


Water Questions Added to the 2007 Commercial Buildings Energy Consumption Survey (CBECS)

SECTION E. MISCELLANEOUS EQUIPMENT

E14	Sewer flow metered	<i>SWRMET9</i>
ASK	IF Any energy used & CBECS Activity = Education; Food sales; Food service; Inpatient health care; Laboratory; Lodging; Nursing; Office; Outpatient health care; Public assembly; Public order and safety; OR Religious worship	
<p>Is the sewer flow metered for this building?</p> <p>1 Yes 2 No</p>		
NEXT	➔ E15 [Sterilizers or autoclaves]	

E15	Sterilizers or autoclaves	<i>STRLZR9</i>
ASK	IF Any energy used & CBECS Activity = Education; Food sales; Food service; Inpatient health care; Laboratory; Lodging; Nursing; Office; Outpatient health care; Public assembly; Public order and safety; OR Religious worship	
<p>Does this building use any sterilizers or autoclaves?</p> <ul style="list-style-type: none"> ◆ DEF: [Sterilizers are used to sterilize containers, medical instruments, surgical tools, and trays. Sterilizers use water to produce steam, to cool steam, and in some units, to create a vacuum to accelerate drying of disinfected items.] ◆ DEF: [Autoclaves are similar to sterilizers except that they use ethylene oxide as the sterilizing medium and a stream of pressurized water at high temperatures to draw off spent ethylene oxide. Like steam sterilizers, some autoclaves also use a continuous stream of water to create a vacuum to speed the drying process.] <p>1 Yes 2 No</p>		
NEXT	➔ E16 [Irrigation system]	

E16	Irrigation system	<i>IRRIGAT9</i>
ASK	IF Any energy used & CBECS Activity = Education; Food sales; Food service; Inpatient health care; Laboratory; Lodging; Nursing; Office; Outpatient health care; Public assembly; Public order and safety; OR Religious worship	
<p>Does this building have a landscape irrigation system?</p> <p>◆ DEF: [Irrigation systems are used to water outdoor landscape plantings. They consist of a circuit of equipment controlled by a central valve that can include: pipes, sprinkler heads, rotors and drip or bubble emitters. The central valve can be operated either manually or by an automatic controller.]</p> <p>1 Yes 2 No</p>		
NEXT	IF Electricity NOT used & D70 [Energy for generation] ≠ Yes → E17 [Verify no electricity] OTHERWISE → E18 [Refrigeration]	

E19	Refrigeration types	<i>see below</i>														
ASK	IF E18 [Refrigeration] = Yes															
[F1]-HELP																
 SHOW CARD E2																
<p>Looking at this card, please tell me which types of refrigeration or freezer equipment are found in this building.</p> <p>◆ PROBE for any others</p> <p>◆ ENTER all that apply</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">1 Walk-in refrigeration/freezer units</td> <td style="text-align: right;"><i>RFGWI9</i></td> </tr> <tr> <td>2 Open refrigerated/freezer cases or cabinets</td> <td style="text-align: right;"><i>RFGOP9</i></td> </tr> <tr> <td>3 Residential-type refrigerators/freezers</td> <td style="text-align: right;"><i>RFGCL9</i></td> </tr> <tr> <td>4 Closed refrigerated/freezer cases or cabinets</td> <td style="text-align: right;"><i>RFGRES9</i></td> </tr> <tr> <td>5 Refrigerated vending machines</td> <td style="text-align: right;"><i>RFGVEN9</i></td> </tr> <tr> <td>6 Commercial ice makers</td> <td style="text-align: right;"><i>RFGICE9</i></td> </tr> <tr> <td>7 Large cold storage areas</td> <td style="text-align: right;"><i>RFGSTO9</i></td> </tr> </table>			1 Walk-in refrigeration/freezer units	<i>RFGWI9</i>	2 Open refrigerated/freezer cases or cabinets	<i>RFGOP9</i>	3 Residential-type refrigerators/freezers	<i>RFGCL9</i>	4 Closed refrigerated/freezer cases or cabinets	<i>RFGRES9</i>	5 Refrigerated vending machines	<i>RFGVEN9</i>	6 Commercial ice makers	<i>RFGICE9</i>	7 Large cold storage areas	<i>RFGSTO9</i>
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NEXT	IF Walk-in units selected → E20 [Number walk-in units] IF Open cases or cabinets selected → E21 [Number open cases] IF Residential-type selected → E22 [Number residential refrigerators] IF Closed cases or cabinets selected → E23 [Number closed cases] IF Refrigerated vending machines selected → E24 [Number vending] IF Commercial ice makers selected → E25 [Number ice makers] IF Large cold storage areas selected → E26 [Percent cold storage] IF DK/RF → E27 [Computers used]															

