# 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 that the actual CBECS instrument.

Each question is formatted as follows:

| A1 | Question name | *SASVAR* |
|---|---|---|
| **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 <u>in order</u>. Once a true statement is reached, go to the question indicated by the arrow ($\Rightarrow$).

# WORKSHEET AND RESPONDENT QUESTIONS

| **R1** | **Consent** |
|---|---|
| **ASK** | All Establishments |
| [F1]-Help<br><br>Some parts of this interview will be recorded for quality control purposes. I'd like to continue now unless you have any questions.<br><br>◆ For FAQs, press [F1] - Help<br><br>    1   Gives consent to record interview<br>    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]<br>OTHERWISE ➔ R4 [Respondent function] |

| **R2** | **Worksheet 1** | *R1WS1 – RXWS1* |
|---|---|---|
| **ASK** | All cases not yet done with Section E | |
| Do you have Worksheet 1 with you and completed?<br><br>    1   Yes<br>    2   No | | |
| **NEXT** | IF First time case started ➔ R3 [Respondent function]<br>IF Restart ➔ R4 [Respondent function] | |

| **R3** | **Respondent function** | *R1JOB* |
|---|---|---|

| **ASK** | All cases on first start |
|---|---|

SHOW CARD 1

◆    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

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.

Looking at this list, please tell me which of these best describes your job function.

    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]<br>Anything but Other ➔ A1 [Establishment name] |
|---|---|

| R4 | Respondent function | R2JOB – RXJOB |
|---|---|---|
| **ASK** | All restarted cases | |

◆ ASK if interview is with a new respondent

◆ If interview is with same respondent as previous interview, ENTER "0"

🔲🔲SHOW CARD 1

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.

Looking at this list, please tell me which of these best describes your job function.

|   |   |
|---|---|
| 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] <br> Anything but Other ➔ A1 [Establishment name] |
|---|---|

<br>

| R5 | Other job function | R1JOBX – RXJOBX |
|---|---|---|
| **ASK** | IF R3 [Respondent function] = Other OR R4 [Respondent function] = Other | |

What is your job function?

| **NEXT** | ➔ A1 [Establishment name] |
|---|---|

## SECTION A: <u>ESTABLISHMENT SIZE</u>

| A1 | Establishment name | *ESTNAM* |
|---|---|---|
| **ASK** | All Establishments | |
| What is the name of this establishment? | | |
| **NEXT** | ➔ A2 [Square footage] | |

| A2 | Square footage | *SQFT* |
|---|---|---|
| **ASK** | All Establishments | |
| **FILL** | **{Worksheet1Intro}**<br>IF R has Worksheet 1 = "Please refer to Worksheet 1 for some of these next questions on general characteristics."<br>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]<br>OTHERWISE:<br>   IF Interviewer-coded establishment activity ≠ Other ➔ B1 [Verify establishment activity]<br>   IF Interviewer-coded establishment activity = Other ➔ B2 [Establishment activity] |

| A3 | **Square footage category** | *SQFTC* |
|----|----|----|
| **ASK** | IF A2 [Square footage] = DK/RF | |

[F1]-HELP

⬜SHOW CARD A1

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.

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.

◆ If respondent gives the category code,
   VERIFY the response by reading the full answer

    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]<br>IF Interviewer-coded establishment activity = Other ➔ B2 [Establishment activity] |
|----|----|

## SECTION B: <u>ESTABLISHMENT ACTIVITY</u>

| B1 | Verify establishment activity | *VERPEA* |
|---|---|---|
| **ASK** | IF Interviewer-coded establishment activity ≠ Other | |
| **FILL** | **{Activity}**<br>IF Retail store = "a retail store"<br>IF Food sales = "a food sales establishment"<br>IF Food service = "a food service establishment"<br>IF Dry cleaner/Laundromat = "a dry cleaner or laundromat"<br>IF Office/Financial = "an office or financial establishment"<br>IF Medical/Dental = "a medical or dental establishment"<br>IF Education/Child care = "an education or child care establishment"<br>IF Movie theater/Cinema = "a movie theater or cinema"<br>IF Beauty salon/Tanning salon = "a hair or beauty salon or tanning salon"<br>IF Fitness center/Dance studio = "a fitness center or dance studio"<br>IF Vacant = "a vacant establishment" | |

[F1]-HELP

I have recorded that this is {Activity}. Is this correct?

◆ EXP: [This activity should be the one that accounts for the majority
of the floorspace in this establishment.]

    1   Yes
    2   No

| **NEXT** | IF Yes ➜ C1 [Occupied/vacant all 2012]<br>IF No OR DK/RF ➜ B2 [Establishment activity] |
|---|---|

| B2 | Establishment activity | *PEA* |
|---|---|---|

| **ASK** | IF Interviewer-coded establishment activity = Other OR B1 [Verify establishment activity] = No |
|---|---|

[F1]-HELP

SHOW CARD B2

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?

    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]<br>OTHERWISE ➔ C1 [Occupied/vacant all 2012] |
|---|---|

| B3 | Specify other activity |
|---|---|

| **ASK** | IF B2 [Establishment activity] = Other |
|---|---|

Please describe this other type of activity.

◆ RECORD in open box

| **NEXT** | ➔ C1 [Occupied/vacant all 2012] |
|---|---|

# SECTION C. OCCUPANCY AND OPERATING HOURS

| C1 | Occupied/vacant all 2012 | ESTOCC |
|---|---|---|
| **ASK** | All Establishments | |
| **FILL** | **{VacOcc}**<br>IF Establishment activity = Vacant = "Was this establishment vacant"<br>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:<br>    IF Establishment activity = Vacant ➔ D1 [Heating]<br>    IF Establishment activity ≠ Vacant ➔ C6 [Seasonal use]<br>IF No ➔ C2 [Month occupied/vacant]<br>IF DK/RF ➔ C6 [Seasonal use] |
|---|---|

| C2 | Month occupied/vacant | MONOCC |
|---|---|---|
| **ASK** | IF C1 [Occupied/vacant all 2012] = No | |
| **FILL** | **{VacOcc}**<br>IF Establishment activity = Vacant = "become vacant"<br>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]<br>IF Establishment activity = Vacant ➔ D1 [Heating]<br>OTHERWISE ➔ C6 [Seasonal use] |
|---|---|

| C3 | Vacant in 2012 | VACPRIOR |
|---|---|---|

| ASK | IF C2 [Month occupied/vacant] = Establishment did not begin occupying space until 2013 |
|---|---|

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?

    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 | ACTPRIOR |
|---|---|---|

| ASK | IF C3 [Vacant in 2012] = No, some other establishment occupied the space |
|---|---|

SHOW CARD B2

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?

    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 |
|---|---|

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.

Thank you for your time and help.

◆  [F10]-Exit

| NEXT | TERMINATE |
|---|---|

| C6 | Seasonal use | SEASONAL |
|---|---|---|
| **ASK** | IF Establishment activity ≠ Vacant | |

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?

◆ 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.]

      1   Yes
      2   No

| **NEXT** | IF Yes ➔ C7 [Months of high season]<br>IF No/DK/RF ➔ C8 [Open 24 hours a day] |
|---|---|

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| C7 | Months of high season | MONHIGH |
|---|---|---|
| **ASK** | IF C6 [Seasonal use] = Yes | |

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?

| **RANGE** | 1 to 12 |
|---|---|
| **NEXT** | ➔ C8 [Open 24 hours a day] |

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| C8 | Open 24 hours a day | OPEN24 |
|---|---|---|
| **ASK** | IF Establishment activity ≠ Vacant | |
| **FILL** | **{SeasonalFill}**<br>IF C6 [Seasonal use] = Yes = "Thinking of the months of high seasonal use, now'<br>OTHERWISE = "Now" | |

[F1]-HELP

{SeasonalFill} I have some questions about the hours that this establishment is normally open.

"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.

Is this establishment normally open 24 hours a day, seven days a week?

      1   Yes
      2   No

| **NEXT** | IF No OR DK/RF ➔ C9 [Open during week]<br>IF Yes:<br>    IF C6 [Seasonal use] = Yes ➔ C14 [Open during the off season]<br>    OTHERWISE ➔ C16 [Number of employees] |
|---|---|

| C9 | Open during week | OPNMF |
|---|---|---|
| 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?

    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 | OPNWE |
|---|---|---|
| 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.]

    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 | NOHRS |
|---|---|---|
| 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?

    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** | *WKHRS* |
|---|---|---|
| **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 | |

[F1]-HELP

How many total hours per week is the establishment normally open?

◆ DEF: ["Normally open" means the hours when the usual activities occur.]

| **RANGE** | 0 to 168 |
|---|---|
| **NEXT** | IF DK/RF ➔ C13 [Weekly hours category]<br>IF C6 [Seasonal use] = Yes ➔ C14 [Open during the off season]<br>OTHERWISE ➔ C16 [Number of employees] |


| C13 | **Weekly hours category** | *WKHRSC* |
|---|---|---|
| **ASK** | IF C12 [Total hours open per week] = DK/RF | |

[F1]-HELP

⬜SHOW CARD C4

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]<br>OTHERWISE ➔ C16 [Number of employees] |
|---|---|


| C14 | **Open during the off season** | *OFFSEASN* |
|---|---|---|
| **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]<br>IF No OR DK/RF ➔ C16 [Number of employees] |
|---|---|

| C15 | Off season hours category | *LOWHRSC* |
|---|---|---|

| ASK | IF C14 [Open during the off season] = Yes |
|---|---|

| FILL | **{LowMonths}**<br>IF C7 [Months of high season] ≠ DK/RF = 12 - C7 [Months of high season]<br>IF C7 [Months of high season] = DK/RF = BLANK |
|---|---|

[F1]-HELP

⬚SHOW CARD C4

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?

◆ 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 | ➔ C16 [Number of employees] |
|---|---|


| C16 | Number of employees | *NWKER* |
|---|---|---|

| ASK | IF Establishment activity ≠ Vacant |
|---|---|

[F1]-HELP

How many employees work <u>in the establishment</u> during the main shift, that is, when most employees are present?

◆ 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.]

| RANGE | 0 to 99,999 |
|---|---|

| NEXT | Number given ➔ D1 [Heating]<br>DK/RF ➔ C17 [Number of employees category] |
|---|---|

| C17 | Number of employees category | *NWKERC* |
|---|---|---|
| **ASK** | IF C16 [Number of employees] = DK/RF | |

[F1]-HELP

SHOW CARD C5

Which category on Show Card C5 best describes how many employees work <u>in the establishment</u> during the main shift?

| | |
|---|---|
| 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 | *HT1* |
|---|---|---|
| **ASK** | All Establishments | |
| **FILL** | **{Worksheet1Intro}**<br>IF R has Worksheet 1 = "Please continue to refer to Worksheet 1 for some of these next questions on energy sources, uses, and equipment."<br>OTHERWISE = BLANK | |

[F1]-HELP

{Worksheet1Intro}

For the next five questions, please tell me if energy was used in this establishment for any of these purposes during calendar year 2012.

Was any energy used for heating the establishment?

    1   Yes
    2   No

| **NEXT** | ➔ D2 [Cooling] |
|---|---|

| D2 | Cooling | *COOL* |
|---|---|---|
| **ASK** | All Establishments | |

[F1]-HELP

(Was any energy used...)

For air conditioning?

    1   Yes
    2   No

| **NEXT** | ➔ D3 [Water heating] |
|---|---|

| D3 | Water heating | *WATR* |
|---|---|---|
| **ASK** | All Establishments | |

[F1]-HELP

(Was any energy used...)

For heating water for purposes such as washing hands, dishes, or clothes?

    1   Yes
    2   No

| **NEXT** | ➔ D4 [Cooking] |
|---|---|

| D4 | Cooking | COOK |
|---|---|---|

| ASK | All Establishments |
|---|---|

[F1]-HELP

(Was any energy used...)

For cooking?

◆ EXP: [If there is only minimal cooking, such as
microwaves, hot plates, or toaster ovens, answer "No."]

    1    Yes
    2    No

| NEXT | IF D1 [Heating] = DK/RF & D2 [Cooling] = DK/RF & D3 [Water heating] = DK/RF<br>   & D4 [Cooking] = DK/RF ➔ D5 [Missing end uses]<br>OTHERWISE ➔ D6 [Manufacturing] |
|---|---|


| D5 | Missing end uses |
|---|---|

| SHOW | IF D1 [Heating] = DK/RF & D2 [Cooling] = DK/RF & D3 [Water heating] = DK/RF<br>   & D4 [Cooking] = DK/RF |
|---|---|

◆ 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.

◆ ENTER "1" when you are ready to continue

| NEXT | ➔ D6 [Manufacturing] |
|---|---|


| D6 | Manufacturing | MANU |
|---|---|---|

| ASK | All Establishments |
|---|---|

[F1]-HELP

(Was any energy used...)

For manufacturing?

    1    Yes
    2    No

| NEXT | IF No & D1 [Heating] = No & D2 [Cooling] = No & D3 [Water heating] = No<br>   & D4 [Cooking] = No ➔ D7 [Any energy used]<br>OTHERWISE ➔ D8 [Electricity generation capability] |
|---|---|

| D7 | Any energy used | ANYEGY |
|---|---|---|
| **ASK** | IF D1 [Heating] = No & D2 [Cooling] = No & D3 [Water heating] = No & D4 [Cooking] = No & D6 [Manufacturing] = No | |

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?

    1    Yes, some energy was used in 2012
    2    No, no energy was used

| **NEXT** | IF Yes, some energy was used OR DK/RF ⇨ D8 [Electricity generation capability]<br>IF No, no energy was used ⇨ E83 [Window glass type] |
|---|---|


| D8 | Electricity generation capability | CAPGEN |
|---|---|---|
| **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 | |

[F1]-HELP

Does this establishment have the ability to generate electricity, including for emergency backup?

    1    Yes
    2    No

| **NEXT** | ⇨ D9 [Energy sources used] |
|---|---|

| D9 | Energy sources used | *see below* |
|---|---|---|
| **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 | |

[F1]-HELP

SHOW CARD D1

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.

◆ 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

| | | |
|---|---|---|
| 11 | Electricity | *ELUSED* |
| 12 | Natural gas | *NGUSED* |
| 13 | Fuel oil, diesel, or kerosene | *FKUSED* |
| 14 | Bottled gas, also known as LPG or propane | *PRUSED* |
| 15 | District steam piped in from a separate building or utility | *STUSED* |
| 16 | District hot water piped in from a separate building or utility | *HWUSED* |
| 17 | District chilled water piped in from a separate building or utility | *CWUSED* |
| 18 | Wood, coal, or solar | |
| 24 | Other source or sources | *OTUSED* |

| **NEXT** | IF Fuel, oil, diesel, or kerosene selected ⇨ D10 [Fuel oil, diesel, or kerosene]<br>IF Wood, coal, or solar selected ⇨ D11 [Wood, coal, or solar]<br>IF Other source or sources selected ⇨ D12 [Other energy source 1]<br>IF District steam or District hot water selected ⇨ D15 [From central plant]<br>IF DK/RF:<br>   IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>   IF D8 [Electricity generation capability] ≠ Yes ➜ E1 [Section E Routing]<br>OTHERWISE:<br>   IF D1 [Heating] = Yes ⇨ D21 [Source for main heating]<br>   IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>   IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>   IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>   IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>   IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>   OTHERWISE ⇨ D81 [Any other sources] |
|---|---|

| D10 | **Fuel oil, diesel, or kerosene** | *FKTYPE* |
|---|---|---|
| **ASK** | IF Fuel oil, diesel, or kerosene IN D9 [Energy sources used] | |

[F1]-HELP

◆ VERIFY if volunteered in previous question

You mentioned fuel oil, diesel, or kerosene. Which of these were used (in this establishment in 2012)?

◆ ENTER all that apply

    1   Fuel oil
    2   Diesel
    3   Kerosene

| **NEXT** | IF Wood, coal, or solar IN D9 [Energy sources used] ⇨ D11 [Wood, coal, or solar]<br>IF Other source or sources IN D9 [Energy sources used] ⇨ D12 [Other energy source 1]<br>IF District steam or District hot water IN D9 [Energy sources used] ⇨ D15 [From central plant]<br>OTHERWISE:<br>   IF D1 [Heating] = Yes ⇨ D21 [Source for main heating]<br>   IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>   IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>   IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>   IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>   IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>   OTHERWISE ⇨ D81 [Any other sources] |
|---|---|


| D11 | **Wood, coal, or solar** | *see below* |
|---|---|---|
| **ASK** | IF Wood, coal, or solar IN D9 [Energy sources used] | |

◆ VERIFY if volunteered in previous question

You mentioned wood, coal, or solar. Which of these were used (in this establishment in 2012)?

◆ ENTER all that apply

    1   Wood                        *WOUSED*
    2   Coal                          *COUSED*
    3   Solar                        *SOUSED*

| **NEXT** | IF Other source or sources IN D9 [Energy sources used] ⇨ D12 [Other energy source 1]<br>IF District steam or District hot water IN D9 [Energy sources used] ⇨ D15 [From central plant]<br>OTHERWISE:<br>   IF D1 [Heating] = Yes ⇨ D21 [Source for main heating]<br>   IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>   IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>   IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>   IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>   IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>   OTHERWISE ⇨ D81 [Any other sources] |
|---|---|

| D12 | **Other energy source 1** | *OTUSDX1* |
|---|---|---|
| **ASK** | IF Other source or sources IN D9 [Energy sources used] | |

What was the first other energy source used (in this establishment in 2012)?

◆ ENTER the first energy source used

| **NEXT** | ⇨ D13 [Other energy source 2] |
|---|---|


| D13 | **Other energy source 2** | *OTUSDX2* |
|---|---|---|
| **ASK** | IF Other source or sources IN D9 [Energy sources used] | |

Were there any other energy sources used (in this establishment in 2012)?

◆ ENTER the next energy source

◆ [ENTER] if no others

| **NEXT** | IF Source entered here ⇨ D14 [Other energy source 3]<br>IF No source entered here:<br>   IF District steam or District hot water IN D9 [Energy sources used] = No ⇨ D15 [From central plant]<br>   OTHERWISE:<br>      IF D1 [Heating] = Yes ⇨ D21 [Source for main heating]<br>      IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>      IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>      IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>      IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>      IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>      OTHERWISE ⇨ D81 [Any other sources] |
|---|---|


| D14 | **Other energy source 3** | *OTUSDX3* |
|---|---|---|
| **ASK** | IF Source was entered in D13 [Other energy source 2] | |

Were there any other energy sources used (in this establishment in 2012)?

◆ ENTER the next energy source

◆ [ENTER] if no others

| **NEXT** | IF District steam or District hot water IN D9 [Energy sources used] ⇨ D15 [From central plant]<br>OTHERWISE:<br>   IF D1 [Heating] = Yes ⇨ D21 [Source for main heating]<br>   IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>   IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>   IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>   IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>   IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>   OTHERWISE ⇨ D81 [Any other sources] |
|---|---|

| D15 | **From central plant** | *DHFRPL* |
|---|---|---|
| **ASK** | IF District steam or District hot water IN D9 [Energy sources used] | |

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?

     1    Yes
     2    No

| **NEXT** | IF No OR DK/RF ⇨ D20 [Purchase from offsite]<br>IF Yes:<br>   IF NOT District steam IN D9 [Energy sources used] ➜ D16 [Plant produces district steam]<br>   IF District steam IN D9 [Energy sources used]:<br>      IF NOT District hot water IN D9 [Energy sources used] ⇨ D17 [Plant produces district hot water]<br>      IF NOT District chilled water IN D9 [Energy sources used]<br>         ⇨ D18 [Plant produces district chilled water]<br>      OTHERWISE ➜ D19 [Plant produces electricity] |
|---|---|


| D16 | **Plant produces district steam** | *FACDST* |
|---|---|---|
| **ASK** | IF D15 [From central plant] = Yes & NOT District steam IN D9 [Energy sources used] | |

                        [F1]-HELP

Does the central physical plant produce...

District steam?

