Cafeteria or large restaurant | | <input type="text"/> |
| <input type="checkbox"/> Large kitchen, commercial kitchen, or other large food preparation area | | <input type="text"/> |
| <input type="checkbox"/> Small kitchen area | | |
| <input type="checkbox"/> Other (specify) | | |

Box 20. Refrigeration Equipment

Check all the types of refrigeration or freezer equipment that apply and indicate the number used in the building in 2012:

- | | Number |
|---|-----------------------|
| <input type="checkbox"/> Full-size residential | <input type="text"/> |
| <input type="checkbox"/> Half-size or compact | <input type="text"/> |
| <input type="checkbox"/> Walk-in | <input type="text"/> |
| <input type="checkbox"/> Open cases or cabinets | <input type="text"/> |
| <input type="checkbox"/> Closed cases or cabinets | <input type="text"/> |
| <input type="checkbox"/> Refrigerated vending | <input type="text"/> |
| <input type="checkbox"/> Commercial ice makers | <input type="text"/> |
| | Percent of floor area |
| <input type="checkbox"/> Large cold storage areas | <input type="text"/> |

Go to Box 21

Box 21. Office and Other Equipment

Check all that apply and indicate number used in the building during 2012:

- | | Number |
|---|----------------------|
| <input type="checkbox"/> Computers (desktop) | <input type="text"/> |
| <input type="checkbox"/> Laptop computers | <input type="text"/> |
| <input type="checkbox"/> Printers | <input type="text"/> |
| <input type="checkbox"/> Dedicated servers | <input type="text"/> |
| <input type="checkbox"/> TV or video displays | <input type="text"/> |
| <input type="checkbox"/> Cash registers | <input type="text"/> |
| <input type="checkbox"/> Photocopiers | <input type="text"/> |

Box 22. Lighting Equipment

Was any of the square footage in this building lit by the following during 2012?

Check all that apply:

- Fluorescent lighting other than compact fluorescent light bulbs
- Compact fluorescent bulbs
- Incandescent bulbs, other than halogen bulbs
- Halogen bulbs
- High intensity discharge (HID) lights, such as high pressure sodium, metal halide, or mercury vapor
- Light-emitting diode (LED) lights
- Other (specify)

Box 23. Lighting Controls or Lighting Control Strategies

Check all types of lighting controls or lighting control strategies that were used in the building:

- Scheduling (use of time clocks to turn off or dim lighting)
- Occupancy sensors
- Multi-level lighting or dimming
- Daylight harvesting
- High-end trimming or light-level tuning
- Plug-load control
- Demand responsive lighting
- None of these