

2012 Commercial Buildings Energy Consumption Survey (CBECS)

Mall Establishment Questionnaire – Form EIA-871J

HOW TO USE THIS QUESTIONNAIRE

The 2012 Commercial Buildings Energy Consumption Survey (CBECS) will be conducted using a *computer-assisted interview* programmed using a software called Blaise. A professional interviewer will administer the questionnaire to the building respondent using a laptop computer. The purpose of this paper representation of the questionnaire is to document the question text, fills, and skip patterns within the 2012 CBECS questionnaire.

PLEASE NOTE: All the question fills and skip patterns will be handled automatically by the software and will be transparent to the interviewer, so this document appears much more complex than the actual CBECS instrument.

Each question is formatted as follows:

A1	Question name	<i>SASVAR</i>
ASK		
FILL		
Question text		
RANGE		
NEXT		

The **black box** (A1 here) contains a question number, followed by the **Question name** and the *SAS variable* (if applicable) in the same row. If the SAS variable area says “*see below*,” the variables are found within the Question text box.

The **ASK** line describes what needs to be true for a question to be asked.

The **FILL** line describes any question fills and the conditions under which each appears. If the fill appears as something such as “A2 [Square footage]” this means that the figure given in question A1 will be filled in.

The **Question text** box shows the question text, and any other elements for each question, such as Show Card indicators or instructions, and the answer choices for each question.

The **RANGE** line is only applicable to numeric questions. It shows the range of answers that will be accepted by Blaise.

The **NEXT** line details the routing for the next question. Follow these instructions in order. Once a true statement is reached, go to the question indicated by the arrow (⇒).

WORKSHEET AND RESPONDENT QUESTIONS

R1	Consent
ASK	All Establishments
	[F1]-Help
	<p>Some parts of this interview will be recorded for quality control purposes. I'd like to continue now unless you have any questions.</p> <p>◆ For FAQs, press [F1] - Help</p> <ol style="list-style-type: none"> 1 Gives consent to record interview 2 Does <u>not</u> give consent to record interview
NEXT	IF First time case started OR Restart but not done with Section E → R2 [Worksheet 1] OTHERWISE → R4 [Respondent function]

R2	Worksheet 1	<i>R1WS1 – RXWS1</i>
ASK	All cases not yet done with Section E	
	<p>Do you have Worksheet 1 with you and completed?</p> <ol style="list-style-type: none"> 1 Yes 2 No 	
NEXT	IF First time case started → R3 [Respondent function] IF Restart → R4 [Respondent function]	

R3	Respondent function	<i>R1JOB</i>
ASK	All cases on first start	
<p>□ SHOW CARD 1</p> <p>◆ Take out the Show Card booklet or make sure the respondent has access to them. It is <u>very important</u> to use these cards, as some of them contain more information than can be found on your CAPI screens</p> <p>Before we get started, we need to make sure that we have Show Cards available for some of the questions. Please turn to Show Card 1.</p> <p>Looking at this list, please tell me which of these best describes your job function.</p> <ol style="list-style-type: none"> 1 Operations, maintenance, or engineering 2 Property management 3 Store management 4 Mall management 5 Administration or company management 6 Energy or environmental management 7 Building owner 8 Business owner 9 Accounting, finances, or payroll 10 Executive official 11 School official 12 Religious official 13 Support staff 14 Other 		
NEXT	IF Other → R5 [Other job function] Anything but Other → A1 [Establishment name]	

R4	Respondent function	<i>R2JOB – RXJOB</i>
ASK	All restarted cases	
	<p>◆ ASK if interview is with a new respondent</p> <p>◆ If interview is with same respondent as previous interview, ENTER "0"</p> <p>☐☐ SHOW CARD 1</p> <p>Before we get started, we need to make sure that we have Show Cards available for some of the questions. Please turn to Show Card 1.</p> <p>Looking at this list, please tell me which of these best describes your job function.</p> <ul style="list-style-type: none"> 0 Same respondent as previous interview 1 Operations, maintenance, or engineering 2 Property management 3 Store management 4 Mall management 5 Administration or company management 6 Energy or environmental management 7 Building owner 8 Business owner 9 Accounting, finances, or payroll 10 Executive official 11 School official 12 Religious official 13 Support staff 14 Other 	
NEXT	IF Other → R5 [Other job function] Anything but Other → A1 [Establishment name]	

R5	Other job function	<i>R1JOBX – RXJOBX</i>
ASK	IF R3 [Respondent function] = Other OR R4 [Respondent function] = Other	
	What is your job function?	
NEXT	→ A1 [Establishment name]	

SECTION A: ESTABLISHMENT SIZE

A1	Establishment name	<i>ESTNAM</i>
ASK	All Establishments	
What is the name of this establishment?		
NEXT	→ A2 [Square footage]	

A2	Square footage	<i>SQFT</i>
ASK	All Establishments	
FILL	{Worksheet1Intro} IF R has Worksheet 1 = "Please refer to Worksheet 1 for some of these next questions on general characteristics." OTHERWISE = BLANK	
		[F1]-HELP
{Worksheet1Intro}		
What is the gross or total square footage of all the space in this establishment both finished and unfinished, including basements, hallways, lobbies, stairways, and elevator shafts?		
◆ DEF: [Total square footage = Length of establishment multiplied by width of establishment multiplied by the number of floors.]		
◆ VERIFY number <u>digit by digit</u>		
RANGE	1 to 999,999,999	
NEXT	IF DK/RF → A3 [Square footage category] OTHERWISE: IF Interviewer-coded establishment activity ≠ Other → B1 [Verify establishment activity] IF Interviewer-coded establishment activity = Other → B2 [Establishment activity]	

A3	Square footage category	<i>SQFTC</i>
ASK	IF A2 [Square footage] = DK/RF	
	<p>[F1]-HELP</p> <p>□ SHOW CARD A1</p> <p>I understand that it may be difficult to give an exact figure for square footage. However, the size of your establishment is very important in helping understand its use of energy.</p> <p>Please look at Show Card A1 and tell me which category best describes the total gross square footage in this establishment. There are examples provided to help you estimate.</p> <p>◆ If respondent gives the category code, VERIFY the response by reading the full answer</p> <ol style="list-style-type: none"> 1 1,000 square feet or less 2 1,001 to 5,000 square feet 3 5,001 to 10,000 square feet 4 10,001 to 25,000 square feet 5 25,001 to 50,000 square feet 6 50,001 to 100,000 square feet 7 100,001 to 200,000 square feet 8 200,001 to 500,000 square feet 9 500,001 to 1 million square feet 10 Over 1 million square feet 	
NEXT	IF Interviewer-coded establishment activity ≠ Other → B1 [Verify establishment activity] IF Interviewer-coded establishment activity = Other → B2 [Establishment activity]	

SECTION B: ESTABLISHMENT ACTIVITY

B1	Verify establishment activity	VERPEA
ASK	IF Interviewer-coded establishment activity ≠ Other	
FILL	<p>{Activity} IF Retail store = “a retail store” IF Food sales = “a food sales establishment” IF Food service = “a food service establishment” IF Dry cleaner/Laundromat = “a dry cleaner or laundromat” IF Office/Financial = “an office or financial establishment” IF Medical/Dental = “a medical or dental establishment” IF Education/Child care = “an education or child care establishment” IF Movie theater/Cinema = “a movie theater or cinema” IF Beauty salon/Tanning salon = “a hair or beauty salon or tanning salon” IF Fitness center/Dance studio = “a fitness center or dance studio” IF Vacant = “a vacant establishment”</p>	
		[F1]-HELP
	<p>I have recorded that this is {Activity}. Is this correct?</p> <p>◆ EXP: [This activity should be the one that accounts for the majority of the floorspace in this establishment.]</p> <p>1 Yes 2 No</p>	
NEXT	IF Yes → C1 [Occupied/vacant all 2012] IF No OR DK/RF → B2 [Establishment activity]	

B2	Establishment activity	<i>PEA</i>
ASK	IF Interviewer-coded establishment activity = Other OR B1 [Verify establishment activity] = No	
<input type="checkbox"/> SHOW CARD B2		[F1]-HELP
<p>Please look at the list of activities on Show Card B2. Which one of these activities accounts for the majority of the floorspace in this establishment?</p> <ol style="list-style-type: none"> 1 Retail store 2 Food sales 3 Food service 4 Dry cleaner/Laundromat 5 Office/Financial 6 Medical/Dental 7 Education/Child care 8 Movie theater/Cinema 9 Beauty salon/Tanning salon 10 Fitness center/Dance studio 11 Vacant 12 Other 		
NEXT	IF Other → B3 [Specify other activity] OTHERWISE → C1 [Occupied/vacant all 2012]	

B3	Specify other activity
ASK	IF B2 [Establishment activity] = Other
<p>Please describe this other type of activity.</p> <p>◆ RECORD in open box</p>	
NEXT	→ C1 [Occupied/vacant all 2012]

SECTION C. OCCUPANCY AND OPERATING HOURS

C1	Occupied/vacant all 2012	<i>ESTOCC</i>
ASK	All Establishments	
FILL	{VacOcc} IF Establishment activity = Vacant = "Was this establishment vacant" IF Establishment activity ≠ Vacant = "Did this establishment occupy this same space"	
{VacOcc} for all of calendar year 2012? 1 Yes 2 No		
NEXT	IF Yes: IF Establishment activity = Vacant → D1 [Heating] IF Establishment activity ≠ Vacant → C6 [Seasonal use] IF No → C2 [Month occupied/vacant] IF DK/RF → C6 [Seasonal use]	

C2	Month occupied/vacant	<i>MONOCC</i>
ASK	IF C1 [Occupied/vacant all 2012] = No	
FILL	{VacOcc} IF Establishment activity = Vacant = "become vacant" OTHERWISE = "begin occupying this space"	
In what month of 2012 did this establishment {VacOcc}? 1 January 2 February 3 March 4 April 5 May 6 June 7 July 8 August 9 September 10 October 11 November 12 December 13 IF VOLUNTEERED: Establishment did not begin occupying space until 2013		
NEXT	IF Establishment did not begin occupying space until 2013 → C3 [Vacant in 2012] IF Establishment activity = Vacant → D1 [Heating] OTHERWISE → C6 [Seasonal use]	

C3	Vacant in 2012	<i>VACPRIOR</i>
ASK	IF C2 [Month occupied/vacant] = Establishment did not begin occupying space until 2013	
<p>Was this space vacant for all of 2012, did some other establishment occupy this space for all or part of 2012, or do you not know about the activity in this space in 2012?</p> <ol style="list-style-type: none"> 1 Yes, it was vacant for all of 2012 2 No, some other establishment occupied the space 		
NEXT	IF No, some other establishment occupied the space → C4 [Prior establishment activity] IF Yes OR DK/RF → C5 [End of interview]	

C4	Prior establishment activity	<i>ACTPRIOR</i>
ASK	IF C3 [Vacant in 2012] = No, some other establishment occupied the space	
<p>□ SHOW CARD B2</p> <p>Looking at the list of activities on Show Card B2, which one best describes the activity of the establishment that occupied this space in 2012?</p> <ol style="list-style-type: none"> 1 Retail store 2 Food sales 3 Food service 4 Dry cleaner/Laundromat 5 Office/Financial 6 Medical/Dental 7 Education/Child care 8 Movie theater/Cinema 9 Beauty salon/Tanning salon 10 Fitness center/Dance studio 11 Vacant 12 Other 		
NEXT	→ C5 [End of interview]	

C5	End of interview	
ASK	IF C2 [Month occupied/vacant] = Establishment did not begin occupying space until 2013	
<p>Thank you, that's all the questions that I have at this time, since we are only interviewing establishments that were occupying this space in 2012.</p> <p>Thank you for your time and help.</p> <p>◆ [F10]-Exit</p>		
NEXT	TERMINATE	

C6	Seasonal use	<i>SEASONAL</i>
ASK	IF Establishment activity ≠ Vacant	
<p>Is this a seasonal establishment, that is, were there any months during 2012 when the hours of operation were significantly greater than in the other months?</p> <p>◆ EXP: [For example, we are looking for establishments in resort towns that drastically reduce their hours during the off season. Do not include retail establishments that are open for extended hours during the holiday season.]</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → C7 [Months of high season] IF No/DK/RF → C8 [Open 24 hours a day]	

C7	Months of high season	<i>MONHIGH</i>
ASK	IF C6 [Seasonal use] = Yes	
<p>How many months of 2012 were in the “high season,” that is, the months when the hours of operation were significantly greater than the other months?</p>		
RANGE	1 to 12	
NEXT	→ C8 [Open 24 hours a day]	

C8	Open 24 hours a day	<i>OPEN24</i>
ASK	IF Establishment activity ≠ Vacant	
FILL	{SeasonalFill} IF C6 [Seasonal use] = Yes = “Thinking of the months of high seasonal use, now’ OTHERWISE = “Now”	
[F1]-HELP		
<p>{SeasonalFill} I have some questions about the hours that this establishment is normally open.</p> <p>“Normally open” means the hours when the usual activities occur. Do <u>not</u> consider the establishment to be open if <u>only</u> maintenance, housekeeping, or security personnel are present.</p> <p>Is this establishment normally open 24 hours a day, seven days a week?</p> <p>1 Yes 2 No</p>		
NEXT	IF No OR DK/RF → C9 [Open during week] IF Yes: IF C6 [Seasonal use] = Yes → C14 [Open during the off season] OTHERWISE → C16 [Number of employees]	

C9	Open during week	<i>OPNMF</i>
ASK	IF C8 [Open 24 hours a day] = No OR DK/RF	
		[F1]-HELP
	Thinking of Monday through Friday, is this establishment open all five days, open some of these days, or is it not open at all Monday through Friday?	
	<ol style="list-style-type: none"> 1 All five days 2 Some of these days 3 Not open at all Monday through Friday 	
NEXT	→ C10 [Open on weekend]	

C10	Open on weekend	<i>OPNWE</i>
ASK	IF C8 [Open 24 hours a day] = No OR DK/RF	
		[F1]-HELP
	Is this establishment normally open at all on the weekend?	
	◆ EXP: [If only open one day of the weekend, consider to be open.]	
	<ol style="list-style-type: none"> 1 Yes 2 No 	
NEXT	IF No & C9 [Open during week] = Not open at all Monday through Friday → C11 [No operating hours] OTHERWISE → C12 [Total hours open per week]	

C11	No operating hours	<i>NOHRS</i>
ASK	IF C9 [Open during week] = Not open at all Monday through Friday & C10 [Open on weekend] = No	
		[F1]-HELP
	I would just like to confirm that this establishment does not have any normal operating hours?	
	<ol style="list-style-type: none"> 1 True, no operating hours 2 False, there are operating hours 	
NEXT	IF False, there are operating hours OR DK/RF → C12 [Total hours open per week] IF True, no operating hours: IF C6 [Seasonal use] = Yes → C14 [Open during the off season] OTHERWISE → C16 [Number of employees]	

C12	Total hours open per week	<i>WKHRS</i>
ASK	IF (C9 [Open during week] = All five days OR Some of these days) OR C10 [Open on weekend] = Yes OR C11 [No operating hours] = False, there are operating hours	
How many total hours per week is the establishment normally open?		[F1]-HELP
◆ DEF: ["Normally open" means the hours when the usual activities occur.]		
RANGE	0 to 168	
NEXT	IF DK/RF → C13 [Weekly hours category] IF C6 [Seasonal use] = Yes → C14 [Open during the off season] OTHERWISE → C16 [Number of employees]	

C13	Weekly hours category	<i>WKHRSC</i>
ASK	IF C12 [Total hours open per week] = DK/RF	
[] SHOW CARD C4		[F1]-HELP
Which category on Show Card C4 best describes the total hours per week that the establishment is normally open?		
◆ DEF: ["Normally open" means the hours when the usual activities occur.]		
1 1 to 39 2 40 to 48 3 49 to 60 4 61 to 84 5 85 to 167 6 168		
NEXT	IF C6 [Seasonal use] = Yes → C14 [Open during the off season] OTHERWISE → C16 [Number of employees]	

C14	Open during the off season	<i>OFFSEASN</i>
ASK	IF C6 [Seasonal use] = Yes	
Is this establishment normally open at all during the months that are <u>not</u> in the high season?		
◆ DEF: ["Normally open" means the hours when the usual activities occur.]		
1 Yes 2 No		
NEXT	IF Yes → C15 [Off season hours category] IF No OR DK/RF → C16 [Number of employees]	

C15	Off season hours category	<i>LOWHRSC</i>
ASK	IF C14 [Open during the off season] = Yes	
FILL	{LowMonths} IF C7 [Months of high season] ≠ DK/RF = 12 - C7 [Months of high season] IF C7 [Months of high season] = DK/RF = BLANK	
<input type="checkbox"/> SHOW CARD C4		[F1]-HELP
<p>Thinking of the {LowMonths} months that are <u>not</u> in the high season, which category on Show Card C4 best describes the total hours per week that the establishment is normally open?</p> <p>◆ DEF: ["Normally open" means the hours when the usual activities occur.]</p> <ul style="list-style-type: none"> 1 1 to 39 2 40 to 48 3 49 to 60 4 61 to 84 5 85 to 167 6 168 		
NEXT	→ C16 [Number of employees]	

C16	Number of employees	<i>NWKER</i>
ASK	IF Establishment activity ≠ Vacant	
<input type="checkbox"/> SHOW CARD C4		[F1]-HELP
<p>How many employees work <u>in the establishment</u> during the main shift, that is, when most employees are present?</p> <p>◆ EXP: [Include any volunteer workers. Do not include employees who always work outside the establishment (such as drivers with delivery routes), customers, patients, students, or institutionalized residents.]</p>		
RANGE	0 to 99,999	
NEXT	Number given → D1 [Heating] DK/RF → C17 [Number of employees category]	

C17	Number of employees category	NWKERC
ASK	IF C16 [Number of employees] = DK/RF	
<input type="checkbox"/> SHOW CARD C5		[F1]-HELP
<p>Which category on Show Card C5 best describes how many employees work <u>in the establishment</u> during the main shift?</p>		
<ul style="list-style-type: none"> 1 None 2 1 to 4 3 5 to 9 4 10 to 19 5 20 to 49 6 50 to 99 7 100 to 249 8 250 to 499 9 500 to 999 10 1,000 to 2,499 11 2,500 to 4,999 12 5,000 or More 		
NEXT	→ D1 [Heating]	

SECTION D. ENERGY USE AND EQUIPMENT

D1	Heating	<i>HT1</i>
ASK	All Establishments	
FILL	<p>{Worksheet1Intro} IF R has Worksheet 1 = "Please continue to refer to Worksheet 1 for some of these next questions on energy sources, uses, and equipment." OTHERWISE = BLANK</p>	
		[F1]-HELP
<p>{Worksheet1Intro}</p> <p>For the next five questions, please tell me if energy was used in this establishment for any of these purposes during calendar year 2012.</p> <p>Was any energy used for heating the establishment?</p> <p>1 Yes 2 No</p>		
NEXT	→ D2 [Cooling]	

D2	Cooling	<i>COOL</i>
ASK	All Establishments	
		[F1]-HELP
<p>(Was any energy used...)</p> <p>For air conditioning?</p> <p>1 Yes 2 No</p>		
NEXT	→ D3 [Water heating]	

D3	Water heating	<i>WATR</i>
ASK	All Establishments	
		[F1]-HELP
<p>(Was any energy used...)</p> <p>For heating water for purposes such as washing hands, dishes, or clothes?</p> <p>1 Yes 2 No</p>		
NEXT	→ D4 [Cooking]	

D4	Cooking	<i>COOK</i>
ASK	All Establishments	
		[F1]-HELP
	<p>(Was any energy used...)</p> <p>For cooking?</p> <p>◆ EXP: [If there is only minimal cooking, such as microwaves, hot plates, or toaster ovens, answer "No."]</p> <p>1 Yes 2 No</p>	
NEXT	IF D1 [Heating] = DK/RF & D2 [Cooling] = DK/RF & D3 [Water heating] = DK/RF & D4 [Cooking] = DK/RF → D5 [Missing end uses] OTHERWISE → D6 [Manufacturing]	

D5	Missing end uses	
SHOW	IF D1 [Heating] = DK/RF & D2 [Cooling] = DK/RF & D3 [Water heating] = DK/RF & D4 [Cooking] = DK/RF	
	<p>◆ INTERVIEWER: You have entered DK or RF for the four major end use questions. This information is important for understanding how energy is used in this establishment. You may need to find a new respondent at this point. Explain to the current respondent that the remainder of the questionnaire contains technical information about energy use and equipment and ask whether the respondent would want us to consult someone else for these questions.</p> <p>◆ ENTER "1" when you are ready to continue</p>	
NEXT	→ D6 [Manufacturing]	

D6	Manufacturing	<i>MANU</i>
ASK	All Establishments	
		[F1]-HELP
	<p>(Was any energy used...)</p> <p>For manufacturing?</p> <p>1 Yes 2 No</p>	
NEXT	IF No & D1 [Heating] = No & D2 [Cooling] = No & D3 [Water heating] = No & D4 [Cooking] = No → D7 [Any energy used] OTHERWISE → D8 [Electricity generation capability]	

D7	Any energy used	<i>ANYEGY</i>
ASK	IF D1 [Heating] = No & D2 [Cooling] = No & D3 [Water heating] = No & D4 [Cooking] = No & D6 [Manufacturing] = No	
<p>I did not record any uses of energy for this establishment. Did this establishment use <u>any</u> energy in 2012 for other purposes, such as lighting or appliances?</p> <p>1 Yes, some energy was used in 2012 2 No, no energy was used</p>		
NEXT	IF Yes, some energy was used OR DK/RF ⇒ D8 [Electricity generation capability] IF No, no energy was used ⇒ E83 [Window glass type]	

D8	Electricity generation capability	<i>CAPGEN</i>
ASK	IF D1 [Heating] = Yes OR D2 [Cooling] = Yes OR D3 [Water heating] = Yes OR D4 [Cooking] = Yes OR D6 [Manufacturing] = Yes OR D7 [Any energy used] = Yes, some energy was used OR DK/RF	
<p style="text-align: right;">[F1]-HELP</p> <p>Does this establishment have the ability to generate electricity, including for emergency backup?</p> <p>1 Yes 2 No</p>		
NEXT	⇒ D9 [Energy sources used]	

D9	Energy sources used	<i>see below</i>																											
ASK	IF D1 [Heating] = Yes OR D2 [Cooling] = Yes OR D3 [Water heating] = Yes OR D4 [Cooking] = Yes OR D6 [Manufacturing] = Yes OR D7 [Any energy used] = Yes, some energy was used OR DK/RF																												
<p style="text-align: right;">[F1]-HELP</p> <p>□ SHOW CARD D1</p> <p>Looking at this list of energy sources on Show Card D1, please tell me which ones were used <u>in this establishment</u> for any purpose in 2012.</p> <ul style="list-style-type: none"> ◆ EXP: [Include fuel oil, diesel, or kerosene if it was purchased or delivered in 2012, even if it was not used during that time.] ◆ EXP: [Do not include any fuels used in vehicles outside the establishment.] ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">11</td> <td style="width: 80%;">Electricity</td> <td style="width: 10%; text-align: right;"><i>ELUSED</i></td> </tr> <tr> <td>12</td> <td>Natural gas</td> <td style="text-align: right;"><i>NGUSED</i></td> </tr> <tr> <td>13</td> <td>Fuel oil, diesel, or kerosene</td> <td style="text-align: right;"><i>FKUSED</i></td> </tr> <tr> <td>14</td> <td>Bottled gas, also known as LPG or propane</td> <td style="text-align: right;"><i>PRUSED</i></td> </tr> <tr> <td>15</td> <td>District steam piped in from a separate building or utility</td> <td style="text-align: right;"><i>STUSED</i></td> </tr> <tr> <td>16</td> <td>District hot water piped in from a separate building or utility</td> <td style="text-align: right;"><i>HWUSED</i></td> </tr> <tr> <td>17</td> <td>District chilled water piped in from a separate building or utility</td> <td style="text-align: right;"><i>CWUSED</i></td> </tr> <tr> <td>18</td> <td>Wood, coal, or solar</td> <td></td> </tr> <tr> <td>24</td> <td>Other source or sources</td> <td style="text-align: right;"><i>OTUSED</i></td> </tr> </table>			11	Electricity	<i>ELUSED</i>	12	Natural gas	<i>NGUSED</i>	13	Fuel oil, diesel, or kerosene	<i>FKUSED</i>	14	Bottled gas, also known as LPG or propane	<i>PRUSED</i>	15	District steam piped in from a separate building or utility	<i>STUSED</i>	16	District hot water piped in from a separate building or utility	<i>HWUSED</i>	17	District chilled water piped in from a separate building or utility	<i>CWUSED</i>	18	Wood, coal, or solar		24	Other source or sources	<i>OTUSED</i>
11	Electricity	<i>ELUSED</i>																											
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18	Wood, coal, or solar																												
24	Other source or sources	<i>OTUSED</i>																											
NEXT	IF Fuel, oil, diesel, or kerosene selected ⇒ D10 [Fuel oil, diesel, or kerosene] IF Wood, coal, or solar selected ⇒ D11 [Wood, coal, or solar] IF Other source or sources selected ⇒ D12 [Other energy source 1] IF District steam or District hot water selected ⇒ D15 [From central plant] IF DK/RF: IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] IF D8 [Electricity generation capability] ≠ Yes → E1 [Section E Routing] OTHERWISE: IF D1 [Heating] = Yes ⇒ D21 [Source for main heating] IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]																												

D10	Fuel oil, diesel, or kerosene	<i>FKTYPE</i>
ASK	IF Fuel oil, diesel, or kerosene IN D9 [Energy sources used]	
		[F1]-HELP
	<p>◆ VERIFY if volunteered in previous question</p> <p>You mentioned fuel oil, diesel, or kerosene. Which of these were used (in this establishment in 2012)?</p> <p>◆ ENTER all that apply</p> <p>1 Fuel oil 2 Diesel 3 Kerosene</p>	
NEXT	IF Wood, coal, or solar IN D9 [Energy sources used] ⇒ D11 [Wood, coal, or solar] IF Other source or sources IN D9 [Energy sources used] ⇒ D12 [Other energy source 1] IF District steam or District hot water IN D9 [Energy sources used] ⇒ D15 [From central plant] OTHERWISE: IF D1 [Heating] = Yes ⇒ D21 [Source for main heating] IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D11	Wood, coal, or solar	<i>see below</i>
ASK	IF Wood, coal, or solar IN D9 [Energy sources used]	
	<p>◆ VERIFY if volunteered in previous question</p> <p>You mentioned wood, coal, or solar. Which of these were used (in this establishment in 2012)?</p> <p>◆ ENTER all that apply</p> <p>1 Wood <i>WOUSED</i> 2 Coal <i>COUSED</i> 3 Solar <i>SOUSED</i></p>	
NEXT	IF Other source or sources IN D9 [Energy sources used] ⇒ D12 [Other energy source 1] IF District steam or District hot water IN D9 [Energy sources used] ⇒ D15 [From central plant] OTHERWISE: IF D1 [Heating] = Yes ⇒ D21 [Source for main heating] IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D12	Other energy source 1	<i>OTUSDX1</i>
ASK	IF Other source or sources IN D9 [Energy sources used]	
<p>What was the first other energy source used (in this establishment in 2012)?</p> <p>◆ ENTER the first energy source used</p>		
NEXT	⇒ D13 [Other energy source 2]	

D13	Other energy source 2	<i>OTUSDX2</i>
ASK	IF Other source or sources IN D9 [Energy sources used]	
<p>Were there any other energy sources used (in this establishment in 2012)?</p> <p>◆ ENTER the next energy source</p> <p>◆ [ENTER] if no others</p>		
NEXT	<p>IF Source entered here ⇒ D14 [Other energy source 3]</p> <p>IF No source entered here: IF District steam or District hot water IN D9 [Energy sources used] = No ⇒ D15 [From central plant]</p> <p>OTHERWISE: IF D1 [Heating] = Yes ⇒ D21 [Source for main heating] IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]</p>	

D14	Other energy source 3	<i>OTUSDX3</i>
ASK	IF Source was entered in D13 [Other energy source 2]	
<p>Were there any other energy sources used (in this establishment in 2012)?</p> <p>◆ ENTER the next energy source</p> <p>◆ [ENTER] if no others</p>		
NEXT	<p>IF District steam or District hot water IN D9 [Energy sources used] ⇒ D15 [From central plant]</p> <p>OTHERWISE: IF D1 [Heating] = Yes ⇒ D21 [Source for main heating] IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]</p>	

D15	From central plant	<i>DHFRPL</i>
ASK	IF District steam or District hot water IN D9 [Energy sources used]	
<p>Is the district steam or hot water piped in from a central physical plant that is part of the same campus or complex as this building?</p> <p>1 Yes 2 No</p>		
NEXT	IF No OR DK/RF ⇒ D20 [Purchase from offsite] IF Yes: IF NOT District steam IN D9 [Energy sources used] → D16 [Plant produces district steam] IF District steam IN D9 [Energy sources used]: IF NOT District hot water IN D9 [Energy sources used] ⇒ D17 [Plant produces district hot water] IF NOT District chilled water IN D9 [Energy sources used] ⇒ D18 [Plant produces district chilled water] OTHERWISE → D19 [Plant produces electricity]	

