**Cooling Capacity**

* Read SVA report
* Read System Type
* Based on “eQuest Automation System Mapping.xlsx” or below table read capacity from system level or zone level.

|  |  |
| --- | --- |
| **System Type** | **Cooling Capacity (kBtu/hr)** |
| SZRH | SVA System |
| PSZ | SVA System |
| SZCI | SVA System |
| VAVS | SVA System |
| PIU | SVA System |
| CBVAV | SVA System |
| RHFS | SVA System |
| EVAP-COOL | **NA** |
| MZS | SVA System |
| DDS | SVA System |
| PMZS | SVA System |
| FC | SVA Zone |
| IU | SVA System |
| FPH | **NA** |
| PTAC | SVA Zone |
| HP | SVA Zone |
| HVSYS | **NA** |
| PVAVS | SVA System |
| PVVT | SVA System |
| UHT | **NA** |
| UVT | **NA** |
| RESYS | SVA System |
| RESVVT | SVA System |
| SUM | **NA** |

* While reading capacity from zone level, also look for zone multiplier (Zone MULT) and multiply capacity with this.
* Add capacity for each system type

**Cooling Electric Power**

* Read SVA report
* Read System Type
* Read Cooling EIR if Cooling Coil type is DX else ignore it.

|  |  |
| --- | --- |
| **System Type** | **Cooling Coil** |
| SZRH | ChW |
| PSZ | DX |
| SZCI | ChW |
| VAVS | ChW |
| PIU | DX / ChW |
| CBVAV | ChW |
| RHFS | ChW |
| EVAP-COOL | **NA** |
| MZS | ChW |
| DDS | ChW |
| PMZS | DX |
| FC | ChW |
| IU | ChW |
| FPH | **NA** |
| PTAC | DX |
| HP | DX |
| HVSYS | **NA** |
| PVAVS | DX |
| PVVT | DX |
| UHT | **NA** |
| UVT | **NA** |
| RESYS | DX |
| RESVVT | DX |
| SUM | **NA** |

* In case of PIU if Cooling EIR is 0 then ignore it else consider it.
* Multiply capacity with EIR to calculate Cooling Electric Power for each system
* Add Electric Power for each system type

**System Cooling EIR**

* Divide each system type cooling electric power by cooling capacity to calculate system EIR.

**Air flow rate**

* Read SVA report
* Read System Type
* Based on “eQuest Automation System Mapping.xlsx” or below table read air flow rate from system level or zone level.

|  |  |  |
| --- | --- | --- |
| **System Type** | **Air flow rate (cfm)** | **Fan Power (kW)** |
| SZRH | SVA System | SVA System |
| PSZ | SVA System | SVA System |
| SZCI | SVA System | SVA System |
| VAVS | SVA System | SVA System |
| PIU | SVA System | SVA System |
| CBVAV | SVA System | SVA System |
| RHFS | SVA System | SVA System |
| EVAP-COOL | SVA System | SVA System |
| MZS | SVA System | SVA System |
| DDS | SVA System | SVA System |
| PMZS | SVA System | SVA System |
| FC | SVA Zone | SVA Zone |
| IU | SVA System | SVA System |
| FPH | **NA** | **NA** |
| PTAC | SVA Zone | SVA Zone |
| HP | SVA Zone | SVA Zone |
| HVSYS | SVA System | SVA System |
| PVAVS | SVA System | SVA System |
| PVVT | SVA System | SVA System |
| UHT | SVA Zone | SVA Zone |
| UVT | SVA Zone | SVA Zone |
| RESYS | SVA System | SVA System |
| RESVVT | SVA System | SVA System |
| SUM | **NA** | **NA** |

* While reading Air flow rate from zone level, also look for zone multiplier (Zone MULT) and multiply capacity with this.
* Add Airflow rate for each system type.

**Fan Power**

* Read SVA report
* Read System Type
* Based on “eQuest Automation System Mapping.xlsx” or below table read fan power from system level or zone level.

|  |  |  |
| --- | --- | --- |
| **System Type** | **Air flow rate (cfm)** | **Fan Power (kW)** |
| SZRH | SVA System | SVA System |
| PSZ | SVA System | SVA System |
| SZCI | SVA System | SVA System |
| VAVS | SVA System | SVA System |
| PIU | SVA System | SVA System |
| CBVAV | SVA System | SVA System |
| RHFS | SVA System | SVA System |
| EVAP-COOL | SVA System | SVA System |
| MZS | SVA System | SVA System |
| DDS | SVA System | SVA System |
| PMZS | SVA System | SVA System |
| FC | SVA Zone | SVA Zone |
| IU | SVA System | SVA System |
| FPH | **NA** | **NA** |
| PTAC | SVA Zone | SVA Zone |
| HP | SVA Zone | SVA Zone |
| HVSYS | SVA System | SVA System |
| PVAVS | SVA System | SVA System |
| PVVT | SVA System | SVA System |
| UHT | SVA Zone | SVA Zone |
| UVT | SVA Zone | SVA Zone |
| RESYS | SVA System | SVA System |
| RESVVT | SVA System | SVA System |
| SUM | **NA** | **NA** |

