Zone Checksums
By WSP USA INC.

A22 unit P FCU living room 1

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 7 / 15; Outside Air: OADB/WB/HR: 92

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads						
Skylite Solar	0	0	0	0	0	0
Skylite Cond	0	0	0	0	0	0
Roof Cond	0	0	0	0	0	0
Glass Solar	1,286	0	1,286	14	1,328	21
Glass/Door Cond	1,149	0	1,169	13	1,175	18
Wall Cond	983	0	983	11	1,007	16
Partition/Door	0		0	0	0	0
Floor	0		0	0.00	0	0.00
Adjacent Floor	0.00	0.00	0.00	0.00	0.00	0.00
Infiltration	220		220	2	126	2
Sub Total ==>	3,658	0	3,658	40	3,636	56
Internal Loads						
Lights	1,110	277	1,387	15	1,110	17
People	1,800	0	1,800	20	1,000	16
Misc	1,694	0	694	8	694	11
Sub Total ==>	3,604	277	3,881	42	2,804	44
Ceiling Load	0	0	0	0	0	0
Ventilation Load	0	0	1,709	19	0	0
Adj Air Trans Heat	0		0	0	0	0
Dehumid. Ov Sizing			0	0	0	0
Ov/Undr Sizing	0		0	0	0	0
Exhaust Heat		-44	-44	0		0
Sup. Fan Heat			0	0		0
Ret. Fan Heat		0	0	0		0
Duct Heat Pkup		0	0	0		0
Underflr Sup Ht Pkup			0	0		0
Supply Air Leakage		0	0	0		0
Grand Total ==>	7,262	233	9,204	100.00	6,440	100.00

HEATING COIL PEAK — Mo/Hr: Heating Design; OADB: -7

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	0	0.00
Glass Solar	0	0	0.00
Glass/Door Cond	-5,652	-5,652	43.19
Wall Cond	-2,754	-2,754	21.04
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	-533	-533	4.08
Sub Total ==>	-8,938	-8,938	68.30
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-808	6.17
Adj Air Trans Heat	0	0	0
Dehumid. Ov Sizing		0	0.00
Ov/Undr Sizing	0	0	0.00
Exhaust Heat		0	0.00
OA Preheat Diff.		-3,340	25.52
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-8,938	-13,086	100.00

TEMPERATURES

	Cooling	Heating
SADB	56.9	63.7
Ra Plenum	74.0	70.0
Return	74.7	70.0
Ret/OA	77.4	67.9
Fn Mn/TD	0.0	0.0
Fn Bld/TD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	396	396
Terminal	398	398
Main Fan	398	398
Sec Fan	0	0
Nom Vent	57	57
AHU Vent	57	57
Infil	7	7
Min/Stop/Rh	0	0
Return	405	405
Exhaust	64	64
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	14.5	14.5
cfm/ft²	0.49	0.49
cfm/ton	450.98	
ft²/ton	921.75	
Btu/hr·ft²	13.02	-22.84
No. People	4	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	grs/lb	Leave DB/WB/HR °F	°F	grs/lb
Main Clg	0.9	10.6	7.6	398	77.4	62.7	76.7	56.9	53.1	64.8
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	57	83.3	65.4	82.1	83.3	65.4	82.1
Total	0.9	10.6								

AREAS

	Gross Total	Glass ft²	(%)
Floor	813		
Part	0		
Int Door	1		
ExFlr	0		
Roof	0	0	0
Wall	732	173	24
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-15.2	398	61.4	93.7
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	-3.3	57	-7.0	55.0
Total	-18.6			

Zone Checksums
By WSP USA INC.

B21 Unit Q FCU Bedroom

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 7 / 18; Outside Air: OADB/WB/HR: 87 / 65 / 76