D16	Plant produces district steam	<i>FACDST</i>
ASK	IF D15 [From central plant] = Yes & NOT District steam IN D9 [Energy sources used]	
		[F1]-HELP
<p>Does the central physical plant produce...</p> <p>District steam?</p> <p>1 Yes 2 No</p>		
NEXT	IF NOT District hot water IN D9 [Energy sources used] ⇒ D17 [Plant produces district hot water] IF NOT District chilled water IN D9 [Energy sources used] ⇒ D18 [Plant produces district chilled water] OTHERWISE → D19 [Plant produces electricity]	

D17	Plant produces district hot water	<i>FACDHW</i>
ASK	IF D15 [From central plant] = Yes & NOT District hot water IN D9 [Energy sources used]	
		[F1]-HELP
<p>(Does the central physical plant produce...)</p> <p>District hot water?</p> <p>1 Yes 2 No</p>		
NEXT	IF District chilled water IN D9 [Energy sources used] ⇒ D19 [Plant produces electricity] OTHERWISE ⇒ D18 [Plant produces district chilled water]	

D18	Plant produces district chilled water	<i>FACDCW</i>
ASK	IF D15 [From central plant] = Yes & NOT District chilled water IN D9 [Energy sources used]	
		[F1]-HELP
	(Does the central physical plant produce...)	
	District chilled water?	
	1 Yes	
	2 No	
NEXT	→ D19 [Plant produces electricity]	

D19	Plant produces electricity	<i>FACELC</i>
ASK	IF D15 [From central plant] = Yes	
		[F1]-HELP
	(Does the central physical plant produce...)	
	Electricity?	
	1 Yes	
	2 No	
NEXT	IF D1 [Heating] = Yes ⇒ D21 [Source for main heating] IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D20	Purchase from offsite	<i>DHOFF</i>
ASK	IF D15 [From central plant] = No OR DK/RF	
<p>Is it (the district steam or hot water) purchased from somewhere off-site, such as a commercial or municipal plant?</p> <p>1 Yes 2 No</p>		
NEXT	IF D1 [Heating] = Yes ⇒ D21 [Source for main heating] IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D21	Source for main heating	<i>see below</i>																																							
ASK	IF D1 [Heating] = Yes																																								
FILL	{Ht1SourcesList} = List of all energy sources used {Electricity} – {Other3} = If a source is used, it appears in this list; if not, the line is blank {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Other1} – {Other3} = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3]																																								
<p>What was the <u>main</u> energy source for heating? (Was it {Ht1SourcesList}?)</p> <ul style="list-style-type: none"> ◆ DEF: [The main energy source for heating is the energy source used to heat most of the square footage in this establishment most of the time.] ◆ EXP: [Do not include electricity if it is used only to run fan motors.] ◆ Only sources already selected are shown here <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">11</td> <td style="width: 70%;">{Electricity}</td> <td style="width: 25%; text-align: right;"><i>ELHT1</i></td> </tr> <tr> <td>12</td> <td>{Natural gas}</td> <td style="text-align: right;"><i>NGHT1</i></td> </tr> <tr> <td>13</td> <td>{FuelOilType}</td> <td style="text-align: right;"><i>FKHT1</i></td> </tr> <tr> <td>14</td> <td>{Bottled gas}</td> <td style="text-align: right;"><i>PRHT1</i></td> </tr> <tr> <td>15</td> <td>{District steam}</td> <td style="text-align: right;"><i>STHT1</i></td> </tr> <tr> <td>16</td> <td>{District hot water}</td> <td style="text-align: right;"><i>HWHT1</i></td> </tr> <tr> <td>18</td> <td>{Wood}</td> <td style="text-align: right;"><i>WOHT1</i></td> </tr> <tr> <td>19</td> <td>{Coal}</td> <td style="text-align: right;"><i>COHT1</i></td> </tr> <tr> <td>20</td> <td>{Solar}</td> <td style="text-align: right;"><i>SOHT1</i></td> </tr> <tr> <td>21</td> <td>{Other1}</td> <td style="text-align: right;"><i>OTHT1</i></td> </tr> <tr> <td>22</td> <td>{Other2}</td> <td style="text-align: right;"><i>OTHT1</i></td> </tr> <tr> <td>23</td> <td>{Other3}</td> <td style="text-align: right;"><i>OTHT1</i></td> </tr> <tr> <td>24</td> <td>Some other energy source</td> <td></td> </tr> </table>			11	{Electricity}	<i>ELHT1</i>	12	{Natural gas}	<i>NGHT1</i>	13	{FuelOilType}	<i>FKHT1</i>	14	{Bottled gas}	<i>PRHT1</i>	15	{District steam}	<i>STHT1</i>	16	{District hot water}	<i>HWHT1</i>	18	{Wood}	<i>WOHT1</i>	19	{Coal}	<i>COHT1</i>	20	{Solar}	<i>SOHT1</i>	21	{Other1}	<i>OTHT1</i>	22	{Other2}	<i>OTHT1</i>	23	{Other3}	<i>OTHT1</i>	24	Some other energy source	
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NEXT	IF Some other energy source ⇒ D22 [Other source for main heating] IF Anything but Some other energy source OR DK/RF: IF More than one energy source used ⇒ D23 [Which other sources for heating] IF Only one energy source used ⇒ D24 [Any other sources for heating]																																								

D22	Other source for main heating	<i>see below</i>																														
ASK	IF D21 [Source for main heating] = Some other energy source																															
<p>What was the other energy source used for <u>main</u> space heating?</p> <table> <tr><td>11</td><td>Electricity</td><td><i>ELHT1</i></td></tr> <tr><td>12</td><td>Natural gas</td><td><i>NGHT1</i></td></tr> <tr><td>13</td><td>Fuel oil/Diesel/Kerosene</td><td><i>FKHT1</i></td></tr> <tr><td>14</td><td>Bottled gas</td><td><i>PRHT1</i></td></tr> <tr><td>15</td><td>District steam</td><td><i>STHT1</i></td></tr> <tr><td>16</td><td>District hot water</td><td><i>HWHT1</i></td></tr> <tr><td>18</td><td>Wood</td><td><i>WOHT1</i></td></tr> <tr><td>19</td><td>Coal</td><td><i>COHT1</i></td></tr> <tr><td>20</td><td>Solar</td><td><i>SOHT1</i></td></tr> <tr><td>24</td><td>Some other energy source</td><td><i>OTHT1</i></td></tr> </table>			11	Electricity	<i>ELHT1</i>	12	Natural gas	<i>NGHT1</i>	13	Fuel oil/Diesel/Kerosene	<i>FKHT1</i>	14	Bottled gas	<i>PRHT1</i>	15	District steam	<i>STHT1</i>	16	District hot water	<i>HWHT1</i>	18	Wood	<i>WOHT1</i>	19	Coal	<i>COHT1</i>	20	Solar	<i>SOHT1</i>	24	Some other energy source	<i>OTHT1</i>
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NEXT	⇒ D24 [Any other sources for heating]																															

D23	Which other sources for heating	<i>HT2 & see below</i>																																										
ASK	IF D1 [Heating] = Yes & More than one energy source used																																											
FILL	<p>{Ht2SourcesList} = List of all energy sources used, minus the one used for main heating {Electricity} – {Other3} = If a source is used (other than for main space heating), it appears in this list; if not, the line is blank {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Other1} – {Other3} = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3]</p>																																											
<p>Which other energy sources, if any, were used for heating? ({Ht2SourcesList})</p> <ul style="list-style-type: none"> ◆ EXP: [Do not include electricity if it is used only to run fan motors.] ◆ Only sources already selected are shown here ◆ PROBE for any others ◆ ENTER all that apply <table> <tr><td>11</td><td>{Electricity}</td><td><i>ELHT2</i></td></tr> <tr><td>12</td><td>{Natural gas}</td><td><i>NGHT2</i></td></tr> <tr><td>13</td><td>{FuelOilType}</td><td><i>FKHT2</i></td></tr> <tr><td>14</td><td>{Bottled gas}</td><td><i>PRHT2</i></td></tr> <tr><td>15</td><td>{District steam}</td><td><i>STHT2</i></td></tr> <tr><td>16</td><td>{District hot water}</td><td><i>HWHT2</i></td></tr> <tr><td>18</td><td>{Wood}</td><td><i>WOHT2</i></td></tr> <tr><td>19</td><td>{Coal}</td><td><i>COHT2</i></td></tr> <tr><td>20</td><td>{Solar}</td><td><i>SOHT2</i></td></tr> <tr><td>21</td><td>{Other1}</td><td><i>OTHT2</i></td></tr> <tr><td>22</td><td>{Other2}</td><td><i>OTHT2</i></td></tr> <tr><td>23</td><td>{Other3}</td><td><i>OTHT2</i></td></tr> <tr><td>24</td><td>Some other energy source</td><td></td></tr> <tr><td>99</td><td>No other sources for heating</td><td></td></tr> </table>			11	{Electricity}	<i>ELHT2</i>	12	{Natural gas}	<i>NGHT2</i>	13	{FuelOilType}	<i>FKHT2</i>	14	{Bottled gas}	<i>PRHT2</i>	15	{District steam}	<i>STHT2</i>	16	{District hot water}	<i>HWHT2</i>	18	{Wood}	<i>WOHT2</i>	19	{Coal}	<i>COHT2</i>	20	{Solar}	<i>SOHT2</i>	21	{Other1}	<i>OTHT2</i>	22	{Other2}	<i>OTHT2</i>	23	{Other3}	<i>OTHT2</i>	24	Some other energy source		99	No other sources for heating	
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NEXT	IF Some other energy source ⇒ D25 [Other source for heating] IF Anything but Some other energy source OR DK/RF ⇒ D26 [Heating equipment types]																																											

D24	Any other sources for heating	<i>HT2</i>
ASK	IF D1 [Heating] = Yes & Only one energy source used	
<p>Were there any other energy sources used for heating?</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes ⇒ D25 [Other source for heating] IF No OR DK/RF ⇒ D26 [Heating equipment types]	

D25	Other source for heating																															
ASK	IF D23 [Which other sources for heating] = Some other energy source OR D24 [Any other sources for heating] = Yes																															
<p>What was the other energy source used for secondary space heating?</p> <table> <tr> <td>11</td> <td>Electricity</td> <td><i>ELHT2</i></td> </tr> <tr> <td>12</td> <td>Natural gas</td> <td><i>NGHT2</i></td> </tr> <tr> <td>13</td> <td>Fuel oil/Diesel/Kerosene</td> <td><i>FKHT2</i></td> </tr> <tr> <td>14</td> <td>Bottled gas</td> <td><i>PRHT2</i></td> </tr> <tr> <td>15</td> <td>District steam</td> <td><i>STHT2</i></td> </tr> <tr> <td>16</td> <td>District hot water</td> <td><i>HWHT2</i></td> </tr> <tr> <td>18</td> <td>Wood</td> <td><i>WOHT2</i></td> </tr> <tr> <td>19</td> <td>Coal</td> <td><i>COHT2</i></td> </tr> <tr> <td>20</td> <td>Solar</td> <td><i>SOHT2</i></td> </tr> <tr> <td>24</td> <td>Some other energy source</td> <td><i>OTHT2</i></td> </tr> </table>			11	Electricity	<i>ELHT2</i>	12	Natural gas	<i>NGHT2</i>	13	Fuel oil/Diesel/Kerosene	<i>FKHT2</i>	14	Bottled gas	<i>PRHT2</i>	15	District steam	<i>STHT2</i>	16	District hot water	<i>HWHT2</i>	18	Wood	<i>WOHT2</i>	19	Coal	<i>COHT2</i>	20	Solar	<i>SOHT2</i>	24	Some other energy source	<i>OTHT2</i>
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NEXT	⇒ D26 [Heating equipment types]																															

NOTE ON ENERGY SOURCES:

Throughout the rest of this questionnaire, there will be references such as “Electricity used” or “Natural gas used.” In addition to the energy sources that were given in D9 [Energy sources used], if sources are added along the way, such as in D22 [Other source for main heating] OR D25 [Other source for heating], those sources are then also considered to be used.

D26	Heating equipment types	<i>see below</i>																					
ASK	IF D1 [Heating] = Yes																						
<p>[] SHOW CARD D2</p> <p>Looking at the list of heating equipment types on Show Card D2, please tell me which types are used in this establishment.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1</td> <td style="width: 70%;">Furnaces that heat air directly, without using steam or hot water</td> <td style="width: 25%; text-align: right;"><i>FURNAC</i></td> </tr> <tr> <td>2</td> <td>Packaged central unit (roof mounted)</td> <td style="text-align: right;"><i>PKGHT</i></td> </tr> <tr> <td>3</td> <td>Boilers inside (or adjacent to) the building that produce steam or hot water</td> <td style="text-align: right;"><i>BOILER</i></td> </tr> <tr> <td>4</td> <td>District steam or hot water piped in from outside the building</td> <td style="text-align: right;"><i>STHW</i></td> </tr> <tr> <td>5</td> <td>Heat pumps (other than components of a packaged unit)</td> <td style="text-align: right;"><i>HTPMPH</i></td> </tr> <tr> <td>6</td> <td>Individual space heaters, other than heat pumps</td> <td style="text-align: right;"><i>SLFCON</i></td> </tr> <tr> <td>7</td> <td>Other heating equipment</td> <td style="text-align: right;"><i>OTHTEQ</i></td> </tr> </table>		1	Furnaces that heat air directly, without using steam or hot water	<i>FURNAC</i>	2	Packaged central unit (roof mounted)	<i>PKGHT</i>	3	Boilers inside (or adjacent to) the building that produce steam or hot water	<i>BOILER</i>	4	District steam or hot water piped in from outside the building	<i>STHW</i>	5	Heat pumps (other than components of a packaged unit)	<i>HTPMPH</i>	6	Individual space heaters, other than heat pumps	<i>SLFCON</i>	7	Other heating equipment	<i>OTHTEQ</i>	[F1]-HELP
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NEXT	IF Furnaces ⇒ D27 [Type of furnace] IF Boilers ⇒ D30 [Type of boiler system] IF District steam or hot water ⇒ D31 [Type of district heat system] IF Other heating equipment ⇒ D32 [Other heating components] IF Packaged central unit ⇒ D38 [Type of packaged heating] IF Heat pumps ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] IF DK/RF: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]																						

D27	Type of furnace
ASK	IF Furnaces IN D26 [Heating equipment types]
[F1]-HELP	
<p>□ SHOW CARD D3</p> <p>Looking at Show Card D3, please tell me the type or types of furnace systems used in the establishment.</p> <p>◆ ENTER all that apply</p> <ol style="list-style-type: none"> 1 Packaged central unit (roof mounted) 2 Split system (residential-type furnace with DX cooling unit) 3 Duct furnace (installed in air distribution duct) 4 Individual room furnace (freestanding or floor-mounted) 	
NEXT	<p>IF Packaged central unit OR Duct furnace ⇒ D28 [Classify furnace as packaged]</p> <p>IF Individual room furnace ⇒ D29 [Classify furnace as space heater]</p> <p>OTHERWISE:</p> <p>IF Boilers IN D26 [Heating equipment types] ⇒ D30 [Type of boiler system]</p> <p>IF District steam or hot water IN D26 [Heating equipment types] ⇒ D31 [Type of district heat system]</p> <p>IF Other heating equipment IN D26 [Heating equipment types] ⇒ D32 [Other heating components]</p> <p>IF Packaged central unit IN D26 [Heating equipment types] ⇒ D38 [Type of packaged heating]</p> <p>IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system]</p> <p>IF Individual space heaters ⇒ D43 [Type of individual heater]</p> <p>OTHERWISE:</p> <p>IF More than one energy source used for heating ⇒ D44 [Explain sources for heating]</p> <p>OTHERWISE ⇒ D45 [Heating ventilation types]</p>

D28	Classify furnace as packaged
ASK	IF Packaged central unit OR Duct furnace IN D27 [Type of furnace]
<p>For the purposes of this study, I am going to refer to the packaged central furnace as a "packaged unit."</p> <p>◆ ENTER "1" to continue</p>	
NEXT	<p>IF Individual room furnace IN D27 [Type of furnace] ⇒ D29 [Classify furnace as space heater]</p> <p>OTHERWISE:</p> <p>IF Boilers IN D26 [Heating equipment types] ⇒ D30 [Type of boiler system]</p> <p>IF District steam or hot water IN D26 [Heating equipment types] ⇒ D31 [Type of district heat system]</p> <p>IF Other heating equipment IN D26 [Heating equipment types] ⇒ D32 [Other heating components]</p> <p>OTHERWISE ⇒ D38 [Type of packaged heating]</p>

D29	Classify furnace as space heater
ASK	IF D27 [Type of furnace] = Individual room furnace
<p>For the purposes of this study, I am going to refer to the individual room furnace as an "individual space heater."</p> <p>◆ ENTER "1" to continue</p>	
NEXT	<p>IF Boilers IN D26 [Heating equipment types] ⇒ D30 [Type of boiler system] IF District steam or hot water IN D26 [Heating equipment types] ⇒ D31 [Type of district heat system] IF Other heating equipment IN D26 [Heating equipment types] ⇒ D32 [Other heating components] IF Packaged central unit IN D26 [Heating equipment types] ⇒ D38 [Type of packaged heating] IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]</p>

D30	Type of boiler system																					
ASK	IF Boilers IN D26 [Heating equipment types]																					
<p style="text-align: right;">[F1]-HELP</p> <p>□ SHOW CARD D4</p> <p>Looking at Show Card D4, please tell me the type or types of distribution systems used with the boiler.</p> <p>◆ ENTER all that apply</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; vertical-align: top;">1</td> <td style="width: 70%;">Radiators</td> <td style="width: 20%; text-align: right;"><i>BLRRAD</i></td> </tr> <tr> <td>2</td> <td>Fan coil units in rooms (or areas)</td> <td style="text-align: right;"><i>BLRFNCL</i></td> </tr> <tr> <td>3</td> <td>Induction units</td> <td style="text-align: right;"><i>BLRINDC</i></td> </tr> <tr> <td>4</td> <td>Water loop heat pump</td> <td style="text-align: right;"><i>BLRWATR</i></td> </tr> <tr> <td>5</td> <td>Central air handler (hydronic/steam coils)</td> <td style="text-align: right;"><i>BLRAIR</i></td> </tr> <tr> <td>6</td> <td>Packaged unit (hydronic/steam coils)</td> <td style="text-align: right;"><i>BLRPKG</i></td> </tr> <tr> <td>7</td> <td>Duct reheat (hydronic/steam coils)</td> <td style="text-align: right;"><i>BLRDUCT</i></td> </tr> </table>		1	Radiators	<i>BLRRAD</i>	2	Fan coil units in rooms (or areas)	<i>BLRFNCL</i>	3	Induction units	<i>BLRINDC</i>	4	Water loop heat pump	<i>BLRWATR</i>	5	Central air handler (hydronic/steam coils)	<i>BLRAIR</i>	6	Packaged unit (hydronic/steam coils)	<i>BLRPKG</i>	7	Duct reheat (hydronic/steam coils)	<i>BLRDUCT</i>
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NEXT	<p>IF District steam or hot water IN D26 [Heating equipment types] ⇒ D31 [Type of district heat system] IF Other heating equipment IN D26 [Heating equipment types] ⇒ D32 [Other heating components] IF Packaged central unit IN D26 [Heating equipment types] ⇒ D38 [Type of packaged heating] IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE: IF Water loop, Central air handler, Packaged unit, OR Duct reheat given here OR Any type except Individual room furnace IN D27 [Type of furnace] OR Packaged central unit IN D26 [Heating equipment types] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]</p>																					

D31	Type of district heat system																					
ASK	IF District steam or hot water IN D26 [Heating equipment types]																					
[F1]-HELP																						
<p>□ SHOW CARD D4</p> <p>Looking at Show Card D4, please tell me the type or types of distribution systems used with the district steam or hot water.</p> <p>◆ ENTER all that apply</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1</td> <td style="width: 70%;">Radiators</td> <td style="width: 25%; text-align: right;"><i>DHRAD</i></td> </tr> <tr> <td>2</td> <td>Fan coil units in rooms (or areas)</td> <td style="text-align: right;"><i>DHFNCL</i></td> </tr> <tr> <td>3</td> <td>Induction units</td> <td style="text-align: right;"><i>DHINDC</i></td> </tr> <tr> <td>4</td> <td>Water loop heat pump</td> <td style="text-align: right;"><i>DHWATR</i></td> </tr> <tr> <td>5</td> <td>Central air handler (hydronic/steam coils)</td> <td style="text-align: right;"><i>DHAIR</i></td> </tr> <tr> <td>6</td> <td>Packaged unit (hydronic/steam coils)</td> <td style="text-align: right;"><i>DHPKG</i></td> </tr> <tr> <td>7</td> <td>Duct reheat (hydronic/steam coils)</td> <td style="text-align: right;"><i>DHDUCT</i></td> </tr> </table>		1	Radiators	<i>DHRAD</i>	2	Fan coil units in rooms (or areas)	<i>DHFNCL</i>	3	Induction units	<i>DHINDC</i>	4	Water loop heat pump	<i>DHWATR</i>	5	Central air handler (hydronic/steam coils)	<i>DHAIR</i>	6	Packaged unit (hydronic/steam coils)	<i>DHPKG</i>	7	Duct reheat (hydronic/steam coils)	<i>DHDUCT</i>
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7	Duct reheat (hydronic/steam coils)	<i>DHDUCT</i>																				
NEXT	<p>IF Other heating equipment IN D26 [Heating equipment types] ⇒ D32 [Other heating components]</p> <p>IF Packaged central unit IN D26 [Heating equipment types] ⇒ D38 [Type of packaged heating]</p> <p>IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system]</p> <p>IF Individual space heaters ⇒ D43 [Type of individual heater]</p> <p>OTHERWISE:</p> <p>IF Water loop, Central air handler, Packaged unit, OR Duct reheat given here</p> <p>OR Any type except Individual room furnace IN D27 [Type of furnace]</p> <p>OR Packaged central unit IN D26 [Heating equipment types]</p> <p>⇒ D45 [Heating ventilation types]</p> <p>OTHERWISE:</p> <p>IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling]</p> <p>OTHERWISE ⇒ D61 [Building automation system]</p>																					

D32	Other heating components												
ASK	IF Other heating equipment IN D26 [Heating equipment types]												
[F1]-HELP													
<p>□ SHOW CARD D5</p> <p>Looking at Show Card D5, please tell me if the other heating equipment includes any of these components.</p> <p>◆ ENTER all that apply</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10px;">1</td> <td style="width: 70%;">Heating coil or electric heat strip</td> <td style="width: 20%; text-align: right;"><i>OTSTRP</i></td> </tr> <tr> <td>2</td> <td>Duct reheat or electric reheat</td> <td style="text-align: right;"><i>OTDUCT</i></td> </tr> <tr> <td>3</td> <td>Powered induction units (PIU)</td> <td style="text-align: right;"><i>OTPIU</i></td> </tr> <tr> <td>4</td> <td>None of these components</td> <td></td> </tr> </table>		1	Heating coil or electric heat strip	<i>OTSTRP</i>	2	Duct reheat or electric reheat	<i>OTDUCT</i>	3	Powered induction units (PIU)	<i>OTPIU</i>	4	None of these components	
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2	Duct reheat or electric reheat	<i>OTDUCT</i>											
3	Powered induction units (PIU)	<i>OTPIU</i>											
4	None of these components												
NEXT	<p>IF Any components:</p> <p>IF Packaged central unit IN D26 [Heating equipment types] OR Packaged central unit OR Duct furnace IN D27 [Type of furnace] ⇒ D33 [Classify other as part of packaged]</p> <p>IF Boiler IN D26 [Heating equipment types] ⇒ D34 [Classify other as part of boiler]</p> <p>IF District steam or hot water IN D26 [Heating equipment types] ⇒ D35 [Classify other as part of district]</p> <p>OTHERWISE ⇒ D36 [Classify other as packaged]</p> <p>IF None of these components OR DK/RF ⇒ D37 [Other heat specify]</p>												

D33	Classify other as part of packaged
ASK	IF Any components given in D32 [Other heating components] & Packaged central unit IN D26 [Heating equipment types] OR Packaged central unit OR Duct furnace IN D27 [Type of furnace]
<p>For the purposes of this study, I am going to consider the other heating equipment to be part of the packaged unit.</p> <p>◆ ENTER "1" to continue</p>	
NEXT	⇒ D38 [Type of packaged heating]

D34	Classify other as part of boiler
ASK	IF Any components given in D32 [Other heating components] & Boiler IN D26 [Heating equipment types]
<p>For the purposes of this study, I am going to consider the other heating equipment to be part of the boiler system.</p> <p>◆ ENTER "1" to continue</p>	
NEXT	<p>IF Packaged central unit IN D26 [Heating equipment types] ⇒ D38 [Type of packaged heating] IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE: IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given in D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]</p>

D35	Classify other as part of district
ASK	IF Any components given in D32 [Other heating components] & District steam or hot water IN D26 [Heating equipment types]
<p>For the purposes of this study, I am going to consider the other heating equipment to be part of the district heating system.</p> <p>◆ ENTER "1" to continue</p>	
NEXT	<p>IF Packaged central unit IN D26 [Heating equipment types] ⇒ D38 [Type of packaged heating] IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE: IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given in D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]</p>

D36	Classify other as packaged
ASK	IF Any components given in D32 [Other heating components] & NOT (Packaged central unit IN D26 [Heating equipment types] OR Packaged central unit OR Duct furnace IN D27 [Type of furnace] OR Boiler IN D26 [Heating equipment types] OR District steam or hot water IN D26 [Heating equipment types])
<p>For the purposes of this study, I am going to refer to the other heating equipment as a “packaged unit.” In the next couple questions I just need to verify some of the components of the packaged system.</p> <p>◆ ENTER "1" to continue</p>	
NEXT	⇒ D38 [Type of packaged heating]

D37	Other heat specify
ASK	IF Other heating equipment IN D26 [Heating equipment types] & D32 [Other heating components] = None of these components
<p>Please describe the other type of heating equipment.</p> <p>◆ RECORD in open box</p>	
NEXT	IF Packaged central unit IN D26 [Heating equipment types] ⇒ D38 [Type of packaged heating] IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE: IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given in D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]

D38	Type of packaged heating	<i>PKGHTTYP</i>
ASK	IF Packaged central unit IN D26 [Heating equipment types] OR Packaged central unit OR Duct furnace IN D27 [Type of furnace] OR Any components given in D32 [Other heating components] & NOT (Packaged central unit IN D26 [Heating equipment types] OR Packaged central unit OR Duct furnace IN D27 [Type of furnace] OR Boiler IN D26 [Heating equipment types] OR District steam or hot water IN D26 [Heating equipment types])	
[F1]-HELP		
<input type="checkbox"/> SHOW CARD D6 Please look at Show Card D6 and tell me if the packaged unit is a factory-assembled unitary packaged unit or a custom built-up unit? 1 Factory-assembled unitary packaged unit 2 Custom built-up packaged unit 3 IF VOLUNTEERED: Both factory-assembled and custom built-up packaged units		
NEXT	IF Any type given ⇒ D39 [Packaged heating components] IF DK/RF: IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE ⇒ D45 [Heating ventilation types]	

D39	Packaged heating components											
ASK	IF Any type given in D38 [Type of packaged heating]											
[F1]-HELP												
<input type="checkbox"/> SHOW CARD D6 Looking at the second list on Show Card D6, please tell me which heating components are part of this packaged system. ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1 Furnace</td> <td style="width: 50%; text-align: right;"><i>PKG FURN</i></td> </tr> <tr> <td>2 Heat pump</td> <td style="text-align: right;"><i>PKG HTP</i></td> </tr> <tr> <td>3 Heating coil</td> <td style="text-align: right;"><i>PKG COIL</i></td> </tr> <tr> <td>4 Powered induction unit (PIU)</td> <td style="text-align: right;"><i>PKG PIU</i></td> </tr> <tr> <td>5 Duct reheat</td> <td style="text-align: right;"><i>PKG DUCT</i></td> </tr> </table>			1 Furnace	<i>PKG FURN</i>	2 Heat pump	<i>PKG HTP</i>	3 Heating coil	<i>PKG COIL</i>	4 Powered induction unit (PIU)	<i>PKG PIU</i>	5 Duct reheat	<i>PKG DUCT</i>
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5 Duct reheat	<i>PKG DUCT</i>											
NEXT	IF Heat pumps IN D26 [Heating equipment types] ⇒ D40 [Heat pump heating system] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE ⇒ D45 [Heating ventilation types]											