E25	Number ice makers	<i>RFGICN9</i>
ASK	IF Commercial ice makers IN E19 [Refrigeration types]	
<p>How many commercial ice makers are there?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999	
NEXT	IF Large cold storage areas IN E19 [Refrigeration types] → E26 [Percent cold storage] OTHERWISE → E27 [Computers used]	

SECTION K. DOMESTIC WATER

K1	Domestic water consumption	<i>WTRCNS9</i>
ASK	All Buildings	
<p style="text-align: right;">[F1]-HELP</p> <p>The next questions are about domestic water, that is, the water supplied to the building for everyday use, such as for washing hands. (These questions are found on the third page of Worksheet 2.)</p> <p>In gallons, please give me the total volume of water used in 2007.</p> <p>◆ VERIFY that the number the Respondent provides is in gallons, not millions of gallons. Worksheet 2 asks for this number in millions of gallons.</p>		
RANGE	0 to 99,999,999,999,999	
NEXT	IF Amount given → K2 [Outside water consumption] IF DK/RF → K4 [Domestic water expenditures]	

K2	Outside water consumption	<i>WTROUT9</i>
ASK	IF Amount given in K1 [Domestic water consumption]	
<p>In gallons, how much of this water was used outside the building?</p> <p>◆ VERIFY that the number the Respondent provides is in gallons, not millions of gallons. Worksheet 2 asks for this number in millions of gallons.</p>		
RANGE	0 to 99,999,999,999,999	
NEXT	→ K3 [How water volume determined]	

K3	How water volume determined	<i>WTRMET9</i>
ASK	IF Amount given in K1 [Domestic water consumption]	
<p>How is the annual water volume determined? Is it metered, estimated, both metered and estimated, or measured in some other way?</p> <p>1 Metered 2 Estimated 3 Both metered and estimated 4 Other</p>		
NEXT	➔ K4 [Domestic water expenditures]	

K4	Domestic water expenditures	<i>WTREXP9</i>
ASK	All Buildings	
<p>Please give me the total dollars spent on domestic water in 2007, including state and local taxes.</p> <p>◆ Do <u>not</u> enter cents</p> <p>◆ <u>VERIFY</u> number digit by digit</p>		
RANGE	0 to 999,999,999	
NEXT	IF Amount given in K1 [Domestic water consumption] OR K4 [Domestic water expenditures] ➔ K5 [Starting date for water figures] OTHERWISE ➔ K8 [Heard of WaterSense]	

K5	Starting date for water figures	<i>WTSTDAT9</i>
ASK	K1 [Domestic water consumption] given OR K4 [Domestic water expenditures] given	
<p style="text-align: right;">[F1]-HELP</p> <p>What is the starting date for these water usage figures?</p> <p>◆ ENTER date as MMDDYYYY</p> <p>◆ If the day is not known, ENTER "15" for DD</p>		
NEXT	➔ K6 [Ending date for water figures]	