     1    Yes
     2    No

| **NEXT** | IF NOT District hot water IN D9 [Energy sources used] ⇨ D17 [Plant produces district hot water]<br>IF NOT District chilled water IN D9 [Energy sources used] ⇨ D18 [Plant produces district chilled water]<br>OTHERWISE ➜ D19 [Plant produces electricity] |
|---|---|


| D17 | **Plant produces district hot water** | *FACDHW* |
|---|---|---|
| **ASK** | IF D15 [From central plant] = Yes & NOT District hot water IN D9 [Energy sources used] | |

                        [F1]-HELP

(Does the central physical plant produce...)

District hot water?

     1    Yes
     2    No

| **NEXT** | IF District chilled water IN D9 [Energy sources used] ⇨ D19 [Plant produces electricity]<br>OTHERWISE ⇨ D18 [Plant produces district chilled water] |
|---|---|

| D18 | **Plant produces district chilled water** | *FACDCW* |
|------|------|------|

| 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** | *FACELC* |
|------|------|------|

| 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]<br>IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>OTHERWISE ⇨ D81 [Any other sources] |
|------|------|

| D20 | **Purchase from offsite** | *DHOFF* |
|---|---|---|

| **ASK** | IF D15 [From central plant] = No OR DK/RF |
|---|---|

Is it (the district steam or hot water) purchased from somewhere off-site, such as a commercial or municipal plant?

        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] |


| D21 | **Source for main heating** | *see below* |
|---|---|---|

| **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] |

What was the <u>main</u> energy source for heating? (Was it {Ht1SourcesList}?)

◆ 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

|  |  |  |
|---|---|---|
| 11 | {Electricity} | *ELHT1* |
| 12 | {Natural gas} | *NGHT1* |
| 13 | {FuelOilType} | *FKHT1* |
| 14 | {Bottled gas} | *PRHT1* |
| 15 | {District steam} | *STHT1* |
| 16 | {District hot water} | *HWHT1* |
| 18 | {Wood} | *WOHT1* |
| 19 | {Coal} | *COHT1* |
| 20 | {Solar} | *SOHT1* |
| 21 | {Other1} | *OTHT1* |
| 22 | {Other2} | *OTHT1* |
| 23 | {Other3} | *OTHT1* |
| 24 | Some other energy source | |

| **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 | *see below* |
|---|---|---|

| ASK | IF D21 [Source for main heating] = Some other energy source |
|---|---|

What was the other energy source used for <u>main</u> space heating?

| | | |
|---|---|---|
| 11 | Electricity | *ELHT1* |
| 12 | Natural gas | *NGHT1* |
| 13 | Fuel oil/Diesel/Kerosene | *FKHT1* |
| 14 | Bottled gas | *PRHT1* |
| 15 | District steam | *STHT1* |
| 16 | District hot water | *HWHT1* |
| 18 | Wood | *WOHT1* |
| 19 | Coal | *COHT1* |
| 20 | Solar | *SOHT1* |
| 24 | Some other energy source | *OTHT1* |

| NEXT | ⇨ D24 [Any other sources for heating] |
|---|---|

<br>

| D23 | Which other sources for heating | *HT2 & see below* |
|---|---|---|

| ASK | IF D1 [Heating] = Yes & More than one energy source used |
|---|---|

| FILL | **{Ht2SourcesList}** = List of all energy sources used, minus the one used for main heating<br>**{Electricity} – {Other3}** = If a source is used (other than for main space heating), it appears in this list; if not, the line is blank<br>**{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene]<br>**{Other1} – {Other3}** = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3] |
|---|---|

Which other energy sources, if any, were used for heating? ({Ht2SourcesList})

◆ 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

| | | |
|---|---|---|
| 11 | {Electricity} | *ELHT2* |
| 12 | {Natural gas} | *NGHT2* |
| 13 | {FuelOilType} | *FKHT2* |
| 14 | {Bottled gas} | *PRHT2* |
| 15 | {District steam} | *STHT2* |
| 16 | {District hot water} | *HWHT2* |
| 18 | {Wood} | *WOHT2* |
| 19 | {Coal} | *COHT2* |
| 20 | {Solar} | *SOHT2* |
| 21 | {Other1} | *OTHT2* |
| 22 | {Other2} | *OTHT2* |
| 23 | {Other3} | *OTHT2* |
| 24 | Some other energy source | |
| 99 | No other sources for heating | |

| NEXT | IF Some other energy source ⇨ D25 [Other source for heating]<br>IF Anything but Some other energy source OR DK/RF ⇨ D26 [Heating equipment types] |
|---|---|

| D24 | Any other sources for heating | HT2 |
|---|---|---|
| **ASK** | IF D1 [Heating] = Yes & Only one energy source used | |

Were there any other energy sources used for heating?

    1   Yes
    2   No

| **NEXT** | IF Yes ⇨ D25 [Other source for heating]<br>IF No OR DK/RF ⇨ D26 [Heating equipment types] |
|---|---|

<br>

| D25 | Other source for heating |
|---|---|
| **ASK** | IF D23 [Which other sources for heating] = Some other energy source<br>    OR D24 [Any other sources for heating] = Yes |

What was the other energy source used for secondary space heating?

| | | |
|---|---|---|
| 11 | Electricity | *ELHT2* |
| 12 | Natural gas | *NGHT2* |
| 13 | Fuel oil/Diesel/Kerosene | *FKHT2* |
| 14 | Bottled gas | *PRHT2* |
| 15 | District steam | *STHT2* |
| 16 | District hot water | *HWHT2* |
| 18 | Wood | *WOHT2* |
| 19 | Coal | *COHT2* |
| 20 | Solar | *SOHT2* |
| 24 | Some other energy source | *OTHT2* |

| **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 | *see below* |
|---|---|---|

| **ASK** | IF D1 [Heating] = Yes |
|---|---|

[F1]-HELP

⬜SHOW CARD D2

Looking at the list of heating equipment types on Show Card D2, please tell me which types are used in this establishment.

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Furnaces that heat air directly, without using steam or hot water | *FURNAC* |
| 2 | Packaged central unit (roof mounted) | *PKGHT* |
| 3 | Boilers inside (or adjacent to) the building that produce steam or hot water | *BOILER* |
| 4 | District steam or hot water piped in from outside the building | *STHW* |
| 5 | Heat pumps (other than components of a packaged unit) | *HTPMPH* |
| 6 | Individual space heaters, other than heat pumps | *SLFCON* |
| 7 | Other heating equipment | *OTHTEQ* |

| **NEXT** | IF Furnaces ⇨ D27 [Type of furnace] <br> IF Boilers ⇨ D30 [Type of boiler system] <br> IF District steam or hot water ⇨ D31 [Type of district heat system] <br> IF Other heating equipment ⇨ D32 [Other heating components] <br> IF Packaged central unit ⇨ D38 [Type of packaged heating] <br> IF Heat pumps ⇨ D40 [Heat pump heating system] <br> IF Individual space heaters ⇨ D43 [Type of individual heater] <br> IF DK/RF: <br>    IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling] <br>    OTHERWISE ⇨ D61 [Building automation system] |
|---|---|

| D27 | Type of furnace |
|---|---|
| **ASK** | IF Furnaces IN D26 [Heating equipment types] |

[F1]-HELP

SHOW CARD D3

Looking at Show Card D3, please tell me the type or types of furnace systems used in the establishment.

◆ ENTER all that apply

    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** | IF Packaged central unit OR Duct furnace ⇨ D28 [Classify furnace as packaged] |
|---|---|
| | IF Individual room furnace ⇨ D29 [Classify furnace as space heater] |
| | OTHERWISE: |
| |    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 More than one energy source used for heating ⇨ D44 [Explain sources for heating] |
| |       OTHERWISE ⇨ D45 [Heating ventilation types] |


| D28 | Classify furnace as packaged |
|---|---|
| **ASK** | IF Packaged central unit OR Duct furnace IN D27 [Type of furnace] |

For the purposes of this study, I am going to refer to the packaged central furnace as a "packaged unit."

◆ ENTER "1" to continue

| **NEXT** | IF Individual room furnace IN D27 [Type of furnace] ⇨ D29 [Classify furnace as space heater] |
|---|---|
| | OTHERWISE: |
| |    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] |
| |    OTHERWISE ⇨ D38 [Type of packaged heating] |

| D29 | Classify furnace as space heater |
|---|---|
| ASK | IF D27 [Type of furnace] = Individual room furnace |

For the purposes of this study, I am going to refer to the individual room furnace as an "individual space heater."

◆ ENTER "1" to continue

| NEXT | IF Boilers IN D26 [Heating equipment types] ⇨ D30 [Type of boiler system]<br>IF District steam or hot water IN D26 [Heating equipment types] ⇨ D31 [Type of district heat system]<br>IF Other heating equipment IN D26 [Heating equipment types] ⇨ D32 [Other heating components]<br>IF Packaged central unit IN D26 [Heating equipment types] ⇨ D38 [Type of packaged heating]<br>IF Heat pumps IN D26 [Heating equipment types] ⇨ D40 [Heat pump heating system]<br>IF Individual space heaters ⇨ D43 [Type of individual heater]<br>OTHERWISE:<br>   IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>   OTHERWISE ⇨ D61 [Building automation system] |
|---|---|


| D30 | Type of boiler system |
|---|---|
| ASK | IF Boilers IN D26 [Heating equipment types] |

[F1]-HELP

⬜SHOW CARD D4

Looking at Show Card D4, please tell me the type or types of distribution systems used with the boiler.

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Radiators | *BLRRAD* |
| 2 | Fan coil units in rooms (or areas) | *BLRFNCL* |
| 3 | Induction units | *BLRINDC* |
| 4 | Water loop heat pump | *BLRWATR* |
| 5 | Central air handler (hydronic/steam coils) | *BLRAIR* |
| 6 | Packaged unit (hydronic/steam coils) | *BLRPKG* |
| 7 | Duct reheat (hydronic/steam coils) | *BLRDUCT* |

| NEXT | IF District steam or hot water IN D26 [Heating equipment types] ⇨ D31 [Type of district heat system]<br>IF Other heating equipment IN D26 [Heating equipment types] ⇨ D32 [Other heating components]<br>IF Packaged central unit IN D26 [Heating equipment types] ⇨ D38 [Type of packaged heating]<br>IF Heat pumps IN D26 [Heating equipment types] ⇨ D40 [Heat pump heating system]<br>IF Individual space heaters ⇨ D43 [Type of individual heater]<br>OTHERWISE:<br>  IF Water loop, Central air handler, Packaged unit, OR Duct reheat given here<br>    OR Any type except Individual room furnace IN D27 [Type of furnace]<br>    OR Packaged central unit IN D26 [Heating equipment types]<br>    ⇨ D45 [Heating ventilation types]<br>  OTHERWISE:<br>    IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>    OTHERWISE ⇨ D61 [Building automation system] |
|---|---|

| D31 | Type of district heat system |
|---|---|
| **ASK** | IF District steam or hot water IN D26 [Heating equipment types] |

[F1]-HELP

SHOW CARD D4

Looking at Show Card D4, please tell me the type or types of distribution systems used with the district steam or hot water.

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Radiators | *DHRAD* |
| 2 | Fan coil units in rooms (or areas) | *DHFNCL* |
| 3 | Induction units | *DHINDC* |
| 4 | Water loop heat pump | *DHWATR* |
| 5 | Central air handler (hydronic/steam coils) | *DHAIR* |
| 6 | Packaged unit (hydronic/steam coils) | *DHPKG* |
| 7 | Duct reheat (hydronic/steam coils) | *DHDUCT* |

**NEXT**
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]

| D32 | Other heating components |
|---|---|
| **ASK** | IF Other heating equipment IN D26 [Heating equipment types] |

[F1]-HELP

SHOW CARD D5

Looking at Show Card D5, please tell me if the other heating equipment includes any of these components.

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Heating coil or electric heat strip | *OTSTRP* |
| 2 | Duct reheat or electric reheat | *OTDUCT* |
| 3 | Powered induction units (PIU) | *OTPIU* |
| 4 | None of these components | |

| **NEXT** | IF Any components:<br>    IF Packaged central unit IN D26 [Heating equipment types] OR<br>        Packaged central unit OR Duct furnace IN D27 [Type of furnace]<br>            ⇨ D33 [Classify other as part of packaged]<br>    IF Boiler IN D26 [Heating equipment types] ⇨ D34 [Classify other as part of boiler]<br>    IF District steam or hot water IN D26 [Heating equipment types]<br>        ⇨ D35 [Classify other as part of district]<br>    OTHERWISE ⇨ D36 [Classify other as packaged]<br>IF None of these components OR DK/RF ⇨ D37 [Other heat specify] |
|---|---|


| D33 | Classify other as part of packaged |
|---|---|
| **ASK** | IF Any components given in D32 [Other heating components] &<br>    Packaged central unit IN D26 [Heating equipment types] OR<br>    Packaged central unit OR Duct furnace IN D27 [Type of furnace] |

For the purposes of this study, I am going to consider the other heating equipment to be part of the packaged unit.

◆ ENTER "1" to continue

| **NEXT** | ⇨ D38 [Type of packaged heating] |
|---|---|

| D34 | Classify other as part of boiler |
|---|---|
| ASK | IF Any components given in D32 [Other heating components]<br>        & Boiler IN D26 [Heating equipment types] |

For the purposes of this study, I am going to consider the other heating equipment to be part of the boiler system.

◆ ENTER "1" to continue

| NEXT | IF Packaged central unit IN D26 [Heating equipment types] ⇨ D38 [Type of packaged heating]<br>IF Heat pumps IN D26 [Heating equipment types] ⇨ D40 [Heat pump heating system]<br>IF Individual space heaters ⇨ D43 [Type of individual heater]<br>OTHERWISE:<br>    IF Any type except Individual room furnace IN D27 [Type of furnace]<br>        OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system]<br>        OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>        IN D31 [Type of district heat system]<br>        OR Any components given in D32 [Other heating components]<br>        OR Packaged central unit IN D26 [Heating equipment types]<br>        ⇨ D45 [Heating ventilation types]<br>    OTHERWISE:<br>        IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>        OTHERWISE ⇨ D61 [Building automation system] |

| D35 | Classify other as part of district |
|---|---|
| ASK | IF Any components given in D32 [Other heating components]<br>        & District steam or hot water IN D26 [Heating equipment types] |

For the purposes of this study, I am going to consider the other heating equipment to be part of the district heating system.

◆ ENTER "1" to continue

| NEXT | IF Packaged central unit IN D26 [Heating equipment types] ⇨ D38 [Type of packaged heating]<br>IF Heat pumps IN D26 [Heating equipment types] ⇨ D40 [Heat pump heating system]<br>IF Individual space heaters ⇨ D43 [Type of individual heater]<br>OTHERWISE:<br>    IF Any type except Individual room furnace IN D27 [Type of furnace]<br>        OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system]<br>        OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>        IN D31 [Type of district heat system]<br>        OR Any components given in D32 [Other heating components]<br>        OR Packaged central unit IN D26 [Heating equipment types]<br>        ⇨ D45 [Heating ventilation types]<br>    OTHERWISE:<br>        IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>        OTHERWISE ⇨ D61 [Building automation system] |

| 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]) |

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.

◆ ENTER "1" to continue

| **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 |

Please describe the other type of heating equipment.

◆ RECORD in open box

| **NEXT** | IF Packaged central unit IN D26 [Heating equipment types] ⇨ D38 [Type of packaged heating] <br> IF Heat pumps IN D26 [Heating equipment types] ⇨ D40 [Heat pump heating system] <br> IF Individual space heaters ⇨ D43 [Type of individual heater] <br> OTHERWISE: <br>    IF Any type except Individual room furnace IN D27 [Type of furnace] <br>       OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system] <br>       OR Water loop, Central air handler, Packaged unit, OR Duct reheat <br>       IN D31 [Type of district heat system] <br>       OR Any components given in D32 [Other heating components] <br>       OR Packaged central unit IN D26 [Heating equipment types] <br>       ⇨ D45 [Heating ventilation types] <br>    OTHERWISE: <br>       IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling] <br>       OTHERWISE ⇨ D61 [Building automation system] |
|------|------|

| D38 | Type of packaged heating | PKGHTTYP |
|---|---|---|

| ASK | IF Packaged central unit IN D26 [Heating equipment types]<br>    OR Packaged central unit OR Duct furnace IN D27 [Type of furnace]<br>    OR Any components given in D32 [Other heating components] &<br>    **NOT**(Packaged central unit IN D26 [Heating equipment types] OR<br>    Packaged central unit OR Duct furnace IN D27 [Type of furnace]<br>    OR Boiler IN D26 [Heating equipment types]<br>    OR District steam or hot water IN D26 [Heating equipment types]) |
|---|---|

[F1]-HELP

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]<br>IF DK/RF:<br>    IF Heat pumps IN D26 [Heating equipment types] ⇨ D40 [Heat pump heating system]<br>    IF Individual space heaters ⇨ D43 [Type of individual heater]<br>    OTHERWISE ⇨ D45 [Heating ventilation types] |
|---|---|

<br>

| D39 | Packaged heating components |
|---|---|

| ASK | IF Any type given in D38 [Type of packaged heating] |
|---|---|

[F1]-HELP

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

| | | |
|---|---|---|
| 1 | Furnace | PKGFURN |
| 2 | Heat pump | PKGHTP |
| 3 | Heating coil | PKGCOIL |
| 4 | Powered induction unit (PIU) | PKGPIU |
| 5 | Duct reheat | PKGDUCT |

| NEXT | IF Heat pumps IN D26 [Heating equipment types] ⇨ D40 [Heat pump heating system]<br>IF Individual space heaters ⇨ D43 [Type of individual heater]<br>OTHERWISE ⇨ D45 [Heating ventilation types] |
|---|---|

| D40 | Heat pump heating system | *see below* |
|---|---|---|

| ASK | IF Heat pumps IN D26 [Heating equipment types] |
|---|---|

[F1]-HELP

SHOW CARD D7

Please look at the first list on Show Card D7 and tell me which heat pump systems are used for heating in this establishment.

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Packaged unit | *HPHPKG* |
| 2 | Split system (residential-type) | *HPHSPLT* |
| 3 | Individual room heat pump (packaged terminal heat pump or PTHP) | *HPHROOM* |
| 4 | Ductless mini-split system | *HPHMINI* |
| 5 | Variable refrigerant flow (VRF) system | *HPHVRF* |

| NEXT | ⇨ D41 [Heat pump heating type] |
|---|---|


| D41 | Heat pump heating type | *see below* |
|---|---|---|

| ASK | IF Heat pumps IN D26 [Heating equipment types] |
|---|---|

[F1]-HELP

SHOW CARD D7

Looking at the second list on Show Card D7, which types of heat pumps are these?

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Air source heat pump | *HPHAIR* |
| 2 | Ground source or ground water heat pump (geothermal) | *HPHGRD* |
| 3 | Dual source heat pump (combination air source and geothermal) | *HPHDUAL* |
| 4 | Water loop heat pump | *HPHWTR* |

| NEXT | IF Air source heat pump & Natural gas OR Bottled gas used for heating ⇨ D42 [Heat pump backup]<br>IF Individual space heaters ⇨ D43 [Type of individual heater]<br>  OTHERWISE:<br>  IF Any type except Individual room furnace IN D27 [Type of furnace]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>     IN D31 [Type of district heat system]<br>    OR Any components given IN D32 [Other heating components]<br>    OR Packaged central unit IN D26 [Heating equipment types]<br>    OR Packaged unit OR Split system IN D40 [Heat pump heating system]<br>     ⇨ D45 [Heating ventilation types]<br>  OTHERWISE:<br>    IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>    OTHERWISE ⇨ D61 [Building automation system] |
|---|---|

| D42 | Heat pump backup | HPHBKUP |
|---|---|---|

| **ASK** | IF D41 [Heat pump heating type] = Air source heat pump<br>    & Natural gas OR Bottled gas used for heating |
|---|---|
| **FILL** | **{NatGasBotGas}**<br>IF Natural gas but not bottled gas for heating = "natural gas"<br>IF Bottled gas but not natural gas for heating =  "bottled gas"<br>IF Both natural gas and bottled gas for heating = "natural gas or bottled gas"<br>**{ NatGasBotGasList}**<br>IF Natural gas but not bottled gas for heating = "Natural gas"<br>IF Bottled gas but not natural gas for heating =  "Bottled gas"<br>IF Both natural gas and bottled gas for heating = "Natural gas or bottled gas" |

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?