D40	Heat pump heating system	<i>see below</i>															
ASK	IF Heat pumps IN D26 [Heating equipment types]																
<p>[] SHOW CARD D7</p> <p>Please look at the first list on Show Card D7 and tell me which heat pump systems are used for heating in this establishment.</p> <p>◆ ENTER all that apply</p> <table> <tr> <td>1</td> <td>Packaged unit</td> <td><i>HPHPKG</i></td> </tr> <tr> <td>2</td> <td>Split system (residential-type)</td> <td><i>HPHSPLT</i></td> </tr> <tr> <td>3</td> <td>Individual room heat pump (packaged terminal heat pump or PTHP)</td> <td><i>HPHROOM</i></td> </tr> <tr> <td>4</td> <td>Ductless mini-split system</td> <td><i>HPHMINI</i></td> </tr> <tr> <td>5</td> <td>Variable refrigerant flow (VRF) system</td> <td><i>HPHVRF</i></td> </tr> </table>		1	Packaged unit	<i>HPHPKG</i>	2	Split system (residential-type)	<i>HPHSPLT</i>	3	Individual room heat pump (packaged terminal heat pump or PTHP)	<i>HPHROOM</i>	4	Ductless mini-split system	<i>HPHMINI</i>	5	Variable refrigerant flow (VRF) system	<i>HPHVRF</i>	[F1]-HELP
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NEXT	⇒ D41 [Heat pump heating type]																

D41	Heat pump heating type	<i>see below</i>												
ASK	IF Heat pumps IN D26 [Heating equipment types]													
<p>[] SHOW CARD D7</p> <p>Looking at the second list on Show Card D7, which types of heat pumps are these?</p> <p>◆ ENTER all that apply</p> <table> <tr> <td>1</td> <td>Air source heat pump</td> <td><i>HPHAIR</i></td> </tr> <tr> <td>2</td> <td>Ground source or ground water heat pump (geothermal)</td> <td><i>HPHGRD</i></td> </tr> <tr> <td>3</td> <td>Dual source heat pump (combination air source and geothermal)</td> <td><i>HPHDUAL</i></td> </tr> <tr> <td>4</td> <td>Water loop heat pump</td> <td><i>HPHWTR</i></td> </tr> </table>		1	Air source heat pump	<i>HPHAIR</i>	2	Ground source or ground water heat pump (geothermal)	<i>HPHGRD</i>	3	Dual source heat pump (combination air source and geothermal)	<i>HPHDUAL</i>	4	Water loop heat pump	<i>HPHWTR</i>	[F1]-HELP
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NEXT	IF Air source heat pump & Natural gas OR Bottled gas used for heating ⇒ D42 [Heat pump backup] IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE: IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given IN D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] OR Packaged unit OR Split system IN D40 [Heat pump heating system] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]													

D42	Heat pump backup	<i>HPHBKUP</i>
ASK	IF D41 [Heat pump heating type] = Air source heat pump & Natural gas OR Bottled gas used for heating	
FILL	<p>{NatGasBotGas} IF Natural gas but not bottled gas for heating = "natural gas" IF Bottled gas but not natural gas for heating = "bottled gas" IF Both natural gas and bottled gas for heating = "natural gas or bottled gas" { NatGasBotGasList} IF Natural gas but not bottled gas for heating = "Natural gas" IF Bottled gas but not natural gas for heating = "Bottled gas" IF Both natural gas and bottled gas for heating = "Natural gas or bottled gas"</p>	
<p>Does the air source heat pump have electric resistance backup, is it a dual fuel heat pump with {NatGasBotGas} backup, or is there no backup source for the heat pump?</p> <p>◆ DEF: [Air source heat pumps do not operate efficiently when outside temperatures are sub-freezing for extended periods of time. An air source heat pump may use electric resistance coils to provide supplemental heat. Other air source heat pumps may use a natural gas or bottled gas furnace that operates at colder temperatures (these are also known as dual fuel heat pumps)]</p> <ol style="list-style-type: none"> 1 Electric resistance backup 2 {NatGasBotGasList} backup (dual fuel) 3 No backup source 		
NEXT	IF Individual space heaters ⇒ D43 [Type of individual heater] OTHERWISE: IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given IN D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] OR Packaged unit OR Split system IN D40 [Heat pump heating system] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]	

D43	Type of individual heater																					
ASK	IF Individual space heaters IN D26 [Heating equipment types]																					
[F1]-HELP																						
<p>□ SHOW CARD D8</p> <p>Looking at Show Card D8, please tell me the type or types of individual heaters used in the establishment.</p> <p>◆ ENTER all that apply</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1</td> <td style="width: 70%;">Infrared radiant heater (permanent)</td> <td style="width: 25%; text-align: right;"><i>SHRDNT</i></td> </tr> <tr> <td>2</td> <td>Baseboard heater (permanent)</td> <td style="text-align: right;"><i>SHBBRD</i></td> </tr> <tr> <td>3</td> <td>Portable space heater</td> <td style="text-align: right;"><i>SHPORT</i></td> </tr> <tr> <td>4</td> <td>Wall heater</td> <td style="text-align: right;"><i>SHWALL</i></td> </tr> <tr> <td>5</td> <td>Individual furnace</td> <td style="text-align: right;"><i>SHFURN</i></td> </tr> <tr> <td>6</td> <td>Unit heater</td> <td style="text-align: right;"><i>SHUNIT</i></td> </tr> <tr> <td>7</td> <td>Heating element in package terminal air conditioner (PTAC)</td> <td style="text-align: right;"><i>SHPTAC</i></td> </tr> </table>		1	Infrared radiant heater (permanent)	<i>SHRDNT</i>	2	Baseboard heater (permanent)	<i>SHBBRD</i>	3	Portable space heater	<i>SHPORT</i>	4	Wall heater	<i>SHWALL</i>	5	Individual furnace	<i>SHFURN</i>	6	Unit heater	<i>SHUNIT</i>	7	Heating element in package terminal air conditioner (PTAC)	<i>SHPTAC</i>
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6	Unit heater	<i>SHUNIT</i>																				
7	Heating element in package terminal air conditioner (PTAC)	<i>SHPTAC</i>																				
NEXT	<p>IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given in D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] OR Packaged unit OR Split system IN D40 [Heat pump heating system] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]</p>																					

D44	Explain sources for heating
ASK	IF ONLY Boiler, Furnace, OR District heat as heating equipment but more than one energy source used for heating
FILL	{HeatEquip} IF Boilers = "boiler" IF Furnace = "furnace" IF District heat = "district heating system" {HeatSources} = list of the energy sources given for heating
<p>I've recorded just one type of heating equipment - a {HeatEquip} - but more than one energy source – {HeatSources} - for heating. For clarification, will you please briefly explain how these sources are used for operating the {HeatEquip}.</p> <p>◆ RECORD in open box</p>	
NEXT	IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given in D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] OR Packaged unit OR Split system IN D40 [Heat pump heating system] ⇒ D45 [Heating ventilation types] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]

D45	Heating ventilation types												
ASK	<p>IF Any type except Individual room furnace IN D27 [Type of furnace] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D31 [Type of district heat system] OR Any components given in D32 [Other heating components] OR Packaged central unit IN D26 [Heating equipment types] OR Packaged unit OR Split system IN D40 [Heat pump heating system]</p>												
[F1]-HELP													
<p>□ SHOW CARD D9</p> <p>Show Card D9 provides a list of mechanical ventilation equipment types. Please tell me which types are used with the heating system.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">1 Central air handling unit(s) with constant air volume (CAV) control</td> <td style="text-align: right;"><i>HTVCAV</i></td> </tr> <tr> <td>2 Central air handling unit(s) with variable air volume (VAV) control</td> <td style="text-align: right;"><i>HTVVAV</i></td> </tr> <tr> <td>3 Underfloor air distribution</td> <td style="text-align: right;"><i>HTVFLR</i></td> </tr> <tr> <td>4 Dedicated outside air system (DOAS)</td> <td style="text-align: right;"><i>HTVOAS</i></td> </tr> <tr> <td>5 Demand controlled ventilation</td> <td style="text-align: right;"><i>HTVDEM</i></td> </tr> <tr> <td>6 None of these types</td> <td style="text-align: right;"><i>HTVNON</i></td> </tr> </table>		1 Central air handling unit(s) with constant air volume (CAV) control	<i>HTVCAV</i>	2 Central air handling unit(s) with variable air volume (VAV) control	<i>HTVVAV</i>	3 Underfloor air distribution	<i>HTVFLR</i>	4 Dedicated outside air system (DOAS)	<i>HTVOAS</i>	5 Demand controlled ventilation	<i>HTVDEM</i>	6 None of these types	<i>HTVNON</i>
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NEXT	<p>IF None of these types ⇒ D46 [Heating ventilation specify] OTHERWISE: IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]</p>												

D46	Heating ventilation specify
ASK	IF D45 [Heating ventilation types] = None of these types
<p>Please describe the ventilation system that is used with the heating system.</p> <ul style="list-style-type: none"> ◆ RECORD in open box 	
NEXT	<p>IF D2 [Cooling] = Yes ⇒ D47 [Sources for cooling] OTHERWISE ⇒ D61 [Building automation system]</p>

D47	Sources for cooling	<i>see below</i>																																	
ASK	IF D2 [Cooling] = Yes																																		
FILL	<p>{CoolSourcesList} = List of all possible air conditioning energy sources used {Electricity} – {Other3} = If a source is used, it appears in this list; if not, the line is blank {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Other1} – {Other3} = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3]</p>																																		
<p>Which energy sources were used for air conditioning? ({CoolSourcesList})</p> <ul style="list-style-type: none"> ◆ Only sources already selected are shown here ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">11</td> <td style="width: 70%;">{Electricity}</td> <td style="width: 25%; text-align: right;"><i>ELCOOL</i></td> </tr> <tr> <td>12</td> <td>{Natural gas}</td> <td style="text-align: right;"><i>NGCOOL</i></td> </tr> <tr> <td>13</td> <td>{FuelOilType}</td> <td style="text-align: right;"><i>FKCOOL</i></td> </tr> <tr> <td>14</td> <td>{Bottled gas}</td> <td style="text-align: right;"><i>PRCOOL</i></td> </tr> <tr> <td>15</td> <td>{District steam}</td> <td style="text-align: right;"><i>STCOOL</i></td> </tr> <tr> <td>16</td> <td>{District hot water}</td> <td style="text-align: right;"><i>HWCOOL</i></td> </tr> <tr> <td>17</td> <td>{District chilled water}</td> <td style="text-align: right;"><i>CWCOOL</i></td> </tr> <tr> <td>21</td> <td>{Other1}</td> <td style="text-align: right;"><i>OTCOOL</i></td> </tr> <tr> <td>22</td> <td>{Other2}</td> <td style="text-align: right;"><i>OTCOOL</i></td> </tr> <tr> <td>23</td> <td>{Other3}</td> <td style="text-align: right;"><i>OTCOOL</i></td> </tr> <tr> <td>24</td> <td>Some other energy source</td> <td></td> </tr> </table>			11	{Electricity}	<i>ELCOOL</i>	12	{Natural gas}	<i>NGCOOL</i>	13	{FuelOilType}	<i>FKCOOL</i>	14	{Bottled gas}	<i>PRCOOL</i>	15	{District steam}	<i>STCOOL</i>	16	{District hot water}	<i>HWCOOL</i>	17	{District chilled water}	<i>CWCOOL</i>	21	{Other1}	<i>OTCOOL</i>	22	{Other2}	<i>OTCOOL</i>	23	{Other3}	<i>OTCOOL</i>	24	Some other energy source	
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NEXT	IF Some other energy source selected ⇒ D48 [Other source for cooling] OTHERWISE ⇒ D49 [Cooling equipment types]																																		

D48	Other source for cooling	<i>see below</i>																								
ASK	IF Some other energy source IN D47 [Sources for cooling]																									
<p>What was the other energy source used for air conditioning?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">11</td> <td style="width: 70%;">Electricity</td> <td style="width: 25%; text-align: right;"><i>ELCOOL</i></td> </tr> <tr> <td>12</td> <td>Natural gas</td> <td style="text-align: right;"><i>NGCOOL</i></td> </tr> <tr> <td>13</td> <td>Fuel oil/Diesel/Kerosene</td> <td style="text-align: right;"><i>FKCOOL</i></td> </tr> <tr> <td>14</td> <td>Bottled gas</td> <td style="text-align: right;"><i>PRCOOL</i></td> </tr> <tr> <td>15</td> <td>District steam</td> <td style="text-align: right;"><i>STCOOL</i></td> </tr> <tr> <td>16</td> <td>District hot water</td> <td style="text-align: right;"><i>HWCOOL</i></td> </tr> <tr> <td>17</td> <td>District chilled water</td> <td style="text-align: right;"><i>CWCOOL</i></td> </tr> <tr> <td>24</td> <td>Some other energy source</td> <td style="text-align: right;"><i>OTCOOL</i></td> </tr> </table>			11	Electricity	<i>ELCOOL</i>	12	Natural gas	<i>NGCOOL</i>	13	Fuel oil/Diesel/Kerosene	<i>FKCOOL</i>	14	Bottled gas	<i>PRCOOL</i>	15	District steam	<i>STCOOL</i>	16	District hot water	<i>HWCOOL</i>	17	District chilled water	<i>CWCOOL</i>	24	Some other energy source	<i>OTCOOL</i>
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NEXT	⇒ D49 [Cooling equipment types]																									

D49	Cooling equipment types	<i>see below</i>
ASK	IF D2 [Cooling] = Yes	
<p>[] SHOW CARD D11</p> <p>Looking at the list of cooling equipment types on Show Card D11, please tell me which types are used in this establishment.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <ol style="list-style-type: none"> 1 Residential-type central air conditioners, other than heat pumps, that cool air directly and circulate it without using chilled water <i>RCAC</i> 2 Packaged air conditioning units, other than heat pumps <i>PKGCL</i> 3 Central chillers inside (or adjacent to) the building that chill water for air conditioning <i>CHILLR</i> 4 District chilled water piped in from outside the building <i>CHWT</i> 5 Heat pumps for cooling <i>HTPMPC</i> 6 Individual room air conditioners, other than heat pumps <i>ACWNWL</i> 7 "Swamp" coolers or evaporative coolers <i>EVAPCL</i> 8 Other cooling equipment <i>OTCLEQ</i> 		[F1]-HELP
NEXT	IF Packaged air conditioning units ⇒ D50 [Type of packaged cooling] IF Central chillers ⇒ D51 [Type of chiller] IF District chilled water ⇒ D54 [Type of district chilled water system] IF Heat pumps for cooling AND NOT Heat pumps for heating ⇒ D55 [Heat pump cooling system] IF Other cooling equipment ⇒ D57 [Other cool specify] IF DK/RF ⇒ D61 [Building automation system] OTHERWISE: IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR D48 [Other source for cooling] ⇒ D58 [Cool source explanation] IF Residential-type central air & D1 [Heating] = Yes & D45 [Heating ventilation types] ≠DK/RF ⇒ D59 [Cooling ventilation same as heating] IF Residential-type central air & (D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] =DK/RF) ⇒ D60 [Cooling ventilation types] OTHERWISE → D61 [Building automation system]	

D50	Type of packaged cooling	<i>PKGCLTYP</i>
ASK	IF Packaged central unit IN D26 [Heating equipment types] OR Packaged central unit OR Duct furnace IN D27 [Type of furnace] OR Any components given in D32 [Other heating components] & NOT (Packaged central unit IN D26 [Heating equipment types] OR Packaged central unit OR Duct furnace IN D27 [Type of furnace] OR Boiler IN D26 [Heating equipment types] OR District steam or hot water IN D26 [Heating equipment types])	
		[F1]-HELP
<input type="checkbox"/> SHOW CARD D6 Please look at Show Card D6 and tell me if the packaged unit for cooling is a factory-assembled unitary packaged unit or a custom built-up unit? 1 Factory-assembled unitary packaged unit 2 Custom built-up packaged unit 3 IF VOLUNTEERED: Both factory-assembled and custom built-up packaged units		
NEXT	IF Central chillers ⇒ D51 [Type of chiller] IF District chilled water ⇒ D54 [Type of district chilled water system] IF Heat pumps for cooling AND NOT Heat pumps for heating ⇒ D55 [Heat pump cooling system] IF Other cooling equipment ⇒ D57 [Other cool specify] OTHERWISE: IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR D48 [Other source for cooling] ⇒ D58 [Cool source explanation] OTHERWISE: IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠DK/RF ⇒ D59 [Cooling ventilation same as heating] IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] =DK/RF ⇒ D60 [Cooling ventilation types]	

D51	Type of chiller	<i>see below</i>									
ASK	IF Central chillers IN D49 [Cooling equipment types]										
		[F1]-HELP									
<input type="checkbox"/> SHOW CARD D12 Please look at Show Card D12 and tell me whether the chiller is air-cooled, water cooled, or an absorption chiller? ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;">1</td> <td style="width: 70%;">Air-cooled</td> <td style="width: 20%; text-align: right;"><i>CHLAIRCL</i></td> </tr> <tr> <td style="text-align: center;">2</td> <td>Water cooled</td> <td style="text-align: right;"><i>CHLWTRCL</i></td> </tr> <tr> <td style="text-align: center;">3</td> <td>Absorption</td> <td style="text-align: right;"><i>CHLABSRP</i></td> </tr> </table>			1	Air-cooled	<i>CHLAIRCL</i>	2	Water cooled	<i>CHLWTRCL</i>	3	Absorption	<i>CHLABSRP</i>
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NEXT	IF Absorption ⇒ D52 [Heater chiller] OTHERWISE ⇒ D53 [Type of chiller system]										

D52	Heater chiller	<i>HTRCHLR</i>
ASK	IF Absorption IN D51 [Type of chiller]	
<p>A “heater chiller” is a type of absorption chiller can produce both chilled and hot water and can provide both cooling and heating. Does this absorption chiller have this capability?</p> <p>1 Yes 2 No</p>		
NEXT	⇒ D53 [Type of chiller system]	

D53	Type of chiller system	<i>see below</i>																					
ASK	IF Central chillers IN D49 [Cooling equipment types]																						
<p style="text-align: right;">[F1]-HELP</p> <p>□ SHOW CARD D13</p> <p>Please look at Show Card D13 and tell me which system or systems are used for distributing the water from the chiller.</p> <p>◆ ENTER all that apply</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 10px;">1</td> <td>Central air handler (hydronic coils)</td> <td style="text-align: right;"><i>CHLAIR</i></td> </tr> <tr> <td>2</td> <td>Fan coil units in rooms (or areas)</td> <td style="text-align: right;"><i>CHLFNCL</i></td> </tr> <tr> <td>3</td> <td>Induction units</td> <td style="text-align: right;"><i>CHLINDC</i></td> </tr> <tr> <td>4</td> <td>Water loop heat pump</td> <td style="text-align: right;"><i>CHLWATR</i></td> </tr> <tr> <td>5</td> <td>Chilled beam</td> <td style="text-align: right;"><i>CHLBEAM</i></td> </tr> <tr> <td>6</td> <td>Packaged unit (hydronic coils)</td> <td style="text-align: right;"><i>CHLPKG</i></td> </tr> <tr> <td>7</td> <td>Duct reheat</td> <td style="text-align: right;"><i>CHLDUCT</i></td> </tr> </table>			1	Central air handler (hydronic coils)	<i>CHLAIR</i>	2	Fan coil units in rooms (or areas)	<i>CHLFNCL</i>	3	Induction units	<i>CHLINDC</i>	4	Water loop heat pump	<i>CHLWATR</i>	5	Chilled beam	<i>CHLBEAM</i>	6	Packaged unit (hydronic coils)	<i>CHLPKG</i>	7	Duct reheat	<i>CHLDUCT</i>
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NEXT	<p>IF District chilled water ⇒ D54 [Type of district chilled water system] IF Heat pumps for cooling AND NOT Heat pumps for heating ⇒ D55 [Heat pump cooling system] IF Other cooling equipment ⇒ D57 [Other cool specify] OTHERWISE: IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR D48 [Other source for cooling] ⇒ D58 [Cool source explanation] IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠ DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D59 [Cooling ventilation same as heating] IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D60 [Cooling ventilation types] OTHERWISE → D61 [Building automation system]</p>																						

D54	Type of district chilled water system	<i>see below</i>																					
ASK	IF District chilled water IN D49 [Cooling equipment types]																						
		[F1]-HELP																					
	<p>□ SHOW CARD D13</p> <p>Please look at Show Card D13 and tell me which system or systems are used for distributing the district chilled water.</p> <p>◆ ENTER all that apply</p> <table> <tr> <td>1</td> <td>Central air handler (hydronic coils)</td> <td><i>DCWAIR</i></td> </tr> <tr> <td>2</td> <td>Fan coil units in rooms (or areas)</td> <td><i>DCWFNCL</i></td> </tr> <tr> <td>3</td> <td>Induction units</td> <td><i>DCWINDC</i></td> </tr> <tr> <td>4</td> <td>Water loop heat pump</td> <td><i>DCWWATR</i></td> </tr> <tr> <td>5</td> <td>Chilled beam</td> <td><i>DCWBEAM</i></td> </tr> <tr> <td>6</td> <td>Packaged unit (hydronic coils)</td> <td><i>DCWPKG</i></td> </tr> <tr> <td>7</td> <td>Duct reheat</td> <td><i>DCWDUCT</i></td> </tr> </table>		1	Central air handler (hydronic coils)	<i>DCWAIR</i>	2	Fan coil units in rooms (or areas)	<i>DCWFNCL</i>	3	Induction units	<i>DCWINDC</i>	4	Water loop heat pump	<i>DCWWATR</i>	5	Chilled beam	<i>DCWBEAM</i>	6	Packaged unit (hydronic coils)	<i>DCWPKG</i>	7	Duct reheat	<i>DCWDUCT</i>
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NEXT	<p>IF Heat pumps for cooling AND NOT Heat pumps for heating ⇒ D55 [Heat pump cooling system] IF Other cooling equipment ⇒ D57 [Other cool specify] OTHERWISE: IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR D48 [Other source for cooling] ⇒ D58 [Cool source explanation] IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D59 [Cooling ventilation same as heating] IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D60 [Cooling ventilation types] OTHERWISE → D61 [Building automation system]</p>																						

D55	Heat pump cooling system	<i>see below</i>															
ASK	IF Heat pumps IN D49 [Cooling equipment types] & Heat pumps NOT IN D26 [Heating equipment types]																
<p>[] SHOW CARD D7</p> <p>Please look at the first list on Show Card D7 and tell me which heat pump systems are used for cooling in this establishment.</p> <p>◆ ENTER all that apply</p> <table> <tr> <td>1</td> <td>Packaged unit</td> <td><i>HPCPKG</i></td> </tr> <tr> <td>2</td> <td>Split system (residential-type)</td> <td><i>HPCSPLT</i></td> </tr> <tr> <td>3</td> <td>Individual room heat pump (packaged terminal heat pump or PTHP)</td> <td><i>HPCROOM</i></td> </tr> <tr> <td>4</td> <td>Ductless mini-split system</td> <td><i>HPCMINI</i></td> </tr> <tr> <td>5</td> <td>Variable refrigerant flow (VRF) system</td> <td><i>HPCVRF</i></td> </tr> </table>		1	Packaged unit	<i>HPCPKG</i>	2	Split system (residential-type)	<i>HPCSPLT</i>	3	Individual room heat pump (packaged terminal heat pump or PTHP)	<i>HPCROOM</i>	4	Ductless mini-split system	<i>HPCMINI</i>	5	Variable refrigerant flow (VRF) system	<i>HPCVRF</i>	[F1]-HELP
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NEXT	⇒ D56 [Heat pump cooling type]																

D56	Heat pump cooling type	<i>see below</i>												
ASK	IF Heat pumps IN D49 [Cooling equipment types] & Heat pumps NOT IN D26 [Heating equipment types]													
		[F1]-HELP												
	<p>□ SHOW CARD D7</p> <p>Looking at the second list on Show Card D7, which types of heat pumps are these?</p> <p>◆ ENTER all that apply</p> <table> <tr> <td>1</td> <td>Air source heat pump</td> <td><i>HPCAIR</i></td> </tr> <tr> <td>2</td> <td>Ground source or ground water heat pump (geothermal)</td> <td><i>HPCGRD</i></td> </tr> <tr> <td>3</td> <td>Dual source heat pump (combination air source and geothermal)</td> <td><i>HPCDUAL</i></td> </tr> <tr> <td>3</td> <td>Water loop heat pump</td> <td><i>HPCWTR</i></td> </tr> </table>	1	Air source heat pump	<i>HPCAIR</i>	2	Ground source or ground water heat pump (geothermal)	<i>HPCGRD</i>	3	Dual source heat pump (combination air source and geothermal)	<i>HPCDUAL</i>	3	Water loop heat pump	<i>HPCWTR</i>	
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3	Dual source heat pump (combination air source and geothermal)	<i>HPCDUAL</i>												
3	Water loop heat pump	<i>HPCWTR</i>												
NEXT	<p>IF Other cooling equipment ⇒ D57 [Other cool specify] OTHERWISE:</p> <p>IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR D48 [Other source for cooling] ⇒ D58 [Cool source explanation]</p> <p>IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠ DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D59 [Cooling ventilation same as heating]</p> <p>IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D60 [Cooling ventilation types] OTHERWISE → D61 [Building automation system]</p>													

D57	Other cool specify
ASK	IF Other cooling equipment in D49 [Cooling equipment types]
<p>Please describe the other type of cooling equipment.</p> <p>◆ RECORD in open box</p>	
NEXT	<p>IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR D48 [Other source for cooling] ⇒ D58 [Cool source explanation]</p> <p>IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D59 [Cooling ventilation same as heating]</p> <p>IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D60 [Cooling ventilation types] OTHERWISE → D61 [Building automation system]</p>

D58	Cool source explanation
ASK	IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR D48 [Other source for cooling] & Central chillers NOT IN D49 [Cooling equipment types]
FILL	{CoolSources} = List of the energy sources given for cooling, other than electricity or chilled water {IsAre} = IF Only one cooling source in list = "is" IF More than one cooling source in list = "are"
<p>Among the sources for cooling, I have recorded that {CoolSources} {IsAre} used. Because it is somewhat unusual to use sources other than electricity or chilled water for cooling, will you please briefly describe how the {CoolSources} {IsAre} used with the cooling equipment.</p> <p>◆ RECORD in open box</p>	
NEXT	<p>IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D59 [Cooling ventilation same as heating]</p> <p>IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system] ⇒ D60 [Cooling ventilation types] OTHERWISE → D61 [Building automation system]</p>

D59	Cooling ventilation same as heating
ASK	IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠(No ventilation or DK/RF) & Residential-type central air IN D49 [Cooling equipment types] OR Packaged unit IN D49 [Cooling equipment types] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system] OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D54 [Type of district chilled water system] OR Packaged unit OR Split system IN D55 [Heat pump cooling system]
<p>Is the ventilation system for cooling the same as the one for heating?</p> <p>1 Yes 2 No</p>	
NEXT	IF No ⇒ D60 [Cooling ventilation types] OTHERWISE ⇒ D61 [Building automation system]

D60	Cooling ventilation types																		
ASK	IF D59 [Cooling ventilation same as heating] = No																		
[F1]-HELP																			
<p>□ SHOW CARD D9</p> <p>Show Card D9 provides a list of mechanical ventilation equipment types. Please tell me which types are used with the cooling system.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 5%;">1</td> <td style="width: 70%;">Central air handling unit(s) with constant air volume (CAV) control</td> <td style="width: 25%;">CLVCAV</td> </tr> <tr> <td>2</td> <td>Central air handling unit(s) with variable air volume (VAV) control</td> <td>CLVVAV</td> </tr> <tr> <td>3</td> <td>Underfloor air distribution</td> <td>CLVFLR</td> </tr> <tr> <td>4</td> <td>Dedicated outside air system (DOAS)</td> <td>CLVOAS</td> </tr> <tr> <td>5</td> <td>Demand controlled ventilation</td> <td>CLVDEM</td> </tr> <tr> <td>6</td> <td>None of these types</td> <td>CLVNON</td> </tr> </table>		1	Central air handling unit(s) with constant air volume (CAV) control	CLVCAV	2	Central air handling unit(s) with variable air volume (VAV) control	CLVVAV	3	Underfloor air distribution	CLVFLR	4	Dedicated outside air system (DOAS)	CLVOAS	5	Demand controlled ventilation	CLVDEM	6	None of these types	CLVNON
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5	Demand controlled ventilation	CLVDEM																	
6	None of these types	CLVNON																	
NEXT	IF None of these types ⇒ D60a [Cooling ventilation specify] OTHERWISE ⇒ D61 [Building automation system]																		

D60a	Cooling ventilation specify
ASK	IF D60 [Cooling ventilation types] = None of these types
<p>Please describe the ventilation system that is used with the cooling system.</p> <ul style="list-style-type: none"> ◆ RECORD in open box 	
NEXT	⇒ D61 [Building automation system]

D61	Building automation system	<i>EMCS</i>				
ASK	IF D1 [Heating] = Yes OR D2 [Cooling] = Yes					
<p>Does this establishment have a “Building Automation System” which may also be referred to as BAS, smart building controls, an energy management and control system, or EMCS?</p> <ul style="list-style-type: none"> ◆ DEF: [These systems monitor changes in ambient temperature and operating conditions and automatically modify the heating and cooling levels in different interior zones. This is accomplished by means of remote sensing and control instruments, and interpretive and control software.] <table style="width: 100%; border: none;"> <tr> <td style="width: 5%;">1</td> <td style="width: 95%;">Yes</td> </tr> <tr> <td>2</td> <td>No</td> </tr> </table>			1	Yes	2	No
1	Yes					
2	No					
NEXT	IF D1 [Heating] = Yes ⇒ D62 [Reduce heating] OTHERWISE ⇒ D64 [Reduce cooling]					

