

**One SV-A report per SYSTEM (seven for this example building, system 1 of 7) — Ground Floor VAV system**

3-Story Office Bldg

DOE-B2.2NT38 4/07/2001 10:36:50 BDL RUN 2

REPORT- **SV-A** System Design Parameters for System 1 (VAVS) (G)

WEATHER FILE- CZ06RV2 WYEC2

SYSTEM TYPE	ALTITUDE FACTOR	FLOOR AREA (SQFT)	MAX PEOPLE	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)	HEAT PUMP SUPP-HEAT (KBTU/HR)
VAVS	1.000	13000.0	96.	0.214	271.497	0.702	0.000	0.000	0.000	0.000

For DX equipment only. EIR at ARI rated conditions. EIR = 1/COP.

Based on Altitude (in eQUEST Detailed Interface, see Project & Site: Site Data) See also note below.

Total for ALL zone types served by this system (plenums must = 0 occupancy.

Ignores occupancy schedule values

= sum of Zone OA + excess zone exhaust + adj for critical zone (if appl.)

Total (sensible +latent) cap., at ARI (DX only) or design (CHW) conditions.

Sensible / total capacity,

Central heating coil only, does not include zone-level heating coils (e.g., reheat or baseboards)

FAN TYPE	CAPACITY (CFM)	DIVERSITY FACTOR (FRAC)	POWER DEMAND (KW)	FAN DELTA-T (F)	STATIC PRESSURE (IN-WATER)	TOTAL EFF (FRAC)	MECH EFF (FRAC)	FAN PLACEMENT	FAN CONTROL	MAX FAN RATIO (FRAC)	MIN FAN RATIO (FRAC)
SUPPLY	7562.	1.00	4.931	2.02	3.5	0.63	0.72	DRAW-THRU	BY USER	1.10	0.30
RETURN	7562.	1.00	1.644	0.67	1.2	0.63	0.70	RETURN	BY USER	1.10	0.30

Total supply flow is always the sum of zone design supply flows, i.e., no diversity for VAV systems (unless only one system in the bldg.)

Two methods for fan pwr: Static pres & fan eff. OR fan kW/CFM. If use static pressure, fan kW = (CFM \* fan static / fan eff) / 8520, else, enter fan pwr directly (as kW/cfm and fan delta-t).

Total Eff = Mechanical Eff \* fan motor eff (not shown)

eQUEST uses fan power curves based on CEC data (not DOE-2 defaults)

~1.08 \* CFM \* (Max-Supply-T - Design-Heat-T) \* Supply Ratio (for reverse-acting t-stats, Supply Ratio = 1, else = min-cfm-ratio)

↑ Items reported above are system-level

↓ Items reported below are zone-level

ZONE NAME	SUPPLY FLOW (CFM)	EXHAUST FLOW (CFM)	FAN (KW)	MINIMUM FLOW (FRAC)	OUTSIDE AIR FLOW (CFM)	COOLING CAPACITY (KBTU/HR)	SENSIBLE (FRAC)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	ZONE MULT
South Perim Zone (G.S1)	863.	0.	0.000	0.250	179.	0.00	0.00	18.63	-27.95	-12.11	1.
East Perim Zone (G.E2)	1195.	0.	0.000	0.250	132.	0.00	0.00	25.81	-38.72	-16.78	1.
North Perim Zone (G.N3)	863.	0.	0.000	0.250	179.	0.00	0.00	18.63	-27.95	-12.11	1.
West Perim Zone (G.W4)	1142.	0.	0.000	0.250	132.	0.00	0.00	24.68	-37.02	-16.04	1.
Core Zone (G.C5)	3500.	0.	0.000	0.400	994.	0.00	0.00	75.60	-113.40	-49.14	1.
Plenum Zone (G.6)	0.	0.	0.000	0.000	0.	0.00	0.00	0.00	0.00	0.00	1.

Space MULT \* Floor MULT

**Important Note:**

All CFM input into eQUEST (DOE-2) are input as standard (i.e., sea-level) CFM. All CFM reported in eQUEST (DOE-2) are reported as site CFM, i.e., at site altitude. To obtain standard CFM, divide site CFM reported here by the Altitude Factor above.