◆    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 duel fuel heat pumps)]

    1    Electric resistance backup
    2    {NatGasBotGasList} backup (dual fuel)
    3    No backup source

| **NEXT** | IF Individual space heaters ⇨ D43 [Type of individual heater]<br>    OTHERWISE:<br>    IF Any type except Individual room furnace IN D27 [Type of furnace]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>       IN D31 [Type of district heat system]<br>    OR Any components given IN D32 [Other heating components]<br>    OR Packaged central unit IN D26 [Heating equipment types]<br>    OR Packaged unit OR Split system IN D40 [Heat pump heating system]<br>    ⇨ D45 [Heating ventilation types]<br>    OTHERWISE:<br>       IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>       OTHERWISE ⇨ D61 [Building automation system] |
|---|---|

| D43 | Type of individual heater |
|---|---|
| ASK | IF Individual space heaters IN D26 [Heating equipment types] |

[F1]-HELP

SHOW CARD D8

Looking at Show Card D8, please tell me the type or types of individual heaters used in the establishment.

◆ ENTER all that apply

|   |   |   |
|---|---|---|
| 1 | Infrared radiant heater (permanent) | *SHRDNT* |
| 2 | Baseboard heater (permanent) | *SHBBRD* |
| 3 | Portable space heater | *SHPORT* |
| 4 | Wall heater | *SHWALL* |
| 5 | Individual furnace | *SHFURN* |
| 6 | Unit heater | *SHUNIT* |
| 7 | Heating element in package terminal air conditioner (PTAC) | *SHPTAC* |

| NEXT | IF Any type except Individual room furnace IN D27 [Type of furnace]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>      IN D31 [Type of district heat system]<br>    OR Any components given in D32 [Other heating components]<br>    OR Packaged central unit IN D26 [Heating equipment types]<br>    OR Packaged unit OR Split system IN D40 [Heat pump heating system]<br>    ⇨ D45 [Heating ventilation types]<br>    OTHERWISE:<br>      IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>      OTHERWISE ⇨ D61 [Building automation system] |
|---|---|

| 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}**<br>IF Boilers = "boiler"<br>IF Furnace = "furnace"<br>IF District heat = "district heating system"<br>**{HeatSources}** = list of the energy sources given for heating |

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}.

◆  RECORD in open box

| **NEXT** | IF Any type except Individual room furnace IN D27 [Type of furnace]<br>     OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system]<br>     OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>        IN D31 [Type of district heat system]<br>     OR Any components given in D32 [Other heating components]<br>     OR Packaged central unit IN D26 [Heating equipment types]<br>     OR Packaged unit OR Split system IN D40 [Heat pump heating system]<br>      ⇨ D45 [Heating ventilation types]<br>     OTHERWISE:<br>        IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>        OTHERWISE ⇨ D61 [Building automation system] |

| D45 | Heating ventilation types |
|---|---|
| ASK | IF Any type except Individual room furnace IN D27 [Type of furnace]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D30 [Type of boiler system]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>      IN D31 [Type of district heat system]<br>    OR Any components given in D32 [Other heating components]<br>    OR Packaged central unit IN D26 [Heating equipment types]<br>    OR Packaged unit OR Split system IN D40 [Heat pump heating system] |

[F1]-HELP

SHOW CARD D9

Show Card D9 provides a list of mechanical ventilation equipment types. Please tell me which types are used with the heating system.

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Central air handling unit(s) with constant air volume (CAV) control | *HTVCAV* |
| 2 | Central air handling unit(s) with variable air volume (VAV) control | *HTVVAV* |
| 3 | Underfloor air distribution | *HTVFLR* |
| 4 | Dedicated outside air system (DOAS) | *HTVOAS* |
| 5 | Demand controlled ventilation | *HTVDEM* |
| 6 | None of these types | *HTVNON* |

| NEXT | IF None of these types ⇨ D46 [Heating ventilation specify]<br>OTHERWISE:<br>    IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>    OTHERWISE ⇨ D61 [Building automation system] |
|---|---|


| D46 | Heating ventilation specify |
|---|---|
| ASK | IF D45 [Heating ventilation types] = None of these types |

Please describe the ventilation system that is used with the heating system.

◆ RECORD in open box

| NEXT | IF D2 [Cooling] = Yes ⇨ D47 [Sources for cooling]<br>OTHERWISE ⇨ D61 [Building automation system] |
|---|---|

| D47 | **Sources for cooling** | *see below* |
|---|---|---|
| **ASK** | IF D2 [Cooling] = Yes | |
| **FILL** | **{CoolSourcesList}** = List of all possible air conditioning energy sources used <br> **{Electricity} – {Other3}** = If a source is used, it appears in this list; if not, the line is blank <br> **{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene] <br> **{Other1} – {Other3}** = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3] | |

Which energy sources were used for air conditioning? ({CoolSourcesList})

◆ Only sources already selected are shown here

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 11 | {Electricity} | *ELCOOL* |
| 12 | {Natural gas} | *NGCOOL* |
| 13 | {FuelOilType} | *FKCOOL* |
| 14 | {Bottled gas} | *PRCOOL* |
| 15 | {District steam} | *STCOOL* |
| 16 | {District hot water} | *HWCOOL* |
| 17 | {District chilled water} | *CWCOOL* |
| 21 | {Other1} | *OTCOOL* |
| 22 | {Other2} | *OTCOOL* |
| 23 | {Other3} | *OTCOOL* |
| 24 | Some other energy source | |

| **NEXT** | IF Some other energy source selected ⇨ D48 [Other source for cooling] <br> OTHERWISE ⇨ D49 [Cooling equipment types] |
|---|---|


| D48 | **Other source for cooling** | *see below* |
|---|---|---|
| **ASK** | IF Some other energy source IN D47 [Sources for cooling] | |

What was the other energy source used for air conditioning?

| | | |
|---|---|---|
| 11 | Electricity | *ELCOOL* |
| 12 | Natural gas | *NGCOOL* |
| 13 | Fuel oil/Diesel/Kerosene | *FKCOOL* |
| 14 | Bottled gas | *PRCOOL* |
| 15 | District steam | *STCOOL* |
| 16 | District hot water | *HWCOOL* |
| 17 | District chilled water | *CWCOOL* |
| 24 | Some other energy source | *OTCOOL* |

| **NEXT** | ⇨ D49 [Cooling equipment types] |
|---|---|

| D49 | Cooling equipment types | *see below* |
|------|------------------------|-------------|

| **ASK** | IF D2 [Cooling] = Yes |
|---------|------------------------|

[F1]-HELP

SHOW CARD D11

Looking at the list of cooling equipment types on Show Card D11, please tell me which types are used in this establishment.

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Residential-type central air conditioners, other than heat pumps, that cool air directly and circulate it without using chilled water | *RCAC* |
| 2 | Packaged air conditioning units, other than heat pumps | *PKGCL* |
| 3 | Central chillers inside (or adjacent to) the building that chill water for air conditioning | *CHILLR* |
| 4 | District chilled water piped in from outside the building | *CHWT* |
| 5 | Heat pumps for cooling | *HTPMPC* |
| 6 | Individual room air conditioners, other than heat pumps | *ACWNWL* |
| 7 | "Swamp" coolers or evaporative coolers | *EVAPCL* |
| 8 | Other cooling equipment | *OTCLEQ* |

| **NEXT** | IF Packaged air conditioning units ⇨ D50 [Type of packaged cooling]<br>IF Central chillers ⇨ D51 [Type of chiller]<br>IF District chilled water ⇨ D54 [Type of district chilled water system]<br>IF Heat pumps for cooling AND NOT Heat pumps for heating ⇨ D55 [Heat pump cooling system]<br>IF Other cooling equipment ⇨ D57 [Other cool specify]<br>IF DK/RF ⇨ D61 [Building automation system]<br>OTHERWISE:<br>    IF Any source(s) other than electricity or chilled water reported in D47 [Sources for cooling] OR<br>        D48 [Other source for cooling] ⇨ D58 [Cool source explanation]<br>    IF Residential-type central air & D1 [Heating] = Yes & D45 [Heating ventilation types] ≠ DK/RF<br>        ⇨ D59 [Cooling ventilation same as heating]<br>    IF Residential-type central air & (D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF)<br>        ⇨ D60 [Cooling ventilation types]<br>    OTHERWISE ➜ D61 [Building automation system] |
|---------|---|

| D50 | Type of packaged cooling | PKGCLTYP |
|------|------|------|
| 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

⬜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 | see below |
|------|------|------|
| ASK | IF Central chillers IN D49 [Cooling equipment types] | |

[F1]-HELP

⬜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

| | | |
|---|---|---|
| 1 | Air-cooled | CHLAIRCL |
| 2 | Water cooled | CHLWTRCL |
| 3 | Absorption | CHLABSRP |

| NEXT | IF Absorption ⇨ D52 [Heater chiller] OTHERWISE ⇨ D53 [Type of chiller system] |
|------|------|

| D52 | Heater chiller | HTRCHLR |
|---|---|---|
| **ASK** | IF Absorption IN D51 [Type of chiller] | |

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?

    1   Yes
    2   No

| **NEXT** | ⇨ D53 [Type of chiller system] |
|---|---|

| D53 | Type of chiller system | *see below* |
|---|---|---|
| **ASK** | IF Central chillers IN D49 [Cooling equipment types] | |

[F1]-HELP


⬜SHOW CARD D13


Please look at Show Card D13 and tell me which system or systems are used for distributing the water from the chiller.

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Central air handler (hydronic coils) | *CHLAIR* |
| 2 | Fan coil units in rooms (or areas) | *CHLFNCL* |
| 3 | Induction units | *CHLINDC* |
| 4 | Water loop heat pump | *CHLWATR* |
| 5 | Chilled beam | *CHLBEAM* |
| 6 | Packaged unit (hydronic coils) | *CHLPKG* |
| 7 | Duct reheat | *CHLDUCT* |

| **NEXT** | 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] |

| D54 | Type of district chilled water system | *see below* |
|---|---|---|
| **ASK** | IF District chilled water IN D49 [Cooling equipment types] | |

[F1]-HELP

SHOW CARD D13

Please look at Show Card D13 and tell me which system or systems are used for distributing the district chilled water.

◆ ENTER all that apply

|  |  |  |
|---|---|---|
| 1 | Central air handler (hydronic coils) | *DCWAIR* |
| 2 | Fan coil units in rooms (or areas) | *DCWFNCL* |
| 3 | Induction units | *DCWINDC* |
| 4 | Water loop heat pump | *DCWWATR* |
| 5 | Chilled beam | *DCWBEAM* |
| 6 | Packaged unit (hydronic coils) | *DCWPKG* |
| 7 | Duct reheat | *DCWDUCT* |

**NEXT**  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]

| D55 | Heat pump cooling system | see below |
|------|------------------------------------------------|------------|
| **ASK** | IF Heat pumps IN D49 [Cooling equipment types]<br>     & Heat pumps NOT IN D26 [Heating equipment types] | |

[F1]-HELP

SHOW CARD D7

Please look at the first list on Show Card D7 and tell me which heat pump systems are used for cooling in this establishment.

◆ ENTER all that apply

    1    Packaged unit           *HPCPKG*
    2    Split system (residential-type)           *HPCSPLT*
    3    Individual room heat pump (packaged terminal heat pump or PTHP)       *HPCROOM*
    4    Ductless mini-split system           *HPCMINI*
    5    Variable refrigerant flow (VRF) system       *HPCVRF*

| **NEXT** | ⇨ D56 [Heat pump cooling type] |
|------|--------------------------------|

| D56 | Heat pump cooling type | *see below* |
|------|------------------------|-------------|

| **ASK** | IF Heat pumps IN D49 [Cooling equipment types]<br>    & Heat pumps NOT IN D26 [Heating equipment types] |
|----------|---|

[F1]-HELP

SHOW CARD D7

Looking at the second list on Show Card D7, which types of heat pumps are these?

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Air source heat pump | *HPCAIR* |
| 2 | Ground source or ground water heat pump (geothermal) | *HPCGRD* |
| 3 | Dual source heat pump (combination air source and geothermal) | *HPCDUAL* |
| 3 | Water loop heat pump | *HPCWTR* |

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

| D57 | Other cool specify |
|------|------|
| **ASK** | IF Other cooling equipment in D49 [Cooling equipment types] |

Please describe the other type of cooling equipment.

◆ RECORD in open box

| **NEXT** | 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]<br>IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠ DK/RF &<br>   Residential-type central air IN D49 [Cooling equipment types]<br>   OR Packaged unit IN D49 [Cooling equipment types]<br>   OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>     IN D53 [Type of chiller system]<br>   OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>     IN D54 [Type of district chilled water system]<br>   OR Packaged unit OR Split system IN D55 [Heat pump cooling system]<br>     ⇨ D59 [Cooling ventilation same as heating]<br>IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF &<br>   Residential-type central air IN D49 [Cooling equipment types]<br>   OR Packaged unit IN D49 [Cooling equipment types]<br>   OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>     IN D53 [Type of chiller system]<br>   OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>     IN D54 [Type of district chilled water system]<br>   OR Packaged unit OR Split system IN D55 [Heat pump cooling system]<br>     ⇨ D60 [Cooling ventilation types]<br>OTHERWISE ➔ D61 [Building automation system] |

| 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<br>**{IsAre}** =<br>IF Only one cooling source in list = "is"<br>IF More than one cooling source in list = "are" |

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.

◆ RECORD in open box

| NEXT | IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠ DK/RF &<br>    Residential-type central air IN D49 [Cooling equipment types]<br>    OR Packaged unit IN D49 [Cooling equipment types]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>       IN D53 [Type of chiller system]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>       IN D54 [Type of district chilled water system]<br>    OR Packaged unit OR Split system IN D55 [Heat pump cooling system]<br>       ⇨ D59 [Cooling ventilation same as heating]<br>IF D1 [Heating] ≠ Yes OR D45 [Heating ventilation types] = DK/RF &<br>    Residential-type central air IN D49 [Cooling equipment types]<br>    OR Packaged unit IN D49 [Cooling equipment types]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>       IN D53 [Type of chiller system]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>       IN D54 [Type of district chilled water system]<br>    OR Packaged unit OR Split system IN D55 [Heat pump cooling system]<br>       ⇨ D60 [Cooling ventilation types]<br>    OTHERWISE ➜ D61 [Building automation system] |

| D59 | Cooling ventilation same as heating |
|---|---|
| ASK | IF D1 [Heating] = Yes & D45 [Heating ventilation types] ≠ (No ventilation or DK/RF) &<br>    Residential-type central air IN D49 [Cooling equipment types]<br>    OR Packaged unit IN D49 [Cooling equipment types]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat IN D53 [Type of chiller system]<br>    OR Water loop, Central air handler, Packaged unit, OR Duct reheat<br>       IN D54 [Type of district chilled water system]<br>    OR Packaged unit OR Split system IN D55 [Heat pump cooling system] |

Is the ventilation system for cooling the same as the one for heating?

    1   Yes
    2   No

| NEXT | IF No ⇨ D60 [Cooling ventilation types]<br>OTHERWISE ⇨ D61 [Building automation system] |

| D60 | Cooling ventilation types |
|---|---|
| ASK | IF D59 [Cooling ventilation same as heating] = No |

[F1]-HELP

SHOW CARD D9

Show Card D9 provides a list of mechanical ventilation equipment types. Please tell me which types are used with the cooling system.

◆ PROBE for any others

◆ ENTER all that apply

    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*

| NEXT | IF None of these types ⇨ D60a [Cooling ventilation specify]<br>OTHERWISE ⇨ D61 [Building automation system] |
|---|---|

<br>

| D60a | Cooling ventilation specify |
|---|---|
| ASK | IF D60 [Cooling ventilation types] = None of these types |

Please describe the ventilation system that is used with the cooling system.

◆ RECORD in open box

| NEXT | ⇨ D61 [Building automation system] |
|---|---|

<br>

| D61 | Building automation system | *EMCS* |
|---|---|---|
| ASK | IF D1 [Heating] = Yes OR D2 [Cooling] = Yes | |

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?

◆ 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.]

    1   Yes
    2   No

| NEXT | IF D1 [Heating] = Yes ⇨ D62 [Reduce heating]<br>OTHERWISE ⇨ D64 [Reduce cooling] |
|---|---|

| D62 | Reduce heating | *RDHTNF* |
|------|----------------|----------|

| **ASK** | IF D1 [Heating] = Yes |
|---------|------------------------|

| **FILL** | **{TimesNotInFullUse}**<br>IF C26 [Open 24 hours a day] = Yes OR C30 [Total hours open per week] = 168<br>   OR C31 [Weekly hours category] = 168<br>   = "Are there any periods during a normal 24-hour day when there is"<br>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]<br>IF No OR DK/RF:<br>   IF D2 [Cooling] = Yes ⇨ D64 [Reduce cooling]<br>   OTHERWISE:<br>      IF More than just Individual space heaters IN D26 [Heating equipment types]<br>        ➔ D68 [Regular HVAC maintenance]<br>      IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>      IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>      IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>      IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>      OTHERWISE ⇨ D81 [Any other sources] |
|----------|-----------|

| D63 | **How reduce heating** | *HWRDHT* |
|------|------------------------|----------|

| **ASK** | IF D62 [Reduce heating] = Yes |
|---------|-------------------------------|

| **FILL** | **{PartOfBAS}**<br>IF D61 [Building automation system] = Yes = 'as part of the Building Automation System'<br>OTHERWISE = BLANK |
|----------|---|

How is the temperature for heating usually changed – {PartOfBAS}, using a programmable thermostat, manually changing the thermostat, or manually shutting down the equipment?

◆ DEF: [A programmable theromstat, or ""time-clock thermostat"" is programmed to
automatically change thermostat settings for times when the building is unoccupied.]

    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]<br>OTHERWISE:<br>    IF More than just Individual space heaters IN D26 [Heating equipment types]<br>      ➔ D68 [Regular HVAC maintenance]<br>    IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>    IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>    IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>    IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>    OTHERWISE ⇨ D81 [Any other sources] |
|----------|---|

| D64 | Reduce cooling | RDCLNF |
|---|---|---|

| ASK | IF D2 [Cooling] = Yes |
|---|---|

| FILL | **{TimesNotInFullUse}**<br>IF C26 [Open 24 hours a day] = Yes OR C30 [Total hours open per week] = 168<br>   OR C31 [Weekly hours category] = 168<br>   = "Are there any periods during a normal 24-hour day when there is"<br>OTHERWISE = "When this establishment is not in full use, is there" |
|---|---|

[F1]-HELP

{TimesNotInFullUse} a change in the temperature setting for <u>cooling</u>?

    1  Yes
    2  No

| NEXT | IF Yes ➔ D65 [How reduce cooling]<br>IF No OR DK/RF:<br>    IF More than just Individual room air conditioners IN D49 [Cooling equipment types]<br>      ➔ D66 [Economizer cycle]<br>    IF More than just individual space heaters IN D26 [Heating equipment types]<br>      ⇨ D68 [Regular HVAC maintenance]<br>    IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>    IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>    IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>    IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>    OTHERWISE ⇨ D81 [Any other sources] |
|---|---|

| D65 | **How reduce cooling** | *HWRDCL & see below* |
|------|------|------|
| **ASK** | IF D64 [Reduce cooling] = Yes | |
| **FILL** | **{PartOfBAS}**<br>IF D61 [Building automation system] = Yes = 'as part of the Building Automation System'<br>OTHERWISE = BLANK | |

How is the temperature for cooling usually changed – {PartOfBAS}, using a programmable thermostat, manually changing the thermostat, or manually shutting down the equipment?

◆ DEF: [A programmable theromstat, or ""time-clock thermostat"" is programmed to
   automatically change thermostat settings for times when the building is unoccupied.]

    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]<br>    ➔ D66 [Economizer cycle]<br>IF More than just individual space heaters IN D26 [Heating equipment types]<br>    ⇨ D68 [Regular HVAC maintenance]<br>IF D3 [Water heating] = Yes ⇨ D69 [Sources for water heating]<br>IF D4 [Cooking] = Yes ⇨ D73 [Sources for cooking]<br>IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing]<br>IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation]<br>OTHERWISE ⇨ D81 [Any other sources] |

<br>

| D66 | **Economizer cycle** | *ECN* |
|------|------|------|
| **ASK** | IF More than just Individual room air conditioners IN D49 [Cooling equipment types] | |

[F1]-HELP

Does this establishment have any equipment that uses outside air for cooling, often called an "economizer cycle"?