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads						
Skylite Solar	0	0	0	0	0	0
Skylite Cond	0	0	0	0	0	0
Roof Cond	0	0	0	0	0	0
Glass Solar	1,309	0	1,309	31	1,504	44
Glass/Door Cond	432	0	432	10	332	10
Wall Cond	304	0	304	7	298	9
Partition/Door	0		0	0	0	0
Floor	0		0	0.00	0	0.00
Adjacent Floor	0.00	0.00	0.00	0.00	0.00	0.00
Infiltration	40		40	1	25	1
Sub Total ==>	2,086	0	2,086	50	2,159	63
Internal Loads						
Lights	464	116	580	14	464	14
People	900	0	900	22	500	15
Misc	290	0	290	7	290	9
Sub Total ==>	1,654	116	1,770	43	1,254	37
Ceiling Load	0	0	0	0	0	0
Ventilation Load	0	0	313	8	0	0
Adj Air Trans Heat	0		0	0	0	0
Dehumid. Ov Sizing			0	0		0
Ov/Undr Sizing	0		0	0	0	0
Exhaust Heat		-13	-13	0		0
Sup. Fan Heat			0	0		0
Ret. Fan Heat		0	0	0		0
Duct Heat Pkup		0	0	0		0
Underflr Sup Ht Pkup			0	0		0
Supply Air Leakage		0	0	0		0
Grand Total ==>	3,740	103	4,157	100.00	3,413	100.00

HEATING COIL PEAK — Mo/Hr: 7 / 19; OADB: 83; Heating Design; OADB: -7

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	0	0.00
Glass Solar	0	0	0.00
Glass/Door Cond	-2,610	-2,610	52.81
Wall Cond	-375	-375	7.58
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	-223	-223	4.51
Sub Total ==>	-3,207	-3,207	64.90
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-338	6.84
Adj Air Trans Heat	0	0	0
Dehumid. Ov Sizing	0	0	0.00
Ov/Undr Sizing		0	0.00
Exhaust Heat	0	0	0.00
OA Preheat Diff.		-1,397	28.26
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-3,207	-4,942	100.00

TEMPERATURES

	Cooling	Heating
SADB	59.0	84.1
Ra Plenum	74.0	70.0
Return	74.7	70.0
Ret/OA	76.3	68.3
Fn Mn/TD	0.0	0.0
Fn Bld/TD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	241	241
Terminal	241	241
Main Fan	241	241
Sec Fan	0	0
Nom Vent	24	24
AHU Vent	24	24
Infil	3	3
Min/Stop/Rh	0	0
Return	244	244
Exhaust	27	27
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	8.9	8.9
cfm/ft²	0.71	0.71
cfm/ton	601.03	
ft²/ton	848.68	
Btu/hr·ft²	14.14	-20.40
No. People	2	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	grs/lb	Leave DB/WB/HR °F	°F	grs/lb
Main Clg	0.4	4.8	3.7	241	75.7	61.6	74.1	59.0	54.5	67.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	24	93.2	70.2	93.8	92.0	69.9	93.8
Total	0.4	4.8								

AREAS

	Gross Total	Glass ft²	(%)
Floor	340		
Part	0		
Int Door	1		
ExFlr	0		
Roof	0	0	0
Wall	156	80	51
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-5.5	241	64.6	84.1
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	-1.4	24	-7.0	55.0
Total	-6.9			

Zone Checksums
By WSP USA INC.

B21 Unit Q FCU Living Room

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 7 / 17; Outside Air: OADB/WB/HR: 90 / 68 / 85

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads						
Skylite Solar	0	0	0	0	0	0
Skylite Cond	0	0	0	0	0	0
Roof Cond	0	0	0	0	0	0
Glass Solar	694	0	694	14	909	25
Glass/Door Cond	759	0	759	16	646	17
Wall Cond	581	0	581	12	609	16
Partition/Door	0		0	0	0	0
Floor	0		0	0.00	0	0.00
Adjacent Floor	0.00	0.00	0.00	0.00	0.00	0.00
Infiltration	67		67	1	36	1
Sub Total ==>	2,101	0	2,101	44	2,201	59
Internal Loads						
Lights	464	116	580	12	464	13
People	1,350	0	1,350	28	750	20
Misc	290	0	290	6	290	8
Sub Total ==>	2,104	116	2,220	46	1,504	41
Ceiling Load	0	0	0	0	0	0
Ventilation Load	0	0	518	11	0	0
Adj Air Trans Heat	0		0	0	0	0
Dehumid. Ov Sizing			0	0		0
Ov/Undr Sizing	0		0	0	0	0
Exhaust Heat		-13	-13	0		0
Sup. Fan Heat			0	0		0
Ret. Fan Heat		0	0	0		0
Duct Heat Pkup		0	0	0		0
Underflr Sup Ht Pkup			0	0		0
Supply Air Leakage		0	0	0		0
Grand Total ==>	4,205	103	4,825	100.00	3,705	100.00