D62	Reduce heating	<i>RDHTNF</i>
ASK	IF D1 [Heating] = Yes	
FILL	{TimesNotInFullUse} IF C26 [Open 24 hours a day] = Yes OR C30 [Total hours open per week] = 168 OR C31 [Weekly hours category] = 168 = "Are there any periods during a normal 24-hour day when there is" OTHERWISE = "When this establishment is not in full use, is there"	
		[F1]-HELP
	{TimesNotInFullUse} a change in the temperature setting for heating? 1 Yes 2 No	
NEXT	IF Yes ⇒ D63 [How reduce heating] IF No OR DK/RF: IF D2 [Cooling] = Yes ⇒ D64 [Reduce cooling] OTHERWISE: IF More than just Individual space heaters IN D26 [Heating equipment types] → D68 [Regular HVAC maintenance] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D63	How reduce heating	<i>HWRDHT</i>
ASK	IF D62 [Reduce heating] = Yes	
FILL	{PartOfBAS} IF D61 [Building automation system] = Yes = 'as part of the Building Automation System' OTHERWISE = BLANK	
<p>How is the temperature for heating usually changed – {PartOfBAS}, using a programmable thermostat, manually changing the thermostat, or manually shutting down the equipment?</p> <p>◆ DEF: [A programmable thermostat, or "time-clock thermostat" is programmed to automatically change thermostat settings for times when the building is unoccupied.]</p> <ol style="list-style-type: none"> 1 {Part of the Building Automation System} 2 Programmable thermostat 3 Manually reset thermostat 4 Manually shut down equipment 		
NEXT	IF D2 [Cooling] = Yes ⇒ D64 [Reduce cooling] OTHERWISE: IF More than just Individual space heaters IN D26 [Heating equipment types] → D68 [Regular HVAC maintenance] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D64	Reduce cooling	<i>RDCLNF</i>
ASK	IF D2 [Cooling] = Yes	
FILL	<p>{TimesNotInFullUse} IF C26 [Open 24 hours a day] = Yes OR C30 [Total hours open per week] = 168 OR C31 [Weekly hours category] = 168 = "Are there any periods during a normal 24-hour day when there is" OTHERWISE = "When this establishment is not in full use, is there"</p>	
		[F1]-HELP
	<p>{TimesNotInFullUse} a change in the temperature setting for <u>cooling</u>?</p> <p>1 Yes 2 No</p>	
NEXT	IF Yes → D65 [How reduce cooling] IF No OR DK/RF: IF More than just Individual room air conditioners IN D49 [Cooling equipment types] → D66 [Economizer cycle] IF More than just individual space heaters IN D26 [Heating equipment types] ⇒ D68 [Regular HVAC maintenance] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D65	How reduce cooling	<i>HWRDCL & see below</i>
ASK	IF D64 [Reduce cooling] = Yes	
FILL	{PartOfBAS} IF D61 [Building automation system] = Yes = 'as part of the Building Automation System' OTHERWISE = BLANK	
<p>How is the temperature for cooling usually changed – {PartOfBAS}, using a programmable thermostat, manually changing the thermostat, or manually shutting down the equipment?</p> <p>◆ DEF: [A programmable thermostat, or ""time-clock thermostat"" is programmed to automatically change thermostat settings for times when the building is unoccupied.]</p> <ol style="list-style-type: none"> 1 {Part of the Building Automation System} 2 Programmable thermostat 3 Manually reset thermostat 4 Manually shut down equipment 		
NEXT	IF More than just Individual room air conditioners IN D49 [Cooling equipment types] → D66 [Economizer cycle] IF More than just individual space heaters IN D26 [Heating equipment types] ⇒ D68 [Regular HVAC maintenance] IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D66	Economizer cycle	<i>ECN</i>
ASK	IF More than just Individual room air conditioners IN D49 [Cooling equipment types]	
[F1]-HELP		
<p>Does this establishment have any equipment that uses outside air for cooling, often called an "economizer cycle"?</p> <ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes → D67 [Type of economizer cycle] OTHERWISE → D68 [Regular HVAC maintenance]	

D67	Type of economizer cycle	<i>ECNTYPE</i>
ASK	IF D66 [Economizer cycle] = Yes	
<p>□ SHOW CARD D14</p> <p>Looking at Show Card D14, is this an air-side economizer or a water-side economizer?</p> <ol style="list-style-type: none"> 1 Air-side economizer 2 Water-side economizer 		
NEXT	→ D68 [Regular HVAC maintenance]	

D68	Regular HVAC maintenance	<i>MAINT</i>
ASK	IF More than just Individual space heaters IN D26 [Heating equipment types] OR More than just Individual room air conditioners IN D49 [Cooling equipment types]	
FILL	{HeatCool} IF Heating only = "heating" IF Cooling only = "cooling" IF Heating & Cooling = "heating and cooling"	
		[F1]-HELP
<p>Is there any regularly scheduled maintenance and repair for the {HeatCool} system?</p> <ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF D3 [Water heating] = Yes ⇒ D69 [Sources for water heating] IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D69	Sources for water heating	<i>see below</i>																																							
ASK	IF D3 [Water heating] = Yes																																								
FILL	<p>{WatrSourcesList} = List of all energy sources used {Electricity} – {Other3} = If a source is used, it appears in this list; if not, the line is blank {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Other1} – {Other3} = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3]</p>																																								
<p>Which energy sources were used for water heating? ({WatrSourcesList})</p> <ul style="list-style-type: none"> ◆ Only sources already selected are shown here ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">11</td> <td style="width: 70%;">{Electricity}</td> <td style="width: 25%; text-align: right;"><i>ELWATR</i></td> </tr> <tr> <td>12</td> <td>{Natural gas}</td> <td style="text-align: right;"><i>NGWATR</i></td> </tr> <tr> <td>13</td> <td>{FuelOilType}</td> <td style="text-align: right;"><i>FKWATR</i></td> </tr> <tr> <td>14</td> <td>{Bottled gas}</td> <td style="text-align: right;"><i>PRWATR</i></td> </tr> <tr> <td>15</td> <td>{District steam}</td> <td style="text-align: right;"><i>STWATR</i></td> </tr> <tr> <td>16</td> <td>{District hot water}</td> <td style="text-align: right;"><i>HWWATR</i></td> </tr> <tr> <td>18</td> <td>{Wood}</td> <td style="text-align: right;"><i>WOWATR</i></td> </tr> <tr> <td>19</td> <td>{Coal}</td> <td style="text-align: right;"><i>COWATR</i></td> </tr> <tr> <td>20</td> <td>{Solar}</td> <td style="text-align: right;"><i>SOWATR</i></td> </tr> <tr> <td>21</td> <td>{Other1}</td> <td style="text-align: right;"><i>OTWATR</i></td> </tr> <tr> <td>22</td> <td>{Other2}</td> <td style="text-align: right;"><i>OTWATR</i></td> </tr> <tr> <td>23</td> <td>{Other3}</td> <td style="text-align: right;"><i>OTWATR</i></td> </tr> <tr> <td>24</td> <td>Some other energy source</td> <td></td> </tr> </table>			11	{Electricity}	<i>ELWATR</i>	12	{Natural gas}	<i>NGWATR</i>	13	{FuelOilType}	<i>FKWATR</i>	14	{Bottled gas}	<i>PRWATR</i>	15	{District steam}	<i>STWATR</i>	16	{District hot water}	<i>HWWATR</i>	18	{Wood}	<i>WOWATR</i>	19	{Coal}	<i>COWATR</i>	20	{Solar}	<i>SOWATR</i>	21	{Other1}	<i>OTWATR</i>	22	{Other2}	<i>OTWATR</i>	23	{Other3}	<i>OTWATR</i>	24	Some other energy source	
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NEXT	IF Some other energy source selected ⇒ D70 [Other water heating source] OTHERWISE ⇒ D71 [Water heating equipment]																																								

D70	Other water heating source	<i>see below</i>																														
ASK	IF Some other energy source IN D69 [Sources for water heating]																															
<p>What was the other energy source used for water heating?</p> <table> <tr> <td>11</td> <td>Electricity</td> <td><i>ELWATR</i></td> </tr> <tr> <td>12</td> <td>Natural gas</td> <td><i>NGWATR</i></td> </tr> <tr> <td>13</td> <td>Fuel oil/Diesel/Kerosene</td> <td><i>FKWATR</i></td> </tr> <tr> <td>14</td> <td>Bottled gas</td> <td><i>PRWATR</i></td> </tr> <tr> <td>15</td> <td>District steam</td> <td><i>STWATR</i></td> </tr> <tr> <td>16</td> <td>District hot water</td> <td><i>HWWATR</i></td> </tr> <tr> <td>18</td> <td>Wood</td> <td><i>WOWATR</i></td> </tr> <tr> <td>19</td> <td>Coal</td> <td><i>COWATR</i></td> </tr> <tr> <td>20</td> <td>Solar</td> <td><i>SOWATR</i></td> </tr> <tr> <td>24</td> <td>Some other energy source</td> <td><i>OTWATR</i></td> </tr> </table>			11	Electricity	<i>ELWATR</i>	12	Natural gas	<i>NGWATR</i>	13	Fuel oil/Diesel/Kerosene	<i>FKWATR</i>	14	Bottled gas	<i>PRWATR</i>	15	District steam	<i>STWATR</i>	16	District hot water	<i>HWWATR</i>	18	Wood	<i>WOWATR</i>	19	Coal	<i>COWATR</i>	20	Solar	<i>SOWATR</i>	24	Some other energy source	<i>OTWATR</i>
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24	Some other energy source	<i>OTWATR</i>																														
NEXT	⇒ D71 [Water heating equipment]																															

D71	Water heating equipment	<i>WTHTEQ</i>						
ASK	IF D3 [Water heating] = Yes							
<p style="text-align: right;">[F1]-HELP</p> <p>Does this establishment have one or more centralized water heaters, one or more "point-of-use" water heaters, or both of these types (of water heaters)?</p> <table> <tr> <td>1</td> <td>One or more centralized water heaters</td> </tr> <tr> <td>2</td> <td>One or more "point-of-use" water heaters</td> </tr> <tr> <td>3</td> <td>Both types</td> </tr> </table>			1	One or more centralized water heaters	2	One or more "point-of-use" water heaters	3	Both types
1	One or more centralized water heaters							
2	One or more "point-of-use" water heaters							
3	Both types							
NEXT	IF Establishment activity = Food service OR Dry cleaner/laundromat ⇒ D72 [Booster water heaters] OTHERWISE: IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]							

D72	Booster water heaters	<i>BOOSTWT</i>
ASK	IF D71 [Water heating equipment] = One or more point-of-use OR Both types & Establishment activity = Food service OR Dry cleaner/laundromat	
How many of the point-of-use water heaters are “booster” water heaters, which are used to increase service water temperature up to 180 degrees, often for the purpose of sanitizing?		
RANGE	0 to 99	
NEXT	IF D4 [Cooking] = Yes ⇒ D73 [Sources for cooking] IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]	

D73	Sources for cooking	<i>see below</i>																																							
ASK	IF D4 [Cooking] = Yes																																								
FILL	{CookSourcesList} = List of all energy sources used {Electricity} – {Other3} = If a source is used, it appears in this list; if not, the line is blank {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Other1} – {Other3} = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3]																																								
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23	{Other3}	<i>OTCOOK</i>																																							
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NEXT	IF Some other energy source selected ⇒ D74 [Other cooking source] OTHERWISE: IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]																																								

D74	Other cooking source																														
ASK	IF Some other energy source IN D73 [Sources for cooking]																														
<p>What was the other energy source used for cooking?</p> <table> <tr><td>11</td><td>Electricity</td><td>ELCOOK</td></tr> <tr><td>12</td><td>Natural gas</td><td>NGCOOK</td></tr> <tr><td>13</td><td>Fuel oil/Diesel/Kerosene</td><td>FKCOOK</td></tr> <tr><td>14</td><td>Bottled gas</td><td>PRCOOK</td></tr> <tr><td>15</td><td>District steam</td><td>STCOOK</td></tr> <tr><td>16</td><td>District hot water</td><td>HWCOOK</td></tr> <tr><td>18</td><td>Wood</td><td>WOCOOK</td></tr> <tr><td>19</td><td>Coal</td><td>COCOOK</td></tr> <tr><td>20</td><td>Solar</td><td>SOCOOK</td></tr> <tr><td>24</td><td>Some other energy source</td><td>OTCOOK</td></tr> </table>		11	Electricity	ELCOOK	12	Natural gas	NGCOOK	13	Fuel oil/Diesel/Kerosene	FKCOOK	14	Bottled gas	PRCOOK	15	District steam	STCOOK	16	District hot water	HWCOOK	18	Wood	WOCOOK	19	Coal	COCOOK	20	Solar	SOCOOK	24	Some other energy source	OTCOOK
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NEXT	IF D6 [Manufacturing] = Yes ⇒ D75 [Sources for manufacturing] IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] OTHERWISE ⇒ D81 [Any other sources]																														

D75	Sources for manufacturing	<i>see below</i>																																							
ASK	IF D6 [Manufacturing] = Yes																																								
FILL	<p>{ManuSourcesList} = List of all energy sources used {Electricity} – {Other3} = If a source is used, it appears in this list; if not, the line is blank {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Other1} – {Other3} = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3]</p>																																								
<p>Which energy sources were used for manufacturing? [{ManuSourcesList}]</p> <ul style="list-style-type: none"> ◆ Only sources already selected are shown here ◆ PROBE for any others ◆ ENTER all that apply <table> <tr><td>11</td><td>{Electricity}</td><td>ELMANU</td></tr> <tr><td>12</td><td>{Natural gas}</td><td>NGMANU</td></tr> <tr><td>13</td><td>{FuelOilType}</td><td>FKMANU</td></tr> <tr><td>14</td><td>{Bottled gas}</td><td>PRMANU</td></tr> <tr><td>15</td><td>{District steam}</td><td>STMANU</td></tr> <tr><td>16</td><td>{District hot water}</td><td>HWMANU</td></tr> <tr><td>18</td><td>{Wood}</td><td>WOMANU</td></tr> <tr><td>19</td><td>{Coal}</td><td>COMANU</td></tr> <tr><td>20</td><td>{Solar}</td><td>SOMANU</td></tr> <tr><td>21</td><td>{Other1}</td><td>OTMANU</td></tr> <tr><td>22</td><td>{Other2}</td><td>OTMANU</td></tr> <tr><td>23</td><td>{Other3}</td><td>OTMANU</td></tr> <tr><td>24</td><td>Some other energy source</td><td></td></tr> </table>			11	{Electricity}	ELMANU	12	{Natural gas}	NGMANU	13	{FuelOilType}	FKMANU	14	{Bottled gas}	PRMANU	15	{District steam}	STMANU	16	{District hot water}	HWMANU	18	{Wood}	WOMANU	19	{Coal}	COMANU	20	{Solar}	SOMANU	21	{Other1}	OTMANU	22	{Other2}	OTMANU	23	{Other3}	OTMANU	24	Some other energy source	
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NEXT	IF Some other energy source selected ⇒ D76 [Other manufacturing source] OTHERWISE: IF D8 [Electricity generation capability] = Yes ⇒ D77 [Energy for generation] IF D8 [Electricity generation capability] ≠ Yes ⇒ D81 [Any other sources]																																								

D76	Other manufacturing source	<i>see below</i>																														
ASK	IF Some other energy source IN D75 [Sources for manufacturing]																															
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D77	Energy for generation	<i>GENR</i>				
ASK	IF D8 [Electricity generation capability] = Yes					
<p>Was any energy actually <u>used</u> for generating electricity in this establishment during 2012, even if just a small amount was used for emergency backup or for testing generators?</p> <table> <tr> <td>1</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>No</td> </tr> </table>			1	Yes	2	No
1	Yes					
2	No					
NEXT	IF Yes ⇒ D78 [Sources for electricity generation] IF No OR DK/RF ⇒ D81 [Any other sources]					

D78	Sources for electricity generation	<i>see below</i>																														
ASK	IF D77 [Energy for generation] = Yes																															
FILL	{Other1} – {Other3} = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3]																															
<p>☐ SHOW CARD D16</p> <p>Looking at Show Card D16, please tell me which energy sources were used for electricity generation.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">12</td> <td style="width: 70%;">Natural gas</td> <td style="width: 25%; text-align: right;"><i>NGGENR</i></td> </tr> <tr> <td>13</td> <td>Fuel oil/Diesel/Kerosene</td> <td style="text-align: right;"><i>FKGENR</i></td> </tr> <tr> <td>14</td> <td>Bottled gas/LPG/Propane</td> <td style="text-align: right;"><i>PRGENR</i></td> </tr> <tr> <td>18</td> <td>Wood</td> <td style="text-align: right;"><i>WOGENR</i></td> </tr> <tr> <td>19</td> <td>Coal</td> <td style="text-align: right;"><i>COGENR</i></td> </tr> <tr> <td>20</td> <td>Solar</td> <td style="text-align: right;"><i>SOGENR</i></td> </tr> <tr> <td>21</td> <td>{Other1}</td> <td style="text-align: right;"><i>OTGENR</i></td> </tr> <tr> <td>22</td> <td>{Other2}</td> <td style="text-align: right;"><i>OTGENR</i></td> </tr> <tr> <td>23</td> <td>{Other3}</td> <td style="text-align: right;"><i>OTGENR</i></td> </tr> <tr> <td>24</td> <td>Some other energy source</td> <td style="text-align: right;"><i>OTGENR</i></td> </tr> </table>			12	Natural gas	<i>NGGENR</i>	13	Fuel oil/Diesel/Kerosene	<i>FKGENR</i>	14	Bottled gas/LPG/Propane	<i>PRGENR</i>	18	Wood	<i>WOGENR</i>	19	Coal	<i>COGENR</i>	20	Solar	<i>SOGENR</i>	21	{Other1}	<i>OTGENR</i>	22	{Other2}	<i>OTGENR</i>	23	{Other3}	<i>OTGENR</i>	24	Some other energy source	<i>OTGENR</i>
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23	{Other3}	<i>OTGENR</i>																														
24	Some other energy source	<i>OTGENR</i>																														
NEXT	⇒ D79 [Generation technologies]																															

D79	Generation technologies	<i>see below</i>																					
ASK	IF D77 [Energy for generation] = Yes																						
<p>☐ SHOW CARD D17</p> <p>Looking at Show Card D17, were any of the technologies on this list used on-site for generating electricity?</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1</td> <td style="width: 70%;">Photovoltaic cells</td> <td style="width: 25%; text-align: right;"><i>PVC</i></td> </tr> <tr> <td>2</td> <td>Fuel cells</td> <td style="text-align: right;"><i>FUELCL</i></td> </tr> <tr> <td>5</td> <td>Large turbines</td> <td style="text-align: right;"><i>LRGTRB</i></td> </tr> <tr> <td>3</td> <td>Microturbines</td> <td style="text-align: right;"><i>MCROTB</i></td> </tr> <tr> <td>4</td> <td>Wind turbines</td> <td style="text-align: right;"><i>WNDTRB</i></td> </tr> <tr> <td>6</td> <td>Reciprocating engines</td> <td style="text-align: right;"><i>ENGINE</i></td> </tr> <tr> <td>7</td> <td>IF VOLUNTEERED: None of these</td> <td></td> </tr> </table>			1	Photovoltaic cells	<i>PVC</i>	2	Fuel cells	<i>FUELCL</i>	5	Large turbines	<i>LRGTRB</i>	3	Microturbines	<i>MCROTB</i>	4	Wind turbines	<i>WNDTRB</i>	6	Reciprocating engines	<i>ENGINE</i>	7	IF VOLUNTEERED: None of these	
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7	IF VOLUNTEERED: None of these																						
NEXT	⇒ D80 [Use of generated electricity]																						

D80	Use of generated electricity	<i>GENUSE</i>
ASK	IF D77 [Energy for generation] = Yes	
		[F1]-HELP
	<p>During 2012, was the electricity generated in this establishment used: primarily for emergency back-up or testing, during periods of high electricity demand, or whenever electricity was used?</p> <ol style="list-style-type: none"> 1 Primarily for emergency back-up or testing 2 During periods of high electricity demand 3 Whenever electricity was used 	
NEXT	⇒ D81 [Any other sources]	

D81	Any other sources
ASK	IF D9 [Energy sources used] was answered
FILL	{SourcesList} = List of all energy sources used
	<p>As a final check, were there any energy sources used in this establishment other than {Sources List} ?</p> <ol style="list-style-type: none"> 1 Yes 2 No
NEXT	<p>IF Yes ⇒ D82 [Other sources] IF No OR DK/RF: Check that every energy source given in D9 [Energy sources used] (other than electricity or district chilled water) was assigned an end use. THEN: IF No → D84 [Missed {energy source} use] IF Yes: IF Electricity used ⇒ D85 [How purchase electricity] IF Natural gas used ⇒ D87 [How purchase natural gas] OTHERWISE: IF Heating OR Cooling ⇒ D89 [Energy management program] OTHERWISE ⇒ E1 [Section E Routing]</p>

D82	Other sources	<i>see below</i>																																	
ASK	IF D81 [Any other sources] =Yes																																		
FILL	{Electricity} – {Solar} = If a source has NOT been mentioned, it appears in this list; if it has, the line is blank																																		
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NEXT	⇒ D83 [{Energy source} use]																																		

D83	{Energy source} use <i>see below where {XX} is the energy source abbreviation</i>																
ASK	For each source selected in D82 [Other sources]																
FILL	<p>{EnergySource} IF Electricity IN D82 [Other sources] = "electricity" IF Natural gas IN D82 [Other sources] = "natural gas" IF Fuel oil/Diesel/Kerosene IN D82 [Other sources] = "fuel oil/diesel/kerosene" IF Bottled gas IN D82 [Other sources] = "bottled gas" IF District steam IN D82 [Other sources] = "district steam" IF District hot water IN D82 [Other sources] = "district hot water" IF Wood IN D82 [Other sources] = "wood" IF Coal IN D82 [Other sources] = "coal" IF Solar IN D82 [Other sources] = "solar energy" IF Other IN D82 [Other sources] = "other fuel"</p> <p>{Cooling} Does not appear as a choice for Wood use, Coal use, OR Solar use</p> <p>{Electricity generation} Does not appear as a choice for Electricity use, District steam use, OR District hot water use</p>																
<p>What was the {EnergySource} used for?</p> <table> <tr> <td>1 Heating</td> <td>{XX}HT1/HT2</td> </tr> <tr> <td>2 {Cooling}</td> <td>{XX}COOL</td> </tr> <tr> <td>3 Water heating</td> <td>{XX}WATR</td> </tr> <tr> <td>4 Cooking</td> <td>{XX}COOK</td> </tr> <tr> <td>5 Manufacturing</td> <td>{XX}MANU</td> </tr> <tr> <td>6 {Electricity generation}</td> <td>{XX}GENR</td> </tr> <tr> <td>7 Some other use</td> <td>{XX}OTH</td> </tr> <tr> <td>8 Incorrectly recorded--source not used</td> <td></td> </tr> </table>		1 Heating	{XX}HT1/HT2	2 {Cooling}	{XX}COOL	3 Water heating	{XX}WATR	4 Cooking	{XX}COOK	5 Manufacturing	{XX}MANU	6 {Electricity generation}	{XX}GENR	7 Some other use	{XX}OTH	8 Incorrectly recorded--source not used	
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D84	Missed {energy source} use <i>see below where {XX} is the energy source abbreviation</i>																								
ASK	For every energy source given in D9 [Energy sources used] that was not assigned an end use (other than electricity)																								
FILL	<p>{EnergySource} IF No end use for Natural gas = “natural gas” IF No end use for Fuel oil = Type or types specified in D10 [Fuel oil, diesel, or kerosene] IF No end use for Bottled gas = “bottled gas” IF No end use for District steam = “district steam” IF No end use for District hot water = “district hot water” IF No end use for District chilled water = “district chilled water” IF No end use for Wood = “wood” IF No end use for Coal = “coal” IF No end use for Solar = “solar energy” IF No end use for Other = “another energy source” (second fill = “other energy source”) {Heating}, {Water heating}, {Cooking}, {Manufacturing} Do not appear as a choice for District chilled water use {Cooling} Does not appear as a choice for Wood use, Coal use, OR Solar use {Electricity generation} Does not appear as a choice for District chilled water use, District steam use OR District hot water use</p>																								
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NOTE ON USES OF ENERGY:

In addition to the end uses given in D1 [Heating], D2 [Cooling], D3 [Water heating], D4 [Cooking], and D6 [Manufacturing], it is now possible that an end use was added in D83 [{Energy source} use] OR D84 [Missed {energy source} use]. For the rest of this questionnaire, end uses will just simply be stated, for example: “IF Cooking” would mean: IF D4 [Cooking] =Yes OR Cooking was added as an end use in D83 [{Energy source} use] OR in D84 [Missed {energy source} use].