If sized by eQUEST, total supply flow = sum of zone flows. To force supply flow < sum of zone flows, enter Assigned-Flow & Supply-Flow.

If zone exhaust CFM > zone OA, the OA Ratio at the system level is increased.

No zonal fans in this example

If zone exhaust flow is > zone oa, system oa is increased to assure the necessary make-up air.

Reported for zonal systems only (no zone-level cooling coils in this example).

~1.08\*CFM\* (Design-Cool-T - Min-Supply-T)

Reported for zonal systems only (re-heat coils in this example). ~1.08\*CFM\*ReheatΔT \*Supply Ratio (=1 for reverse-acting t-stats, else = min-cfm-ratio)

**\*\* Important Report \*\***

**One SS-A report for each SYSTEM (only one included here for brevity)**

3-Story Office Bldg

DOE-B2.2NT38 4/07/2001 10:36:50 BDL RUN 2

REPORT- **SS-A** System Loads Summary for System 1 (VAVS) (G)

WEATHER FILE- CZ06RV2 WYEC2

MONTH	COOLING						HEATING						ELEC	
	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	6.99828	11	13	78.F	54.F	106.237	-0.335	2	9	51.F	46.F	-127.921	6476.	28.587
FEB	7.95906	16	13	66.F	61.F	106.263	-0.009	5	9	54.F	51.F	-7.526	5603.	27.116
MAR	8.68998	16	13	75.F	61.F	110.816	0.000	31	24	52.F	51.F	0.000	6462.	24.540
APR	8.84468	4	17	81.F	52.F	123.646	0.000	30	1	55.F	55.F	0.000	6074.	24.658
MAY	16.40177	31	14	72.F	66.F	147.515	0.000	31	1	54.F	49.F	0.000	6365.	24.394
JUN	26.80062	20	14	84.F	74.F	204.080	0.000	30	1	61.F	58.F	0.000	6297.	24.748
JUL	30.59795	11	10	82.F	70.F	184.888	0.000	31	1	63.F	58.F	0.000	6174.	24.907
AUG	34.87575	9	9	74.F	67.F	178.021	0.000	31	1	64.F	56.F	0.000	6744.	25.088
SEP	28.61793	7	17	79.F	71.F	201.941	0.000	30	1	63.F	61.F	0.000	5820.	25.000
OCT	23.54031	1	14	85.F	73.F	200.059	0.000	31	24	55.F	47.F	0.000	6470.	26.057
NOV	13.54112	2	15	70.F	62.F	125.971	-0.005	13	9	56.F	51.F	-3.619	5975.	29.202
DEC	6.80566	19	15	77.F	53.F	116.220	-0.095	26	9	50.F	42.F	-16.469	6134.	29.417
TOTAL	213.673						-0.444						74595.	
MAX						204.080						-127.921		29.417

"MBTU" = Btu x 1,000,000

For sens/latent components, see SS-I

Reports central coil, zone coils, and baseboards

For 24-hr profile, see SS-J

**Important Note:**

Loads reported here are coil loads, i.e., these loads include outside ventilation air, duct loss/gain, fan heat, and economizer effects (if any). SS-A reports coil loads only for one system.

For more detailed reporting similar to this report, see SS-Q (for Heat Pumps ONLY).

Includes only items known about by the LOADS and SYSTEMS programs, i.e., lights, plugs, fans, DX compressors, reheat, crankcase heat, etc., for this system.

Central plant electric is included on "PS-" reports.

**\*\* Important Report \*\***

**Up to Two SS-J reports for each System — the first for Design Day results, the second for weather file results (page 1 of 2)**  
**(only one system included here for brevity)**

3-Story Office Bldg

DOE-B2.2NT38 4/07/2001 10:36:50 BDL RUN 2

REPORT- **SS-J** Peak Heating and Cooling for System 1 (VAVS) (G)

DESIGN DAY

WEATHER FILE- CZ06RV2 WYEC2

This tag indicates this report documents only Design Day results (not weather file results).

The weather file is reported, even though this is a Design Day report (may cause confusion)

Reports 24-hr profile for day with peak cooling HOUR.

