

For: Ann Vela
 Zone: All Zones
 Job #:
 City: Chicago, O'Hare Int'l A, IL, US
 By: Professional Heating and Cooling
 LWH: 40.0 x 30.0 x 9.0
 Units: U.S. customary (I-P)

1. DESIGN CONDITIONS - COOLING (3PM , August)

	Dry Blb	RH	Moisture	Range	Wet Blb
Outdoor Conditions →	96	46		20	78
Indoor Conditions →	75	50			62
TOD Correction →	0				
Difference	21		54		

[Mult = 1.0]

2. GLAZING SOLAR HEAT GAIN (Lat = 41.98 °N, Const Wt = L)

Type	Dir	Shad	Tilt	%ovr	Area	Sfact	Shgf	Shad	Sens
GLAZ	1	S	BL	90	100.0	27	0.51	75 1.0	399
GLAZ	1	N	BL	90	100.0	39	0.51	29 1.0	577
GLAZ	1	N	BL	90	100.0	14	0.51	29 1.0	207
GLAZ	1	N	BL	90	100.0	28	0.51	29 1.0	414

3. TRANSMISSION GAINS

Type	Dir	GrArea	NtArea	Uval	Grp	CLTD	Shad	Clr	Sens
GLAZ	1	S	27	27	0.650	21.0	BL	-	369
GLAZ	1	N	39	39	0.650	21.0	BL	-	532
GLAZ	1	N	14	14	0.650	21.0	BL	-	191
GLAZ	1	N	28	28	0.650	21.0	BL	-	382
WALL	1	W	475	475	0.077	D 12.0	Y	L	439
WALL	1	N	209	128	0.077	D 12.0	N	L	118
WALL	1	E	120	120	0.077	D 25.6	N	L	237
WALL	1	N	400	319	0.077	D 12.0	N	L	295
DOOR	1	S	21	21	0.330	21.0	-	-	146
FLOR	1	-	285	285	0.330	21.0	-	-	1975
FLOR	2	-	44	44	0.810	0.0	-	-	0
ROOF	1	-	760	760	0.050	R-4 69.2	-	D	2630

4. INTERNAL HEAT GAIN

				Gain	Load Fact	Usage	Sens	Latent	
People	3	x	Per person:	sensible	250	latent	250	750	750
	0	x	Per person:	sensible	0	latent	0	0	0
Lights	Incandescents in RA Ceiling			0	x 3.4	x 60%	0	0	
	Fluorescents in RA Ceiling			0	x 4.1	x 60%	0	0	
	Incandescents other			300	x 3.4	x 100%	1024	0	
	Fluorescents other			0	x 4.1	x 100%	0	0	
Motors	Nmbr		Power						
	1		0.00	0	1.00	1.00	0	0	
	2		0.00	0	1.00	1.00	0	0	
	3		0.00	0	1.00	1.00	0	0	

Appl	Nmbr	Type	Sens	Latent	Usage	Sens	Latent
1	1	Refrigerator	2000	0	1.00	2000	0
2	2	0	0	0	1.00	0	0
3	1	0	0	0	1.00	0	0
4	1		0	0	1.00	0	0
5	1		0	0	1.00	0	0
Other	1		0	0	1.00	0	0

5. INFILTRATION						Sens	Latent
72	cfm	→	x	db Temp Diff	21.0 x 1.1	1623	
		→	x	Moist. Diff	53.6 x 0.68		2626

6. SUBTOTAL COOLING LOAD FOR SPACE						14308	3376
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7. SUPPLY DUCT HEAT GAIN							
Gain factor	0.00		x	Line 6 Sensible Gain			0

8. COOLING FAN SIZING							
Sum of Duct Gain	(7),	Line	(6)	& Drawthru Fan	=	14308	
Est Cooling	cfm	=	(14308) / (1.1 x 20.0) = 666
Actual Cooling Fan							= 666

9. VENTILATION							
0	cfm	→	x	db Temp Diff	21.0 x 1.1	0	
		→	x	Moist. Diff	53.6 x 0.68		0

10. RETURN AIR LOAD FROM LIGHTING AND ROOF							
Incandescent Lights	0	Watts	x	3.4 x 40%		0	
Fluorescent Lights	0		x	4.1 x 40%		0	
RA Roof Load				from Line 3 (+)		0	
RA Ceiling Load Credit				from Line 3 (-)		0	

11. RETURN DUCT HEAT GAIN							
Gain factor	0.00		x	Line 6 Sensible Gain			0

12. TOTAL COOLING LOADS ON EQUIPMENT (Btuh)						14308	3376
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SPACE HEATING LOAD CALCULATION

13. HEATING DESIGN TEMPERATURE

Heating TD = (Inside DB - Outside DB) = (70 - -12) = 82

[Mult = 1.0]

14. TRANSMISSION LOSSES

Type	Expos	GrArea	NetArea	Uval	HTD	Loss
GLAZ	1 S	27	27	0.620	82.0	1373
GLAZ	1 N	39	39	0.620	82.0	1983
GLAZ	1 N	14	14	0.620	82.0	712
GLAZ	1 N	28	28	0.620	82.0	1424
WALL	1 W	475	475	0.077	82.0	2999
WALL	1 N	209	128	0.077	82.0	808
WALL	1 E	120	120	0.077	82.0	758
WALL	1 N	400	319	0.077	82.0	2014
DOOR	1 S	21	21	0.330	82.0	568
FLOR	1 -	285	285	0.330	82.0	7712
FLOR	2 -	44	44	0.810	82.0	2922
ROOF	1 -	760	760	0.050	82.0	3116