“Any energy used” will be used to refer to:

IF D1 [Heating] = Yes OR D2 [Cooling] = Yes OR D3 [Water heating] = Yes OR D4 [Cooking] = Yes OR D6 [Manufacturing] = Yes OR D7 [Any energy used] = Yes, some energy was used OR DK/RF

D85	How purchase electricity	<i>see below</i>												
ASK	IF Electricity used													
	[F1]-HELP													
	<p>□ SHOW CARD D18</p> <p>In some areas of the country, consumers may purchase their electricity from more than one supplier. Looking at Show Card D18, please tell me all the ways that electricity is purchased for this establishment.</p> <ul style="list-style-type: none"> ◆ EXP: [If electricity is bought from the city, that is considered to be the local utility.] ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 5%;">1</td> <td style="width: 70%;">Bought from the local utility</td> <td style="width: 25%;"><i>ELLOCUT</i></td> </tr> <tr> <td>2</td> <td>Contracted or bought from an independent power producer or non-local utility</td> <td><i>ELNONLU</i></td> </tr> <tr> <td>3</td> <td>Bought from someone else, such as a broker</td> <td><i>ELOTSRC</i></td> </tr> <tr> <td>4</td> <td>IF VOLUNTEERED: Produced by a central plant on campus</td> <td><i>ELCPLT</i></td> </tr> </table>		1	Bought from the local utility	<i>ELLOCUT</i>	2	Contracted or bought from an independent power producer or non-local utility	<i>ELNONLU</i>	3	Bought from someone else, such as a broker	<i>ELOTSRC</i>	4	IF VOLUNTEERED: Produced by a central plant on campus	<i>ELCPLT</i>
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3	Bought from someone else, such as a broker	<i>ELOTSRC</i>												
4	IF VOLUNTEERED: Produced by a central plant on campus	<i>ELCPLT</i>												
NEXT	IF more than one selected, including Bought from the local utility ⇒ D86 [Percent from local utility] OTHERWISE: IF Natural gas used ⇒ D87 [How purchase natural gas] OTHERWISE → D103 [AMI smart metering]													

D86	Percent from local utility	<i>ELLUPCT</i>
ASK	IF More than one response selected in D85 [How purchase electricity], including Bought from the local utility	
	About what percent of the electricity would you estimate was obtained from the local utility?	
RANGE	1 to 100	
NEXT	IF Natural gas used ⇒ D87 [How purchase natural gas] OTHERWISE → D103 [AMI smart metering]	

D87	How purchase natural gas	<i>NGSRC & see below</i>									
ASK	IF Natural gas used										
FILL	<p>{Introduction} IF Electricity used = "Consumers may also be able to purchase their natural gas from more than one supplier." IF Electricity not used = "In some areas of the country, consumers may purchase their natural gas from more than one supplier."</p>										
[F1]-HELP											
<p>{Introduction} Was the natural gas in this establishment bought from the local utility, bought from someone else, such as a non-utility or a broker, or bought both of these ways?</p>											
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2	Bought from someone else, such as a non-utility or a broker	<i>NGOTSRC</i>									
3	Bought both ways										
NEXT	IF Electricity used → D88 [AMI smart metering] OTHERWISE: IF Heating OR Cooling ⇒ D89 [Energy management program] OTHERWISE ⇒ E1 [Section E Routing]										

D88	AMI smart metering	<i>AMIMETER</i>						
ASK	IF Electricity used							
<p>Does this establishment have advanced metering infrastructure, sometimes referred to as AMI or "smart metering"?</p> <p>◆ DEF: [An AMI or "smart meter" is a meter that records electricity consumption in intervals of one hour or less. Daily data are available to both the energy company and the consumer through a web portal, display device, or other form of communication.]</p>								
<table style="width: 100%; border: none;"> <tr> <td style="width: 5%; text-align: right;">1</td> <td style="width: 70%;">Yes</td> <td style="width: 25%;"></td> </tr> <tr> <td style="text-align: right;">2</td> <td>No</td> <td></td> </tr> </table>			1	Yes		2	No	
1	Yes							
2	No							
NEXT	IF Heating OR Cooling ⇒ D89 [Energy management program] OTHERWISE ⇒ E1 [Section E Routing]							

D89	Energy management plan	<i>ENRGYPLN</i>						
ASK	IF Heating OR Cooling							
<p>Does this building have a formal energy management plan in which energy targets are set and consistently monitored?</p>								
<table style="width: 100%; border: none;"> <tr> <td style="width: 5%; text-align: right;">1</td> <td style="width: 70%;">Yes</td> <td style="width: 25%;"></td> </tr> <tr> <td style="text-align: right;">2</td> <td>No</td> <td></td> </tr> </table>			1	Yes		2	No	
1	Yes							
2	No							
NEXT	→ E1 [Section E Routing]							

SECTION E. MISCELLANEOUS EQUIPMENT

E1	Section E Routing
NEXT	<p>IF Cooking AND Establishment activity ≠ Food service ⇒ E2 [Type of food area] IF Water heating ⇒ E5 [Large amounts of hot water] IF Establishment activity = Medical/Dental ⇒ E6 [Medical equipment] IF Establishment activity = Retail shop OR Office/Financial OR Other ⇒ E11 [Laboratory equipment] OTHERWISE: IF Electricity NOT used & D77 [Energy for generation] ≠ Yes → E13 [Verify no electricity] OTHERWISE ⇒ E14 [Refrigeration]</p>

E2	Type of food area	<i>FDRM</i>																
ASK	IF Cooking AND Establishment activity ≠ Food service																	
	<p>□ SHOW CARD E1</p> <p>Now I have some questions about uses of space and equipment in this establishment.</p> <p>Please look at Show Card E1 and tell me which of these types of food preparation or serving areas are found in this establishment.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">1 Snack bar or concession stand</td> <td style="width: 30%; text-align: right;"><i>SNACK</i></td> </tr> <tr> <td>2 Fast food or small restaurant</td> <td style="text-align: right;"><i>FASTFD</i></td> </tr> <tr> <td>3 Cafeteria or large restaurant</td> <td style="text-align: right;"><i>CAF</i></td> </tr> <tr> <td>4 Large kitchen, commercial kitchen, or other large food preparation area</td> <td style="text-align: right;"><i>FDPREP</i></td> </tr> <tr> <td>5 Small kitchen area</td> <td style="text-align: right;"><i>KITCHN</i></td> </tr> <tr> <td>6 Employee lounge, breakroom, or pantry</td> <td style="text-align: right;"><i>PANTRY</i></td> </tr> <tr> <td>7 Some other type of food preparation area</td> <td style="text-align: right;"><i>OTFDRM</i></td> </tr> <tr> <td>8 IF VOLUNTEERED: None of these food preparation areas</td> <td></td> </tr> </table>		1 Snack bar or concession stand	<i>SNACK</i>	2 Fast food or small restaurant	<i>FASTFD</i>	3 Cafeteria or large restaurant	<i>CAF</i>	4 Large kitchen, commercial kitchen, or other large food preparation area	<i>FDPREP</i>	5 Small kitchen area	<i>KITCHN</i>	6 Employee lounge, breakroom, or pantry	<i>PANTRY</i>	7 Some other type of food preparation area	<i>OTFDRM</i>	8 IF VOLUNTEERED: None of these food preparation areas	
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7 Some other type of food preparation area	<i>OTFDRM</i>																	
8 IF VOLUNTEERED: None of these food preparation areas																		
NEXT	<p>IF ONLY Employee lounge/breakroom/pantry selected → E3 [Cooking in break room] IF Some other type → E4 [Other food area] OTHERWISE: IF Water heating ⇒ E5 [Large amounts of hot water] IF Establishment activity = Medical/Dental ⇒ E6 [Medical equipment] IF Establishment activity = Retail shop OR Office/Financial OR Other ⇒ E11 [Laboratory equipment] OTHERWISE: IF Electricity NOT used & D77 [Energy for generation] ≠ Yes → E13 [Verify no electricity] OTHERWISE ⇒ E14 [Refrigeration]</p>																	

E3	Cooking in break room	<i>COOKBRK</i>
ASK	IF ONLY Employee lounge/breakroom/pantry selected IN E2 [Type of food area]	
<p>Does this employee lounge or break room contain a full-size oven or stove for cooking?</p> <p>1 Yes 2 No</p>		
NEXT	IF Some other type → E4 [Other food area] OTHERWISE: IF Water heating ⇒ E5 [Large amounts of hot water] IF Establishment activity = Medical/Dental ⇒ E6 [Medical equipment] IF Establishment activity = Retail shop OR Office/Financial OR Other ⇒ E11 [Laboratory equipment] OTHERWISE: IF Electricity NOT used & D77 [Energy for generation] ≠ Yes → E13 [Verify no electricity] OTHERWISE ⇒ E14 [Refrigeration]	

E4	Other food area	
ASK	IF Some other type IN E2 [Type of food area]	
<p>Please describe this other type of food preparation or serving area.</p> <p>◆ RECORD in open box</p>		
NEXT	IF Water heating ⇒ E5 [Large amounts of hot water] IF Establishment activity = Medical/Dental ⇒ E6 [Medical equipment] IF Establishment activity = Retail shop OR Office/Financial OR Other ⇒ E11 [Laboratory equipment] OTHERWISE: IF Electricity NOT used & D77 [Energy for generation] ≠ Yes → E13 [Verify no electricity] OTHERWISE ⇒ E14 [Refrigeration]	

E5	Large amounts of hot water	<i>HWTRM</i>
ASK	IF Water heating	
FILL	{Introduction} IF E2 [Type of food area] was NOT asked = "Now I have some questions about energy-related space uses and equipment that may be used in this establishment." OTHERWISE = BLANK	
		[F1]-HELP
	{Introduction} Is any space in this establishment used for any activities requiring large amounts of hot water, such as a commercial dishwasher, laundry room, heated pool, steam room, whirlpool, or showers? 1 Yes 2 No	
NEXT	IF Establishment activity = Medical/Dental ⇒ E6 [Medical equipment] IF Establishment activity = Retail shop OR Office/Financial OR Other ⇒ E11 [Laboratory equipment] OTHERWISE: IF Electricity NOT used & D77 [Energy for generation] ≠ Yes → E13 [Verify no electricity] OTHERWISE ⇒ E14 [Refrigeration]	

E6	Medical equipment	<i>MEDEQP</i>
ASK	IF Any energy used & Establishment activity=Medical/Dental	
		[F1]-HELP
	Does this establishment have any equipment for medical diagnosis or treatment, such as X-ray, CT scan, MRI, linear accelerator, dialysis, or ultrasound machines? 1 Yes 2 No	
NEXT	IF Yes ⇒ E7 [Number of X-ray machines] OTHERWISE ⇒ E11 [Laboratory equipment]	

E7	Number of X-ray machines	<i>XRAYN</i>
ASK	IF E6 [Medical equipment] = Yes	
	How many X-ray machines are used in this establishment?	
RANGE	0 to 999	
NEXT	⇒ E8 [Number of CT scan machines]	

E8	Number of CT scan machines	<i>CTSCANN</i>
ASK	IF E6 [Medical equipment] = Yes	
How many CT scan machines are used in this establishment?		
RANGE	0 to 999	
NEXT	→ E9 [Number of MRI machines]	

E9	Number of MRI machines	<i>MRIN</i>
ASK	IF E6 [Medical equipment] = Yes	
How many MRI machines are used in this establishment?		
RANGE	0 to 999	
NEXT	→ E10 [Number of linear accelerators]	

E10	Number of linear accelerators	<i>LINACCN</i>
ASK	IF E6 [Medical equipment] = Yes	
How many linear accelerators are used in this establishment?		
<p>◆ DEF: [A linear accelerator is used for external beam adiation treatments for patients with cancer.]</p>		
RANGE	0 to 999	
NEXT	⇒ E11 [Laboratory equipment]	

E11	Laboratory equipment	<i>LABEQP</i>
ASK	IF Any energy used & Establishment activity = Retail shop; Office/Financial; Medical/Dental; OR Other	
<p>Does this establishment have any specialized laboratory equipment that requires extra energy consumption?</p> <p>◆ EXP: [Some examples are fume hoods, gas chromatographs, centrifuges, spectrometers, and analysis equipment.]</p> <p>1 Yes 2 No</p>		
NEXT	IF Establishment activity = Retail shop OR Other ⇒ E12 [Machine equipment] OTHERWISE: IF Electricity NOT used & D77 [Energy for generation] ≠ Yes → E13 [Verify no electricity] OTHERWISE ⇒ E14 [Refrigeration]	

E12	Machine equipment	<i>MCHEQP</i>
ASK	IF Any energy used & Establishment activity = Retail shop OR Other	
<p>Does this establishment have any machine or shop equipment such as woodworking tools, metalworking tools, arc welders, or any other types of power tools?</p> <p>1 Yes 2 No</p>		
NEXT	IF Electricity NOT used & D77 [Energy for generation] ≠ Yes → E13 [Verify no electricity] OTHERWISE ⇒ E14 [Refrigeration]	

E13	Verify no electricity	<i>NOELEC</i>
ASK	IF Any energy used & Electricity NOT used & D77 [Energy for generation] ≠ Yes	
<p>I do not have electricity recorded as being used in this establishment. Is it true that there is not any electricity used in this establishment?</p> <p>1 True, electricity is <u>not</u> used 2 False, electricity is used</p>		
NEXT	IF True, electricity is not used OR DK/RF → E61 [Window glass type] IF False, electricity is used → E14 [Refrigeration]	

E14	Refrigeration	<i>RFGEQP</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used	
		[F1]-HELP
Is there any refrigeration or freezer equipment used in this establishment, including vending machines?		
1 Yes 2 No		
NEXT	IF Yes → E15 [Refrigeration types] IF No OR DK/RF: IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E15	Refrigeration types	<i>see below</i>																								
ASK	IF E14 [Refrigeration] = Yes																									
		[F1]-HELP																								
<input type="checkbox"/> SHOW CARD E2																										
Looking at Show Card E2, please tell me which types of refrigeration or freezer equipment are found in this establishment.																										
<ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply 																										
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NEXT	IF Residential-type selected → E16 [Number residential refrigerators] IF Compact size selected → E17 [Number compact size refrigerators] IF Walk-in units selected → E18 [Number walk-in units] IF Open cases or cabinets selected → E19 [Number open cases] IF Closed cases or cabinets selected → E20 [Number closed cases] IF Refrigerated vending machines selected → E21 [Number vending] IF Commercial ice makers selected → E22 [Number ice makers] IF Large cold storage areas selected → E23 [Percent cold storage] IF DK/RF: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]																									

E16	Number residential refrigerators	<i>RFGRSN</i>
ASK	IF Residential-type IN E15 [Refrigeration types]	
<p>How many residential-type refrigerators or freezers are there?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 9999	
NEXT	IF Compact size selected → E17 [Number compact size refrigerators] IF Walk-in units selected → E18 [Number walk-in units] IF Open cases or cabinets selected → E19 [Number open cases] IF Closed cases or cabinets selected → E20 [Number closed cases] IF Refrigerated vending machines selected → E21 [Number vending] IF Commercial ice makers selected → E22 [Number ice makers] IF Large cold storage areas selected → E23 [Percent cold storage] OTHERWISE: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E17	Number compact size refrigerators	<i>RFGRSN</i>
ASK	IF Compact size IN E15 [Refrigeration types]	
<p>How many residential-type refrigerators or freezers are there?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 9999	
NEXT	IF Walk-in units selected → E18 [Number walk-in units] IF Open cases or cabinets selected → E19 [Number open cases] IF Closed cases or cabinets selected → E20 [Number closed cases] IF Refrigerated vending machines selected → E21 [Number vending] IF Commercial ice makers selected → E22 [Number ice makers] IF Large cold storage areas selected → E23 [Percent cold storage] OTHERWISE: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E18	Number walk-in units	<i>RFWIN</i>
ASK	IF Walk-in units IN E15 [Refrigeration types]	
<p>How many walk-in refrigeration or freezer units are there?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999	
NEXT	IF Open cases or cabinets selected → E19 [Number open cases] IF Closed cases or cabinets selected → E20 [Number closed cases] IF Refrigerated vending machines selected → E21 [Number vending] IF Commercial ice makers selected → E22 [Number ice makers] IF Large cold storage areas selected → E23 [Percent cold storage] OTHERWISE: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E19	Number open cases	<i>RFGOPN</i>
ASK	IF Open cases or cabinets IN E15 [Refrigeration types]	
<p>How many open refrigerated or freezer cases or cabinets are there?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999	
NEXT	IF Closed cases or cabinets selected → E20 [Number closed cases] IF Refrigerated vending machines selected → E21 [Number vending] IF Commercial ice makers selected → E22 [Number ice makers] IF Large cold storage areas selected → E23 [Percent cold storage] OTHERWISE: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E20	Number closed cases	<i>RFGLN</i>
ASK	IF Closed cases or cabinets IN E15 [Refrigeration types]	
<p>How many closed refrigerated or freezer cases or cabinets are there?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999	
NEXT	IF Refrigerated vending machines selected → E21 [Number vending] IF Commercial ice makers selected → E22 [Number ice makers] IF Large cold storage areas selected → E23 [Percent cold storage] OTHERWISE: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E21	Number vending	<i>RFVNN</i>
ASK	IF Refrigerated vending machines IN E15 [Refrigeration types]	
<p>How many refrigerated vending machines are there?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999	
NEXT	IF Commercial ice makers selected → E22 [Number ice makers] IF Large cold storage areas selected → E23 [Percent cold storage] OTHERWISE: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E22	Number ice makers	<i>RFGIN</i>
ASK	IF Commercial ice makers IN E15 [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 selected → E23 [Percent cold storage] OTHERWISE: IF Establishment activity = Food sales → E24 [Waste heat recovery] IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit] OTHERWISE → E27 [Computers used]	

E23	Percent cold storage	<i>RFSTN</i>
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ASK	IF Large cold storage areas IN E15 [Refrigeration types]
<p>About what percent of the total floorspace in the establishment is used for cold storage?</p> <p>◆ PROBE for estimate if DK</p>	
RANGE	1 to 100
NEXT	<p>IF Establishment activity = Food sales → E24 [Waste heat recovery]</p> <p>IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes → E51 [Vacant estab lit]</p> <p>OTHERWISE → E27 [Computers used]</p>

E24	Waste heat recovery	<i>WHRECOV</i>
ASK	IF E14 [Refrigeration] = Yes & Establishment activity = Food sales	
<p>Refrigeration equipment gives off excess heat that can be used to supplement other equipment in the building. Is there such a waste heat recovery system associated with the refrigeration equipment?</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → E25 [Waste heat use] IF No OR DK/RF → E27 [Computers used]	

E25	Waste heat use	<i>WHUSE</i>
ASK	IF E24 [Waste heat recovery] = Yes	
<p>What is the waste heat used for - space heating, water heating, or some other use?</p> <p>◆ ENTER all that apply</p> <p>1 Space heating 1 Water heating 2 Some other use</p>		
NEXT	IF Some other use → E26 [Other waste heat use] OTHERWISE → E27 [Computers used]	

E26	Other waste heat use	
ASK	IF E25 [Waste heat use] = Some other use	
<p>What is the other use for the waste heat?</p> <p>◆ RECORD in open box</p>		
NEXT	→ E27 [Computers used]	

E27	Computers used	<i>PCTERM</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes)	
<p>Are there any computers used in this establishment?</p> <ul style="list-style-type: none"> ◆ EXP: [Even if only laptops are used, answer Yes.] ◆ EXP: [Do not include tablet computers or inventory, such as in retail stores.] <p>1 Yes 2 No</p>		
NEXT	IF Yes → E28 [Number of computers] IF No OR DK/RF → E38 [Dedicated servers]	

E28	Number of computers	<i>PCNUM</i>
ASK	IF E27 [Computers used] = Yes	
<p>Not counting any dedicated servers or laptop computers, about how many computers are used in this establishment?</p> <ul style="list-style-type: none"> ◆ EXP: [Do not include tablet computers or inventory, such as in retail stores.] ◆ DEF: [A server is usually just the CPU, or "case," portion of a computer that manages network resources such as computer files, printers, databases, or network traffic; servers do not require much human operation, so most do not have keyboards or monitors.] 		
RANGE	0 to 9,999,999	
NEXT	IF DK/RF → E29 [Computers category] IF > Zero → E30 [Multiple monitors] IF Zero → E34 [Number of laptops]	

E29	Computers category	<i>PCTRMC</i>
ASK	IF E28 [Number of computers] = DK/RF	
<p>□ SHOW CARD E3</p> <p>Looking at Show Card E3, which category best describes the number of computers used in this establishment?</p> <ol style="list-style-type: none"> 1 1 to 4 2 5 to 9 3 10 to 19 4 20 to 49 5 50 to 99 6 100 to 249 7 250 to 499 8 500 to 999 9 1,000 to 2,499 10 2,500 to 4,999 11 5,000 or more 		
NEXT	→ E30 [Multiple monitors]	

E30	Multiple monitors	<i>MLTMON</i>
ASK	IF E28 [Number of computers] > Zero	
FILL	{Computers} IF E28 [Number of computers] = One = Does the computer OTHERWISE = Do any of the computers	
<p>{Computers} use more than one monitor?</p> <ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes & E28 [Number of computers] ≠ One → E31 [Multiple monitor category] OTHERWISE → E32 [Flat screen]	

E31	Multiple monitor category	<i>MLTMNC</i>
ASK	IF E30 [Multiple monitors] = Yes & E28 [Number of computers] ≠ One	
<p>Would you say that multiple monitors are used with all of the computers, most of them, some of them, or just a few?</p> <ol style="list-style-type: none"> 1 All 2 Most 3 Some 4 A few 		
NEXT	→ E33 [Flat screen category]	

E32	Flat screen	<i>FLATG1PC</i>
ASK	IF E28 [Number of computers] = One	
FILL	{FlatQuestion} IF E30 [Multiple monitors] = Yes = Are any of the monitors of this type? IF E30 [Multiple monitors] ≠ Yes = Does the computer have this type of monitor?	
<input type="checkbox"/> SHOW CARD E4 Please look at Show Card E4 which shows a picture of a flat screen monitor. {FlatQuestion}		
◆ DEF: [A flat screen monitor, also known as a liquid crystal display or LCD, is lightweight and very thin, in contrast to most standard monitors which have bulky backs and take up a lot of desk space.]		
1 Yes 2 No		
NEXT	→ E34 [Number of laptops]	

E33	Flat screen category	<i>FLATG1PC</i>
ASK	IF E28 [Number of computers] ≠ One	
<input type="checkbox"/> SHOW CARD E4 Please look at Show Card E4 which shows a picture of a flat screen monitor. Would you say that all of the monitors are flat screen, most of them, some of them, or just a few?		
◆ DEF: [A flat screen monitor, also known as a liquid crystal display or LCD, is lightweight and very thin, in contrast to most standard monitors which have bulky backs and take up a lot of desk space.]		
1 All 2 Most 3 Some 4 A few		
NEXT	→ E34 [Number of laptops]	

E34	Number of laptops	<i>LAPTPN</i>
ASK	IF E27 [Computers used] = Yes	
<p>About how many laptop computers are used in this establishment?</p> <p>◆ EXP: [Do not include tablet computers or inventory, such as in retail stores.]</p>		
RANGE	0 to 9,999,999	
NEXT	IF DK/RF → E35 [Laptops category] IF Number given → E36 [Number of printers]	

E35	Laptops category	<i>LAPTPC</i>
ASK	IF E34 [Number of laptops] = DK/RF	
<p>□ SHOW CARD E3</p> <p>Looking at Show Card E3, which category best describes the number of laptop computers used in this establishment?</p> <p>1 1 to 4 2 5 to 9 3 10 to 19 4 20 to 49 5 50 to 99 6 100 to 249 7 250 to 499 8 500 to 999 9 1,000 to 2,499 10 2,500 to 4,999 11 5,000 or more</p>		
NEXT	→ E36 [Number of printers]	

E36	Number of printers	<i>PRNTRN</i>
ASK	IF E27 [Computers used] = Yes	
<p>About how many printers are there in this establishment?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	0 to 9,999,999	
NEXT	IF ≥ 1 → E37 [Type of printers] IF Zero OR DK/RF → E38 [Dedicated servers]	

E37	Type of printers	<i>PRNTYP</i>
ASK	IF E36 [Number of printers] ≥ 1	
FILL	{IsAre} IF E36 [Number of printers] = 1 = Is this an IF E36 [Number of printers] > 1 = Are these mainly {Printers} IF E36 [Number of printers] = 1 = printer IF E36 [Number of printers] > 1 = printers	
		[F1]-HELP
{IsAre} inkjet or laser {Printers}? 1 Inkjet 2 Laser 3 IF VOLUNTEERED: Some other type 4 IF VOLUNTEERED: Half inkjet, half laser		
NEXT	→ E38 [Dedicated servers]	

E38	Dedicated servers	<i>SERVER</i>
ASK	IF E27 [Computers used] = Yes	
Are there any dedicated computer servers used in this establishment? ◆ DEF: [A server is usually just the CPU, or "case," portion of a computer that manages network resources such as computer files, printers, databases, or network traffic; servers do not require much human operation, so most do not have keyboards or monitors.] ◆ DEF: [Dedicated means that the server performs no other tasks besides server tasks.] 1 Yes 2 No		
NEXT	IF Yes → E39 [Number of servers] IF No OR DK/RF → E41 [Separate computer areas]	

E39	Number of servers	<i>SRVNUM</i>
ASK	IF E38 [Dedicated servers] = Yes	
About how many dedicated servers are used in this establishment?		
RANGE	1 to 9,999,999	
NEXT	IF DK/RF → E40 [Servers category] IF Number given → E41 [Separate computer areas]	

E40	Servers category	<i>SRVRC</i>
ASK	IF E39 [Number of servers] = DK/RF	
<p>☐ SHOW CARD E3</p> <p>Looking at Show Card E3, which category best describes the number of servers used in this establishment?</p> <ul style="list-style-type: none"> 1 1 to 4 2 5 to 9 3 10 to 19 4 20 to 49 5 50 to 99 6 100 to 249 7 250 to 499 8 500 to 999 9 1,000 to 2,499 10 2,500 to 4,999 11 5,000 or more 		
NEXT	→ E41 [Separate computer areas]	

E41	Separate computer areas	<i>see below</i>
ASK	IF (E27 [Computers used] = Yes OR E38 [Dedicated servers] = Yes) & ((E28 [Number of computers] + E34 [Number of laptops] ≥ 5) OR E28 [Number of computers] = DK/RF OR E34 [Number of laptops] = DK/RF)	
<p>☐ SHOW CARD E5</p> <p>Please look at Show Card E5 and tell me if any of these types of separate computer areas are found in this establishment.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <ul style="list-style-type: none"> 1 Data center or server farm <i>DATA CNTR</i> 2 Computer-based training room <i>TRNGRM</i> 3 Student or public computer center <i>STDNRM</i> 4 Trading floor <i>TRDFLR</i> 5 None of these types of areas 		
NEXT	IF Establishment activity = Office OR Education/Child care → E42 [Interactive whiteboards] OTHERWISE → E44 [TV or video displays]	

E42	Interactive whiteboards	<i>WBOARDS</i>
ASK	IF E27 [Computers used] = Yes AND Establishment activity = Office OR Education/Child care	
<p>Are there any interactive whiteboards that connect to a computer and projector?</p> <p>◆ DEF: [An interactive whiteboard is a large interactive display that connects to a computer and a projector. The computer's desktop is projected onto the board's surface where users control the computer using a pen, finger, or other device.]</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → E43 [Number of interactive whiteboards] IF No OR DK/RF → E44 [TV or video displays]	

E43	Number of interactive whiteboards	<i>NWBOARDS</i>
ASK	IF E42 [Interactive whiteboards] = Yes	
<p>How many interactive whiteboards are used in this establishment?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999	
NEXT	→ E44 [TV or video displays]	

E44	TV or video displays	<i>TVVIDEO</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes)	
<p>Are there any televisions or video displays, other than computer monitors?</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → E45 [Number of TV or video displays] IF No OR DK/RF → E46 [Cash registers]	

E45	Number of TV or video displays	<i>TVVIDEON</i>
ASK	IF E44 [TV or video displays] = Yes	
<p>How many televisions or video displays are used in this establishment?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 9999	
NEXT	→ E46 [Cash registers]	

E46	Cash registers	<i>RGSTR</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes)	
<p>Are there any cash registers or "point-of-sales" terminals used in this establishment?</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → E47 [Number of cash registers] IF No OR DK/RF → E48 [Photocopiers]	

E47	Number of cash registers	<i>RGSTRN</i>
ASK	IF E46 [Cash registers] = Yes	
<p>About how many cash registers or "point-of-sales" terminals are used in this establishment?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 9,999	
NEXT	→ E48 [Photocopiers]	

E48	Photocopiers	<i>COPIER</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes)	
<p>Are there any photocopiers, other than small desktop copiers, used in this establishment?</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → E49 [Number of photocopiers] IF No OR DK/RF → E50 [FAX machines]	

E49	Number of photocopiers	<i>COPRN</i>
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ASK	IF E48 [Photocopiers] = Yes
<p>About how many photocopiers are there?</p> <p>◆ PROBE for estimate if DK</p>	
RANGE	1 to 9,999
NEXT	→ E50 [FAX machines]

E50	FAX machines	<i>FAX</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes)	
<p>Are there any FAX machines used in this establishment?</p> <p>1 Yes 2 No</p>		
NEXT	IF Establishment activity = Vacant → E51 [Vacant estab lit] OTHERWISE ⇒ E52 [Percent lit when open]	

E51	Vacant estab lit	<i>VCTLIT</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & Establishment activity = Vacant	
<p>Is this establishment lit at all during a normal 24-hour day?</p> <p>◆ EXP: [Do not consider outside lighting in this response.]</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → E54 [Percent lit off hours] OTHERWISE → E61 [Window glass type]	

E52	Percent lit when open	<i>LTOHRP</i>
ASK	IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & Establishment activity ≠ Vacant	
FILL	{SqFt} IF A2 [Square footage] known = "A2 [Square footage] square feet" IF A2 [Square footage] = DK/RF = "square footage"	
		[F1]-HELP
<p>The next questions are about the lighting inside the establishment.</p> <p>What percent of the {SqFt} in this establishment is lit when the establishment is normally open?</p> <ul style="list-style-type: none"> ◆ DEF: ["Normally open" means the hours when the usual activities occur.] ◆ If lit square footage is known but not the percent, RECORD square footage in comments, then code DK 		
RANGE	0 to 100	
NEXT	IF DK/RF → E53 [Lit when open category] IF 1-100 & (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR C13 [Weekly hours category]) = 168 → E56 [Lighting types] IF Zero & (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR C13 [Weekly hours category]) = 168 → E61 [Window glass type] OTHERWISE → E54 [Percent lit off hours]	

E53	Lit when open category	<i>LOHRPC</i>
ASK	IF E52 [Percent lit when open] = DK/RF	
		[F1]-HELP
<p>□ SHOW CARD E6</p> <p>Looking at Show Card E6, what is your best estimate of the percent of the square feet in this establishment that is lit when it is normally open?</p> <ol style="list-style-type: none"> 1 1 to 25 percent 2 26 to 50 percent 3 51 to 75 percent 4 76 to 100 percent 5 Not lit at all when it is normally open 		
NEXT	IF Any category except Not lit & (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR C13 [Weekly hours category]) = 168) → E56 [Lighting types] IF Not lit & (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR C13 [Weekly hours category]) = 168 → E61 [Window glass type] OTHERWISE → E54 [Percent lit off hours]	

E54	Percent lit off hours	<i>LTNHRP</i>
ASK	<p>IF Electricity used OR D77 [Energy for generation] = Yes OR E13 [Verify no electricity] = False, electricity is used & (NOT (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR C13 [Weekly hours category])) OR (Establishment activity = Vacant & E51 [Vacant estab lit] = Yes)</p>	
FILL	<p>{SqFt} IF A2 [Square footage] known = "A2 [Square footage] square feet" IF A2 [Square footage] = DK/RF = "square footage" {OffHours} IF Establishment activity ≠ Vacant = "during off hours, that is, the hours when the establishment is not normally open" IF Establishment activity = Vacant = BLANK</p>	
		[F1]-HELP
<p>What percent of the {SqFt} is lit {OffHours}? Exclude the space lit by emergency lighting.</p> <p>◆ If lit square footage is known but not the percent, RECORD square footage in comments, then code DK</p>		
RANGE	0 to 100	
NEXT	<p>IF DK/RF → E55 [Lit off hours category] IF 1-100 → E56 [Lighting types] IF Zero: IF E52 [Percent lit when open] > 0 OR E53 [Lit when open category] = Any category except Not lit → E56 [Lighting types] OTHERWISE → E61 [Window glass type]</p>	