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ D67 [Type of economizer cycle]<br>OTHERWISE ➔ D68 [Regular HVAC maintenance] |

| D67 | Type of economizer cycle | ECNTYPE |
|---|---|---|

| ASK | IF D66 [Economizer cycle] = Yes |
|---|---|

SHOW CARD D14

Looking at Show Card D14, is this an air-side economizer or a water-side economizer?

     1    Air-side economizer
     2    Water-side economizer

| NEXT | ➔ D68 [Regular HVAC maintenance] |
|---|---|


| D68 | Regular HVAC maintenance | MAINT |
|---|---|---|

| 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

Is there any regularly scheduled maintenance and repair for the {HeatCool} system?

     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 | *see below* |
|------|----------------------------|-------------|
| **ASK** | IF D3 [Water heating] = Yes | |
| **FILL** | **{WatrSourcesList}** = List of all energy sources used<br>**{Electricity} – {Other3}** = If a source is used, it appears in this list; if not, the line is blank<br>**{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene]<br>**{Other1} – {Other3}** = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3] | |

Which energy sources were used for water heating? ({WatrSourcesList})

◆ Only sources already selected are shown here

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|----|------------------------|---------|
| 11 | {Electricity} | *ELWATR* |
| 12 | {Natural gas} | *NGWATR* |
| 13 | {FuelOilType} | *FKWATR* |
| 14 | {Bottled gas} | *PRWATR* |
| 15 | {District steam} | *STWATR* |
| 16 | {District hot water} | *HWWATR* |
| 18 | {Wood} | *WOWATR* |
| 19 | {Coal} | *COWATR* |
| 20 | {Solar} | *SOWATR* |
| 21 | {Other1} | *OTWATR* |
| 22 | {Other2} | *OTWATR* |
| 23 | {Other3} | *OTWATR* |
| 24 | Some other energy source | |

| **NEXT** | IF Some other energy source selected ⇨ D70 [Other water heating source]<br>OTHERWISE ⇨ D71 [Water heating equipment] |
|----------|------------------------------------------------------------------------------------------------------------------------|

| D70 | Other water heating source | *see below* |
|---|---|---|

| **ASK** | IF Some other energy source IN D69 [Sources for water heating] |
|---|---|

What was the other energy source used for water heating?

| | | |
|---|---|---|
| 11 | Electricity | *ELWATR* |
| 12 | Natural gas | *NGWATR* |
| 13 | Fuel oil/Diesel/Kerosene | *FKWATR* |
| 14 | Bottled gas | *PRWATR* |
| 15 | District steam | *STWATR* |
| 16 | District hot water | *HWWATR* |
| 18 | Wood | *WOWATR* |
| 19 | Coal | *COWATR* |
| 20 | Solar | *SOWATR* |
| 24 | Some other energy source | *OTWATR* |

| **NEXT** | ⇨ D71 [Water heating equipment] |
|---|---|


| D71 | Water heating equipment | *WTHTEQ* |
|---|---|---|

| **ASK** | IF D3 [Water heating] = Yes |
|---|---|

[F1]-HELP

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)?

| | |
|---|---|
| 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** | *BOOSTWT* |
|---|---|---|
| **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] <br> IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing] <br> IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation] <br> OTHERWISE ⇨ D81 [Any other sources] |

| D73 | **Sources for cooking** | *see below* |
|---|---|---|
| **ASK** | IF D4 [Cooking] = Yes | |
| **FILL** | **{CookSourcesList}** = List of all energy sources used <br> **{Electricity} – {Other3}** = If a source is used, it appears in this list; if not, the line is blank <br> **{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene] <br> **{Other1} – {Other3}** = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3] | |

Which energy sources were used for cooking? [ {CookSourcesList} ]

◆  Only sources already selected are shown here

◆      PROBE for any others

◆  ENTER all that apply

| | | |
|---|---|---|
| 11 | {Electricity} | *ELCOOK* |
| 12 | {Natural gas} | *NGCOOK* |
| 13 | {FuelOilType} | *FKCOOK* |
| 14 | {Bottled gas} | *PRCOOK* |
| 15 | {District steam} | *STCOOK* |
| 16 | {District hot water} | *HWCOOK* |
| 18 | {Wood} | *WOCOOK* |
| 19 | {Coal} | *COCOOK* |
| 20 | {Solar} | *SOCOOK* |
| 21 | {Other1} | *OTCOOK* |
| 22 | {Other2} | *OTCOOK* |
| 23 | {Other3} | *OTCOOK* |
| 24 | Some other energy source | |

| **NEXT** | IF Some other energy source selected ⇨ D74 [Other cooking source] <br> OTHERWISE: <br>     IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing] <br>     IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation] <br>         OTHERWISE ⇨ D81 [Any other sources] |
|---|---|

| D74 | Other cooking source |
|---|---|
| **ASK** | IF Some other energy source IN D73 [Sources for cooking] |

What was the other energy source used for cooking?

| | | |
|---|---|---|
| 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* |

| **NEXT** | IF D6 [Manufacturing] = Yes ⇨ D75 [Sources for manufacturing] <br> IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation] <br> OTHERWISE ⇨ D81 [Any other sources] |
|---|---|


| D75 | Sources for manufacturing | *see below* |
|---|---|---|
| **ASK** | IF D6 [Manufacturing] = Yes | |
| **FILL** | **{ManuSourcesList}** = List of all energy sources used <br> **{Electricity} – {Other3}** = If a source is used, it appears in this list; if not, the line is blank <br> **{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene] <br> **{Other1} – {Other3}** = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3] | |

Which energy sources were used for manufacturing? [ {ManuSourcesList} ]

◆  Only sources already selected are shown here

◆    PROBE for any others

◆  ENTER all that apply

| | | |
|---|---|---|
| 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 | |

| **NEXT** | IF Some other energy source selected ⇨ D76 [Other manufacturing source] <br> OTHERWISE: <br>    IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation] <br>    IF D8 [Electricity generation capability] ≠ Yes ⇨ D81 [Any other sources] |
|---|---|

| D76 | **Other manufacturing source** | *see below* |
|---|---|---|

| **ASK** | IF Some other energy source IN D75 [Sources for manufacturing] |
|---|---|

What was the other energy source used for manufacturing?

| | | |
|---|---|---|
| 11 | Electricity | *ELMANU* |
| 12 | Natural gas | *NGMANU* |
| 13 | Fuel oil/Diesel/Kerosene | *FKMANU* |
| 14 | Bottled gas | *PRMANU* |
| 15 | District steam | *STMANU* |
| 16 | District hot water | *HWMANU* |
| 18 | Wood | *WOMANU* |
| 19 | Coal | *COMANU* |
| 20 | Solar | *SOMANU* |
| 24 | Some other energy source | *OTMANU* |

| **NEXT** | IF D8 [Electricity generation capability] = Yes ⇨ D77 [Energy for generation] |
|---|---|
| | IF D8 [Electricity generation capability] ≠ Yes ⇨ D81 [Any other sources] |


| D77 | **Energy for generation** | *GENR* |
|---|---|---|

| **ASK** | IF D8 [Electricity generation capability] = Yes |
|---|---|

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?

| | |
|---|---|
| 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** | *see below* |
|------|----------------------------------------|-------------|
| **ASK** | IF D77 [Energy for generation] = Yes | |
| **FILL** | **{Other1} – {Other3}** = Sources specified in D12 [Other energy source 1] – D14 [Other energy source 3] | |

SHOW CARD D16

Looking at Show Card D16, please tell me which energy sources were used for electricity generation.

◆    PROBE for any others

◆  ENTER all that apply

|   |   |   |
|---|---|---|
| 12 | Natural gas | *NGGENR* |
| 13 | Fuel oil/Diesel/Kerosene | *FKGENR* |
| 14 | Bottled gas/LPG/Propane | *PRGENR* |
| 18 | Wood | *WOGENR* |
| 19 | Coal | *COGENR* |
| 20 | Solar | *SOGENR* |
| 21 | {Other1} | *OTGENR* |
| 22 | {Other2} | *OTGENR* |
| 23 | {Other3} | *OTGENR* |
| 24 | Some other energy source | *OTGENR* |

| **NEXT** | ⇨ D79 [Generation technologies] |
|----------|---------------------------------|


| D79 | **Generation technologies** | *see below* |
|------|-----------------------------|-------------|
| **ASK** | IF D77 [Energy for generation] = Yes | |

SHOW CARD D17

Looking at Show Card D17, were any of the technologies on this list used on-site for generating electricity?

◆    PROBE for any others

◆  ENTER all that apply

|   |   |   |
|---|---|---|
| 1 | Photovoltaic cells | *PVC* |
| 2 | Fuel cells | *FUELCL* |
| 5 | Large turbines | *LRGTRB* |
| 3 | Microturbines | *MCROTB* |
| 4 | Wind turbines | *WNDTRB* |
| 6 | Reciprocating engines | *ENGINE* |
| 7 | IF VOLUNTEERED: None of these | |

| **NEXT** | ⇨ D80 [Use of generated electricity] |
|----------|--------------------------------------|

| D80 | **Use of generated electricity** | *GENUSE* |
|---|---|---|

| **ASK** | IF D77 [Energy for generation] = Yes |
|---|---|

[F1]-HELP

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?

    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 |

As a final check, were there any energy sources used in this establishment other than {Sources List} ?

    1    Yes
    2    No

| **NEXT** | IF Yes ⇨ D82 [Other sources]<br>IF No OR DK/RF:<br>   Check that every energy source given in D9 [Energy sources used] (other than electricity or district<br>   chilled water) was assigned an end use. THEN:<br>      IF No ➜ D84 [Missed {energy source} use]<br>      IF Yes:<br>         IF Electricity used ⇨ D85 [How purchase electricity]<br>         IF Natural gas used ⇨ D87 [How purchase natural gas]<br>         OTHERWISE:<br>            IF Heating OR Cooling ⇨ D89 [Energy management program]<br>            OTHERWISE ⇨ E1 [Section E Routing] |
|---|---|

| D82 | Other sources | see below |
|---|---|---|
| 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 | |

What other sources were used?

◆    PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 11 | {Electricity} | *ELUSED* |
| 12 | {Natural gas} | *NGUSED* |
| 13 | {Fuel/Diesel/Kerosene} | *FKUSED* |
| 14 | {Bottled gas} | *PRUSED* |
| 15 | {District steam} | *STUSED* |
| 16 | {District hot water} | *HWUSED* |
| 17 | {District chilled water} | *CWUSED* |
| 18 | {Wood} | *WOUSED* |
| 19 | {Coal} | *COUSED* |
| 20 | {Solar} | *SOUSED* |
| 24 | Other | *OTUSED* |

| **NEXT** | ⇨ D83 [{Energy source} use] |
|---|---|

| D83 | {Energy source} use | *see below where {XX} is the energy source abbreviation* |
|------|------|------|

| ASK | For each source selected in D82 [Other sources] |
|------|------|
| **FILL** | **{EnergySource}**<br>IF Electricity IN D82 [Other sources] = "electricity"<br>IF Natural gas IN D82 [Other sources] = "natural gas"<br>IF Fuel oil/Diesel/Kerosene IN D82 [Other sources] = "fuel oil/diesel/kerosene"<br>IF Bottled gas IN D82 [Other sources] = "bottled gas"<br>IF District steam IN D82 [Other sources] = "district steam"<br>IF District hot water IN D82 [Other sources] = "district hot water"<br>IF Wood IN D82 [Other sources] = "wood"<br>IF Coal IN D82 [Other sources] = "coal"<br>IF Solar IN D82 [Other sources] = "solar energy"<br>IF Other IN D82 [Other sources] = "other fuel"<br>**{Cooling}**<br>Does not appear as a choice for Wood use, Coal use, OR Solar use<br>**{Electricity generation}**<br>Does not appear as a choice for Electricity use, District steam use, OR District hot water use |

What was the {EnergySource} used for?

|   |   |   |
|---|---|---|
| 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 | |

| NEXT | Check that every energy source given in D9 [Energy sources used] (other than electricity or district chilled water) was assigned an end use: THEN:<br>    IF No ➔ D84 [Missed {energy source} use]<br>    IF Yes:<br>        IF Electricity used ⇨ D85 [How purchase electricity]<br>        IF Natural gas used ⇨ D87 [How purchase natural gas]<br>        OTHERWISE:<br>            IF Heating OR Cooling ⇨ D89 [Energy management program]<br>            OTHERWISE ⇨ E1 [Section E Routing] |
|------|------|

| D84 | Missed {energy source} use | *see below where {XX} is the energy source abbreviation* |
|------|-----------------------------|------------------------------------------------------|
| ASK | For every energy source given in D9 [Energy sources used] that was not assigned an end use (other than electricity) | |
| FILL | **{EnergySource}**<br>IF No end use for Natural gas = "natural gas"<br>IF No end use for Fuel oil = Type or types specified in D10 [Fuel oil, diesel, or kerosene]<br>IF No end use for Bottled gas = "bottled gas"<br>IF No end use for District steam = "district steam"<br>IF No end use for District hot water = "district hot water"<br>IF No end use for District chilled water = "district chilled water"<br>IF No end use for Wood = "wood"<br>IF No end use for Coal = "coal"<br>IF No end use for Solar = "solar energy"<br>IF No end use for Other = "another energy source" (second fill = "other energy source")<br>**{Heating}, {Water heating}, {Cooking}, {Manufacturing}**<br>Do not appear as a choice for District chilled water use<br>**{Cooling}**<br>Does not appear as a choice for Wood use, Coal use, OR Solar use<br>**{Electricity generation}**<br>Does not appear as a choice for District chilled water use, District steam use OR District hot water use | |

I have recorded that {EnergySource} was used in this establishment but not how it was used. What was the {EnergySource} used for?

|   |   |   |
|---|---|---|
| 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 | |

| NEXT | IF Electricity used ⇨ D85 [How purchase electricity]<br>IF Natural gas used ⇨ D87 [How purchase natural gas]<br>OTHERWISE:<br>   IF Heating OR Cooling ⇨ D89 [Energy management program]<br>   OTHERWISE ⇨ E1 [Section E Routing] |
|------|------------------------------------------------------------------------------------------------------------------------|


**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 | *see below* |
|---|---|---|

| ASK | IF Electricity used |
|---|---|

[F1]-HELP

☐SHOW CARD D18

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.

◆ EXP: [If electricity is bought from the city, that is
    considered to be the local utility.]

◆    PROBE for any others

◆ ENTER all that apply

    1    Bought from the local utility    *ELLOCUT*
    2    Contracted or bought from an independent power producer or non-local utility  *ELNONLU*
    3    Bought from someone else, such as a broker    *ELOTSRC*
    4    IF VOLUNTEERED: Produced by a central plant on campus    *ELCPLT*

| NEXT | IF more than one selected, including Bought from the local utility ⇨ D86 [Percent from local utility]<br>OTHERWISE:<br>    IF Natural gas used ⇨ D87 [How purchase natural gas]<br>    OTHERWISE ➜ D103 [AMI smart metering] |
|---|---|


| D86 | Percent from local utility | *ELLUPCT* |
|---|---|---|

| 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]<br>OTHERWISE ➜ D103 [AMI smart metering] |
|---|---|

| D87 | How purchase natural gas | NGSRC & see below |
|---|---|---|

| ASK | IF Natural gas used |
|---|---|

| FILL | **{Introduction}**<br>IF Electricity used = "Consumers may also be able to purchase their natural gas from more than one supplier."<br>IF Electricity not used = "In some areas of the country, consumers may purchase their natural gas from more than one supplier." |
|---|---|

[F1]-HELP

{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?

|  |  |  |
|---|---|---|
| 1 | Bought from the local utility | NGLOCUT |
| 2 | Bought from someone else, such as a non-utility or a broker | NGOTSRC |
| 3 | Bought both ways | |

| NEXT | IF Electricity used ➜ D88 [AMI smart metering]<br>OTHERWISE:<br>　　IF Heating OR Cooling ⇨ D89 [Energy management program]<br>　　OTHERWISE ⇨ E1 [Section E Routing] |
|---|---|

| D88 | AMI smart metering | AMIMETER |
|---|---|---|

| ASK | IF Electricity used |
|---|---|

Does this establishment have advanced metering infrastructure, sometimes referred to as AMI or "smart metering"?

◆ 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.]

|  |  |
|---|---|
| 1 | Yes |
| 2 | No |

| NEXT | IF Heating OR Cooling ⇨ D89 [Energy management program]<br>OTHERWISE ⇨ E1 [Section E Routing] |
|---|---|

| D89 | Energy management plan | ENRGYPLN |
|---|---|---|

| ASK | IF Heating OR Cooling |
|---|---|

Does this building have a formal energy management plan in which energy targets are set and consistently monitored?

|  |  |
|---|---|
| 1 | Yes |
| 2 | No |

| NEXT | ➜ E1 [Section E Routing] |
|---|---|

## SECTION E. <u>MISCELLANEOUS EQUIPMENT</u>

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

| E2 | Type of food area | *FDRM* |
|---|---|---|
| **ASK** | IF Cooking AND Establishment activity ≠ Food service | |

SHOW CARD E1

Now I have some questions about uses of space and equipment in this establishment.

Please look at Show Card E1 and tell me which of these types of food preparation or serving areas are found in this establishment.

◆　　PROBE for any others

◆　ENTER all that apply

| | | |
|---|---|---|
| 1 | Snack bar or concession stand | *SNACK* |
| 2 | Fast food or small restaurant | *FASTFD* |
| 3 | Cafeteria or large restaurant | *CAF* |
| 4 | Large kitchen, commercial kitchen, or other large food preparation area | *FDPREP* |
| 5 | Small kitchen area | *KITCHN* |
| 6 | Employee lounge, breakroom, or pantry | *PANTRY* |
| 7 | Some other type of food preparation area | *OTFDRM* |
| 8 | IF VOLUNTEERED: None of these food preparation areas | |

| | |
|---|---|
| **NEXT** | IF ONLY Employee lounge/breakroom/pantry selected ➔ E3 [Cooking in break room]<br>IF Some other type ➔ E4 [Other food area]<br>OTHERWISE:<br>　IF Water heating ⇨ E5 [Large amounts of hot water]<br>　IF Establishment activity = Medical/Dental ⇨ E6 [Medical equipment]<br>　IF Establishment activity = Retail shop OR Office/Financial OR Other ⇨ E11 [Laboratory equipment]<br>　OTHERWISE:<br>　　IF Electricity NOT used & D77 [Energy for generation] ≠ Yes ➔ E13 [Verify no electricity]<br>　　OTHERWISE ⇨ E14 [Refrigeration] |

| E3 | **Cooking in break room** | *COOKBRK* |
|---|---|---|

| **ASK** | IF ONLY Employee lounge/breakroom/pantry selected IN E2 [Type of food area] |
|---|---|

Does this employee lounge or break room contain a full-size oven or stove for cooking?

    1    Yes
    2    No

| **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] |
|---|---|

Please describe this other type of food preparation or serving area.

◆  RECORD in open box

| **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 | HWTRM |
|---|---|---|
| **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 | MEDEQP |
|---|---|---|
| **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 | XRAYN |
|---|---|---|
| **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 | CTSCANN |
|---|---|---|
| **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 | MRIN |
|---|---|---|
| **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 | LINACCN |
|---|---|---|
| **ASK** | IF E6 [Medical equipment] = Yes | |
| How many linear accelerators are used in this establishment?<br><br>◆ DEF: [A linear accelerator is used for external beam adiation treatments for patients with cancer.] | | |
| **RANGE** | 0 to 999 | |
| **NEXT** | ⇨ E11 [Laboratory equipment] | |

| E11 | Laboratory equipment | LABEQP |
|-----|----------------------|--------|

| ASK | IF Any energy used & Establishment activity = Retail shop; Office/Financial; Medical/Dental; OR Other |
|-----|----|

Does this establishment have any specialized laboratory equipment that requires extra energy consumption?

