

# Worksheet #1:

## Characteristics, Energy Sources, and Equipment (Strip Shopping Centers)

### 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><b>Box 1. Gross/Total Square Footage of Building</b></p> <p><input type="text"/></p> <p>(Both finished and unfinished, including basements, hallways, lobbies, stairways, elevator shafts, and indoor parking levels.)</p> <p><b>Year of Construction of Building</b></p> <p><input type="text"/></p> <p>(If there have been major additions, provide the year the <b>largest portion</b> of the mall building was constructed.)</p>	<p><b>Box 2. Number of Tenant Spaces in Building Including Vacant Spaces</b></p> <p><input type="text"/></p>	<p><b>Box 3. Heating Energy Sources</b></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 <b>main</b> 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><b>Box 4. Heating Equipment</b></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><b>Box 5. Type of Packaged Heating (if applicable)</b></p> <p>Check all that apply:</p> <p><b>Type of Packaged Unit(s)</b></p> <p><input type="checkbox"/> Factory-assembled unitary unit</p> <p><input type="checkbox"/> Custom built-up unit</p> <p><b>Heating Component of Packaged Unit(s)</b></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><b>Box 6. Boiler or District Steam/ Hot Water Distribution System (if applicable)</b></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;"><b>Go to Box 7</b></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)