E55	Lit off hours category	<i>LNHRPC</i>
ASK	IF E54 [Percent lit off hours] = DK/RF	
FILL	{OffHours} IF Establishment activity ≠ Vacant = “during off hours” IF Establishment activity = Vacant = BLANK	
<input type="checkbox"/> SHOW CARD E6		[F1]-HELP
Looking at Show Card E6, what is your best estimate of the percent lit {OffHours}?		
1 1 to 25 percent 2 26 to 50 percent 3 51 to 75 percent 4 76 to 100 percent 5 Not lit at all during off hours		
NEXT	IF 1 to 100 percent → E56 [Lighting types] IF Not lit at all: IF E52 [Percent lit when open] > 0 OR E53 [Lit when open category] ≠ Not lit → E56 [Lighting types] OTHERWISE → E61 [Window glass type]	

E56	Lighting types	<i>see below</i>																					
ASK	IF E52 [Percent lit when open] > 0 OR E53 [Lit when open category] ≠ Not lit OR E54 [Percent lit off hours] > 0 OR E55 [Lit off hours category] ≠ Not lit																						
<p>[] SHOW CARD E7</p> <p>Looking at Show Card E7, what types of lighting were used to light any of the space in this establishment?</p> <p>◆ PROBE for any others</p> <p>◆ ENTER all that apply</p> <table> <tr> <td>1</td> <td>Fluorescent lighting other than compact fluorescent bulbs</td> <td><i>FLUOR</i></td> </tr> <tr> <td>2</td> <td>Compact fluorescent bulbs</td> <td><i>CFLR</i></td> </tr> <tr> <td>3</td> <td>Incandescent light bulbs, other than halogen bulbs</td> <td><i>BULB</i></td> </tr> <tr> <td>4</td> <td>Halogen bulbs</td> <td><i>HALO</i></td> </tr> <tr> <td>5</td> <td>High intensity discharge (HID) lights such as high pressure sodium, metal halide or mercury vapor</td> <td><i>HID</i></td> </tr> <tr> <td>6</td> <td>Light-emitting diode (LED) lights</td> <td><i>LED</i></td> </tr> <tr> <td>7</td> <td>Other type of lighting</td> <td><i>OTLT</i></td> </tr> </table>		1	Fluorescent lighting other than compact fluorescent bulbs	<i>FLUOR</i>	2	Compact fluorescent bulbs	<i>CFLR</i>	3	Incandescent light bulbs, other than halogen bulbs	<i>BULB</i>	4	Halogen bulbs	<i>HALO</i>	5	High intensity discharge (HID) lights such as high pressure sodium, metal halide or mercury vapor	<i>HID</i>	6	Light-emitting diode (LED) lights	<i>LED</i>	7	Other type of lighting	<i>OTLT</i>	[F1]-HELP
1	Fluorescent lighting other than compact fluorescent bulbs	<i>FLUOR</i>																					
2	Compact fluorescent bulbs	<i>CFLR</i>																					
3	Incandescent light bulbs, other than halogen bulbs	<i>BULB</i>																					
4	Halogen bulbs	<i>HALO</i>																					
5	High intensity discharge (HID) lights such as high pressure sodium, metal halide or mercury vapor	<i>HID</i>																					
6	Light-emitting diode (LED) lights	<i>LED</i>																					
7	Other type of lighting	<i>OTLT</i>																					
NEXT	IF Other type of lighting selected → E57 [Other bulb type] OTHERWISE: IF More than one type selected → E58 [Percent lit by bulb type] IF Only one type selected: IF D61 [Building automation system] = Yes → E59 [BAS controls lighting] OTHERWISE → E60 [Lighting controls]																						

E57	Other bulb type	<i>OTLTX</i>
ASK	IF Other type of lighting IN E56 [Lighting types]	
<p>What type of bulb is the other type of lighting?</p> <p>◆ RECORD in space below</p>		
NEXT	IF More than one type selected in E56 [Lighting types] → E58 [Percent lit by bulb type] IF Only one type selected in E56 [Lighting types] IF D61 [Building automation system] = Yes → E59 [BAS controls lighting] OTHERWISE → E60 [Lighting controls]	

E58	Percent lit by bulb type	<i>FLUORP, CFLRP, BULBP, HALOP, HIDP, LEDP, OTLTP</i>
ASK	For each lighting type given in E56 [Lighting types]	
FILL	<p>{Introduction} IF First lighting type = “The next questions are about the percent of floorspace lit by the types of lighting you just mentioned. Please keep in mind: “ OTHERWISE = BLANK</p> <p>{Explanation} IF First lighting type and E52 [Percent lit when open] ≠ 100 = “We are talking only about the <u>lighted portion</u> of the floorspace, so these percents must add up to at least 100, but since more than one type of bulb can light the same area, it is also possible for them to add up to <u>more</u> than 100.” IF First lighting type and E52 [Percent lit when open] = 100 = “These percents must add up to at least 100, but since more than one type of bulb can light the same area, it is also possible for them to add up to <u>more</u> than 100.” OTHERWISE = BLANK</p> <p>{BulbType} IF Fluorescent IN E56 [Lighting types] = “fluorescent lighting” IF Compact fluorescent bulbs IN E56 [Lighting types] = “compact fluorescent bulbs” IF Incandescent light bulbs IN E56 [Lighting types] = “incandescent bulbs” IF Halogen bulbs IN E56 [Lighting types] = “halogen lighting” IF High intensity discharge (HID) lights IN E56 [Lighting types] = “high intensity discharge lights” IF Light-emitting diode (LED) lights IN E56 [Lighting types] = “LED lights” IF Other type of lighting IN E56 [Lighting types] = “other lighting type”</p>	
<p><input type="checkbox"/> SHOW CARD E8</p> <p>{Introduction}</p> <p>{Explanation}</p> <p>Please look at Show Card E8. What percent of the lighted area in this establishment is lit by the {BulbType}?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	0 to 100	
NEXT	D61 [Building automation system] = Yes → E59 [BAS controls lighting] OTHERWISE → E60 [Lighting controls]	

E59	BAS controls lighting	<i>EMCSLT</i>
ASK	IF (E52 [Percent lit when open] > 0 OR E53 [Lit when open category] ≠ Not lit OR E54 [Percent lit off hours] > 0 OR E55 [Lit off hours category] ≠ Not lit) & D61 [Building automation system] = Yes	
		[F1]-HELP
Does the Building Automation System, or BAS, that you mentioned earlier also control the interior lighting system?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	→ E60 [Lighting controls]	

E60	Lighting controls	<i>see below</i>
ASK	IF (E52 [Percent lit when open] > 0 OR E53 [Lit when open category] ≠ Not lit OR E54 [Percent lit off hours] > 0 OR E55 [Lit off hours category] ≠ Not lit)	
<input type="checkbox"/> SHOW CARD E9		
Looking at Show Card E9, please tell me which of these lighting controls, if any, are used in this establishment.		
<ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply 		
<ul style="list-style-type: none"> 1 Scheduling <i>SCHED</i> 2 Occupancy sensors that reduce lighting when rooms are unoccupied <i>OCSN</i> 3 Multi-level lighting or dimming <i>DIM</i> 4 Daylight harvesting <i>DAYHARV</i> 5 High end trimming or tuning <i>TRIM</i> 6 Personal light control <i>PRCTRL</i> 7 Plug-load control <i>PLGCTRL</i> 8 Demand responsive lighting <i>DRLGHT</i> 9 None of these 		
NEXT	→ E61 [Window glass type]	

E61	Window glass type	<i>WINTYP</i>
ASK	All Establishments	
<p>☐ SHOW CARD E10</p> <p>The picture on Show Card E10 shows a window with multi-layer glass. Do the exterior windows in this establishment contain single layer glass, multi-layer glass, or a combination of both of these types?</p> <ol style="list-style-type: none"> 1 Single layer glass 2 Multi-layer glass 3 Combination of both 4 IF VOLUNTEERED: No windows 		
NEXT	IF Single layer, Multi-layer, OR Combination → E62 [Daylighting features] IF No windows OR DK/RF → F1 [Section F Routing]	

E62	Daylighting features	<i>see below</i>										
ASK	IF E61 [Window glass type] ≠ (No windows OR DK/RF)											
<p>☐ SHOW CARD E10</p> <p>Looking at the list at the bottom of Show Card E10, please tell me which of these daylighting or conservation features are present in this establishment.</p> <ul style="list-style-type: none"> ◆ PROBE for any others ◆ ENTER all that apply <table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">1 Tinted window glass</td> <td style="width: 20%; text-align: right;"><i>TINT</i></td> </tr> <tr> <td>2 Reflective window glass</td> <td style="text-align: right;"><i>REFL</i></td> </tr> <tr> <td>3 External overhangs or awnings</td> <td style="text-align: right;"><i>AWN</i></td> </tr> <tr> <td>4 Skylights or atriums designed to provide light</td> <td style="text-align: right;"><i>SKYLT</i></td> </tr> <tr> <td>5 IF VOLUNTEERED: None of these</td> <td></td> </tr> </table>			1 Tinted window glass	<i>TINT</i>	2 Reflective window glass	<i>REFL</i>	3 External overhangs or awnings	<i>AWN</i>	4 Skylights or atriums designed to provide light	<i>SKYLT</i>	5 IF VOLUNTEERED: None of these	
1 Tinted window glass	<i>TINT</i>											
2 Reflective window glass	<i>REFL</i>											
3 External overhangs or awnings	<i>AWN</i>											
4 Skylights or atriums designed to provide light	<i>SKYLT</i>											
5 IF VOLUNTEERED: None of these												
NEXT	→ E63 [Percent daylight]											

E63	Percent daylight	<i>DAYLTP</i>
ASK	IF E61 [Window glass type] ≠ (No windows OR DK/RF)	
<p>What percent of the establishment receives enough outside light so that the interior lights do not need to be turned on?</p> <ul style="list-style-type: none"> ◆ If none, ENTER "0" ◆ PROBE for estimate if DK 		
RANGE	0 to 100	
NEXT	→ F1 [Section F Routing]	

SECTION F. ELECTRICITY

F1	Section F Routing
NEXT	IF Electricity used → F2 [WS2 electricity filled out] OTHERWISE → G1 [Section G Routing]

F2	WS2 electricity filled out	<i>WS2ELCE</i>
ASK	IF Electricity used	
Do you have Worksheet 2 with you and filled out for electricity?		
<ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF No OR DK/RF → F3 [Provide electricity figures] IF Yes → F5 [Electricity consumption]	

F3	Provide electricity figures	<i>ELFIGS</i>
ASK	IF F2 [WS2 electricity filled out] = No OR DK/RF	
The next questions are about electricity usage in this establishment during calendar year 2012. Would you be able to give me an approximate figure of how much electricity was used or how much was spent on it?		
<ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes → F5 [Electricity consumption] IF No OR DK/RF → F4 [Electricity included in rent]	

F4	Electricity included in rent	<i>ELNRENT</i>
ASK	IF F3 [Provide electricity figures] = No OR DK/RF	
Is the cost of the electricity used in this establishment included in the rent?		
<ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	→ F17 [Number electricity suppliers]	

F5	Electricity consumption	<i>ELCNS</i>
ASK	IF F2 [WS2 electricity filled out] = Yes OR F3 [Provide electricity figures] = Yes	
		[F1]-HELP
	Please give me the total number of kilowatthours of electricity used in calendar year 2012.	
	<ul style="list-style-type: none"> ◆ EXP: [If the respondent only knows the consumption for the entire building including other establishments, ENTER the total consumption for the building here.] ◆ VERIFY number <u>digit by digit</u> 	
RANGE	1 to 99,999,999,999,999	
NEXT	→ F6 [Electricity expenditures]	

F6	Electricity expenditures	<i>ELEXP</i>
ASK	IF F2 [WS2 electricity filled out] = Yes OR F3 [Provide electricity figures] = Yes	
		[F1]-HELP
	Please give me the total dollars spent on electricity in calendar year 2012. This should include state and local taxes and the following charges: fuel adjustment, system, distribution, and demand.	
	<ul style="list-style-type: none"> ◆ Do <u>not</u> enter cents ◆ VERIFY number <u>digit by digit</u> 	
RANGE	0 to 999,999,999	
NEXT	IF F5 [Electricity consumption] = DK/RF & F6 [Electricity expenditures] = DK/RF → F17 [Number electricity suppliers] OTHERWISE → F7 [Starting date for electricity figures]	

F7	Starting date for electricity figures	<i>ELSTDAT</i>
ASK	IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given	
		[F1]-HELP
	What is the starting date for these electricity usage figures?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY ◆ If the day is not known, ENTER "15" for DD 	
NEXT	→ F8 [Ending date for electricity figures]	

F8	Ending date for electricity figures	<i>ELENDAT</i>
ASK	IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given	
		[F1]-HELP
	What is the ending date [for these electricity usage figures]?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY <input type="checkbox"/> ◆ 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	→ F9 [Other estabs electricity included]	

F9	Other estabs electricity included	<i>ELOTBD</i>
ASK	IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given	
	Is any consumption from other establishments included in these figures?	
	<ul style="list-style-type: none"> 1 Yes 2 No 	
NEXT	IF Yes → F10 [Sq ft of other included] IF No OR DK/RF → F11 [Include other major electricity]	

F10	Sq ft of other included	<i>ELOTSF</i>
ASK	IF F9 [Other estabs electricity included] = Yes	
<p>What is the approximate square footage of the <u>other</u> establishments that are included in these figures?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999,999,999	
NEXT	→ F11 [Include other major electricity]	

F11	Include other major electricity	<i>ELOTUS</i>
ASK	IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given	
<p>Do these figures include charges for any <u>other</u> major electricity usage outside the establishment, such as parking lot lights, exterior lights, signs or billboards, large pumps, or swimming pools?</p> <p>1 Yes 2 No</p>		
NEXT	<p>IF Independent power producer or non-local utility OR Bought from someone else IN D85 [How purchase electricity] → F12 [Include all non-local electricity]</p> <p>OTHERWISE: IF F2 [WS2 electricity filled out] = Yes → F14 [Monthly electricity included] IF F2 [WS2 electricity filled out] = No OR DK/RF → F15 [Monthly electricity available]</p>	

F12	Include all non-local electricity	<i>ELNONU</i>
ASK	IF (F5 [Electricity consumption] given OR F6 [Electricity expenditures] given) & (Independent power producer or non-local utility OR Bought from someone else IN D85 [How purchase electricity])	
<p>Do these figures include all the electricity from the independent power producer, non-local utility, or broker?</p> <p>1 Yes 2 No</p>		
NEXT	<p>IF No → F13 [What not included]</p> <p>IF Yes OR DK/RF: IF F2 [WS2 electricity filled out] = Yes → F14 [Monthly electricity included] IF F2 [WS2 electricity filled out] = No OR DK/RF → F15 [Monthly electricity available]</p>	

F13	What not included
ASK	IF F12 [Include all non-local electricity] = No
<p>What was not included?</p> <p>◆ RECORD the additional charges in the open box</p>	
NEXT	IF F2 [WS2 electricity filled out] = Yes → F14 [Monthly electricity included] IF F2 [WS2 electricity filled out] = No OR DK/RF → F15 [Monthly electricity available]

F14	Monthly electricity included	<i>ELINC12</i>
ASK	IF (F5 [Electricity consumption] given OR F6 [Electricity expenditures] given) & F2 [WS2 electricity filled out] = Yes	
<p>Did you include your monthly electricity usage on Worksheet 2?</p> <p>1 Yes 2 No</p>		
NEXT	IF No OR DK/RF → F15 [Monthly electricity available] OTHERWISE → F16 [Electricity bill available]	

F15	Monthly electricity available	<i>ELHAV12</i>
ASK	IF (F5 [Electricity consumption] given OR F6 [Electricity expenditures] given) & (F2 [WS2 electricity filled out] = No OR DK/RF OR F14 [Monthly electricity included] = No OR DK/RF)	
<p>Do you have a record of the monthly electricity use that I could have to help us better understand the seasonal patterns of electricity use?</p> <p>◆ If available, you will be prompted again to collect this at the end of the interview, so it is not necessary to stop the interview to collect it here</p> <p>1 Yes, monthly electricity available 2 No, will not be able to provide monthly electricity</p>		
NEXT	→ F16 [Electricity bill available]	

F16	Electricity bill available	<i>ELBILL</i>
ASK	IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given	
<p>Would it be possible for me to scan one of your electricity bills? There is information on some utility bills that may help energy researchers who use these data.</p> <ul style="list-style-type: none"> ◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here <ol style="list-style-type: none"> 1 Yes, bill available 2 No, will not be able to provide bill 		
NEXT	→ G1 [Section G Routing]	

F17	Number electricity suppliers	<i>ELNUMSP</i>
ASK	IF F3 [Provide electricity figures] = No OR DK/RF OR F5 [Electricity consumption] = DK/RF & F6 [Electricity expenditures] = DK/RF	
<p>We should be able to obtain this information directly from your electricity supplier, so I just need to collect some information about your electricity accounts.</p> <p>In some parts of the country, customers can purchase energy from more than one supplier. How many different companies supplied electricity to this establishment during calendar year 2012?</p>		
RANGE	1 to 4	
NEXT	Number given → F18 [Electricity suppliers] DK/RF → G1 [Section G Routing]	

F18	Electricity suppliers	<i>EL1LK—EL4LK</i>
ASK	IF F17 [Number electricity suppliers] given	
FILL	{FirstNext} IF Only one supplier = BLANK IF First supplier given = "first" OTHERWISE = "next"	
<p>What is the name of the {FirstNext} supplier that provided electricity in calendar year 2012?</p> <ul style="list-style-type: none"> ◆ Start typing the name of the supplier or use [BACKSPACE] to bring up the look-up table ◆ Type in the first few letters of the supplier name, and the look-up table will scroll to the closest match ◆ If you find a match, make sure the correct line is highlighted (blue) and press [ENTER] ◆ If you don't find a match, use [BACKSPACE] to clear the Search line, which will bring you back to the top of the look-up table where ** NOT ON LIST will be highlighted, then press [ENTER] two times 		
NEXT	IF NOT ON LIST selected → F20 [Supplier name] IF Supplier found in look-up table → F19 [Verify electricity supplier] IF DK/RF: IF Only one supplier or last supplier → G1 [Section G Routing] IF More suppliers left to answer for → Ask F18 [Electricity suppliers] again for next supplier	

F19	Verify electricity supplier	
ASK	IF Supplier found in F18 [Electricity suppliers] look-up table	
FILL	{Supplier} = Supplier name from F18 [Electricity suppliers] look-up table	
<p>Just to verify, I have selected that your electricity supplier is {Supplier}. Is that correct?</p> <ul style="list-style-type: none"> ◆ If No, you will be taken back to the previous screen to select again <ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes → F26 [Number electricity accounts] IF No → F18 [Electricity suppliers]	

F20	Supplier name	<i>EL1NEW—EL4NEW</i>
ASK	IF NOT ON LIST selected in F18 [Electricity suppliers]	
<p>◆ ENTER the name of the supplier</p>		
NEXT	IF Name given → F21 [Street address] IF DK/RF: IF Only one supplier or last supplier → G1 [Section G Routing] IF More suppliers left to answer for → Back to F18 [Electricity suppliers] for next supplier	

F21	Street address	<i>EL1AD1—EL4AD1</i>
ASK	IF NOT ON LIST selected in F18 [Electricity suppliers]	
FILL	{Supplier} = "F20 [Supplier name]"	
<p>What is the address for {Supplier}, beginning with the street?</p>		
NEXT	→ F22 [P.O. Box or Suite]	

F22	P.O. Box or Suite	<i>EL1AD2—EL4AD2</i>
ASK	IF NOT ON LIST selected in F18 [Electricity suppliers]	
<p>Is there a post office box or suite number?</p> <p>◆ If not, press [ENTER]</p>		
NEXT	→ F23 [City]	

F23	City	<i>EL1CTY—EL4CTY</i>
ASK	IF NOT ON LIST selected in F18 [Electricity suppliers]	
<p>What is the city?</p>		
NEXT	→ F24 [State abbreviation]	

F24	State abbreviation	<i>EL1STA—EL4STA</i>
ASK	IF NOT ON LIST selected in F18 [Electricity suppliers]	
<p>What is the state?</p> <p>◆ ENTER the two letter abbreviation</p>		
NEXT	→ F25 [ZIP code]	

F25	ZIP code	<i>EL1ZIP—EL4ZIP</i>
ASK	IF NOT ON LIST selected in F18 [Electricity suppliers]	
<p>And what is the ZIP code?</p>		
NEXT	→ F26 [Number electricity accounts]	

F26	Number electricity accounts	<i>EL1NAC—EL4NAC</i>
ASK	IF Supplier found in F18 [Electricity suppliers] look-up table OR F20 [Supplier name] given	
FILL	{Supplier} = Supplier name from F18 [Electricity suppliers] look-up table OR F20 [Supplier name]	
<p>How many different electricity accounts does this establishment have with {Supplier}?</p>		
RANGE	1 to 999	
NEXT	IF 1 to 10 accounts → F27 [Electricity account number] IF More than 10 accounts OR DK/RF ⇒ F32 [Electricity bill available]	

F27	Electricity account number	<i>EL1AC1—EL4AC10</i>
ASK	IF F26 [Number electricity accounts] = 1 to 10 Ask as many times as account numbers given, or until DK/RF	
FILL	{FirstNext} IF Only one account = BLANK IF First account given = "first" OTHERWISE = "next" {Supplier} = Supplier name from F18 [Electricity suppliers] look-up table OR F20 [Supplier name]	
<p>Please give me the {FirstNext} electricity account number for {Supplier}.</p> <p>◆ VERIFY number <u>digit by digit</u></p>		
NEXT	IF Independent power producer or non-local utility OR Bought from someone else IN D85 [How purchase electricity] → F28 [Supplier is non-local utility] OTHERWISE → F29 [Bills cover only establishment]	

F28	Supplier is non-local utility <i>EL1NONU—EL4NONU</i>
ASK	IF (Supplier found in F18 [Electricity suppliers] look-up table OR F20 [Supplier name] given) & (Independent power producer or non-local utility OR Bought from someone else IN D85 [How purchase electricity])
FILL	{Supplier} = Supplier name from F18 [Electricity suppliers] look-up table OR F20 [Supplier name]
<p>You mentioned earlier that you purchase electricity from an independent power producer, non-local utility, or broker. Is {Supplier} one of those companies?</p> <p>1 Yes 2 No</p>	
NEXT	→ F29 [Bills cover only establishment]

F29	Bills cover only establishment <i>EL10TB—EL40TB</i>
ASK	IF Supplier found in F18 [Electricity suppliers] look-up table OR F20 [Supplier name] given
FILL	{Bills} IF Only one account = “Does the bill or statement” IF 2 to 10 accounts = “Do the bills or statements” {Supplier} = Supplier name from F18 [Electricity suppliers] look-up table OR F20 [Supplier name]
<p>{Bills} from {Supplier} cover just this establishment or are other establishments covered as well?</p> <p>1 Just this establishment 2 Other establishment(s)</p>	
NEXT	IF Other establishments → F30 [Sq ft of others included] IF Just this establishment OR DK/RF → F31 [Include other major electricity]

F30	Sq ft of others included <i>EL10TS—EL40TS</i>
ASK	IF F29 [Bills cover only establishment] = Other establishments
FILL	{Bills} IF Only one account = “bill or statement” IF 2 to 10 accounts = “bills or statements”
<p>What is the approximate square footage of the <u>other</u> establishments included on the {Bills}?</p> <p>◆ PROBE for estimate if DK</p>	
RANGE	1 to 999,999,999
NEXT	→ F31 [Include other major electricity]

F31	Include other major electricity	<i>EL10TU—EL40TU</i>
ASK	IF Supplier found in F18 [Electricity suppliers] look-up table OR F20 [Supplier name] given	
FILL	{Bills} IF Only one account = “Does the bill or statement” IF 2 to 10 accounts = “Do the bills or statements”	
<p>{Bills} include charges for any <u>other</u> major electricity usage outside the establishment, such as parking lot lights, exterior lights, signs or billboards, large pumps or swimming pools?</p> <p>1 Yes 2 No</p>		
NEXT	→ F32 [Electricity bill available]	

F32	Electricity bill available	<i>EL1BILL—EL4BILL</i>
ASK	IF (Supplier found in F18 [Electricity suppliers] look-up table OR F20 [Supplier name])	
FILL	{Supplier} = Supplier name from F18 [Electricity suppliers] look-up table OR F20 [Supplier name]	
<p>Would it be possible for me to scan one electricity bill from {Supplier}? There is information on some utility bills that may help energy researchers who use these data.</p> <ul style="list-style-type: none"> ◆ EXP: [Examples of these items include other miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here <p>1 Yes, bill available 2 No, will not be able to provide bill</p>		
NEXT	IF More suppliers left to answer for → Back to F18 [Electricity suppliers] for next supplier OTHERWISE → G1 [Section G Routing]	

SECTION G. NATURAL GAS

G1	Section G Routing
NEXT	IF Natural gas used → G2 [WS2 natural gas filled out] OTHERWISE → H1 [Section H Routing]

G2	WS2 natural gas filled out	<i>WS2NGCE</i>
ASK	IF Natural gas used	
Do you have Worksheet 2 with you and filled out for natural gas?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF No OR DK/RF → G3 [Provide natural gas figures] IF Yes → G5 [Units for natural gas]	

G3	Provide natural gas figures	<i>NGFIGS</i>
ASK	IF G2 [WS2 natural gas filled out] = No OR DK/RF	
The next questions are about natural gas usage in this establishment during calendar year 2012. Would you be able to give me an approximate figure of how much natural gas was used or how much was spent on it?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes → G5 [Units for natural gas] IF No OR DK/RF → G4 [Natural gas included in rent]	

G4	Natural gas included in rent	<i>NGNRENT</i>
ASK	IF G3 [Provide natural gas figures] = No OR DK/RF	
Is the cost of the natural gas used in this establishment included in the rent?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	→ G19 [Number natural gas suppliers]	

G5	Units for natural gas	<i>NGUNIT</i>
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ASK	IF G2 [WS2 natural gas filled out] = Yes OR G3 [Provide natural gas figures] = Yes
<input type="checkbox"/> SHOW CARD G1 Please look at Show Card G1 and tell me the units in which your natural gas is measured. <ol style="list-style-type: none"> 1 Hundred cubic feet (Ccf) 2 Therms 3 Thousand cubic feet (Mcf) 4 Dekatherms 5 Cubic feet (cf) 6 IF VOLUNTEERED: Some other units 	
NEXT	IF Some other units → G6 [Other natural gas units] IF Anything else OR DK/RF → G7 [Natural gas consumption]

G6	Other natural gas units	<i>NGUNITX</i>
ASK	IF G5 [Units for natural gas] = Some other unit	
What are the other units?		
NEXT	→ G7 [Natural gas consumption]	

G7	Natural gas consumption	<i>NGCNS</i>
ASK	IF G2 [WS2 natural gas filled out] = Yes OR G3 [Provide natural gas figures] = Yes	
		[F1]-HELP
Please give me the total amount of natural gas used in calendar year 2012.		
<ul style="list-style-type: none"> ◆ EXP: [If the respondent only knows the consumption for the entire building including other establishments, ENTER the total consumption for the building here.] ◆ VERIFY number <u>digit by digit</u> 		
RANGE	1 to 99,999,999,999,999	
NEXT	→ G8 [Natural gas expenditures]	

G8	Natural gas expenditures	<i>NGEXP</i>
ASK	IF G2 [WS2 natural gas filled out] = Yes OR G3 [Provide natural gas figures] = Yes	

[F1]-HELP

Please give me the total dollars spent on natural gas in calendar year 2012. This should include state and local taxes and the following charges: fuel adjustment, system, demand, and distribution.