◆ EXP: [Some examples are fume hoods, gas chromatographs,
centrifuges, spectrometers, and analysis equipment.]

1 Yes
2 No

| NEXT | IF Establishment activity = Retail shop OR Other ⇨ E12 [Machine equipment]<br>OTHERWISE:<br>    IF Electricity NOT used & D77 [Energy for generation] ≠ Yes ➔ E13 [Verify no electricity]<br>    OTHERWISE ⇨ E14 [Refrigeration] |
|------|----|


| E12 | Machine equipment | MCHEQP |
|-----|-------------------|--------|

| ASK | IF Any energy used & Establishment activity = Retail shop OR Other |
|-----|----|

Does this establishment have any machine or shop equipment such as woodworking tools, metalworking tools, arc welders, or any other types of power tools?

1 Yes
2 No

| NEXT | IF Electricity NOT used & D77 [Energy for generation] ≠ Yes ➔ E13 [Verify no electricity]<br>OTHERWISE ⇨ E14 [Refrigeration] |
|------|----|


| E13 | Verify no electricity | NOELEC |
|-----|-----------------------|--------|

| ASK | IF Any energy used & Electricity NOT used & D77 [Energy for generation] ≠ Yes |
|-----|----|

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?

1 True, electricity is not used
2 False, electricity is used

| NEXT | IF True, electricity is not used OR DK/RF ➔ E61 [Window glass type]<br>IF False, electricity is used ➔ E14 [Refrigeration] |
|------|----|

| E14 | Refrigeration | RFGEQP |
|---|---|---|

| 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 | see below |
|---|---|---|

| ASK | IF E14 [Refrigeration] = Yes |
|---|---|

[F1]-HELP

SHOW CARD E2

Looking at Show Card E2, please tell me which types of refrigeration or freezer equipment are found in this establishment.

◆  PROBE for any others

◆  ENTER all that apply

| | | |
|---|---|---|
| 1 | Full-size residential-type refrigerators/freezers | RFGRES |
| 2 | Half-size or compact refrigerators | RFGCOMP |
| 3 | Walk-in refrigeration/freezer units | RFGWI |
| 4 | Open refrigerated/freezer cases or cabinets | RFGOP |
| 5 | Closed refrigerated/freezer cases or cabinets | RFGCL |
| 6 | Refrigerated vending machines | RFGVEN |
| 7 | Commercial ice makers | RFGICE |
| 8 | Large cold storage areas | RFGSTO |

| 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 | *RFGRSN* |
|---|---|---|
| **ASK** | IF Residential-type IN E15 [Refrigeration types] | |

How many residential-type refrigerators or freezers are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 9999 |
|---|---|
| **NEXT** | IF Compact size selected ➜ E17 [Number compact size refrigerators]<br>IF Walk-in units selected ➜ E18 [Number walk-in units]<br>IF Open cases or cabinets selected ➜ E19 [Number open cases]<br>IF Closed cases or cabinets selected ➜ E20 [Number closed cases]<br>IF Refrigerated vending machines selected ➜ E21 [Number vending]<br>IF Commercial ice makers selected ➜ E22 [Number ice makers]<br>IF Large cold storage areas selected ➜ E23 [Percent cold storage]<br>OTHERWISE:<br>   IF Establishment activity = Food sales ➜ E24 [Waste heat recovery]<br>   IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>      ➜ E51 [Vacant estab lit]<br>   OTHERWISE ➜ E27 [Computers used] |


| E17 | Number compact size refrigerators | *RFGRSN* |
|---|---|---|
| **ASK** | IF Compact size IN E15 [Refrigeration types] | |

How many residential-type refrigerators or freezers are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 9999 |
|---|---|
| **NEXT** | IF Walk-in units selected ➜ E18 [Number walk-in units]<br>IF Open cases or cabinets selected ➜ E19 [Number open cases]<br>IF Closed cases or cabinets selected ➜ E20 [Number closed cases]<br>IF Refrigerated vending machines selected ➜ E21 [Number vending]<br>IF Commercial ice makers selected ➜ E22 [Number ice makers]<br>IF Large cold storage areas selected ➜ E23 [Percent cold storage]<br>OTHERWISE:<br>   IF Establishment activity = Food sales ➜ E24 [Waste heat recovery]<br>   IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>      ➜ E51 [Vacant estab lit]<br>   OTHERWISE ➜ E27 [Computers used] |

| E18 | Number walk-in units | RFGWIN |
|---|---|---|
| **ASK** | IF Walk-in units IN E15 [Refrigeration types] | |

How many walk-in refrigeration or freezer units are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF Open cases or cabinets selected ➔ E19 [Number open cases]<br>IF Closed cases or cabinets selected ➔ E20 [Number closed cases]<br>IF Refrigerated vending machines selected ➔ E21 [Number vending]<br>IF Commercial ice makers selected ➔ E22 [Number ice makers]<br>IF Large cold storage areas selected ➔ E23 [Percent cold storage]<br>OTHERWISE:<br>   IF Establishment activity = Food sales ➔ E24 [Waste heat recovery]<br>   IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>      ➔ E51 [Vacant estab lit]<br>   OTHERWISE ➔ E27 [Computers used] |

| E19 | Number open cases | RFGOPN |
|---|---|---|
| **ASK** | IF Open cases or cabinets IN E15 [Refrigeration types] | |

How many open refrigerated or freezer cases or cabinets are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF Closed cases or cabinets selected ➔ E20 [Number closed cases]<br>IF Refrigerated vending machines selected ➔ E21 [Number vending]<br>IF Commercial ice makers selected ➔ E22 [Number ice makers]<br>IF Large cold storage areas selected ➔ E23 [Percent cold storage]<br>OTHERWISE:<br>   IF Establishment activity = Food sales ➔ E24 [Waste heat recovery]<br>   IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>      ➔ E51 [Vacant estab lit]<br>   OTHERWISE ➔ E27 [Computers used] |

| E20 | Number closed cases | RFGCLN |
|---|---|---|

| **ASK** | IF Closed cases or cabinets IN E15 [Refrigeration types] |
|---|---|

How many closed refrigerated or freezer cases or cabinets are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF Refrigerated vending machines selected ➔ E21 [Number vending]<br>IF Commercial ice makers selected ➔ E22 [Number ice makers]<br>IF Large cold storage areas selected ➔ E23 [Percent cold storage]<br>OTHERWISE:<br>    IF Establishment activity = Food sales ➔ E24 [Waste heat recovery]<br>    IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>       ➔ E51 [Vacant estab lit]<br>    OTHERWISE ➔ E27 [Computers used] |

<br>

| E21 | Number vending | RFGVNN |
|---|---|---|

| **ASK** | IF Refrigerated vending machines IN E15 [Refrigeration types] |
|---|---|

How many refrigerated vending machines are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF Commercial ice makers selected ➔ E22 [Number ice makers]<br>IF Large cold storage areas selected ➔ E23 [Percent cold storage]<br>OTHERWISE:<br>    IF Establishment activity = Food sales ➔ E24 [Waste heat recovery]<br>    IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>       ➔ E51 [Vacant estab lit]<br>    OTHERWISE ➔ E27 [Computers used] |

<br>

| E22 | Number ice makers | RFGICN |
|---|---|---|

| **ASK** | IF Commercial ice makers IN E15 [Refrigeration types] |
|---|---|

How many commercial ice makers are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF Large cold storage areas selected ➔ E23 [Percent cold storage]<br>OTHERWISE:<br>    IF Establishment activity = Food sales ➔ E24 [Waste heat recovery]<br>    IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>       ➔ E51 [Vacant estab lit]<br>    OTHERWISE ➔ E27 [Computers used] |

<br>

| E23 | Percent cold storage | RFGSTN |
|---|---|---|

| ASK | IF Large cold storage areas IN E15 [Refrigeration types] |
|---|---|

About what percent of the total floorspace in the establishment is used for cold storage?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 100 |
|---|---|
| **NEXT** | IF Establishment activity = Food sales ➔ E24 [Waste heat recovery]<br>IF Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes<br>   ➔ E51 [Vacant estab lit]<br>OTHERWISE ➔ E27 [Computers used] |

| E24 | **Waste heat recovery** | *WHRECOV* |
|---|---|---|
| **ASK** | IF E14 [Refrigeration] = Yes & Establishment activity = Food sales | |

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?

     1    Yes
     2    No

| **NEXT** | IF Yes ➔ E25 [Waste heat use] <br> IF No OR DK/RF ➔ E27 [Computers used] |
|---|---|

| E25 | **Waste heat use** | *WHUSE* |
|---|---|---|
| **ASK** | IF E24 [Waste heat recovery] = Yes | |

What is the waste heat used for - space heating, water heating, or some other use?

◆  ENTER all that apply

     1    Space heating
     1    Water heating
     2    Some other use

| **NEXT** | IF Some other use ➔ E26 [Other waste heat use] <br> OTHERWISE ➔ E27 [Computers used] |
|---|---|

| E26 | **Other waste heat use** |
|---|---|
| **ASK** | IF E25 [Waste heat use] = Some other use |

What is the other use for the waste heat?

◆  RECORD in open box

| **NEXT** | ➔ E27 [Computers used] |
|---|---|

| E27 | Computers used | PCTERM |
|---|---|---|

| ASK | IF Electricity used OR D77 [Energy for generation] = Yes<br>OR E13 [Verify no electricity] = False, electricity is used<br>& NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes) |
|---|---|

Are there any computers used in this establishment?

◆ EXP: [Even if only laptops are used, answer Yes.]

◆ EXP: [Do not include tablet computers or inventory,
    such as in retail stores.]

     1   Yes
     2   No

| NEXT | IF Yes ➔ E28 [Number of computers]<br>IF No OR DK/RF ➔ E38 [Dedicated servers] |
|---|---|


| E28 | Number of computers | PCNUM |
|---|---|---|

| ASK | IF E27 [Computers used] = Yes |
|---|---|

Not counting any dedicated servers or laptop computers, about how many computers are used in this establishment?

◆ 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]<br>IF > Zero ➔ E30 [Multiple monitors]<br>IF Zero ➔ E34 [Number of laptops] |

| E29 | Computers category | PCTRMC |
|---|---|---|
| **ASK** | IF E28 [Number of computers] = DK/RF | |

⬜SHOW CARD E3

Looking at Show Card E3, which category best describes the number of computers used in this establishment?

     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 | MLTMON |
|---|---|---|
| **ASK** | IF E28 [Number of computers] > Zero | |
| **FILL** | **{Computers}**<br>IF E28 [Number of computers] = One = Does the computer<br>OTHERWISE = Do any of the computers | |

{Computers} use more than one monitor?

     1    Yes
     2    No

| **NEXT** | IF Yes & E28 [Number of computers] ≠ One ➔ E31 [Multiple monitor category]<br>OTHERWISE ➔ E32 [Flat screen] |
|---|---|

| E31 | Multiple monitor category | MLTMNC |
|---|---|---|
| **ASK** | IF E30 [Multiple monitors] = Yes & E28 [Number of computers] ≠ One | |

Would you say that multiple monitors are used with all of the computers, most of them, some of them, or just a few?

     1    All
     2    Most
     3    Some
     4    A few

| **NEXT** | ➔ E33 [Flat screen category] |
|---|---|

| E32 | Flat screen | _FLATG1PC_ |
|---|---|---|

| **ASK** | IF E28 [Number of computers] = One |
|---|---|

| **FILL** | **{FlatQuestion}**<br>IF E30 [Multiple monitors] = Yes = Are any of the monitors of this type?<br>IF E30 [Multiple monitors] ≠ Yes = Does the computer have this type of monitor? |
|---|---|

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 | _FLATG1PC_ |
|---|---|---|

| **ASK** | IF E28 [Number of computers] ≠ One |
|---|---|

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 | *LAPTPN* |
|---|---|---|
| **ASK** | IF E27 [Computers used] = Yes | |

About how many laptop computers are used in this establishment?

◆ EXP: [Do not include tablet computers or inventory,
    such as in retail stores.]

| **RANGE** | 0 to 9,999,999 |
|---|---|
| **NEXT** | IF DK/RF ➔ E35 [Laptops category]<br>IF Number given ➔ E36 [Number of printers] |

| E35 | Laptops category | *LAPTPC* |
|---|---|---|
| **ASK** | IF E34 [Number of laptops] = DK/RF | |

SHOW CARD E3

Looking at Show Card E3, which category best describes the number of laptop computers used in this establishment?

| | |
|---|---|
| 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** | ➔ E36 [Number of printers] |
|---|---|

| E36 | Number of printers | *PRNTRN* |
|---|---|---|
| **ASK** | IF E27 [Computers used] = Yes | |

About how many printers are there in this establishment?

◆ PROBE for estimate if DK

| **RANGE** | 0 to 9,999,999 |
|---|---|
| **NEXT** | IF ≥ 1 ➔ E37 [Type of printers]<br>IF Zero OR DK/RF ➔ E38 [Dedicated servers] |

| E37 | Type of printers | *PRNTYP* |
|---|---|---|
| **ASK** | IF E36 [Number of printers] ≥ 1 | |
| **FILL** | **{IsAre}**<br>IF E36 [Number of printers] = 1 = Is this an<br>IF E36 [Number of printers] > 1 = Are these mainly<br>**{Printers}**<br>IF E36 [Number of printers] = 1 = printer<br>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 | *SERVER* |
|---|---|---|
| **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]<br>IF No OR DK/RF ➔ E41 [Separate computer areas] |
|---|---|

| E39 | Number of servers | *SRVNUM* |
|---|---|---|
| **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]<br>IF Number given ➔ E41 [Separate computer areas] |

| E40 | Servers category | SRVRC |
|---|---|---|

**ASK** | IF E39 [Number of servers] = DK/RF

SHOW CARD E3

Looking at Show Card E3, which category best describes the number of servers used in this establishment?

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 | see below |
|---|---|---|

**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)

SHOW CARD E5

Please look at Show Card E5 and tell me if any of these types of separate computer areas are found in this establishment.

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Data center or server farm | *DATACNTR* |
| 2 | Computer-based training room | *TRNGRM* |
| 3 | Student or public computer center | *STDNRM* |
| 4 | Trading floor | *TRDFLR* |
| 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** | *WBOARDS* |
|---|---|---|

| **ASK** | IF E27 [Computers used] = Yes AND Establishment activity = Office OR Education/Child care |
|---|---|

Are there any interactive whiteboards that connect to a computer and projector?

◆ 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.]

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ E43 [Number of interactive whiteboards]<br>IF No OR DK/RF ➔ E44 [TV or video displays] |
|---|---|


| E43 | **Number of interactive whiteboards** | *NWBOARDS* |
|---|---|---|

| **ASK** | IF E42 [Interactive whiteboards] = Yes |
|---|---|

How many interactive whiteboards are used in this establishment?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | ➔ E44 [TV or video displays] |


| E44 | **TV or video displays** | *TVVIDEO* |
|---|---|---|

| **ASK** | IF Electricity used OR D77 [Energy for generation] = Yes<br>   OR E13 [Verify no electricity] = False, electricity is used<br>    & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes) |
|---|---|

Are there any televisions or video displays, other than computer monitors?

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ E45 [Number of TV or video displays]<br>IF No OR DK/RF ➔ E46 [Cash registers] |
|---|---|

| E45 | Number of TV or video displays | TVVIDEON |
|---|---|---|
| **ASK** | IF E44 [TV or video displays] = Yes | |

How many televisions or video displays are used in this establishment?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 9999 |
|---|---|
| **NEXT** | ➔ E46 [Cash registers] |


| E46 | Cash registers | RGSTR |
|---|---|---|
| **ASK** | IF Electricity used OR D77 [Energy for generation] = Yes<br>  OR E13 [Verify no electricity] = False, electricity is used<br>   & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes) | |

Are there any cash registers or "point-of-sales" terminals used in this establishment?

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ E47 [Number of cash registers]<br>IF No OR DK/RF ➔ E48 [Photocopiers] |
|---|---|


| E47 | Number of cash registers | RGSTRN |
|---|---|---|
| **ASK** | IF E46 [Cash registers] = Yes | |

About how many cash registers or "point-of-sales" terminals are used in this establishment?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 9,999 |
|---|---|
| **NEXT** | ➔ E48 [Photocopiers] |


| E48 | Photocopiers | COPIER |
|---|---|---|
| **ASK** | IF Electricity used OR D77 [Energy for generation] = Yes<br>  OR E13 [Verify no electricity] = False, electricity is used<br>   & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes) | |

Are there any photocopiers, other than small desktop copiers, used in this establishment?

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ E49 [Number of photocopiers]<br>IF No OR DK/RF ➔ E50 [FAX machines] |
|---|---|

| E49 | Number of photocopiers | COPRN |
|---|---|---|

| **ASK** | IF E48 [Photocopiers] = Yes |
|---|---|

About how many photocopiers are there?

◆ PROBE for estimate if DK

| **RANGE** | 1 to 9,999 |
|---|---|
| **NEXT** | ➔ E50 [FAX machines] |


| **E50** | **FAX machines** | *FAX* |
|---|---|---|

| **ASK** | IF Electricity used OR D77 [Energy for generation] = Yes<br>   OR E13 [Verify no electricity] = False, electricity is used<br>      & NOT(Establishment activity = Vacant & C1 [Occupied/vacant all 2012] = Yes) |
|---|---|

Are there any FAX machines used in this establishment?

    1 Yes
    2 No

| **NEXT** | IF Establishment activity = Vacant ➔ E51 [Vacant estab lit]<br>OTHERWISE ⇨ E52 [Percent lit when open] |
|---|---|


| **E51** | **Vacant estab lit** | *VCTLIT* |
|---|---|---|

| **ASK** | IF Electricity used OR D77 [Energy for generation] = Yes OR<br>   E13 [Verify no electricity] = False, electricity is used<br>      & Establishment activity = Vacant |
|---|---|

Is this establishment lit at all during a normal 24-hour day?

◆ EXP: [Do not consider outside lighting in this response.]

    1 Yes
    2 No

| **NEXT** | IF Yes ➔ E54 [Percent lit off hours]<br>OTHERWISE ➔ E61 [Window glass type] |
|---|---|

| E52 | Percent lit when open | LTOHRP |
|---|---|---|

| ASK | IF Electricity used OR D77 [Energy for generation] = Yes OR<br>    E13 [Verify no electricity] = False, electricity is used<br>    & Establishment activity ≠ Vacant |
|---|---|

| FILL | **{SqFt}**<br>IF A2 [Square footage] known = "A2 [Square footage] square feet"<br>IF  A2 [Square footage] = DK/RF = "square footage" |
|---|---|

[F1]-HELP

The next questions are about the lighting inside the establishment.

What percent of the {SqFt} in this establishment is lit when the establishment is normally open?

◆ 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]<br>IF 1-100 & (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR<br>    C13 [Weekly hours category]) = 168 ➜ E56 [Lighting types]<br>IF Zero & (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR<br>    C13 [Weekly hours category]) = 168 ➜ E61 [Window glass type]<br>OTHERWISE ➜ E54 [Percent lit off hours] |
|---|---|


| E53 | Lit when open category | LOHRPC |
|---|---|---|

| ASK | IF E52 [Percent lit when open] = DK/RF |
|---|---|

[F1]-HELP

⬜SHOW CARD E6

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?

    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<br>    OR C12 [Total hours open per week] = 168 OR C13 [Weekly hours category]) = 168)<br>        ➜ E56 [Lighting types]<br>IF Not lit & (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168 OR<br>    C13 [Weekly hours category]) = 168 ➜ E61 [Window glass type]<br>OTHERWISE ➜ E54 [Percent lit off hours] |
|---|---|

| E54 | Percent lit off hours | *LTNHRP* |
|---|---|---|

| **ASK** | IF Electricity used OR D77 [Energy for generation] = Yes OR<br>E13 [Verify no electricity] = False, electricity is used<br>&<br>(NOT (C8 [Open 24 hours a day] = Yes OR C12 [Total hours open per week] = 168<br>OR C13 [Weekly hours category]))<br>OR<br>(Establishment activity = Vacant & E51 [Vacant estab lit] = Yes) |
|---|---|

| **FILL** | **{SqFt}**<br>IF A2 [Square footage] known = "A2 [Square footage] square feet"<br>IF A2 [Square footage] = DK/RF = "square footage"<br>**{OffHours}**<br>IF Establishment activity ≠ Vacant = "during off hours, that is, the hours when the establishment is not<br>    normally open"<br>IF Establishment activity = Vacant = BLANK |
|---|---|

[F1]-HELP


What percent of the {SqFt} is lit {OffHours}? Exclude the space lit by emergency lighting.