15. INFILTRATION									Loss
	108	cfm	x	db Temp Diff	82.0	x	1.1		9507
16. SUBTOTAL HEATING LOAD FOR SPACE									35896
17. SUPPLY DUCT HEAT LOSS									
	Loss factor	0.00	x	Line 16 Loss					0
18. VENTILATION									
	0	cfm	x	db Temp Diff	82.0	x	1.1		0
19. HUMIDIFICATION									
	Inside RH desired	:	25.2	(Max = 6.6 for 1 pane)					
	# of Glazing panes	:	2.0	(Max = 25.2 for 2 pane)					
	108	cfm	x	4.98	g/100cfm/d	=	5.4	gpd	2007
20. RETURN DUCT HEAT LOSS									
	Loss factor	0.00	x	Line 16 Loss					0
21. TOTAL HEATING LOAD ON EQUIPMENT (Btuh)									37903

S/N RNW21131
 Units: U.S. customary (I-P)
 Job #:

RIGHT-N SHORT FORM

08/09/2003

For: Ann Vela
 Stratford Lane
 Algonquin, IL 60102

By: Professional Heating and Cooling
 2208 Magnolia Lane
 Elgin, IL 60120
 (847) 980-5635

	Htg	Clg
Outside db	-12	96
Inside db	70	75
Design TD	82	21
Daily Range	-	20
Inside Humid.	-	50
Moist. Diff.	-	54
Inside wb	-	62
Outside RH	-	46
Outside wb	-	78

HEATING EQUIPMENT

Make	
Model	
Type	
Efficiency / HSPF	0.0
Heating Input	0.0 MBtuh
Heating Output	0.0 MBtuh
Humidifier	0.0 gpd
Leaving Air Temp	70.0 °F
Actual Heating Fan	666 cfm

COOLING EQUIPMENT

Make	
Model	
Type	
COP / EER / SEER	0.0
Sensible Cooling	0.0 MBtuh
Latent Cooling	0.0 MBtuh
Total Cooling	0.0 MBtuh
Leaving Air Temp	55.0 °F
Actual Cooling Fan	666 cfm

Equipment Location	ZONE
System Type	VAV
Fan Motor Heat Type	PACKAGE
Fan & Motor Combined Efficiency	0.0 %
Static Pressure Across Fan	0.0 in H2O

NAME	Area ft ²	Heat Loss	Sensible Gain	Latent Gain	Htg cfm	Clg cfm	Time
All Zones	1200	37903	14308	3376	666	666	3PM
Totals	1200	37903	14308	3376	666	666	n/a

S/N: RNW21131

LOAD BREAKDOWNS

Units: U.S. customary (I-P)

08/09/2003

For: Ann Vela

By: Professional Heating and Cooling

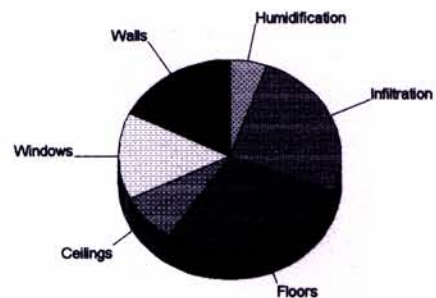
Job #:

All Zones

Component	Btuh/ ft ²	Btuh	% of Btuh
Walls	6.3	6579	17.4
Windows	50.8	5491	14.5
Doors	27.1	568	1.5
Ceilings	4.1	3116	8.2
Floors	14.0	10635	28.1
Partitions	0.0	0	0.0
Infiltration	12.5*	9507	25.1
Ducts	0.0*	0	0.0
Humidification	2.6*	2007	5.3
Ventilation	0.0*	0	0.0
Totals	49.9*	37903	100

* Calculated per ft² of floor area

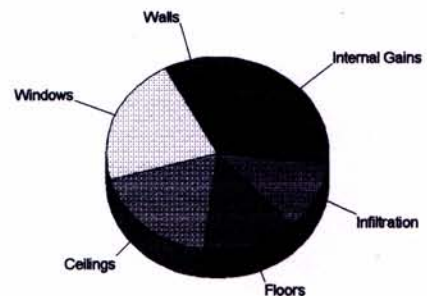
Heating



Component	Btuh/ ft ²	Sens. Btuh	% of Btuh
Walls	1.0	1089	7.6
Windows	28.4	3072	21.5
Doors	6.9	146	1.0
Ceilings	3.5	2630	18.4
Floors	2.6	1975	13.8
Partitions	0.0	0	0.0
Infiltration	2.1*	1623	11.3
Ducts	0.0*	0	0.0
Internal Gains	5.0*	3774	26.4
Ventilation	0.0*	0	0.0
Totals	18.8*	14308	100

* Calculated per ft² of floor area

Cooling



S/N RNW21131

RIGHT-N TIME-OF-DAY SHORT FORM - LOADS

08/09/2003

Units: U.S. customary (I-P)

Job #:

For: Ann Vela
Stratford Lane
Algonquin, IL 60102

By: Professional Heating and Cooling

Peak Time of Day: n/a Equipment located in ZONE

Name	Sensible Gain at				Latent Gain	Heating Btuh
	9AM	NOON	3PM	6PM		
All Zones	8230	12119	14308	13561	3376	37903
Totals	8230	12119	14308	13561	3376	37903