- ◆ Do not enter cents
- ◆ VERIFY number digit by digit

RANGE	0 to 999,999,999
NEXT	IF G7 [Natural gas consumption] = DK/RF & G8 [Natural gas expenditures] = DK/RF → G19 [Number natural gas suppliers] OTHERWISE → G9 [Starting date for natural gas figures]

G9	Starting date for natural gas figures	<i>NGSTDAT</i>
ASK	IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given	
		[F1]-HELP
	What is the starting date for these natural gas usage figures?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY ◆ If the day is not known, ENTER "15" for DD 	
NEXT	⇒ G10 [Ending date for natural gas figures]	

G10	Ending date for natural gas figures	<i>NGENDAT</i>
ASK	IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given	
		[F1]-HELP
	What is the ending date [for these natural gas usage figures]?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY <input type="checkbox"/> ◆ 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	→ G11 [Other estabs natural gas included]	

G11	Other estabs natural gas included	<i>NGOTBD</i>
ASK	IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given	
<p>Is any consumption from other establishments included in these figures?</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → G12 [Sq ft of other included] IF No OR DK/RF → G13 [Include other major natural gas]	

G12	Sq ft of other included	<i>NGOTSF</i>
ASK	IF G11 [Other estabs natural gas included] = Yes	
<p>What is the approximate square footage of the <u>other</u> establishments that are included in these figures?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999,999,999	
NEXT	⇒ G13 [Include other major natural gas]	

G13	Include other major natural gas	<i>NGOTUS</i>
ASK	IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given	
<p>Do these figures include charges for any <u>other</u> major natural gas usage outside the establishment, such as for kilns, gas space heaters, exterior or decorative lighting, compressed natural gas vehicles, or pumps not used in the establishment?</p> <p>1 Yes 2 No</p>		
NEXT	<p>IF D87 [How purchase natural gas] = Bought from someone else OR Bought both ways → G14 [Include all non-local natural gas]</p> <p>OTHERWISE: IF G2 [WS2 natural gas filled out] = Yes → G16 [Monthly natural gas included] IF G2 [WS2 natural gas filled out] = No OR DK/RF → G17 [Monthly natural gas available]</p>	

G14	Include all non-local natural gas	<i>NGNONU</i>
ASK	IF (G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given) & (D87 [How purchase natural gas] = Bought from someone else OR Bought both ways)	
Do these figures include all the natural gas from the non-utility or broker?		
1 Yes 2 No		
NEXT	IF No → G15 [What not included] OTHERWISE: IF G2 [WS2 natural gas filled out] = Yes → G16 [Monthly natural gas included] IF G2 [WS2 natural gas filled out] = No OR DK/RF → G17 [Monthly natural gas available]	

G15	What not included	
ASK	IF G14 [Include all non-local natural gas] = No	
What was not included?		
◆ RECORD the additional charges in the open box		
NEXT	IF G2 [WS2 natural gas filled out] = Yes → G16 [Monthly natural gas included] IF G2 [WS2 natural gas filled out] = No OR DK/RF → G17 [Monthly natural gas available]	

G16	Monthly natural gas included	<i>NGINC12</i>
ASK	IF (G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given) & G2 [WS2 natural gas filled out] = Yes	
Did you include your monthly natural gas usage on Worksheet 2?		
1 Yes 2 No		
NEXT	IF No OR DK/RF → G17 [Monthly natural gas available] OTHERWISE → G18 [Natural gas bill available]	

G17	Monthly natural gas available	<i>NGHAV12</i>
ASK	IF (G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given) & (G2 [WS2 natural gas filled out] = No OR DK/RF OR G16 [Monthly natural gas included] = No OR DK/RF)	
<p>Do you have a record of the monthly natural gas use that I could have to help us better understand the seasonal patterns of natural gas use?</p> <p>◆ If available, you will be prompted again to collect this at the end of the interview, so it is not necessary to stop the interview to collect it here</p> <p>1 Yes, monthly natural gas available 2 No, will not be able to provide monthly natural gas</p>		
NEXT	→ G18 [Natural gas bill available]	

G18	Natural gas bill available	<i>NGBILL</i>
ASK	IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given	
<p>Would it be possible for me to scan one of your natural gas bills? (There is information on some utility bills that may help energy researchers who use these data.)</p> <p>◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.]</p> <p>◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here</p> <p>1 Yes, bill available 2 No, will not be able to provide bill</p>		
NEXT	→ H1 [Section H Routing]	

G19	Number natural gas suppliers	<i>NGNUMSP</i>
ASK	IF G3 [Provide natural gas figures] = No OR DK/RF OR G7 [Natural gas consumption] = DK/RF & G8 [Natural gas expenditures] = DK/RF	
<p>We should be able to obtain this information directly from your natural gas supplier, so I just need to collect some information about your natural gas accounts.</p> <p>In some parts of the country, customers can purchase energy from more than one supplier. How many different companies supplied natural gas to this establishment during calendar year 2012?</p>		
RANGE	1 to 4	
NEXT	Number given → G20 [Natural gas suppliers] DK/RF → H1 [Section H Routing]	

G20	Natural gas suppliers	NG1LKP—NG2LKP
ASK	IF G19 [Number natural gas suppliers] given	
FILL	{FirstNext} IF Only one supplier = BLANK IF First supplier given = "first" OTHERWISE = "next"	
<p>What is the name of the {FirstNext} supplier that provided natural gas in calendar year 2012?</p> <ul style="list-style-type: none"> ◆ Start typing the name of the supplier or use [BACKSPACE] to bring up the look-up table ◆ Type in the first few letters of the supplier name, and the look-up table will scroll to the closest match ◆ If you find a match, make sure the correct line is highlighted (blue) and press [ENTER] ◆ If you don't find a match, use [BACKSPACE] to clear the Search line, which will bring you back to the top of the look-up table where ** NOT ON LIST will be highlighted, then press [ENTER] two times 		
NEXT	IF NOT ON LIST selected → G22 [Supplier name] IF Supplier found in look-up table → G21 [Verify natural gas supplier] IF DK/RF: IF Only one supplier or last supplier → H1 [Section H Routing] IF More suppliers left to answer for → Ask G20 [Natural gas suppliers] again for next supplier	

G21	Verify natural gas supplier	
ASK	IF Supplier found in G20 [Natural gas suppliers] look-up table	
FILL	{Supplier} = Supplier name from G20 [Natural gas suppliers] look-up table	
<p>Just to verify, I have selected that your natural gas supplier is {Supplier}. Is that correct?</p> <ul style="list-style-type: none"> ◆ If No, you will be taken back to the previous screen to select again <ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes → G28 [Number natural gas accounts] IF No → G20 [Natural gas suppliers]	

G22	Supplier name	<i>NG1NEW—NG4NEW</i>
ASK	IF NOT ON LIST selected in G20 [Natural gas suppliers]	
◆ ENTER the name of the supplier		
NEXT	IF Name given → G23 [Street address] IF DK/RF: IF Only one supplier or last supplier → H1 [Section H Routing] IF More suppliers left to answer for → Back to G20 [Natural gas suppliers] for next supplier	

G23	Street address	<i>NG1AD1—NG4AD1</i>
ASK	All Establishments IF NOT ON LIST selected in G20 [Natural gas suppliers]	
FILL	{Supplier} = "G22 [Supplier name]"	
What is the address for {Supplier}, beginning with the street?		
NEXT	⇒ G24 [P.O. Box or Suite]	

G24	P.O. Box or Suite	<i>NG1AD2—NG4AD2</i>
ASK	IF NOT ON LIST selected in G20 [Natural gas suppliers]	
Is there a post office box or suite number? ◆ If not, press [ENTER]		
NEXT	⇒ G25 [City]	

G25	City	<i>NG1CTY9—NG4CTY</i>
ASK	IF NOT ON LIST selected in G20 [Natural gas suppliers]	
What is the city?		
NEXT	⇒ G26 [State abbreviation]	

G26	State abbreviation	<i>NG1STA—NG4STA</i>
ASK	IF NOT ON LIST selected in G20 [Natural gas suppliers]	
<p>What is the state?</p> <p>◆ ENTER the two letter abbreviation</p>		
NEXT	⇒ G27 [ZIP code]	

G27	ZIP code	<i>NG1ZIP—NG4ZIP</i>
ASK	IF NOT ON LIST selected in G20 [Natural gas suppliers]	
<p>And what is the ZIP code?</p>		
NEXT	⇒ G28 [Number natural gas accounts]	

G28	Number natural gas accounts	<i>NG1NAC—NG4NAC</i>
ASK	IF Supplier found in G20 [Natural gas suppliers] look-up table OR G22 [Supplier name] given	
FILL	{Supplier} = Supplier name from G20 [Natural gas suppliers] look-up table OR G22 [Supplier name]	
<p>How many different natural gas accounts does this establishment have with {Supplier}?</p>		
RANGE	1 to 999	
NEXT	IF 1 to 10 accounts → G29 [Natural gas account number] IF More than 10 accounts OR DK/RF ⇒ G35 [Natural gas bill available]	

G29	Natural gas account number	<i>NG1AC1—NG4AC10</i>
ASK	IF G28 [Number natural gas accounts] = 1 to 10 Ask as many times as account numbers given, or until DK/RF	
FILL	{FirstNext} IF Only one account = BLANK IF First account given = "first" OTHERWISE = "next" {Supplier} = Supplier name from G20 [Natural gas suppliers] look-up table OR G22 [Supplier name]	
<p>Please give me the {FirstNext} natural gas account number for {Supplier}.</p> <p>◆ VERIFY number <u>digit by digit</u></p>		
NEXT	IF D87 [How purchase natural gas] = Bought from someone else OR Bought both ways → G30 [Supplier is non-local utility] OTHERWISE → G31 [Bills cover only establishment]	

G30	Supplier is non-local utility <i>NG1NONU—NG4NONU</i>
ASK	IF (Supplier found in G20 [Natural gas suppliers] look-up table OR G22 [Supplier name] given) & (D87 [How purchase natural gas] = Bought from someone else OR Bought both ways)
FILL	{Supplier} = Supplier name from G20 [Natural gas suppliers] look-up table OR G22 [Supplier name]
<p>You mentioned earlier that you purchase natural gas from a non-utility or broker. Is {Supplier} one of those companies?</p> <p>1 Yes 2 No</p>	
NEXT	→ G31 [Bills cover only establishment]

G31	Bills cover only establishment <i>NG1OTB—NG4OTB</i>
ASK	IF Supplier found in G20 [Natural gas suppliers] look-up table OR G22 [Supplier name] given
FILL	{Bills} IF Only one account = “Does the bill or statement” IF 2 to 10 accounts = “Do the bills or statements” {Supplier} = Supplier name from G20 [Natural gas suppliers] look-up table OR G22 [Supplier name]
<p>{Bills} from {Supplier} cover just this establishment or are other establishments covered as well?</p> <p>1 Just this establishment 2 Other establishment(s)</p>	
NEXT	IF Other establishments → G32 [Sq ft of others included] IF Just this establishment OR DK/RF → G33 [Include other major natural gas]

G32	Sq ft of others included <i>NG1OTS—NG4OTS</i>
ASK	IF G31 [Bills cover only establishment] = Other establishments
FILL	{Bills} IF Only one account = “bill or statement” IF 2 to 10 accounts = “bills or statements”
<p>What is the approximate square footage of the <u>other</u> establishments included on the {Bills}?</p> <p>◆ PROBE for estimate if DK</p>	
RANGE	1 to 999,999,999
NEXT	⇒ G33 [Include other major natural gas]

G33	Include other major natural gas <i>NG1OTU—NG4OTU</i>
ASK	IF Supplier found in G20 [Natural gas suppliers] look-up table OR G22 [Supplier name] given
FILL	{Bills} IF Only one account = “Does the bill or statement” IF 2 to 10 accounts = “Do the bills or statements”
<p>{Bills} include charges for any <u>other</u> major natural gas usage outside the establishment, such as for kilns, gas space heaters, exterior or decorative lighting, compressed natural gas vehicles, or pumps not used in the establishment?</p> <p>1 Yes 2 No</p>	
NEXT	→ G34 [Natural gas bill available]

G34	Natural gas bill available <i>NG1BILL—NG4BILL</i>
ASK	IF (Supplier found in G20 [Natural gas suppliers] look-up table OR G23 [Supplier name given]) & G18 [Natural gas bill available] NOT already asked
FILL	{Supplier} = Supplier name from G20 [Natural gas suppliers] look-up table OR G22 [Supplier name]
<p>Would it be possible for me to scan one natural gas bill from {Supplier}? (There is information on some utility bills that may help energy researchers who use these data.)</p> <ul style="list-style-type: none"> ◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here <p>1 Yes, bill available 2 No, will not be able to provide bill</p>	
NEXT	IF More suppliers left to answer for → Back to G20 [Natural gas suppliers] for next supplier OTHERWISE → H1 [Section H Routing]

SECTION H. FUEL OIL/DIESEL/KEROSENE

NOTE: In ASK and NEXT instructions in this section, "Fuel oil" refers to fuel oil, diesel, or kerosene.

H1	Section H Routing
NEXT	IF Fuel oil used → H2 [WS2 fuel oil filled out] OTHERWISE → I1 [Section I Routing]

H2	WS2 fuel oil filled out	<i>WS2FKCE</i>
ASK	IF Fuel oil used	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
Do you have Worksheet 2 with you and filled out for {FuelOilType}?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF No OR DK/RF → H3 [Provide fuel oil figures] IF Yes → H5 [Fuel oil purchases]	

H3	Provide fuel oil figures	<i>FKFIGS</i>
ASK	IF H2 [WS2 fuel oil filled out] = No OR DK/RF	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
The next questions are about {FuelOilType} purchases in this establishment during calendar year 2012. Would you be able to give me an approximate figure of how much {FuelOilType} was purchased or how much was spent on it?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes → H5 [Fuel oil purchases] IF No OR DK/RF → H4 [Fuel oil included in rent]	

H4	Fuel oil included in rent	<i>FKNRENT</i>
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ASK	IF H3 [Provide fuel oil figures] = No
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]
<p>Is the cost of the {FuelOilType} used in this establishment included in the rent?</p> <p>1 Yes 2 No</p>	
NEXT	<p>IF D21 [Source for main heating] = Fuel oil OR D22 [Other source for main heating] = Fuel oil OR D69 [Sources for water heating] = Fuel oil OR D70 [Other water heating source] = Fuel oil OR (D78 [Sources for electricity generation] = Fuel oil & D80 [Use of generated electricity] = Whenever electricity was used) → H14 [Number fuel oil suppliers] OTHERWISE → I1 [Section I Routing]</p>

H5	Fuel oil purchases	<i>FKPURC</i>
ASK	IF H2 [WS2 fuel oil filled out] = Yes OR H3 [Provide fuel oil figures] = Yes	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
<p>Please give me the total number of gallons of {FuelOilType} purchased in calendar year 2012.</p> <ul style="list-style-type: none"> ◆ EXP: [If the respondent only knows the consumption for the entire building including other establishments, ENTER the total consumption for the building here.] ◆ VERIFY number <u>digit by digit</u> 		[F1]-HELP
RANGE	0 to 99,999,999,999,999	
NEXT	⇒ H6 [Fuel oil expenditures]	

H6	Fuel oil expenditures	<i>FKEXP</i>
ASK	IF H2 [WS2 fuel oil filled out] = Yes OR H3 [Provide fuel oil figures] = Yes	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
		[F1]-HELP
	Please give me the total dollars spent on {FuelOilType} in calendar year 2012, including state and local taxes.	
	<ul style="list-style-type: none"> ◆ Do <u>not</u> enter cents ◆ VERIFY number <u>digit by digit</u> 	
RANGE	0 to 999,999,999	
NEXT	IF H5 [Fuel oil purchases] = Zero & H6 [Fuel oil expenditures] = Zero ⇒ H7 [Purchased before 2012] IF H5 [Fuel oil purchases] = DK/RF & H6 [Fuel oil expenditures] = DK/RF → H14 [Number fuel oil suppliers] OTHERWISE → H8 [Starting date for fuel oil figures]	

H7	Purchased before 2012	<i>FKSTORD</i>
ASK	IF H5 [Fuel oil purchases] = Zero & H6 [Fuel oil expenditures] = Zero	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
	Was any {FuelOilType} used in 2012 that was purchased or delivered in 2011 or before?	
	1 Yes 2 No	
NEXT	⇒ I1 [Section I Routing]	

H8	Starting date for fuel oil figures	<i>FKSTDAT</i>
ASK	IF (H5 [Fuel oil purchases] given OR H6 [Fuel oil expenditures] given) & Not both zero	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
		[F1]-HELP
	What is the first delivery date for these {FuelOilType} purchases?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY ◆ If the day is not known, ENTER "15" for DD 	
NEXT	⇒ H9 [Ending date for fuel oil figures]	

H9	Ending date for fuel oil figures	<i>FKENDAT</i>
ASK	IF (H5 [Fuel oil purchases] given OR H6 [Fuel oil expenditures] given) & Not both zero	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
		[F1]-HELP
	What is the last delivery date [for these {FuelOilType} purchases]?	
	◆ ENTER date as MMDDYYYY	
	◆ If the day is not known, ENTER "15" for DD	
NEXT	→ H10 [Other estabs fuel oil included]	

H10	Other estabs fuel oil included	<i>FKOTBD</i>
ASK	IF H5 [Fuel oil purchases] given OR H6 [Fuel oil expenditures] given	
	Is any consumption from other establishments included in these figures?	
	1 Yes	
	2 No	
NEXT	IF Yes → H11 [Sq ft of other included] IF No OR DK/RF → H12 [Include other major fuel oil]	

H11	Sq ft of other included	<i>FKOTSF</i>
ASK	IF H10 [Other estabs fuel oil included] = Yes	
	What is the approximate square footage of the <u>other</u> establishments that are included in these figures?	
	◆ PROBE for estimate if DK	
RANGE	1 to 999,999,999	
NEXT	⇒ H12 [Include other major fuel oil]	

H12	Include other major fuel oil	<i>FKOTUS</i>
ASK	IF H5 [Fuel oil purchases] given OR H6 [Fuel oil expenditures] given	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
<p>Do these figures include charges for any <u>other</u> major {FuelOilType} usage outside the establishment, such as for kilns, welding, pumps, or motors?</p> <p>1 Yes 2 No</p>		
NEXT	→ H13 [Fuel oil bill available]	

H13	Fuel oil bill available	<i>FKBILL</i>
ASK	IF H5 [Fuel oil purchases] given OR H6 [Fuel oil expenditures] given	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
<p>Would it be possible for me to scan one of your {FuelOilType} bills? (There is information on some utility bills that may help energy researchers who use these data.)</p> <ul style="list-style-type: none"> ◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here <p>1 Yes, bill available 2 No, will not be able to provide bill</p>		
NEXT	→ I1 [Section I Routing]	

H14	Number fuel oil suppliers	<i>FKNUMSP</i>
ASK	IF D21 [Source for main heating] = Fuel oil OR D22 [Other source for main heating] = Fuel oil OR D69 [Sources for water heating] = Fuel oil OR D70 [Other water heating source] = Fuel oil OR (D78 [Sources for electricity generation] = Fuel oil & D80 [Use of generated electricity] = Whenever electricity was used) & H3 [Provide fuel oil figures] = No OR DK/RF OR H5 [Fuel oil purchases] = DK/RF & H6 [Fuel oil expenditures] = DK/RF	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
<p>We should be able to obtain this information directly from your supplier, so I just need to collect some information about your accounts.</p> <p>How many different companies supplied {FuelOilType} to this establishment during calendar year 2012?</p>		
RANGE	1 to 4	
NEXT	Number given → H15 [Fuel oil supplier name] DK/RF → I1 [Section I Routing]	

H15	Fuel oil supplier name	<i>FK1SUP—FK4SUP</i>
ASK	IF H14 [Number fuel oil suppliers] given	
FILL	{FirstNext} IF Only one supplier = BLANK IF First supplier given = "first" OTHERWISE = "next" {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene]	
<p>What is the name of the {FirstNext} supplier that provided {FuelOilType} during 2012?</p> <p>◆ ENTER the name of the supplier</p>		
NEXT	IF Name given → H16 [Street address] IF DK/RF: IF Only one supplier or last supplier → I1 [Section I Routing] IF More suppliers left to answer for → Ask H15 [Fuel oil supplier name] again for next supplier	

H16	Street address	<i>FK1AD1—FK4AD1</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
FILL	{Supplier} = H15 [Fuel oil supplier name]	
<p>What is the address for {Supplier}, beginning with the street?</p>		
NEXT	⇒ H17 [P.O. Box or Suite]	

H17	P.O. Box or Suite	<i>FK1AD2—FK4AD2</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
<p>Is there a post office box or suite number?</p> <p>◆ If not, press [ENTER]</p>		
NEXT	⇒ H18 [City]	

H18	City	<i>FK1CTY—FK4CTY</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
<p>What is the city?</p>		
NEXT	⇒ H19[State abbreviation]	

H19	State abbreviation	<i>FK1STA—FK4STA</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
<p>What is the state?</p> <p>◆ ENTER the two letter abbreviation</p>		
NEXT	⇒ H20 [ZIP code]	

H20	ZIP code	<i>FK1ZIP—FK4ZIP</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
<p>And what is the ZIP code?</p>		
NEXT	⇒ H21 [Number fuel oil accounts]	

H21	Number fuel oil accounts	<i>FK1NAC—FK4NAC</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Supplier} = H15 [Fuel oil supplier name]	
<p>How many different {FuelOilType} accounts does this establishment have with {Supplier}?</p>		
NEXT	IF 1 to 10 accounts → H22 [Fuel oil account number] IF More than 10 accounts OR DK/RF → H26 [Fuel oil bill available]	

H22	Fuel oil account number	<i>FK1AC1—FK4AC10</i>
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ASK	IF H21 [Number fuel oil accounts] = 1 to 10 Ask as many times as account numbers given, or until DK/RF
FILL	{FirstNext} IF Only one account = BLANK IF First account given = "first" OTHERWISE = "next" {FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Supplier} = H15 [Fuel oil supplier name]
Please give me the {FirstNext} {FuelOilType} account number for {Supplier}.	
◆ VERIFY number <u>digit by digit</u>	
NEXT	➔ H23 [Bills cover only establishment]

H23	Bills cover only establishment	<i>FK10TB—FK40TB</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
FILL	{Bills} IF Only one account = "Does the bill or statement" IF 2 to 10 accounts = "Do the bills or statements" {Supplier} = H15 [Fuel oil supplier name]	
{Bills} from {Supplier} cover just this establishment or are other establishments covered as well?		
<ol style="list-style-type: none"> 1 Just this establishment 2 Other establishment(s) 		
NEXT	IF Other establishments ➔ H24 [Sq ft of others included] IF Just this establishment OR DK/RF ➔ H25 [Include other major fuel oil]	

H24	Sq ft of others included	<i>FK10TS—FK40TS</i>
ASK	IF H23 [Bills cover only establishment] = Other establishments	
FILL	{Bills} IF Only one account = "bill or statement" IF 2 to 10 accounts = "bills or statements"	
What is the approximate square footage of the <u>other</u> establishments included on the {Bills}?		
◆ PROBE for estimate if DK		
RANGE	1 to 999,999,999	
NEXT	➔ H25 [Include other major fuel oil]	

H25	Include other major fuel oil	<i>FK1OTU—FK4OTU</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
FILL	{Bills} IF Only one account = “Does the bill or statement” IF 2 to 10 accounts = “Do the bills or statements”	
{Bills} include charges for any <u>other</u> major fuel oil usage outside the establishment, such as for kilns, welding, pumps, or motors? 1 Yes 2 No		
NEXT	⇒ H26 [Fuel oil bill available]	

H26	Fuel oil bill available	<i>FO1BILL—FO4BILL</i>
ASK	IF Name given in H15 [Fuel oil supplier name]	
FILL	{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] {Supplier} = H15 [Fuel oil supplier name]	
Would it be possible for me to scan one {FuelOilType} bill from {Supplier}? (There is information on some utility bills that may help energy researchers who use these data.) ◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here 1 Yes, bill available 2 No, will not be able to provide bill		
NEXT	IF More suppliers left to answer for → Back to H15 [Fuel oil supplier name] for next supplier OTHERWISE → I1 [Section I Routing]	

SECTION I. DISTRICT STEAM

I1	Section I Routing
NEXT	IF District steam used → I2 [WS2 district steam filled out] OTHERWISE → J1 [Section J Routing]

I2	WS2 district steam filled out	<i>WS2STCE</i>
ASK	IF District steam used	
Do you have Worksheet 2 with you and filled out for district steam?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF No OR DK/RF → I3 [Provide district steam figures] IF Yes → I5 [Units for district steam]	

I3	Provide district steam figures	<i>STFIGS</i>
ASK	IF I2 [WS2 district steam filled out] = No OR DK/RF	
The next questions are about district steam usage in this establishment during calendar year 2012. Would you be able to give me an approximate figure of how much district steam was used or how much was spent on it?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF Yes → I5 [Units for district steam] IF No OR DK/RF → I4 [District steam included in rent]	

I4	District steam included in rent	<i>STNRENT</i>
ASK	IF I3 [Provide district steam figures] = No	
Is the cost of the district steam used in this establishment included in the rent?		
<ul style="list-style-type: none"> 1 Yes 2 No 		
NEXT	IF D15 [From central plant] = No OR D20 [Purchase from offsite] = Yes → I14 [District steam supplier name] OTHERWISE → J1 [Section J Routing]	

I5	Units for district steam	<i>STUNIT</i>
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ASK	IF I2 [WS2 district steam filled out] = Yes OR I3 [Provide district steam figures] = Yes
<input type="checkbox"/> SHOW CARD I1 Please look at Show Card I1 and tell me the units in which your district steam is measured. <ol style="list-style-type: none"> 1 Thousand pounds 2 Pounds 3 Million Btu 4 IF VOLUNTEERED: Some other unit 	
NEXT	IF Some other unit → I6 [Other district steam units] OTHERWISE → I7 [District steam consumption]

I6	Other district steam units	<i>STUNITX</i>
ASK	IF I5 [Units for district steam] = Some other unit	
What are the other units?		
NEXT	⇒ I7 [District steam consumption]	

I7	District steam consumption	<i>STCNS</i>
ASK	IF I2 [WS2 district steam filled out] = Yes OR I3 [Provide district steam figures] = Yes	
		[F1]-HELP
Please give me the total amount of district steam used in calendar year 2012.		
<ul style="list-style-type: none"> ◆ EXP: [If the respondent only knows the consumption for the entire building including other establishments, ENTER the total consumption for the building here.] ◆ VERIFY number <u>digit by digit</u> 		
RANGE	1 to 99,999,999,999,999	
NEXT	⇒ I8 [District steam expenditures]	

I8	District steam expenditures	<i>STEXP</i>
ASK	IF I2 [WS2 district steam filled out] = Yes OR I3 [Provide district steam figures] = Yes	
		[F1]-HELP
	Please give me the total dollars spent on district steam in calendar year 2012, including state and local taxes.	
	<ul style="list-style-type: none"> ◆ Do <u>not</u> enter cents ◆ VERIFY number <u>digit by digit</u> 	
RANGE	0 to 999,999,999	
NEXT	IF I7 [District steam consumption] = DK/RF & I8 [District steam expenditures] = DK/RF: IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes] → I14 [District steam supplier name] OTHERWISE → J1 [Section J Routing] OTHERWISE → I9 [Starting date for district steam figures]	

I9	Starting date for district steam figures	<i>STSTDAT</i>
ASK	IF I7 [District steam consumption] given OR I8 [District steam expenditures] given	
		[F1]-HELP
	What is the starting date for these district steam usage figures?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY ◆ If the day is not known, ENTER "15" for DD 	
NEXT	⇒ I10 [Ending date for district steam figures]	

I10	Ending date for district steam figures	<i>STENDAT</i>
ASK	IF I7 [District steam consumption] given OR I8 [District steam expenditures] given	
		[F1]-HELP
	What is the ending date [for these district steam usage figures]?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY <input type="checkbox"/> ◆ 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	→ I11 [Other estabs steam included]	

I11	Other estabs steam included	<i>STOTBD</i>
ASK	IF I7 [District steam consumption] given OR I8 [District steam expenditures] given	
<p>Is any consumption from other establishments included in these figures?</p> <p>1 Yes 2 No</p>		
NEXT	IF Yes → I12 [Sq ft of other included] IF No OR DK/RF → I13 [District steam bill available]	

I12	Sq ft of other included	<i>STOTSF</i>
ASK	IF I11 [Other estabs steam included] = Yes	
<p>What is the approximate square footage of the <u>other</u> establishments that are included in these figures?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999,999,999	
NEXT	⇒ I13 [District steam bill available]	

I13	District steam bill available	<i>STBILL</i>
ASK	IF I7 [District steam consumption] given OR I8 [District steam expenditures] given	
<p>Would it be possible for me to scan one of your district steam bills? (There is information on some utility bills that may help energy researchers who use these data.)</p> <p>◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.]</p> <p>◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here</p> <p>1 Yes, bill available 2 No, will not be able to provide bill</p>		
NEXT	→ J1 [Section J Routing]	

I14	District steam supplier name	<i>STSUP</i>
ASK	IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes] & (I3 [Provide district steam figures] = No OR DK/RF OR I7 [District steam consumption] = DK/RF & I8 [District steam expenditures] = DK/RF)	
<p>We should be able to obtain this information directly from your district steam supplier, so I just need to collect some information about your district steam accounts.</p> <p>What is the name of the supplier that provided district steam in calendar year 2012?</p> <p>◆ ENTER the name of the supplier</p>		
NEXT	IF Name given → I15 [Street address] IF DK/RF → J1 [Section J Routing]	

I15	Street address	<i>STAD1</i>
ASK	IF Name given in I14 [District steam supplier name]	
FILL	{Supplier} = I14 [District steam supplier name]	
<p>What is the address for {Supplier}, beginning with the street?</p>		
NEXT	⇒ I16 [P.O. Box or Suite]	

I16	P.O. Box or Suite	<i>STAD2</i>
ASK	IF Name given in I14 [District steam supplier name]	
<p>Is there a post office box or suite number?</p> <p>◆ If not, press [ENTER]</p>		
NEXT	⇒ I17 [City]	

I17	City	<i>STCTY</i>
ASK	IF Name given in I14 [District steam supplier name]	
<p>What is the city?</p>		
NEXT	⇒ I18 [State abbreviation]	

I18	State abbreviation	<i>STSTA</i>
ASK	IF Name given in I14 [District steam supplier name]	
<p>What is the state?</p> <p>◆ ENTER the two letter abbreviation</p>		
NEXT	⇒ I19 [ZIP code]	