◆ 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 ➔ E55 [Lit off hours category]<br>IF 1-100 ➔ E56 [Lighting types]<br>IF Zero:<br>    IF E52 [Percent lit when open] > 0 OR E53 [Lit when open category] = Any category except Not lit<br>       ➔ E56 [Lighting types]<br>    OTHERWISE ➔ E61 [Window glass type] |
|---|---|

| E55 | Lit off hours category | *LNHRPC* |
|---|---|---|

| **ASK** | IF E54 [Percent lit off hours] = DK/RF |
|---|---|

| **FILL** | **{OffHours}**<br>IF Establishment activity ≠ Vacant = "during off hours"<br>IF Establishment activity = Vacant = BLANK |
|---|---|

[F1]-HELP

SHOW CARD E6

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]<br>IF Not lit at all:<br>    IF E52 [Percent lit when open] > 0 OR E53 [Lit when open category] ≠ Not lit ➔ E56 [Lighting types]<br>    OTHERWISE ➔ E61 [Window glass type] |
|---|---|

| E56 | Lighting types | *see below* |
|---|---|---|

| **ASK** | IF E52 [Percent lit when open] > 0 OR E53 [Lit when open category] ≠ Not lit<br>    OR E54 [Percent lit off hours] > 0 OR E55 [Lit off hours category] ≠ Not lit |
|---|---|

[F1]-HELP

SHOW CARD E7

Looking at Show Card E7, what types of lighting were used to light any of the space in this establishment?

◆ PROBE for any others

◆ ENTER all that apply

    1    Fluorescent lighting other than compact fluorescent bulbs               *FLUOR*
    2    Compact fluorescent bulbs    *CFLR*
    3    Incandescent light bulbs, other than halogen bulbs    *BULB*
    4    Halogen bulbs    *HALO*
    5    High intensity discharge (HID) lights such as high pressure sodium,
        metal halide or mercury vapor    *HID*
    6    Light-emitting diode (LED) lights    *LED*
    7    Other type of lighting    *OTLT*

| **NEXT** | IF Other type of lighting selected ➜ E57 [Other bulb type]<br>OTHERWISE:<br>  IF More than one type selected ➜ E58 [Percent lit by bulb type]<br>  IF Only one type selected:<br>    IF D61 [Building automation system] = Yes ➜ E59 [BAS controls lighting]<br>    OTHERWISE ➜ E60 [Lighting controls] |
|---|---|

| E57 | Other bulb type | OTLTX |
|---|---|---|

| ASK | IF Other type of lighting IN E56 [Lighting types] |
|---|---|

What type of bulb is the other type of lighting?

◆ RECORD in space below

| NEXT | IF More than one type selected in E56 [Lighting types] ➜ E58 [Percent lit by bulb type]<br>IF Only one type selected in E56 [Lighting types]<br> IF D61 [Building automation system] = Yes ➜ E59 [BAS controls lighting]<br> OTHERWISE ➜ E60 [Lighting controls] |
|---|---|


| E58 | Percent lit by bulb type | FLUORP, CFLRP, BULBP, HALOP, HIDP, LEDP, OTLTP |
|---|---|---|

| ASK | For each lighting type given in E56 [Lighting types] |
|---|---|
| FILL | **{Introduction}**<br>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: "<br>OTHERWISE = BLANK<br>**{Explanation}**<br>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."<br>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."<br>OTHERWISE = BLANK<br>**{BulbType}**<br>IF Fluorescent IN E56 [Lighting types] = "fluorescent lighting"<br>IF Compact fluorescent bulbs IN E56 [Lighting types] = "compact fluorescent bulbs"<br>IF Incandescent light bulbs IN E56 [Lighting types] = "incandescent bulbs"<br>IF Halogen bulbs IN E56 [Lighting types] = "halogen lighting"<br>IF High intensity discharge (HID) lights IN E56 [Lighting types] = "high intensity discharge lights"<br>IF Light-emitting diode (LED) lights IN E56 [Lighting types] = "LED lights"<br>IF Other type of lighting IN E56 [Lighting types] = "other lighting type" |

SHOW CARD E8

{Introduction}

{Explanation}

Please look at Show Card E8. What percent of the lighted area in this establishment is lit by the {BulbType}?

◆ PROBE for estimate if DK

| RANGE | 0 to 100 |
|---|---|
| NEXT | D61 [Building automation system] = Yes ➜ E59 [BAS controls lighting]<br>OTHERWISE ➜ E60 [Lighting controls] |

| E59 | **BAS controls lighting** | *EMCSLT* |
|------|---------------------------|----------|

| **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?

    1    Yes
    2    No

| **NEXT** | ➔ E60 [Lighting controls] |
|----------|---------------------------|


| E60 | **Lighting controls** | *see below* |
|------|-----------------------|-------------|

| **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) |
|---------|---|

SHOW CARD E9

Looking at Show Card E9, please tell me which of these lighting controls, if any, are used in this establishment.

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Scheduling | *SCHED* |
| 2 | Occupancy sensors that reduce lighting when rooms are unoccupied | *OCSN* |
| 3 | Multi-level lighting or dimming | *DIM* |
| 4 | Daylight harvesting | *DAYHARV* |
| 5 | High end trimming or tuning | *TRIM* |
| 6 | Personal light control | *PRSCTRL* |
| 7 | Plug-load control | *PLGCTRL* |
| 8 | Demand responsive lighting | *DRLGHT* |
| 9 | None of these | |

| **NEXT** | ➔ E61 [Window glass type] |
|----------|---------------------------|

| E61 | **Window glass type** | *WINTYP* |
|---|---|---|

| **ASK** | All Establishments |
|---|---|

SHOW CARD E10

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?

    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]<br>IF No windows OR DK/RF ➔ F1 [Section F Routing] |
|---|---|

| E62 | **Daylighting features** | *see below* |
|---|---|---|

| **ASK** | IF E61 [Window glass type] ≠ (No windows OR DK/RF) |
|---|---|

SHOW CARD E10

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.

◆ PROBE for any others

◆ ENTER all that apply

| | | |
|---|---|---|
| 1 | Tinted window glass | *TINT* |
| 2 | Reflective window glass | *REFL* |
| 3 | External overhangs or awnings | *AWN* |
| 4 | Skylights or atriums designed to provide light | *SKYLT* |
| 5 | IF VOLUNTEERED: None of these | |

| **NEXT** | ➔ E63 [Percent daylight] |
|---|---|

| E63 | **Percent daylight** | *DAYLTP* |
|---|---|---|

| **ASK** | IF E61 [Window glass type] ≠ (No windows OR DK/RF) |
|---|---|

What percent of the establishment receives enough outside light so that the interior lights do not need to be turned on?

◆ If none, ENTER "0"

◆ PROBE for estimate if DK

| **RANGE** | 0 to 100 |
|---|---|

| **NEXT** | ➔ F1 [Section F Routing] |
|---|---|

## SECTION F. <u>ELECTRICITY</u>

| F1 | Section F Routing |
|---|---|
| **NEXT** | IF Electricity used ➔ F2 [WS2 electricity filled out]<br>OTHERWISE ➔ G1 [Section G Routing] |

| F2 | WS2 electricity filled out | *WS2ELCE* |
|---|---|---|
| **ASK** | IF Electricity used | |

Do you have Worksheet 2 with you and filled out for electricity?

    1    Yes
    2    No

| **NEXT** | IF No OR DK/RF ➔ F3 [Provide electricity figures]<br>IF Yes ➔ F5 [Electricity consumption] |
|---|---|

| F3 | Provide electricity figures | *ELFIGS* |
|---|---|---|
| **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?

    1    Yes
    2    No

| **NEXT** | IF Yes ➔ F5 [Electricity consumption]<br>IF No OR DK/RF ➔ F4 [Electricity included in rent] |
|---|---|

| F4 | Electricity included in rent | *ELNRENT* |
|---|---|---|
| **ASK** | IF F3 [Provide electricity figures] = No OR DK/RF | |

Is the cost of the electricity used in this establishment included in the rent?

    1    Yes
    2    No

| **NEXT** | ➔ F17 [Number electricity suppliers] |
|---|---|

| F5 | **Electricity consumption** | *ELCNS* |
|---|---|---|
| **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.

◆    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** | *ELEXP* |
|---|---|---|
| **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.

◆ 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 <br>   ➔ F17 [Number electricity suppliers] <br>OTHERWISE ➔ F7 [Starting date for electricity figures] |

| F7 | **Starting date for electricity figures** | *ELSTDAT* |
|---|---|---|
| **ASK** | IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given | |

[F1]-HELP

What is the starting date for these electricity usage figures?

◆ 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** | *ELENDAT* |
|---|---|---|
| **ASK** | IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given | |

[F1]-HELP

What is the ending date [for these electricity usage figures]?

◆ ENTER date as MMDDYYYY

  ◆ VERIFY that this is the <u>last</u> day of the last billing period

◆ If the day is not known, ENTER "15" for DD

| **NEXT** | ➔ F9 [Other estabs electricity included] |
|---|---|


| F9 | **Other estabs electricity included** | *ELOTBD* |
|---|---|---|
| **ASK** | IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given | |

Is any consumption from other establishments included in these figures?

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ F10 [Sq ft of other included]<br>IF No OR DK/RF ➔ F11 [Include other major electricity] |
|---|---|

| F10 | Sq ft of other included | ELOTSF |
|---|---|---|

| ASK | IF F9 [Other estabs electricity 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 | ➔ F11 [Include other major electricity] |

<br>

| F11 | Include other major electricity | ELOTUS |
|---|---|---|

| ASK | IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given |
|---|---|

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?

    1   Yes
    2   No

| NEXT | IF Independent power producer or non-local utility OR Bought from someone else <br> IN D85 [How purchase electricity] ➔ F12 [Include all non-local electricity] <br> OTHERWISE: <br> IF F2 [WS2 electricity filled out] = Yes ➔ F14 [Monthly electricity included] <br> IF F2 [WS2 electricity filled out] = No OR DK/RF ➔ F15 [Monthly electricity available] |
|---|---|

<br>

| F12 | Include all non-local electricity | ELNONU |
|---|---|---|

| ASK | IF (F5 [Electricity consumption] given OR F6 [Electricity expenditures] given) & (Independent power <br> producer or non-local utility OR Bought from someone else IN D85 [How purchase electricity]) |
|---|---|

Do these figures include all the electricity from the independent power producer, non-local utility, or broker?

    1   Yes
    2   No

| NEXT | IF No ➔ F13 [What not included] <br> IF Yes OR DK/RF: <br>     IF F2 [WS2 electricity filled out] = Yes ➔ F14 [Monthly electricity included] <br>     IF F2 [WS2 electricity filled out] = No OR DK/RF ➔ F15 [Monthly electricity available] |
|---|---|

| F13 | What not included |
|---|---|
| **ASK** | IF F12 [Include all non-local electricity] = No |

What was not included?

◆ RECORD the additional charges in the open box

| **NEXT** | IF F2 [WS2 electricity filled out] = Yes ➔ F14 [Monthly electricity included]<br>IF F2 [WS2 electricity filled out] = No OR DK/RF ➔ F15 [Monthly electricity available] |
|---|---|


| F14 | Monthly electricity included | ELINC12 |
|---|---|---|
| **ASK** | IF (F5 [Electricity consumption] given OR F6 [Electricity expenditures] given)<br>  & F2 [WS2 electricity filled out] = Yes | |

Did you include your monthly electricity usage on Worksheet 2?

    1    Yes
    2    No

| **NEXT** | IF No OR DK/RF ➔ F15 [Monthly electricity available]<br>OTHERWISE ➔ F16 [Electricity bill available] | |
|---|---|---|


| F15 | Monthly electricity available | ELHAV12 |
|---|---|---|
| **ASK** | IF (F5 [Electricity consumption] given OR F6 [Electricity expenditures] given)<br>  & (F2 [WS2 electricity filled out] = No OR DK/RF<br>  OR F14 [Monthly electricity included] = No OR DK/RF) | |

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?

◆ 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

    1    Yes, monthly electricity available
    2    No, will not be able to provide monthly electricity

| **NEXT** | ➔ F16 [Electricity bill available] | |
|---|---|---|

| F16 | Electricity bill available | *ELBILL* |
|---|---|---|
| **ASK** | IF F5 [Electricity consumption] given OR F6 [Electricity expenditures] given | |

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.

◆ 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** | ➔ G1 [Section G Routing] |
|---|---|

<br>

| F17 | Number electricity suppliers | *ELNUMSP* |
|---|---|---|
| **ASK** | IF F3 [Provide electricity figures]  = No OR DK/RF<br>　　OR<br>　　F5 [Electricity consumption] = DK/RF & F6 [Electricity expenditures] = DK/RF | |

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.

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?

| **RANGE** | 1 to 4 |
|---|---|
| **NEXT** | Number given ➔ F18 [Electricity suppliers]<br>DK/RF ➔ G1 [Section G Routing] |

| F18 | Electricity suppliers | EL1LKP—EL4LKP |
|---|---|---|

| **ASK** | IF F17 [Number electricity suppliers] given |
|---|---|
| **FILL** | **{FirstNext}**<br>IF Only one supplier = BLANK<br>IF First supplier given = "first"<br>OTHERWISE = "next" |

What is the name of the {FirstNext} supplier that provided electricity in calendar year 2012?

◆ 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]<br>IF Supplier found in look-up table ➔ F19 [Verify electricity supplier]<br>IF DK/RF:<br>    IF Only one supplier or last supplier ➔ G1 [Section G Routing]<br>    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 |

Just to verify, I have selected that your electricity supplier is {Supplier}. Is that correct?

◆ If No, you will be taken back to the previous screen to select again

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ F26 [Number electricity accounts]<br>IF No ➔ F18 [Electricity suppliers] |
|---|---|

| F20 | Supplier name | EL1NEW—EL4NEW |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in F18 [Electricity suppliers] | |

◆ ENTER the name of the supplier

| **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 | EL1AD1—EL4AD1 |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in F18 [Electricity suppliers] | |
| **FILL** | **{Supplier}** = "F20 [Supplier name]" | |

What is the address for {Supplier}, beginning with the street?

| **NEXT** | ➜ F22 [P.O. Box or Suite] |
|---|---|


| F22 | P.O. Box or Suite | EL1AD2—EL4AD2 |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in F18 [Electricity suppliers] | |

Is there a post office box or suite number?

◆ If not, press [ENTER]

| **NEXT** | ➜ F23 [City] |
|---|---|


| F23 | City | EL1CTY—EL4CTY |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in F18 [Electricity suppliers] | |

What is the city?

| **NEXT** | ➜ F24 [State abbreviation] |
|---|---|

| F24 | State abbreviation | EL1STA—EL4STA |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in F18 [Electricity suppliers] | |

What is the state?

◆ ENTER the two letter abbreviation

| **NEXT** | ➜ F25 [ZIP code] |
|---|---|

| F25 | ZIP code | EL1ZIP—EL4ZIP |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in F18 [Electricity suppliers] | |

And what is the ZIP code?

| **NEXT** | ➜ F26 [Number electricity accounts] |
|---|---|

| F26 | Number electricity accounts | EL1NAC—EL4NAC |
|---|---|---|
| **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] | |

How many different electricity accounts does this establishment have with {Supplier}?

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF 1 to 10 accounts ➜ F27 [Electricity account number]<br>IF More than 10 accounts OR DK/RF ⇨ F32 [Electricity bill available] |

| F27 | Electricity account number | EL1AC1—EL4AC10 |
|---|---|---|
| **ASK** | IF F26 [Number electricity accounts] = 1 to 10<br>Ask as many times as account numbers given, or until DK/RF | |
| **FILL** | **{FirstNext}**<br>IF Only one account = BLANK<br>IF First account given = "first"<br>OTHERWISE = "next"<br>**{Supplier}** = Supplier name from F18 [Electricity suppliers] look-up table OR F20 [Supplier name] | |

Please give me the {FirstNext} electricity account number for {Supplier}.

◆ VERIFY number <u>digit by digit</u>

| **NEXT** | IF Independent power producer or non-local utility OR Bought from someone else<br>    IN D85 [How purchase electricity] ➜ F28 [Supplier is non-local utility]<br>OTHERWISE ➜ F29 [Bills cover only establishment] |
|---|---|

| F28 | Supplier is non-local utility | EL1NONU—EL4NONU |
|---|---|---|
| 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] | |

You mentioned earlier that you purchase electricity from an independent power producer, non-local utility, or broker. Is {Supplier} one of those companies?

     1    Yes
     2    No

| NEXT | ➜ F29 [Bills cover only establishment] |
|---|---|

| F29 | Bills cover only establishment | EL1OTB—EL4OTB |
|---|---|---|
| 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] | |

{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 ➜ F30 [Sq ft of others included] IF Just this establishment OR DK/RF ➜ F31 [Include other major electricity] |
|---|---|

| F30 | Sq ft of others included | EL1OTS—EL4OTS |
|---|---|---|
| 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" | |

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 | ➜ F31 [Include other major electricity] |

| F31 | Include other major electricity | EL1OTU—EL4OTU |
|------|------|------|
| **ASK** | IF Supplier found in F18 [Electricity suppliers] look-up table OR F20 [Supplier name] given | |
| **FILL** | **{Bills}**<br>IF Only one account = "Does the bill or statement"<br>IF 2 to 10 accounts = "Do the bills or statements" | |

{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?

     1   Yes
     2   No

| **NEXT** | ➔ F32 [Electricity bill available] |
|------|------|

<br>

| F32 | Electricity bill available | EL1BILL—EL4BILL |
|------|------|------|
| **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] | |

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.

◆ 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

     1   Yes, bill available
     2   No, will not be able to provide bill

| **NEXT** | IF More suppliers left to answer for ➔ Back to F18 [Electricity suppliers] for next supplier<br>OTHERWISE ➔ G1 [Section G Routing] |
|------|------|

## SECTION G. <u>NATURAL GAS</u>

| G1 | Section G Routing |
|---|---|
| **NEXT** | IF Natural gas used ➔ G2 [WS2 natural gas filled out]<br>OTHERWISE ➔ H1 [Section H Routing] |

| G2 | **WS2 natural gas filled out** | *WS2NGCE* |
|---|---|---|
| **ASK** | IF Natural gas used | |
| Do you have Worksheet 2 with you and filled out for natural gas?<br><br>    1   Yes<br>    2   No | | |
| **NEXT** | IF No OR DK/RF ➔ G3 [Provide natural gas figures]<br>IF Yes ➔ G5 [Units for natural gas] | |

| G3 | **Provide natural gas figures** | *NGFIGS* |
|---|---|---|
| **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?<br><br>    1   Yes<br>    2   No | | |
| **NEXT** | IF Yes ➔ G5 [Units for natural gas]<br>IF No OR DK/RF ➔ G4 [Natural gas included in rent] | |

| G4 | **Natural gas included in rent** | *NGNRENT* |
|---|---|---|
| **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?<br><br>    1   Yes<br>    2   No | | |
| **NEXT** | ➔ G19 [Number natural gas suppliers] | |

| G5 | **Units for natural gas** | *NGUNIT* |
|---|---|---|

| ASK | IF G2 [WS2 natural gas filled out] = Yes OR G3 [Provide natural gas figures] = Yes |
|---|---|

SHOW CARD G1

Please look at Show Card G1 and tell me the units in which your natural gas is measured.

     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] <br> IF Anything else OR DK/RF ➔ G7 [Natural gas consumption] |
|---|---|

<br>

| G6 | **Other natural gas units** | *NGUNITX* |
|---|---|---|
| **ASK** | IF G5 [Units for natural gas] = Some other unit | |

What are the other units?

| NEXT | ➔ G7 [Natural gas consumption] |
|---|---|

<br>

| G7 | **Natural gas consumption** | *NGCNS* |
|---|---|---|
| **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.