COOLING  
JUN 21

HEATING  
DEC 21

DAY COOLING PEAK  
JUN 21

Reports 24-hr profile for the day with the maximum Day-Long cooling load (largest 24-hr sum). (May not be same day as peak hour day for annual weather file results.) Useful for TES sizing. Compare building total on SS-D report.

HOURLY COOLING LOAD (KBTU)	SENSIBLE HEAT RATIO	DRY-BULB TEMP	WET-BULB TEMP	HOURLY HEATING LOAD (KBTU)	DRY-BULB TEMP	WET-BULB TEMP	HOURLY COOLING LOAD (KBTU)	SENSIBLE HEAT RATIO	DRY-BULB TEMP	WET-BULB TEMP	
1	0.000	0.000	78.F	62.F	0.000	37.F	31.F	0.000	0.000	78.F	62.F
2	0.000	0.000	77.F	62.F	0.000	37.F	31.F	0.000	0.000	77.F	62.F
3	0.000	0.000	77.F	62.F	0.000	37.F	31.F	0.000	0.000	77.F	62.F
4	0.000	0.000	77.F	62.F	0.000	37.F	31.F	0.000	0.000	77.F	62.F
5	0.000	0.000	77.F	62.F	0.000	37.F	31.F	0.000	0.000	77.F	62.F
6	0.000	0.000	78.F	62.F	0.000	37.F	31.F	0.000	0.000	78.F	62.F
7	51.662	0.915	79.F	63.F	0.000	37.F	31.F	51.662	0.915	79.F	63.F
8	223.857	0.920	81.F	63.F	-14.511	37.F	31.F	223.857	0.920	81.F	63.F
9	203.781	0.905	83.F	64.F	-136.408	37.F	31.F	203.781	0.905	83.F	64.F
10	193.384	0.897	85.F	64.F	-69.997	37.F	31.F	193.384	0.897	85.F	64.F
11	193.060	0.898	87.F	65.F	-53.072	37.F	31.F	193.060	0.898	87.F	65.F
12	194.928	0.899	88.F	66.F	-45.162	37.F	31.F	194.928	0.899	88.F	66.F
13	196.798	0.900	89.F	66.F	-41.946	37.F	31.F	196.798	0.900	89.F	66.F
14	197.782	0.900	90.F	66.F	-38.574	37.F	31.F	197.782	0.900	90.F	66.F
15	200.104	0.901	91.F	66.F	-34.481	37.F	31.F	200.104	0.901	91.F	66.F
16	205.685	0.902	90.F	66.F	-29.969	37.F	31.F	205.685	0.902	90.F	66.F
17	64.732	0.919	90.F	66.F	-28.312	37.F	31.F	64.732	0.919	90.F	66.F
18	0.000	0.000	89.F	66.F	0.000	37.F	31.F	0.000	0.000	89.F	66.F
19	0.000	0.000	88.F	65.F	0.000	37.F	31.F	0.000	0.000	88.F	65.F
20	0.000	0.000	86.F	65.F	0.000	37.F	31.F	0.000	0.000	86.F	65.F
21	0.000	0.000	84.F	64.F	0.000	37.F	31.F	0.000	0.000	84.F	64.F
22	0.000	0.000	83.F	64.F	0.000	37.F	31.F	0.000	0.000	83.F	64.F
23	0.000	0.000	81.F	63.F	0.000	37.F	31.F	0.000	0.000	81.F	63.F
24	0.000	0.000	80.F	63.F	0.000	37.F	31.F	0.000	0.000	80.F	63.F
SUM											
MAX	223.857				-136.408			1925.773			

SYSTEM-TYPE	VAVS	SQFT/TON	696.9
COOLING PEAK	17.22 (BTU/HR- SQFT)	HEATING PEAK	-10.49 (BTU/HR- SQFT)
SUPPLY AIR PEAK FLOW	0.58 (CFM/SQFT)	MIN-OA/PERSON	16.90 (CFM )
OA FRAC AT CLG PEAK	0.228	OA FRAC AT HTG PEAK	0.470

Review these values as a "sanity check" for each system.

\* ASTERISKS INDICATE HOURS LOADS NOT MET

**IMPORTANT NOTE:**

The 24-hour profiles on this report will include "pick-up" or "pull-down" loads (resulting from floating space temperatures during fan OFF hours).

**\*\* Important Report \*\***