I19	ZIP code	<i>STZIP</i>
ASK	IF Name given in I14 [District steam supplier name]	
<p>And what is the ZIP code?</p>		
NEXT	⇒ I20 [Number district steam accounts]	

I20	Number district steam accounts	<i>STNAC</i>
ASK	IF Name given in I14 [District steam supplier name]	
FILL	{Supplier} = I14 [District steam supplier name]	
<p>How many different district steam accounts does this establishment have with {Supplier}?</p>		
RANGE	1 to 999	
NEXT	IF 1 to 10 accounts → I21 [District steam account number] IF More than 10 accounts OR DK/RF → I24 [District steam bill available]	

I21	District steam account number	<i>STAC1—STAC10</i>
ASK	IF I20 [Number district steam accounts] = 1 to 10 Ask as many times as account numbers given, or until DK/RF	
FILL	{FirstNext} IF Only one account = BLANK IF First account given = "first" OTHERWISE = "next" {Supplier} = I14 [District steam supplier name]	
<p>Please give me the {FirstNext} district steam account number for {Supplier}.</p> <p>◆ VERIFY number <u>digit by digit</u></p>		
NEXT	→ I22 [Bills cover only establishment]	

I22	Bills cover only establishment	<i>STOTB</i>
ASK	IF Name given in I14 [District steam supplier name]	
FILL	{Bills} IF Only one account = "Does the bill or statement" IF 2 to 10 accounts = "Do the bills or statements" {Supplier} = I14 [District steam supplier name]	
{Bills} from {Supplier} cover just this establishment or are other establishments covered as well? 1 Just this establishment 2 Other establishment(s)		
NEXT	IF Other establishments → I23 [Sq ft of others included] IF Just this establishment OR DK/RF ⇒ I24 [District steam bill available]	

I23	Sq ft of others included	<i>STOTS</i>
ASK	IF I22 [Bills cover only establishment] = Other establishment(s)	
FILL	{Bills} IF Only one account = "bill or statement" IF 2 to 10 accounts = "bills or statements"	
What is the approximate square footage of the <u>other</u> establishments included on the {Bills}? ◆ PROBE for estimate if DK		
RANGE	1 to 999,999,999	
NEXT	⇒ I24 [District steam bill available]	

I24	District steam bill available	<i>STBILL2</i>
ASK	IF Name given in I14 [District steam supplier name]	
Would it be possible for me to scan one district steam bill from {Supplier}? (There is information on some utility bills that may help energy researchers who use these data.) ◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here 1 Yes, bill available 2 No, will not be able to provide bill		
NEXT	→ J1 [Section J Routing]	

SECTION J. DISTRICT HOT WATER

J1	Section J Routing
NEXT	IF District hot water used → J2 [WS2 district hot water filled out] OTHERWISE → K1 [Total water use]

J2	WS2 district hot water filled out	<i>WS2HWCE</i>
ASK	IF District hot water used	
Do you have Worksheet 2 with you and filled out for district hot water?		
1 Yes 2 No		
NEXT	IF No OR DK/RF → J3 [Provide district hot water figures] IF Yes → J5 [District hot water consumption]	

J3	Provide district hot water figures	<i>HWFIGS</i>
ASK	IF J2 [WS2 district hot water filled out] = No OR DK/RF	
The next questions are about district hot water usage in this establishment during calendar year 2012. Would you be able to give me an approximate figure of how much district hot water was used or how much was spent on it?		
1 Yes 2 No		
NEXT	IF Yes → J5 [District hot water consumption] IF No → J4 [District hot water included in rent] IF DK/RF → K1 [Total water use]	

J4	District hot water included in rent	<i>STNRENT</i>
ASK	IF J3 [Provide district hot water figures] = No OR DK/RF & (D15 [From central plant] = No OR D20 [Purchase from offsite = Yes])	
Is the cost of the district hot water used in this establishment included in the rent?		
1 Yes 2 No		
NEXT	IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes] → J12 [District hot water supplier name] OTHERWISE → K1 [Total water use]	

J5	District hot water consumption	<i>HWCNS</i>
ASK	IF J2 [WS2 district hot water filled out] = Yes OR J3 [Provide district hot water figures] = Yes	
		[F1]-HELP
	Please give me the total amount, in million Btu, of district hot water used in calendar year 2012.	
	<ul style="list-style-type: none"> ◆ EXP: [If the respondent only knows the consumption for the entire building including other establishments, ENTER the total consumption for the building here.] ◆ VERIFY number <u>digit by digit</u> 	
RANGE	1 to 99,999,999,999,999	
NEXT	⇒ J6 [District hot water expenditures]	

J6	District hot water expenditures	<i>HWEXP</i>
ASK	IF J2 [WS2 district hot water filled out] = Yes OR J3 [Provide district hot water figures] = Yes	
		[F1]-HELP
	Please give me the total dollars spent on district hot water in calendar year 2012, including state and local taxes.	
	<ul style="list-style-type: none"> ◆ Do <u>not</u> enter cents ◆ VERIFY number <u>digit by digit</u> 	
RANGE	0 to 999,999,999	
NEXT	IF J5 [District hot water consumption] = DK/RF & J6 [District hot water expenditures] = DK/RF: IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes] → J12 [District hot water supplier name] OTHERWISE → K1 [Total water use] OTHERWISE → J7 [Starting date for district hot water figures]	

J7	Starting date for district hot water figures	<i>HWSTDAT</i>
ASK	IF J5 [District hot water consumption] given OR J6 [District hot water expenditures] given	
		[F1]-HELP
	What is the starting date for these district hot water usage figures?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY ◆ If the day is not known, ENTER "15" for DD 	
NEXT	⇒ J8 [Ending date for district hot water figures]	

J8	Ending date for district hot water figures	<i>HWENDAT</i>
ASK	IF J5 [District hot water consumption] given OR J6 [District hot water expenditures] given	
		[F1]-HELP
	What is the ending date [for these district hot water usage figures]?	
	<ul style="list-style-type: none"> ◆ ENTER date as MMDDYYYY <input type="checkbox"/> ◆ 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	→ J9 [Other estabs hot water included]	

J9	Other estabs hot water included	<i>HWOTBD</i>
ASK	IF J5 [District hot water consumption] given OR J6 [District hot water expenditures] given	
	Is any consumption from other establishments included in these figures?	
	<ul style="list-style-type: none"> 1 Yes 2 No 	
NEXT	IF Yes → J10 [Sq ft of other included] IF No OR DK/RF → J11 [District hot water bill available]	

J10	Sq ft of other included	<i>HWOTSF</i>
ASK	IF J9 [Other estabs hot water included] = Yes	
<p>What is the approximate square footage of the <u>other</u> establishments that are included in these figures?</p> <p>◆ PROBE for estimate if DK</p>		
RANGE	1 to 999,999,999	
NEXT	⇒ J11 [District hot water bill available]	

J11	District hot water bill available	<i>HWBILL</i>
ASK	IF J5 [District hot water consumption] given OR J6 [District hot water expenditures] given	
<p>Would it be possible for me to scan one of your district hot water bills? (There is information on some utility bills that may help energy researchers who use these data.)</p> <p>◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.]</p> <p>◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here</p> <p>1 Yes, bill available 2 No, will not be able to provide bill</p>		
NEXT	→ INTERVIEW COMPLETE	

J12	District hot water supplier name	<i>HWSUP</i>
ASK	IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes] & (J3 [Provide district hot water figures] = No OR DK/RF OR J5 [District hot water consumption] = DK/RF & J6 [District hot water expenditures] = DK/RF)	
<p>We should be able to obtain this information directly from your district hot water supplier, so I just need to collect some information about your district hot water accounts.</p> <p>What is the name of the supplier that provided district hot water in calendar year 2012?</p> <p>◆ ENTER the name of the supplier</p>		
NEXT	IF Name given → J13 [Street address] IF DK/RF → INTERVIEW COMPLETE	

J13	Street address	<i>STAD1</i>
ASK	IF Name given in J12 [District hot water supplier name]	
FILL	{Supplier} = J12 [District hot water supplier name]	
What is the address for {Supplier}, beginning with the street?		
NEXT	→ J14 [P.O. Box or Suite]	

J14	P.O. Box or Suite	<i>HWAD2</i>
ASK	IF Name given in J12 [District hot water supplier name]	
Is there a post office box or suite number?		
◆ If not, press [ENTER]		
NEXT	→ J15 [City]	

J15	City	<i>HWCTY</i>
ASK	IF Name given in J12 [District hot water supplier name]	
What is the city?		
NEXT	→ J16 [State abbreviation]	

J16	State abbreviation	<i>HWSTA</i>
ASK	IF Name given in J12 [District hot water supplier name]	
What is the state?		
◆ ENTER the two letter abbreviation		
NEXT	→ J17 [ZIP code]	

J17	ZIP code	<i>HWZIP</i>
ASK	IF Name given in J12 [District hot water supplier name]	
And what is the ZIP code?		
NEXT	→ J18 [Number district hot water accounts]	

J18	Number district hot water accounts	<i>HWNAC</i>
ASK	IF Name given in J12 [District hot water supplier name]	
FILL	{Supplier} = J12 [District hot water supplier name]	
How many different district hot water accounts does this establishment have with {Supplier}?		
RANGE	1 to 999	
NEXT	IF 1 to 10 accounts → J19 [District hot water account number] IF More than 10 accounts OR DK/RF → J22 [District hot water bill available]	

J19	District hot water account number	<i>HWAC1—HWAC10</i>
ASK	IF J18 [Number district hot water accounts] = 1 to 10 Ask as many times as account numbers given, or until DK/RF	
FILL	{FirstNext} IF Only one account = BLANK IF First account given = "first" OTHERWISE = "next" {Supplier} = J12 [District hot water supplier name]	
Please give me the {FirstNext} district hot water account number for {Supplier}.		
◆ VERIFY number <u>digit by digit</u>		
NEXT	→ J20 [Bills cover only establishment]	

J20	Bills cover only establishment	<i>HWOTB</i>
ASK	IF Name given in J12 [District hot water supplier name]	
FILL	{Bills} IF Only one account = "Does the bill or statement" IF 2 to 10 accounts = "Do the bills or statements" {Supplier} = J12 [District hot water supplier name]	
{Bills} from {Supplier} cover just this establishment or are other establishments covered as well?		
<ol style="list-style-type: none"> 1 Just this establishment 2 Other establishment(s) 		
NEXT	IF Other establishments → J21 [Sq ft of others included] IF Just this establishment OR DK/RF → J22 [District hot water bill available]	

J21	Sq ft of others included	<i>HWOTS</i>
ASK	IF J20 [Bills cover only establishment] = Other establishments	
FILL	{Bills} IF Only one account = "bill or statement" IF 2 to 10 accounts = "bills or statements"	
What is the approximate square footage of the <u>other</u> establishments included on the {Bills}? ◆ PROBE for estimate if DK		
RANGE	1 to 999,999,999	
NEXT	→ J22 [District hot water bill available]	

J22	District hot water bill available	<i>HWBILL2</i>
ASK	IF Name given in J12 [District hot water supplier name]	
Would it be possible for me to scan one district hot water bill from {Supplier}? (There is information on some utility bills that may help energy researchers who use these data.) ◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here 1 Yes, bill available 2 No, will not be able to provide bill		
NEXT	→ K1 [Total water use]	

SECTION K. TOTAL WATER

K1	Water used
ASK	All Establishments
<p>The next questions are about water supplied to the establishment for everyday use, such as for restrooms, kitchens, laundries, showers, building heating and cooling, and landscape irrigation.</p> <p>Did this establishment use any water in 2012?</p> <p>1 Yes 2 No</p>	
NEXT	IF Yes → K2 [Provide water figures] IF No OR DK/RF → SECTION L

K2	Provide water figures
ASK	IF K1 [Water used] = Yes
<p>Would you be able to give me the amount of water used in calendar year 2012? (These questions are found on the third page of Worksheet 2.)</p> <p>◆ EXP: [If water is supplied from multiple sources, provide the total from all sources, including municipally supplied potable, municipally supplied reclaimed, and other sources of freshwater, including wells.]</p> <p>1 Yes 2 No 3 IF VOLUNTEERED: No, because the water comes from a well</p>	
NEXT	IF Yes → K3 [Units for water] IF No → K2a [Water included in rent] IF No, because the water comes from a well → K20 [Heard of WaterSense]

K2a	Water included in rent
ASK	IF K2 [Provide water figures] = No
<p>Is the cost of the water used in this establishment included in the rent?</p> <p>1 Yes 2 No</p>	
NEXT	→ K20 [Heard of WaterSense]

K3	Units for water
ASK	IF K2 [Provide water figures] = Yes
<p>□ SHOW CARD K1</p> <p>Please look at Show Card K1 and tell me the units in which your water is measured.</p> <ol style="list-style-type: none"> 1 Gallons 2 Thousand gallons 3 Million Gallons 4 Cubic feet (cf) 5 Hundred cubic feet (ccf, HCF) 6 Thousand cubic feet (Mcf) 7 IF VOLUNTEERED: Some other units 	
NEXT	IF Some other units → K4 [Other water units] OTHERWISE → K5 [Total water consumption]

K4	Other water units
ASK	IF K3 [Units for water] = Some other units
<p>What are the other units?</p>	
NEXT	⇒ K5 [Total water consumption]

K5	Total water consumption	<i>WTRCNS</i>
ASK	IF K2 [Provide water figures] = Yes	
<p>Please give me the total volume of water used in 2012.</p> <p>◆ VERIFY number <u>digit by digit</u></p>		[F1]-HELP
RANGE	1 to 99,999,999,999,999	
NEXT	IF Amount given ⇒ K6 [How water volume determined] OTHERWISE → K7 [Sewer flow metered]	

K6	How water volume determined	<i>WTRMET</i>
ASK	IF Amount given in K5 [Total 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	→ K7 [Sewer flow metered]	

K7	Sewer flow metered	<i>SWRMET</i>
ASK	IF Amount given in K5 [Total water consumption]	
<p>Is the sewer flow metered for this building?</p> <p>1 Yes 2 No</p>		
NEXT	⇒ K13 [Starting date for water figures]	

K13	Starting date for water figures	<i>WTSTDAT</i>
ASK	K5 [Total water consumption] given	
<p>What is the starting date for these water usage figures?</p> <p>◆ ENTER date as MMDDYYYY ◆ If the day is not known, ENTER "15" for DD</p>		[F1]-HELP
NEXT	⇒ K14 [Ending date for water figures]	

K14	Ending date for water figures	<i>WTENDAT</i>
ASK	K5 [Total water consumption] 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 <input type="checkbox"/> <ul style="list-style-type: none"> ◆ 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	OTHERWISE → K17 [Other estabs water included]	

K17	Other estabs water included	<i>WTOTBD</i>
ASK	IF K5 [Total water consumption] given	
	<p>Is any water use for other establishments included in these figures?</p> <p>1 Yes 2 No</p>	
NEXT	IF Yes → K18 [Sq ft of other included] IF No OR DK/RF → K19 [Water bill available]	

K18	Sq ft of other included	<i>WTOTSF</i>
ASK	IF K6c [Other estabs water included] = Yes	
	<p>What is the approximate square footage of the <u>other</u> establishments that are included in these figures?</p> <ul style="list-style-type: none"> ◆ PROBE for estimate if DK 	
RANGE	1 to 999,999,999	
NEXT	⇒ K19 [Water bill available]	

K19	Water bill available	<i>WTBILL</i>
ASK	IF K5 [Total water consumption] given	
<p>Would it be possible for me to scan one of your water bills? (There is information on some utility bills that may help energy researchers who use these data.)</p> <ul style="list-style-type: none"> ◆ EXP: [Examples of these items include miscellaneous charges, past months data, and units of measure.] ◆ If available, you will be prompted to scan the bill at the end of the interview, so it is not necessary to stop the interview here <ol style="list-style-type: none"> 1 Yes, bill available 2 No, will not be able to provide bill 		
NEXT	→ K20 [Heard of WaterSense]	

K20	Heard of WaterSense	<i>WTRSENS</i>
ASK	IF K1 [Total water use] = Yes	
<p>Have you heard of the U.S. Environmental Protection Agency WaterSense program?</p> <ol style="list-style-type: none"> 1 Yes 2 No 		
NEXT	→ SECTION L	

SECTION L. COLLECT MATERIALS

L1	Collect materials
ASK	<p>IF WS2 was reported to be filled out for any of the energy sources OR F15 [Monthly electricity available] = Yes OR G17 [Monthly natural gas available] = Yes OR F16 [Electricity bill available]=Yes OR F32 [Electricity bill available]=Yes OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes OR K19 [Water bill available] = Yes OR Supplier information was provided for any energy source</p>
<p>Now, I just need to collect some of the forms that you filled out ahead of time or that we talked about during this interview.</p> <p>◆ ENTER "1" to continue</p>	
NEXT	➔ L2 [Collect Worksheet 2]

L2	Collect Worksheet 2
ASK	IF WS2 was reported to be filled out for any of the energy sources
<p>May I please have Worksheet 2? [This is the "Energy Amounts Used and Dollars Spent" worksheet that you filled out before this interview.]</p> <ol style="list-style-type: none"> 1 Collected WS 2 2 Did not collect WS2 3 Respondent will FAX, mail, or e-mail 	
NEXT	<p>IF F15 [Monthly electricity available] = Yes OR G17 [Monthly natural gas available] = Yes ➔ L3 [Collect monthly records] IF F16 [Electricity bill available]=Yes OR F32 [Electricity bill available]=Yes OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes OR K19 [Water bill available] = Yes ➔ L4 [Scan energy bills] IF Supplier information was provided for any energy source ➔ L5 [Who signs authorization]</p>

L3	Collect monthly records
ASK	IF F15 [Monthly electricity available] = Yes OR G17 [Monthly natural gas available] = Yes
FILL	<p>{ElectricityNaturalGas} IF15 [Monthly electricity available] = Yes & G17 [Monthly natural gas available] ≠ Yes = “electricity” IF15 [Monthly electricity available] ≠ Yes & G17 [Monthly natural gas available] = Yes = “natural gas” IF15 [Monthly electricity available] =Yes & G17 [Monthly natural gas available] = Yes = “electricity and natural gas”</p> <p>May I please have the monthly {ElectricityNaturalGas} records that we talked about a few minutes ago?</p> <ol style="list-style-type: none"> 1 Collected monthly records 2 Did not collect monthly records 3 Respondent will FAX, mail, or e-mail
NEXT	IF F16 [Electricity bill available]=Yes OR F32 [Electricity bill available]=Yes OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes OR K19 [Water bill available] = Yes → L4 [Scan energy bills] IF Supplier information was provided for any energy source → L5 [Who signs authorization]

L4	Scan energy bills
ASK	IF F16 [Electricity bill available]=Yes OR F32 [Electricity bill available]=Yes OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes OR K19 [Water bill available] = Yes
	<p>May I please scan the energy and/or water bill(s) that we talked about a few minutes ago?</p> <ol style="list-style-type: none"> 1 Scanned bill(s) 2 Did not scan bill(s) 3 Respondent will FAX, mail, or e-mail
NEXT	IF Supplier information was provided for any energy source → L5 [Who signs authorization] OTHERWISE → L14 [Response effort]

L5	Who signs authorization
ASK	IF Supplier information was provided for any energy source
<p>As I mentioned earlier, we may need to contact your energy supplier to obtain the energy consumption. In order for the energy companies to release this information to us, we need to have an authorization form signed by you, or by some other representative of your company.</p> <p>Should the authorization form be signed by you or someone else?</p> <ol style="list-style-type: none"> 1 Signed by respondent 2 Signed by someone else 3 IF VOLUNTEERED: Respondent refuses to sign or have anyone else sign 	
NEXT	IF Signed by respondent OR Signed by someone else OR DK/RF → L6 [Prepare authorization form] IF Respondent refuses to sign or have anyone else sign → L14 [Response effort]

L6	Prepare authorization form
ASK	IF L5 [Who signs authorization form] ≠ Respondent refuses to sign or have anyone else sign
<p>Please give me a moment to fill in the energy supplier names on this form.</p> <ul style="list-style-type: none"> ◆ Begin preparing the Authorization Form by recording the information shown below in the box near the top of the form ◆ VERIFY with respondent as you record <p>Establishment address: {Address} City: {City} State: {State} ZIP code: {ZIP} Case ID: {CaseID}</p> <ul style="list-style-type: none"> ◆ ENTER "1" when finished 	
NEXT	IF Electricity supplier information was provided → L7 [Electricity suppliers] IF Natural gas supplier information was provided → L8 [Natural gas suppliers] IF Fuel oil supplier information was provided → L9 [Fuel oil suppliers] IF District steam supplier information was provided → L10 [District steam suppliers] IF District hot water supplier information was provided → L11 [District hot water suppliers] OTHERWISE → L12 [Authorization form signed]

L7	Electricity suppliers										
ASK	IF L5 [Who signs authorization form] ≠ Respondent refuses to sign or have anyone else sign & Electricity supplier information was provided										
FILL	{Electricity} = "Electricity" for each supplier name that has been provided {SupplierName} = Supplier names given in F18 [Electricity suppliers] OR F20 [Supplier name]										
	<p>◆ Continue preparing the Authorization Form by filling in "Electricity" on the line(s) for "Energy Source" and copying the supplier name(s) shown below in the adjacent box(es)</p> <table border="0"> <thead> <tr> <th><u>Energy Source</u></th> <th><u>Supplier</u></th> </tr> </thead> <tbody> <tr> <td>Electricity</td> <td>{SupplierName}</td> </tr> <tr> <td>{Electricity}</td> <td>{SupplierName}</td> </tr> <tr> <td>{Electricity}</td> <td>{SupplierName}</td> </tr> <tr> <td>{Electricity}</td> <td>{SupplierName}</td> </tr> </tbody> </table> <p>◆ ENTER "1" when finished</p>	<u>Energy Source</u>	<u>Supplier</u>	Electricity	{SupplierName}	{Electricity}	{SupplierName}	{Electricity}	{SupplierName}	{Electricity}	{SupplierName}
<u>Energy Source</u>	<u>Supplier</u>										
Electricity	{SupplierName}										
{Electricity}	{SupplierName}										
{Electricity}	{SupplierName}										
{Electricity}	{SupplierName}										
NEXT	IF Natural gas supplier information was provided → L8 [Natural gas suppliers] IF Fuel oil supplier information was provided → L9 [Fuel oil suppliers] IF District steam supplier information was provided → L10 [District steam suppliers] IF District hot water supplier information was provided → L11 [District hot water suppliers] OTHERWISE → L12 [Authorization form signed]										

L8	Natural gas suppliers										
ASK	IF L5 [Who signs authorization form] ≠ Respondent refuses to sign or have anyone else sign & Natural gas supplier information was provided										
FILL	{Natural gas} = "Natural gas" for each supplier name that has been provided {SupplierName} = Supplier names given in G20 [Natural gas suppliers] OR G22 [Supplier name]										
	<p>◆ Continue preparing the Authorization Form by filling in "Natural gas" on the line(s) for "Energy Source" and copying the supplier name(s) shown below in the adjacent box(es)</p> <table border="0"> <thead> <tr> <th><u>Energy Source</u></th> <th><u>Supplier</u></th> </tr> </thead> <tbody> <tr> <td>Natural gas</td> <td>{SupplierName}</td> </tr> <tr> <td>{Natural gas}</td> <td>{SupplierName}</td> </tr> <tr> <td>{Natural gas}</td> <td>{SupplierName}</td> </tr> <tr> <td>{Natural gas}</td> <td>{SupplierName}</td> </tr> </tbody> </table> <p>◆ ENTER "1" when finished</p>	<u>Energy Source</u>	<u>Supplier</u>	Natural gas	{SupplierName}	{Natural gas}	{SupplierName}	{Natural gas}	{SupplierName}	{Natural gas}	{SupplierName}
<u>Energy Source</u>	<u>Supplier</u>										
Natural gas	{SupplierName}										
{Natural gas}	{SupplierName}										
{Natural gas}	{SupplierName}										
{Natural gas}	{SupplierName}										
NEXT	IF Fuel oil supplier information was provided → L9 [Fuel oil suppliers] IF District steam supplier information was provided → L10 [District steam suppliers] IF District hot water supplier information was provided → L11 [District hot water suppliers] OTHERWISE → L12 [Authorization form signed]										

L9	Fuel oil suppliers										
ASK	IF L5 [Who signs authorization form] ≠ Respondent refuses to sign or have anyone else sign & Fuel oil supplier information was provided										
FILL	{Fuel oil/Diesel/Kerosene} = "Fuel oil/Diesel/Kerosene" for each supplier name that has been provided {SupplierName} = Supplier names given in H15 [Fuel oil supplier name]										
	<p>◆ Continue preparing the Authorization Form by filling in "Fuel oil/Diesel/Kerosene" on the line(s) for "Energy Source" and copying the supplier name(s) shown below in the adjacent box(es)</p> <table border="0"> <tr> <td><u>Energy Source</u></td> <td><u>Supplier</u></td> </tr> <tr> <td>Fuel oil/Diesel/Kerosene</td> <td>{SupplierName}</td> </tr> <tr> <td>{Fuel oil/Diesel/Kerosene}</td> <td>{SupplierName}</td> </tr> <tr> <td>{Fuel oil/Diesel/Kerosene}</td> <td>{SupplierName}</td> </tr> <tr> <td>{Fuel oil/Diesel/Kerosene}</td> <td>{SupplierName}</td> </tr> </table> <p>◆ ENTER "1" when finished</p>	<u>Energy Source</u>	<u>Supplier</u>	Fuel oil/Diesel/Kerosene	{SupplierName}	{Fuel oil/Diesel/Kerosene}	{SupplierName}	{Fuel oil/Diesel/Kerosene}	{SupplierName}	{Fuel oil/Diesel/Kerosene}	{SupplierName}
<u>Energy Source</u>	<u>Supplier</u>										
Fuel oil/Diesel/Kerosene	{SupplierName}										
{Fuel oil/Diesel/Kerosene}	{SupplierName}										
{Fuel oil/Diesel/Kerosene}	{SupplierName}										
{Fuel oil/Diesel/Kerosene}	{SupplierName}										
NEXT	IF District steam supplier information was provided → L10 [District steam suppliers] IF District hot water supplier information was provided → L11 [District hot water suppliers] OTHERWISE → L12 [Authorization form signed]										

L10	District steam suppliers				
ASK	IF L5 [Who signs authorization form] ≠ Respondent refuses to sign or have anyone else sign & District steam supplier information was provided				
FILL	{SupplierName} = Supplier name given in I14 [District steam supplier name]				
	<p>◆ Continue preparing the Authorization Form by filling in "District steam" on the line(s) for "Energy Source" and copying the supplier name(s) shown below in the adjacent box(es)</p> <table border="0"> <tr> <td><u>Energy Source</u></td> <td><u>Supplier</u></td> </tr> <tr> <td>District steam</td> <td>{SupplierName}</td> </tr> </table> <p>◆ ENTER "1" when finished</p>	<u>Energy Source</u>	<u>Supplier</u>	District steam	{SupplierName}
<u>Energy Source</u>	<u>Supplier</u>				
District steam	{SupplierName}				
NEXT	IF District hot water supplier information was provided → L11 [District hot water suppliers] OTHERWISE → L12 [Authorization form signed]				

L11	District hot water suppliers
ASK	IF L5 [Who signs authorization form] ≠ Respondent refuses to sign or have anyone else sign & District hot water supplier information was provided
FILL	{SupplierName} = Supplier name given in J12 [District hot water supplier name]
<p>◆ Continue preparing the Authorization Form by filling in "District hot water" on the line(s) for "Energy Source" and copying the supplier name(s) shown below in the adjacent box(es)</p> <p><u>Energy Source</u> <u>Supplier</u></p> <p>District hot water {SupplierName}</p> <p>◆ ENTER "1" when finished</p>	
NEXT	→ L12 [Authorization form signed]

L12	Authorization form signed
ASK	IF L5 [Who signs authorization form] = Signed by respondent & Supplier information was provided was provided for any energy source
<p>◆ Give respondent the Authorization Form and have them record their information and signature in the middle portion of the form</p> <p>Please fill out the rest of this information and sign this form.</p> <ol style="list-style-type: none"> 1 Collected signed authorization form 2 Did not collect signed authorization form 3 Respondent will FAX, mail, or e-mail 	
NEXT	→ L14 [Response effort]

L13	Contact for authorization
ASK	IF L5 [Who signs authorization] = Signed by someone else & Supplier information was provided was provided for any energy source
<p>Please give me the name, address, and telephone number of the person who should sign the authorization form.</p> <ul style="list-style-type: none"> ◆ RECORD contact information on the Case Assignment Folder ◆ ENTER "1" when completed 	
NEXT	→ L14 [Response effort]

L14	Response effort	<i>REFFORT</i>
ASK	All Establishments	
<p>Including yourself, please tell me how many people were needed to compile the information for this interview.</p>		
RANGE	1 to 99	
NEXT	→ L15 [Thank you]	

L15	Thank you
ASK	All Establishments
<p>That completes our interview. Thank you so much for your time and help.</p> <ul style="list-style-type: none"> ◆ ENTER "1", [ENTER], then [F10] to Exit 	
NEXT	INTERVIEW COMPLETE