◆    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] |

<br>

| G8 | **Natural gas expenditures** | *NGEXP* |
|---|---|---|
| **ASK** | IF G2 [WS2 natural gas filled out] = Yes OR G3 [Provide natural gas figures] = Yes | |
| | | |

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 <br> ➔ G19 [Number natural gas suppliers] <br> OTHERWISE ➔ G9 [Starting date for natural gas figures] |

<br>

| G9 | **Starting date for natural gas figures** | *NGSTDAT* |
|---|---|---|
| **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?

◆ ENTER date as MMDDYYYY

◆ If the day is not known, ENTER "15" for DD

| **NEXT** | ⇨ G10 [Ending date for natural gas figures] |
|---|---|

<br>

| G10 | **Ending date for natural gas figures** | *NGENDAT* |
|---|---|---|
| **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]?

◆ ENTER date as MMDDYYYY
☐
  ◆ VERIFY that this is the last 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 | NGOTBD |
|------|------|------|
| **ASK** | IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given | |

Is any consumption from other establishments included in these figures?

    1    Yes
    2    No

| **NEXT** | IF Yes ➔ G12 [Sq ft of other included]<br>IF No OR DK/RF ➔ G13 [Include other major natural gas] |
|------|------|


| G12 | Sq ft of other included | NGOTSF |
|------|------|------|
| **ASK** | IF G11 [Other estabs natural gas 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** | ⇨ G13 [Include other major natural gas] |


| G13 | Include other major natural gas | NGOTUS |
|------|------|------|
| **ASK** | IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given | |

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?

    1    Yes
    2    No

| **NEXT** | IF D87 [How purchase natural gas] = Bought from someone else OR Bought both ways<br>    ➔ G14 [Include all non-local natural gas]<br>OTHERWISE:<br>    IF G2 [WS2 natural gas filled out] = Yes ➔ G16 [Monthly natural gas included]<br>    IF G2 [WS2 natural gas filled out] = No OR DK/RF ➔ G17 [Monthly natural gas available] |
|------|------|

| G14 | Include all non-local natural gas | NGNONU |
|---|---|---|
| **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] <br> OTHERWISE: <br>     IF G2 [WS2 natural gas filled out] = Yes ➔ G16 [Monthly natural gas included] <br>     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] <br> IF G2 [WS2 natural gas filled out] = No OR DK/RF ➔ G17 [Monthly natural gas available] |
|---|---|


| G16 | Monthly natural gas included | NGINC12 |
|---|---|---|
| **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] <br> OTHERWISE ➔ G18 [Natural gas bill available] |
|---|---|

| G17 | Monthly natural gas available | NGHAV12 |
|---|---|---|

| 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) |
|---|---|

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?

◆ 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

    1    Yes, monthly natural gas available
    2    No, will not be able to provide monthly natural gas

| NEXT | ➔ G18 [Natural gas bill available] |
|---|---|


| G18 | Natural gas bill available | NGBILL |
|---|---|---|

| ASK | IF G7 [Natural gas consumption] given OR G8 [Natural gas expenditures] given |
|---|---|

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.)

◆ 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 | ➔ H1 [Section H Routing] |
|---|---|


| G19 | Number natural gas suppliers | NGNUMSP |
|---|---|---|

| ASK | IF G3 [Provide natural gas figures] = No OR DK/RF OR G7 [Natural gas consumption] = DK/RF & G8 [Natural gas expenditures] = DK/RF |
|---|---|

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.

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?

| 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}**<br>IF Only one supplier = BLANK<br>IF First supplier given = "first"<br>OTHERWISE = "next" |

What is the name of the {FirstNext} supplier that provided natural gas in calendar year 2012?

◆ 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]<br>IF Supplier found in look-up table ➔ G21 [Verify natural gas supplier]<br>IF DK/RF:<br>   IF Only one supplier or last supplier ➔ H1 [Section H Routing]<br>   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 |

Just to verify, I have selected that your natural gas supplier is {Supplier}. Is that correct?

◆ If No, you will be taken back to the previous screen to select again

   1   Yes
   2   No

| **NEXT** | IF Yes ➔ G28 [Number natural gas accounts]<br>IF No ➔ G20 [Natural gas suppliers] |
|---|---|

| G22 | Supplier name | NG1NEW—NG4NEW |
|---|---|---|
| **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 | NG1AD1—NG4AD1 |
|---|---|---|
| **ASK** | All Establishments<br>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 | NG1AD2—NG4AD2 |
|---|---|---|
| **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 | NG1CTY9—NG4CTY |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in G20 [Natural gas suppliers] | |

What is the city?

| **NEXT** | ⇨ G26 [State abbreviation] |
|---|---|

| G26 | **State abbreviation** | *NG1STA—NG4STA* |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in G20 [Natural gas suppliers] | |

What is the state?

◆ ENTER the two letter abbreviation

| **NEXT** | ⇨ G27 [ZIP code] |
|---|---|


| G27 | **ZIP code** | *NG1ZIP—NG4ZIP* |
|---|---|---|
| **ASK** | IF NOT ON LIST selected in G20 [Natural gas suppliers] | |

And what is the ZIP code?

| **NEXT** | ⇨ G28 [Number natural gas accounts] |
|---|---|


| G28 | **Number natural gas accounts** | *NG1NAC—NG4NAC* |
|---|---|---|
| **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] | |

How many different natural gas accounts does this establishment have with {Supplier}?

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF 1 to 10 accounts ➜ G29 [Natural gas account number]<br>IF More than 10 accounts OR DK/RF ⇨ G35 [Natural gas bill available] |


| G29 | **Natural gas account number** | *NG1AC1—NG4AC10* |
|---|---|---|
| **ASK** | IF G28 [Number natural gas accounts] = 1 to 10<br>Ask as many times as account numbers given, or until DK/RF | |
| **FILL** | **{FirstNext}**<br>IF Only one account = BLANK<br>IF First account given = "first"<br>OTHERWISE = "next"<br>**{Supplier}** = Supplier name from G20 [Natural gas suppliers] look-up table OR G22 [Supplier name] | |

Please give me the {FirstNext} natural gas account number for {Supplier}.

◆ VERIFY number <u>digit by digit</u>

| **NEXT** | IF D87 [How purchase natural gas] = Bought from someone else OR Bought both ways<br>    ➜ G30 [Supplier is non-local utility]<br>OTHERWISE ➜ G31 [Bills cover only establishment] |
|---|---|

| G30 | Supplier is non-local utility | NG1NONU—NG4NONU |
|---|---|---|
| **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] | |

You mentioned earlier that you purchase natural gas from a non-utility or broker. Is {Supplier} one of those companies?

    1   Yes
    2   No

| **NEXT** | ➔ G31 [Bills cover only establishment] |
|---|---|


| G31 | Bills cover only establishment | NG1OTB—NG4OTB |
|---|---|---|
| **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] | |

{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 ➔ 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 | NG1OTS—NG4OTS |
|---|---|---|
| **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" | |

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** | ⇨ G33 [Include other major natural gas] |

| G33 | Include other major natural gas | NG1OTU—NG4OTU |
|---|---|---|
| ASK | IF Supplier found in G20 [Natural gas suppliers] look-up table OR G22 [Supplier name] given | |
| FILL | **{Bills}**<br>IF Only one account = "Does the bill or statement"<br>IF 2 to 10 accounts = "Do the bills or statements" | |

{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?

     1   Yes
     2   No

| NEXT | ➔ G34 [Natural gas bill available] |
|---|---|


| G34 | Natural gas bill available | NG1BILL—NG4BILL |
|---|---|---|
| ASK | IF (Supplier found in G20 [Natural gas suppliers] look-up table OR G23 [Supplier name given])<br>    & G18 [Natural gas bill available] NOT already asked | |
| FILL | **{Supplier}** = Supplier name from G20 [Natural gas suppliers] look-up table OR G22 [Supplier name] | |

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.)

◆ 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 G20 [Natural gas suppliers] for next supplier<br>OTHERWISE ➔ H1 [Section H Routing] |
|---|---|

# SECTION H. <u>FUEL OIL/DIESEL/KEROSENE</u>

**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]<br>OTHERWISE ➔ I1 [Section I Routing] |

| H2 | WS2 fuel oil filled out | *WS2FKCE* |
|---|---|---|
| **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}?<br><br>    1    Yes<br>    2    No | |
| **NEXT** | IF No OR DK/RF ➔ H3 [Provide fuel oil figures]<br>IF Yes ➔ H5 [Fuel oil purchases] | |

| H3 | Provide fuel oil figures | *FKFIGS* |
|---|---|---|
| **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?<br><br>    1    Yes<br>    2    No | |
| **NEXT** | IF Yes ➔ H5 [Fuel oil purchases]<br>IF No OR DK/RF ➔ H4 [Fuel oil included in rent] | |

| H4 | Fuel oil included in rent | *FKNRENT* |
|---|---|---|

| ASK | IF H3 [Provide fuel oil figures] = No |
|---|---|
| **FILL** | **{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene] |

Is the cost of the {FuelOilType} used in this establishment included in the rent?

     1    Yes
     2    No

| **NEXT** | IF D21 [Source for main heating] = Fuel oil OR D22 [Other source for main heating] = Fuel oil<br>    OR D69 [Sources for water heating] = Fuel oil OR D70 [Other water heating source] = Fuel oil<br>    OR (D78 [Sources for electricity generation] = Fuel oil<br>    & D80 [Use of generated electricity] = Whenever electricity was used)<br>    ➜ H14 [Number fuel oil suppliers]<br>    OTHERWISE ➜ I1 [Section I Routing] |

<br>

| H5 | **Fuel oil purchases** | *FKPURC* |
|---|---|---|
| **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] | |

<div align="right">

[F1]-HELP

</div>

Please give me the total number of gallons of {FuelOilType} purchased in calendar year 2012.

◆     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** | 0 to 99,999,999,999,999 |
|---|---|
| **NEXT** | ⇨ H6 [Fuel oil expenditures] |

| H6 | Fuel oil expenditures | *FKEXP* |
|---|---|---|
| **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.

◆ 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<br>⇨ H7 [Purchased before 2012]<br>IF H5 [Fuel oil purchases] = DK/RF & H6 [Fuel oil expenditures] = DK/RF<br>➜ H14 [Number fuel oil suppliers]<br>OTHERWISE ➜ H8 [Starting date for fuel oil figures] |


| H7 | Purchased before 2012 | *FKSTORD* |
|---|---|---|
| **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 | *FKSTDAT* |
|---|---|---|
| **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?

◆ 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** | *FKENDAT* |
|---|---|---|

| 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** | *FKOTBD* |
|---|---|---|

| 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]<br>IF No OR DK/RF ➔ H12 [Include other major fuel oil] |
|---|---|


| H11 | **Sq ft of other included** | *FKOTSF* |
|---|---|---|

| 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 | FKOTUS |
|---|---|---|
| **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] | |

Do these figures include charges for any <u>other</u> major {FuelOilType} usage outside the establishment, such as for kilns, welding, pumps, or motors?

     1   Yes
     2   No

| **NEXT** | ➔ H13 [Fuel oil bill available] |
|---|---|

 

| H13 | Fuel oil bill available | FKBILL |
|---|---|---|
| **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] | |

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.)

◆ 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** | ➔ I1 [Section I Routing] |
|---|---|

| H14 | Number fuel oil suppliers | FKNUMSP |
|---|---|---|

| ASK | IF D21 [Source for main heating] = Fuel oil OR D22 [Other source for main heating] = Fuel oil<br>OR D69 [Sources for water heating] = Fuel oil OR D70 [Other water heating source] = Fuel oil<br>OR (D78 [Sources for electricity generation] = Fuel oil<br>& D80 [Use of generated electricity] = Whenever electricity was used)<br>&<br>H3 [Provide fuel oil figures] = No OR DK/RF<br>OR<br>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] |

We should be able to obtain this information directly from your supplier, so I just need to collect some information about your accounts.

How many different companies supplied {FuelOilType} to this establishment during calendar year 2012?

| RANGE | 1 to 4 |
|---|---|
| NEXT | Number given ➜ H15 [Fuel oil supplier name]<br>DK/RF ➜ I1 [Section I Routing] |

<br>

| H15 | Fuel oil supplier name | FK1SUP—FK4SUP |
|---|---|---|

| ASK | IF H14 [Number fuel oil suppliers] given |
|---|---|
| FILL | {FirstNext}<br>IF Only one supplier = BLANK<br>IF First supplier given = "first"<br>OTHERWISE = "next"<br>{FuelOilType} = Type or types specified in D10 [Fuel oil, diesel, or kerosene] |

What is the name of the {FirstNext} supplier that provided {FuelOilType} during 2012?

◆ ENTER the name of the supplier

| NEXT | IF Name given ➜ H16 [Street address]<br>IF DK/RF:<br>IF Only one supplier or last supplier ➜ I1 [Section I Routing]<br>IF More suppliers left to answer for ➜ Ask H15 [Fuel oil supplier name] again for next supplier |
|---|---|

<br>

| H16 | Street address | FK1AD1—FK4AD1 |
|---|---|---|

| ASK | IF Name given in H15 [Fuel oil supplier name] |
|---|---|
| FILL | {Supplier} = H15 [Fuel oil supplier name] |

What is the address for {Supplier}, beginning with the street?

| NEXT | ⇨ H17 [P.O. Box or Suite] |
|---|---|

| H17 | P.O. Box or Suite | FK1AD2—FK4AD2 |
|---|---|---|
| **ASK** | IF Name given in H15 [Fuel oil supplier name] | |

Is there a post office box or suite number?

◆ If not, press [ENTER]

| **NEXT** | ⇨ H18 [City] |
|---|---|

| H18 | City | FK1CTY—FK4CTY |
|---|---|---|
| **ASK** | IF Name given in H15 [Fuel oil supplier name] | |

What is the city?

| **NEXT** | ⇨ H19[State abbreviation] |
|---|---|

| H19 | State abbreviation | FK1STA—FK4STA |
|---|---|---|
| **ASK** | IF Name given in H15 [Fuel oil supplier name] | |

What is the state?

◆ ENTER the two letter abbreviation

| **NEXT** | ⇨ H20 [ZIP code] |
|---|---|

| H20 | ZIP code | FK1ZIP—FK4ZIP |
|---|---|---|
| **ASK** | IF Name given in H15 [Fuel oil supplier name] | |

And what is the ZIP code?

| **NEXT** | ⇨ H21 [Number fuel oil accounts] |
|---|---|

| H21 | Number fuel oil accounts | FK1NAC—FK4NAC |
|---|---|---|
| **ASK** | IF Name given in H15 [Fuel oil supplier name] | |
| **FILL** | **{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene]<br>**{Supplier}** = H15 [Fuel oil supplier name] | |

How many different {FuelOilType} accounts does this establishment have with {Supplier}?

| **NEXT** | IF 1 to 10 accounts ➔ H22 [Fuel oil account number]<br>IF More than 10 accounts OR DK/RF ➔ H26 [Fuel oil bill available] |
|---|---|

| H22 | Fuel oil account number | FK1AC1—FK4AC10 |
|---|---|---|

| 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** | *FK1OTB—FK4OTB* |
| --- | --- | --- |
| 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?

    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** | *FK1OTS—FK4OTS* |
| --- | --- | --- |
| 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 | FK1OTU—FK4OTU |
|------|------|------|
| **ASK** | IF Name given in H15 [Fuel oil supplier name] | |
| **FILL** | **{Bills}**<br>IF Only one account = "Does the bill or statement"<br>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 | FO1BILL—FO4BILL |
|------|------|------|
| **ASK** | IF Name given in H15 [Fuel oil supplier name] | |
| **FILL** | **{FuelOilType}** = Type or types specified in D10 [Fuel oil, diesel, or kerosene]<br>**{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<br>OTHERWISE ➜ I1 [Section I Routing] |
|------|------|

## SECTION I. <u>DISTRICT STEAM</u>

| I1 | Section I Routing |
|---|---|
| **NEXT** | IF District steam used ➔ I2 [WS2 district steam filled out]<br>OTHERWISE ➔ J1 [Section J Routing] |

| I2 | **WS2 district steam filled out** | *WS2STCE* |
|---|---|---|
| **ASK** | IF District steam used | |

Do you have Worksheet 2 with you and filled out for district steam?

    1    Yes
    2    No

| **NEXT** | IF No OR DK/RF ➔ I3 [Provide district steam figures]<br>IF Yes ➔ I5 [Units for district steam] |
|---|---|

| I3 | **Provide district steam figures** | *STFIGS* |
|---|---|---|
| **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?

    1    Yes
    2    No

| **NEXT** | IF Yes ➔ I5 [Units for district steam]<br>IF No OR DK/RF ➔ I4 [District steam included in rent] |
|---|---|

| I4 | **District steam included in rent** | *STNRENT* |
|---|---|---|
| **ASK** | IF I3 [Provide district steam figures] = No | |

Is the cost of the district steam 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<br>   ➔ I14 [District steam supplier name]<br>OTHERWISE ➔ J1 [Section J Routing] |
|---|---|

| I5 | **Units for district steam** | *STUNIT* |
|---|---|---|

| ASK | IF I2 [WS2 district steam filled out] = Yes OR I3 [Provide district steam figures] = Yes |
|---|---|

SHOW CARD I1

Please look at Show Card I1 and tell me the units in which your district steam is measured.

     1    Thousand pounds
     2    Pounds
     3    Million Btu
     4    IF VOLUNTEERED: Some other unit

| NEXT | IF Some other unit ➔ I6 [Other district steam units] <br> OTHERWISE ➔ I7 [District steam consumption] |
|---|---|

<br>

| I6 | **Other district steam units** | *STUNITX* |
|---|---|---|
| ASK | IF I5 [Units for district steam] = Some other unit | |

What are the other units?

| NEXT | ⇨ I7 [District steam consumption] |
|---|---|

<br>

| I7 | **District steam consumption** | *STCNS* |
|---|---|---|
| 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.

◆    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 | STEXP |
|----|----------------------------|-------|

| 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.

◆ Do not enter cents

◆ VERIFY number digit by digit

| RANGE | 0 to 999,999,999 |
|-------|------------------|

| NEXT | IF I7 [District steam consumption] = DK/RF & I8 [District steam expenditures] = DK/RF: <br>    IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes] <br>      ➔ I14 [District steam supplier name] <br>    OTHERWISE ➔ J1 [Section J Routing] <br> OTHERWISE ➔ I9 [Starting date for district steam figures] |
|------|---------------------------------------------------------------------------------------------------------|


| I9 | Starting date for district steam figures | STSTDAT |
|----|------------------------------------------|---------|

| 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?

◆ 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 | STENDAT |
|-----|----------------------------------------|---------|

| 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]?

◆ ENTER date as MMDDYYYY

◆ VERIFY that this is the last 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 | STOTBD |
|---|---|---|
| **ASK** | IF I7 [District steam consumption] given OR I8 [District steam expenditures] given | |

Is any consumption from other establishments included in these figures?

    1   Yes
    2   No

| **NEXT** | IF Yes ➔ I12 [Sq ft of other included]<br>IF No OR DK/RF ➔ I13 [District steam bill available] |
|---|---|

<br>

| I12 | Sq ft of other included | STOTSF |
|---|---|---|
| **ASK** | IF I11 [Other estabs steam 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** | ⇨ I13 [District steam bill available] |

<br>

| I13 | District steam bill available | STBILL |
|---|---|---|
| **ASK** | IF I7 [District steam consumption] given OR I8 [District steam expenditures] given | |

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.)

  ◆  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] |
|---|---|

| I14 | District steam supplier name | STSUP |
|---|---|---|
| ASK | IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes] <br> & <br> (I3 [Provide district steam figures] = No OR DK/RF <br> OR <br> I7 [District steam consumption] = DK/RF & I8 [District steam expenditures] = DK/RF) | |

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.

What is the name of the supplier that provided district steam in calendar year 2012?

◆ ENTER the name of the supplier

| NEXT | IF Name given ➔ I15 [Street address] <br> IF DK/RF ➔ J1 [Section J Routing] |
|---|---|


| I15 | Street address | STAD1 |
|---|---|---|
| ASK | IF Name given in I14 [District steam supplier name] | |
| FILL | {Supplier} = I14 [District steam supplier name] | |

What is the address for {Supplier}, beginning with the street?

| NEXT | ⇨ I16 [P.O. Box or Suite] |
|---|---|


| I16 | P.O. Box or Suite | STAD2 |
|---|---|---|
| ASK | IF Name given in I14 [District steam supplier name] | |

Is there a post office box or suite number?