K6	Ending date for water figures	<i>WTENDAT9</i>
ASK	K1 [Domestic water consumption] given OR K4 [Domestic water expenditures] given	
		[F1]-HELP
	<p>What is the ending date [for these water usage figures]?</p> <ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY ◆ VERIFY that this is the <u>last</u> day of the last billing period ◆ If the day is not known, ENTER "15" for DD 	
NEXT	IF Central chillers in D33 [Cooling equipment type] → K7 [Cooling tower water consumption] OTHERWISE → K8 [Heard of WaterSense]	

K7	Cooling tower water consumption	<i>CHLRCNS9</i>
ASK	IF (K1 [Domestic water consumption] given OR K4 [Domestic water expenditures] given) & Central chillers in D33 [Cooling equipment type]	
	<p>If the cooling towers on your chilled water system are metered, please give the volume of water used for the cooling towers in gallons.</p> <ul style="list-style-type: none"> ◆ VERIFY that the number the Respondent provides is in gallons, not millions of gallons. Worksheet 2 asks for this number in millions of gallons. 	
RANGE	0 to 99,999,999,999,999	
NEXT	→ K8 [Heard of WaterSense]	

K8	Heard of WaterSense	<i>WTRSENS9</i>
ASK	All Buildings	
	<p>Have you heard of the WaterSense program of the U.S. Environmental Protection Agency?</p> <p>1 Yes 2 No</p>	
NEXT	INTERVIEW COMPLETE	

Water Section of Respondent Worksheet

(Note: Actual worksheet was landscape orientation on an 8.5 by 11 paper.)

Instructions: For totals, include all accounts for domestic water supply for which you are responsible, for calendar year 2007. For amount billed, include state and local taxes, but exclude merchandise, repair charges, and service charges (hookup or disconnect fees, late payment fees).

<p style="text-align: center;">Water Use in Commercial Buildings</p> <p>Why are there water questions in an energy survey? Water use and energy are connected in many ways. Energy is used to extract, purify, and pump water for domestic and other uses. In addition, energy is used to treat and dispose of wastewater.</p> <p>The Environmental Protection Agency (EPA) estimates that billions of dollars will be required for new water supply and wastewater treatment facilities and upgrades to existing facilities over the next 20 years. Getting better information on how much water is used by commercial buildings is an important first step towards understanding water use and its relationship to energy use in the commercial sector.</p> <p>With the following questions we want to determine how much water was used in this building. Domestic water is generally supplied to commercial buildings by a municipal water system that collects, purifies, transports, and distributes water via a pipeline system. In some cases, the building may have a private or on-site source, such as a water well that may be either the sole source of water or a supplement to the municipal supply.</p>	Box 6. Domestic Water Supply	
	<p>Total water used: across all accounts (municipal and other), for calendar year 2007</p> <div style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> Million Gallons </div> <p>How much of this water was used outside the building?</p> <div style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> Million Gallons </div> <p>Method of measurement:</p> <p> <input type="checkbox"/> Metered <input type="checkbox"/> Estimated <input type="checkbox"/> Both <input type="checkbox"/> Other </p> <p>If a central chiller is present within the building, what is the amount of water used by the cooling tower, if it is metered:</p> <div style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> Million Gallons </div>	<p>Beginning and ending dates: If the building had multiple accounts with different beginning and ending dates, provide the dates for the largest account.</p> <div style="text-align: center;"> <input style="width: 60px; height: 20px;" type="text"/> / <input style="width: 20px; height: 20px;" type="text"/> / <input style="width: 20px; height: 20px;" type="text"/> to <input style="width: 60px; height: 20px;" type="text"/> / <input style="width: 20px; height: 20px;" type="text"/> / <input style="width: 20px; height: 20px;" type="text"/> month/day/year month/day/year </div> <p style="text-align: center; font-weight: bold; font-size: 1.2em;">Thank you!</p> <p style="text-align: center; font-weight: bold; font-size: 1.2em;">The interviewer will collect this worksheet.</p>
<p>Total amount billed/dollars spent: across all accounts for 2007</p> <div style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> \$ </div>		