* While reading fan power from zone level, also look for zone multiplier (Zone MULT) and multiply capacity with this.
* Add fan power for each system type.

**System Fan Power (kW/cfm)**

* Divide each system type fan power by air flow rate to calculate system fan power.

**Heating Capacity**

* Read SVA report
* Read System Type
* Based on “eQuest Automation System Mapping.xlsx” or below table read capacity from system level or zone level.

|  |  |
| --- | --- |
| **System Type** | **Heating Capacity (kBtu/hr)** |
| SZRH | SVA System |
| PSZ | SVA System |
| SZCI | SVA System |
| VAVS | SVA System |
| PIU | SVA System |
| CBVAV | SVA System |
| RHFS | SVA System |
| EVAP-COOL | SVA System |
| MZS | SVA System |
| DDS | SVA System |
| PMZS | SVA System |
| FC | SVA Zone |
| IU | SVA System |
| FPH | SVA Zone |
| PTAC | SVA Zone |
| HP | SVA Zone |
| HVSYS | SVA System |
| PVAVS | SVA System |
| PVVT | SVA System |
| UHT | SVA Zone |
| UVT | SVA Zone |
| RESYS | SVA System |
| RESVVT | SVA System |
| SUM | **NA** |

* While reading capacity from zone level, also look for zone multiplier (Zone MULT) and multiply capacity with this.
* Add capacity for each system type

**Heating Electric Power**

* Read SVA report
* Read System Type
* Read Heating EIR if Cooling Coil type is DX else ignore it.

|  |  |
| --- | --- |
| **System Type** | **Heating Efficiency (EIR)** |
| SZRH | SVA System |
| PSZ | SVA System |
| SZCI | SVA System |
| VAVS | SVA System |
| PIU | SVA System |
| CBVAV | SVA System |
| RHFS | SVA System |
| EVAP-COOL | SVA System |
| MZS | SVA System |
| DDS | SVA System |
| PMZS | SVA System |
| FC | SVA System |
| IU | SVA System |
| FPH | SVA System |
| PTAC | SVA System |
| HP | SVA System |
| HVSYS | SVA System |
| PVAVS | SVA System |
| PVVT | SVA System |
| UHT | SVA System |
| UVT | SVA System |
| RESYS | SVA System |
| RESVVT | SVA System |
| SUM | **NA** |

* In case of PIU if Cooling EIR is 0 then ignore it else consider it.
* Multiply capacity with EIR to calculate Cooling Electric Power for each system
* Add Electric Power for each system type

**System Cooling EIR**

* Divide each system type cooling electric power by cooling capacity to calculate system EIR.

**Pump Power**

* Read PVA report
* Read Pumps
* Add Power (kW)

**Chiller Power**

* Read PVA report
* Read Primary Equipment
* Look for following keywords
  + ELEC-OPEN-CENT
  + ELEC-OPEN-REC
  + ELEC-HERM-CENT
  + ELEC-HERM-REC
  + ELEC-SCREW
  + ELEC-HTREC
  + HEAT-PUMP
  + LOOP-TO-LOOP-HP
  + ABSOR-1
  + ABSOR-2
  + GAS-ABSOR
  + ENGINE
* In the same row read Rated Capacity (MBTU/HR)
* Also read Rated EIR (FRAC)
* Add Rated Capacity (MBTU/HR) for all the above keywords to calculate total chiller capacity
* Calculate Chiller Power by multiplying Rated Capacity (MBTU/HR) with Rated EIR (FRAC) for each unit.
* Add Chiller Power to calculate total chiller power
* Divide Total Chiller Power by Total Chiller capacity to get average chiller efficiency.

**Cooling Towers**

* Read PVA report
* Read Cooling Towers
* Look for following keywords
  + OPEN-TWR
  + OPEN-TWR&H
  + FLUID-COOLER
  + DRYCOOLER
* Read Number of cells and fan power per cell (kW) for each keyword
* Multiply number of cells by fan power per cell to calculate unit power
* Add the calculated unit power for each unit to get total cooling tower power.