◆ If not, press [ENTER]

| NEXT | ⇨ I17 [City] |
|---|---|


| I17 | City | STCTY |
|---|---|---|
| ASK | IF Name given in I14 [District steam supplier name] | |

What is the city?

| NEXT | ⇨ I18 [State abbreviation] |
|---|---|

| I18 | State abbreviation | STSTA |
|---|---|---|
| **ASK** | IF Name given in I14 [District steam supplier name] | |

What is the state?

◆ ENTER the two letter abbreviation

| **NEXT** | ⇨ I19 [ZIP code] |
|---|---|


| I19 | ZIP code | STZIP |
|---|---|---|
| **ASK** | IF Name given in I14 [District steam supplier name] | |

And what is the ZIP code?

| **NEXT** | ⇨ I20 [Number district steam accounts] |
|---|---|


| I20 | Number district steam accounts | STNAC |
|---|---|---|
| **ASK** | IF Name given in I14 [District steam supplier name] | |
| **FILL** | **{Supplier}** = I14 [District steam supplier name] | |

How many different district steam accounts does this establishment have with {Supplier}?

| **RANGE** | 1 to 999 |
|---|---|
| **NEXT** | IF 1 to 10 accounts ➔ I21 [District steam account number]<br>IF More than 10 accounts OR DK/RF ➔ I24 [District steam bill available] |


| I21 | District steam account number | STAC1—STAC10 |
|---|---|---|
| **ASK** | IF I20 [Number district steam accounts] = 1 to 10<br>Ask as many times as account numbers given, or until DK/RF | |
| **FILL** | **{FirstNext}**<br>IF Only one account = BLANK<br>IF First account given = "first"<br>OTHERWISE = "next"<br>**{Supplier}** = I14 [District steam supplier name] | |

Please give me the {FirstNext} district steam account number for {Supplier}.

◆ VERIFY number <u>digit by digit</u>

| **NEXT** | ➔ I22 [Bills cover only establishment] |
|---|---|

| I22 | **Bills cover only establishment** | *STOTB* |
|---|---|---|

| ASK | IF Name given in I14 [District steam supplier name] |
|---|---|

| FILL | **{Bills}**<br>IF Only one account = "Does the bill or statement"<br>IF 2 to 10 accounts = "Do the bills or statements"<br>**{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]<br>IF Just this establishment OR DK/RF ⇨ I24 [District steam bill available] |
|---|---|


| I23 | **Sq ft of others included** | *STOTS* |
|---|---|---|

| ASK | IF I22 [Bills cover only establishment] = Other establishment(s) |
|---|---|

| FILL | **{Bills}**<br>IF Only one account = "bill or statement"<br>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** | *STBILL2* |
|---|---|---|

| 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. <u>DISTRICT HOT WATER</u>

| J1 | Section J Routing |
|---|---|
| **NEXT** | IF District hot water used ➔ J2 [WS2 district hot water filled out]<br>OTHERWISE ➔ K1 [Total water use] |

| J2 | WS2 district hot water filled out | *WS2HWCE* |
|---|---|---|
| **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]<br>IF Yes ➔ J5 [District hot water consumption] |
|---|---|

| J3 | Provide district hot water figures | *HWFIGS* |
|---|---|---|
| **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]<br>IF No ➔ J4 [District hot water included in rent]<br>IF DK/RF ➔ K1 [Total water use] |
|---|---|

| J4 | District hot water included in rent | *STNRENT* |
|---|---|---|
| **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]<br>   ➔ J12 [District hot water supplier name]<br>OTHERWISE ➔ K1 [Total water use] |
|---|---|

| J5 | District hot water consumption | HWCNS |
|---|---|---|

| 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.

◆    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 digit by digit

| RANGE | 1 to 99,999,999,999,999 |
|---|---|
| NEXT | ⇨ J6 [District hot water expenditures] |


| J6 | District hot water expenditures | HWEXP |
|---|---|---|

| 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.

◆  Do not enter cents

◆  VERIFY number digit by digit

| RANGE | 0 to 999,999,999 |
|---|---|
| NEXT | IF J5 [District hot water consumption] = DK/RF & J6 [District hot water expenditures] = DK/RF:<br>    IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes]<br>        ➔ J12 [District hot water supplier name]<br>    OTHERWISE ➔ K1 [Total water use]<br>OTHERWISE ➔ J7 [Starting date for district hot water figures] |

| J7 | Starting date for district hot water figures | HWSTDAT |
|---|---|---|

| 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?

◆ 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 | HWENDAT |
|---|---|---|

| 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]?

◆ ENTER date as MMDDYYYY

☐
◆ VERIFY that this is the last 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 | HWOTBD |
|---|---|---|

| 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?

    1   Yes
    2   No

| NEXT | IF Yes ➜ J10 [Sq ft of other included]<br>IF No OR DK/RF ➜ J11 [District hot water bill available] |
|---|---|

| J10 | Sq ft of other included | *HWOTSF* |
|---|---|---|
| **ASK** | IF J9 [Other estabs hot water 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** | ⇨ J11 [District hot water bill available] |


| J11 | District hot water bill available | *HWBILL* |
|---|---|---|
| **ASK** | IF J5 [District hot water consumption] given OR J6 [District hot water expenditures] given | |

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.)

◆ 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** | ➔ INTERVIEW COMPLETE |
|---|---|


| J12 | District hot water supplier name | *HWSUP* |
|---|---|---|
| **ASK** | IF D15 [From central plant] = No OR D20 [Purchase from offsite = Yes]<br>　　&<br>　　(J3 [Provide district hot water figures] = No OR DK/RF<br>　　OR<br>　　J5 [District hot water consumption] = DK/RF & J6 [District hot water expenditures] = DK/RF) | |

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.

What is the name of the supplier that provided district hot water in calendar year 2012?

◆ ENTER the name of the supplier

| **NEXT** | IF Name given ➔ J13 [Street address]<br>IF DK/RF ➔ INTERVIEW COMPLETE |
|---|---|

| J13 | Street address | STAD1 |
|---|---|---|
| **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** | HWAD2 |
|---|---|---|
| **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** | HWCTY |
|---|---|---|
| **ASK** | IF Name given in J12 [District hot water supplier name] | |
| What is the city? | | |
| **NEXT** | ➔ J16 [State abbreviation] | |

| J16 | **State abbreviation** | HWSTA |
|---|---|---|
| **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** | HWZIP |
|---|---|---|
| **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 | *HWNAC* |
|---|---|---|
| **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]<br>IF More than 10 accounts OR DK/RF ➔ J22 [District hot water bill available] | |

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

| J20 | Bills cover only establishment | *HWOTB* |
|---|---|---|
| **ASK** | IF Name given in J12 [District hot water supplier name] | |
| **FILL** | **{Bills}**<br>IF Only one account = "Does the bill or statement"<br>IF 2 to 10 accounts = "Do the bills or statements"<br>**{Supplier}** = J12 [District hot water supplier name] | |
| | {Bills} from {Supplier} cover just this establishment or are other establishments covered as well?<br><br>    1    Just this establishment<br>    2    Other establishment(s) | |
| NEXT | IF Other establishments ➔ J21 [Sq ft of others included]<br>IF Just this establishment OR DK/RF ➔ J22 [District hot water bill available] | |

| J21 | Sq ft of others included | *HWOTS* |
|---|---|---|
| **ASK** | IF J20 [Bills cover only establishment] = Other establishments | |
| **FILL** | **{Bills}**<br>IF Only one account = "bill or statement"<br>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 | *HWBILL2* |
|---|---|---|
| **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. <u>TOTAL WATER</u>

| K1 | Water used |
|---|---|
| **ASK** | All Establishments |

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.

Did this establishment use any water in 2012?

     1    Yes
     2    No

| **NEXT** | IF Yes ➔ K2 [Provide water figures]<br>IF No OR DK/RF ➔ SECTION L |
|---|---|


| K2 | Provide water figures |
|---|---|
| **ASK** | IF K1 [Water used] = Yes |

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.)

◆ 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.]

     1    Yes
     2    No
     3    IF VOLUNTEERED: No, because the water comes from a well

| **NEXT** | IF Yes ➔ K3 [Units for water]<br>IF No ➔ K2a [Water included in rent]<br>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 |

Is the cost of the water used in this establishment included in the rent?

     1    Yes
     2    No

| **NEXT** | ➔ K20 [Heard of WaterSense] |
|---|---|

| K3 | Units for water |
|---|---|
| **ASK** | IF K2 [Provide water figures] = Yes |

⬜SHOW CARD K1

Please look at Show Card K1 and tell me the units in which your water is measured.

    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]<br>OTHERWISE ➜ K5 [Total water consumption] |

<br>

| K4 | Other water units |
|---|---|
| **ASK** | IF K3 [Units for water] = Some other units |

What are the other units?

| **NEXT** | ⇨ K5 [Total water consumption] |

<br>

| K5 | Total water consumption | *WTRCNS* |
|---|---|---|
| **ASK** | IF K2 [Provide water figures] = Yes | |

[F1]-HELP

Please give me the total volume of water used in 2012.

◆    VERIFY number digit by digit

| **RANGE** | 1 to 99,999,999,999,999 |
|---|---|
| **NEXT** | IF Amount given ⇨ K6 [How water volume determined]<br>OTHERWISE ➜ K7 [Sewer flow metered] |

| K6 | How water volume determined | WTRMET |
|---|---|---|
| **ASK** | IF Amount given in K5 [Total water consumption] | |

How is the annual water volume determined? Is it metered, estimated, both metered and estimated, or measured in some other way?

     1    Metered
     2    Estimated
     3    Both metered and estimated
     4    Other

| **NEXT** | ➔ K7 [Sewer flow metered] |
|---|---|


| K7 | Sewer flow metered | SWRMET |
|---|---|---|
| **ASK** | IF Amount given in K5 [Total water consumption] | |

Is the sewer flow metered for this building?

     1    Yes
     2    No

| **NEXT** | ⇨ K13 [Starting date for water figures] |
|---|---|


| K13 | Starting date for water figures | WTSTDAT |
|---|---|---|
| **ASK** | K5 [Total water consumption] given | |

[F1]-HELP

What is the starting date for these water usage figures?

◆  ENTER date as MMDDYYYY

◆  If the day is not known, ENTER "15" for DD

| **NEXT** | ⇨ K14 [Ending date for water figures] |
|---|---|

| K14 | Ending date for water figures | WTENDAT |
|---|---|---|
| ASK | K5 [Total water consumption] given | |

[F1]-HELP

What is the ending date [for these water usage figures]?

◆ ENTER date as MMDDYYYY

☐
  ◆ VERIFY that this is the <u>last</u> day of the last billing period

◆ If the day is not known, ENTER "15" for DD

| NEXT | OTHERWISE ➔ K17 [Other estabs water included] |
|---|---|

| K17 | Other estabs water included | WTOTBD |
|---|---|---|
| ASK | IF K5 [Total water consumption] given | |

Is any water use for other establishments included in these figures?

    1   Yes
    2   No

| NEXT | IF Yes ➔ K18 [Sq ft of other included]<br>IF No OR DK/RF ➔ K19 [Water bill available] |
|---|---|

| K18 | Sq ft of other included | WTOTSF |
|---|---|---|
| ASK | IF K6c [Other estabs water 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 | ⇨ K19 [Water bill available] |

| K19 | Water bill available | *WTBILL* |
|---|---|---|
| **ASK** | IF K5 [Total water consumption] given | |

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.)

◆ 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** | ➔ K20 [Heard of WaterSense] |
|---|---|

| K20 | Heard of WaterSense | *WTRSENS* |
|---|---|---|
| **ASK** | IF K1 [Total water use] = Yes | |

Have you heard of the U.S. Environmental Protection Agency WaterSense program?

　　1　Yes
　　2　No

| **NEXT** | ➔ SECTION L |
|---|---|

## SECTION L. <u>COLLECT MATERIALS</u>

| L1 | Collect materials |
|---|---|
| **ASK** | IF WS2 was reported to be filled out for any of the energy sources<br>    OR<br>    F15 [Monthly electricity available] = Yes OR G17 [Monthly natural gas available] = Yes<br>    OR<br>    F16 [Electricity bill available]=Yes OR F32 [Electricity bill available]=Yes<br>    OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes<br>    OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes<br>    OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes<br>    OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes<br>    OR K19 [Water bill available] = Yes<br>    OR<br>    Supplier information was provided for any energy source |
| | 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.<br><br>◆ ENTER "1" to continue |
| **NEXT** | ➔ L2 [Collect Worksheet 2] |

| L2 | Collect Worksheet 2 |
|---|---|
| **ASK** | IF WS2 was reported to be filled out for any of the energy sources |
| | May I please have Worksheet 2? [This is the "Energy Amounts Used and Dollars Spent" worksheet that you filled out before this interview.]<br><br>    1   Collected WS 2<br>    2   Did not collect WS2<br>    3   Respondent will FAX, mail, or e-mail |
| **NEXT** | IF F15 [Monthly electricity available] = Yes OR G17 [Monthly natural gas available] = Yes<br>    ➔ L3 [Collect monthly records]<br>IF F16 [Electricity bill available]=Yes OR F32 [Electricity bill available]=Yes<br>    OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes<br>    OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes<br>    OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes<br>    OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes<br>    OR K19 [Water bill available] = Yes ➔ L4 [Scan energy bills]<br>IF Supplier information was provided for any energy source ➔ L5 [Who signs authorization] |

| L3 | Collect monthly records |
|---|---|
| **ASK** | IF F15 [Monthly electricity available] = Yes OR G17 [Monthly natural gas available] = Yes |
| **FILL** | **{ElectricityNaturalGas}**<br>IF15 [Monthly electricity available] = Yes & G17 [Monthly natural gas available] ≠ Yes = "electricity"<br>IF15 [Monthly electricity available] ≠ Yes & G17 [Monthly natural gas available] = Yes = "natural gas"<br>IF15 [Monthly electricity available] =Yes & G17 [Monthly natural gas available] = Yes<br>   = "electricity and natural gas" |

May I please have the monthly {ElectricityNaturalGas} records that we talked about a few minutes ago?

    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<br>   OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes<br>   OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes<br>   OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes<br>   OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes<br>   OR K19 [Water bill available] = Yes ➔ L4 [Scan energy bills]<br>IF Supplier information was provided for any energy source ➔ L5 [Who signs authorization] |

<br>

| L4 | Scan energy bills |
|---|---|
| **ASK** | IF F16 [Electricity bill available]=Yes OR F32 [Electricity bill available]=Yes<br>   OR G18 [Natural gas bill available]=Yes OR G34 [Natural gas bill available]=Yes<br>   OR H13 [Fuel oil bill available]=Yes OR H26 [Fuel oil bill available]=Yes<br>   OR I13 [District steam bill available]=Yes OR I24 [District steam bill available]=Yes<br>   OR J11 [District hot water bill available]=Yes OR J22 [District hot water bill available]=Yes<br>   OR K19 [Water bill available] = Yes |

May I please scan the energy and/or water bill(s) that we talked about a few minutes ago?

    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]<br>OTHERWISE ➔ L14 [Response effort] |

| L5 | Who signs authorization |
|---|---|
| **ASK** | IF Supplier information was provided for any energy source |

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.

Should the authorization form be signed by you or someone else?

    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] <br> 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 |

Please give me a moment to fill in the energy supplier names on this form.

◆  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

Establishment address: {Address}
City: {City}
State: {State}     ZIP code: {ZIP}
Case ID: {CaseID}

◆ ENTER "1" when finished

| **NEXT** | IF Electricity supplier information was provided ➔ L7 [Electricity suppliers] <br> IF Natural gas supplier information was provided ➔ L8 [Natural gas suppliers] <br> IF Fuel oil supplier information was provided ➔ L9 [Fuel oil suppliers] <br> IF District steam supplier information was provided ➔ L10 [District steam suppliers] <br> IF District hot water supplier information was provided ➔ L11 [District hot water suppliers] <br> OTHERWISE ➔ L12 [Authorization form signed] |
|---|---|

| L7 | Electricity suppliers |
|---|---|
| **ASK** | IF L5 [Who signs authorization form] ≠ Respondent refuses to sign or have anyone else sign<br>    & Electricity supplier information was provided |
| **FILL** | {Electricity} = "Electricity" for each supplier name that has been provided<br>{SupplierName} = Supplier names given in F18 [Electricity suppliers] OR F20 [Supplier name] |

◆   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)

Energy Source                    Supplier

Electricity                    {SupplierName}

{Electricity}                    {SupplierName}

{Electricity}                    {SupplierName}

{Electricity}                    {SupplierName}

◆  ENTER "1" when finished

| **NEXT** | IF Natural gas supplier information was provided ➜ L8 [Natural gas suppliers]<br>IF Fuel oil supplier information was provided ➜ L9 [Fuel oil suppliers]<br>IF District steam supplier information was provided ➜ L10 [District steam suppliers]<br>IF District hot water supplier information was provided ➜ L11 [District hot water suppliers]<br>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<br>    & Natural gas supplier information was provided |
| **FILL** | {Natural gas} = "Natural gas" for each supplier name that has been provided<br>{SupplierName} = Supplier names given in G20 [Natural gas suppliers] OR G22 [Supplier name] |

◆ 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)

Energy Source             Supplier

Natural gas                {SupplierName}

{Natural gas}            {SupplierName}

{Natural gas}            {SupplierName}

{Natural gas}            {SupplierName}

◆ ENTER "1" when finished

| **NEXT** | IF Fuel oil supplier information was provided ➔ L9 [Fuel oil suppliers]<br>IF District steam supplier information was provided ➔ L10 [District steam suppliers]<br>IF District hot water supplier information was provided ➔ L11 [District hot water suppliers]<br>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<br>{SupplierName} = Supplier names given in H15 [Fuel oil supplier name] |

◆   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)

| Energy Source | Supplier |
|---|---|
| Fuel oil/Diesel/Kerosene | {SupplierName} |
| {Fuel oil/Diesel/Kerosene} | {SupplierName} |
| {Fuel oil/Diesel/Kerosene} | {SupplierName} |
| {Fuel oil/Diesel/Kerosene} | {SupplierName} |

◆ ENTER "1" when finished

| | |
|---|---|
| **NEXT** | IF District steam supplier information was provided ➔ L10 [District steam suppliers]<br>IF District hot water supplier information was provided ➔ L11 [District hot water suppliers]<br>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] |

◆   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)

| Energy Source | Supplier |
|---|---|
| District steam | {SupplierName} |

◆ ENTER "1" when finished

| | |
|---|---|
| **NEXT** | IF District hot water supplier information was provided ➔ L11 [District hot water suppliers]<br>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] |

◆ 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)

Energy Source                        Supplier

District hot water                {SupplierName}

◆ ENTER "1" when finished

| **NEXT** | ➔ L12 [Authorization form signed] |
|---|---|

<br>

| L12 | Authorization form signed |
|---|---|
| **ASK** | IF L5 [Who signs authorization form] = Signed by respondent & Supplier information was provided was provided for any energy source |

◆ Give respondent the Authorization Form
    and have them record their information and
    signature in the middle portion of the form

Please fill out the rest of this information and sign this form.

    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  <br>     & Supplier information was provided was provided for any energy source |

Please give me the name, address, and telephone number of the person who should sign the authorization form.

◆ RECORD contact information on
    the Case Assignment Folder

◆ ENTER "1" when completed

| **NEXT** | ➔ L14 [Response effort] |
|---|---|


| L14 | Response effort | *REFFORT* |
|---|---|---|
| **ASK** | All Establishments | |

Including yourself, please tell me how many people were needed to compile the information for this interview.

| **RANGE** | 1 to 99 |
|---|---|
| **NEXT** | ➔ L15 [Thank you] |


| L15 | Thank you |
|---|---|
| **ASK** | All Establishments |

That completes our interview. Thank you so much for your time and help.

◆ ENTER "1", [ENTER], then [F10] to Exit

| **NEXT** | INTERVIEW COMPLETE |
|---|---|