HEATING COIL PEAK — Mo/Hr: Heating Design; OADB: 87; OADB: -7

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	0	0.00
Glass Solar	0	0	0.00
Glass/Door Cond	-3,915	-3,915	55.37
Wall Cond	-1,198	-1,198	16.94
Partition/Door	0	0	0.00
Floor	0	0	0.00
Adjacent Floor	0.00	0.00	0.00
Infiltration	-223	-223	3.15
Sub Total ==>	-5,335	-5,335	75.46
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-338	4.78
Adj Air Trans Heat	0	0	0
Dehumid. Ov Sizing		0	0.00
Ov/Undr Sizing		0	0.00
Exhaust Heat	0	0	0.00
OA Preheat Diff.		-1,397	19.76
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-5,335	-7,070	100.00

TEMPERATURES

	Cooling	Heating
SADB	57.1	84.4
Ra Plenum	74.0	70.0
Return	74.1	70.0
Ret/OA	76.5	69.0
Fn Mn/TD	0.0	0.0
Fn Bld/TD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	231	231
Terminal	231	231
Main Fan	231	231
Sec Fan	0	0
Nom Vent	24	24
AHU Vent	24	24
Infil	3	3
Min/Stop/Rh	0	0
Return	234	234
Exhaust	27	27
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	10.3	10.3
cfm/ft²	0.68	0.68
cfm/ton	497.61	
ft²/ton	731.72	
Btu/hr·ft²	16.40	-30.18
No. People	3	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	grs/lb	Leave DB/WB/HR °F	°F	grs/lb
Main Clg	0.5	5.6	4.1	231	76.1	61.9	75.0	57.1	53.2	65.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	24	93.2	70.2	93.8	92.0	69.9	93.8
Total	0.5	5.6								

AREAS

	Gross Total	Glass ft²	(%)
Floor	340		
Part	0		
Int Door	1		
ExFlr	0		
Roof	0	0	0
Wall	363	120	33
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-8.9	231	62.0	94.4
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	-1.4	24	-7.0	55.0
Total	-10.3			

Zone Checksums
By WSP USA INC.

C25 Unit R FCU Bedroom

COOLING COIL PEAK — Peaked at Time: Mo/Hr: 7 / 17; Outside Air: OADB/WB/HR: 90 / 68 / 85

	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)
Envelope Loads						
Skylite Solar	0	0	0	0	0	0
Skylite Cond	0	0	0	0	0	0
Roof Cond	0	0	0	0	0	0
Glass Solar	822	0	822	12	1,030	19
Glass/Door Cond	275	0	275	4	234	4
Wall Cond	1,224	0	1,224	18	1,343	25
Partition/Door	0		0	0	0	0
Floor	-14		-14	0	-180	0
Adjacent Floor	0.00	0.00	0.00	0.00	0.00	0.00
Infiltration	106		106	2	42	1
Sub Total ==>	2,412	0	2,412	35	2,645	50
Internal Loads						
Lights	561	140	701	10	561	11
People	1,800	0	1,800	26	1,000	19
Misc	351	0	351	5	351	7
Sub Total ==>	2,712	140	2,852	42	1,912	36
Ceiling Load	0	0	0	0	0	0
Ventilation Load	0	0	822	12	0	0
Adj Air Trans Heat	0		0	0	0	0
Dehumid. Ov Sizing			0	0		0
Ov/Undr Sizing	781		781	11	781	15
Exhaust Heat		-18	-18	0		0
Sup. Fan Heat			0	0		0
Ret. Fan Heat		0	0	0		0
Duct Heat Pkup		0	0	0		0
Underflr Sup Ht Pkup			0	0		0
Supply Air Leakage		0	0	0		0
Grand Total ==>	5,905	123	6,849	100.00	5,337	100.00

HEATING COIL PEAK — Mo/Hr: Heating Design; OADB: -7

	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)
Envelope Loads			
Skylite Solar	0	0	0.00
Skylite Cond	0	0	0.00
Roof Cond	0	0	0.00
Glass Solar	0	0	0.00
Glass/Door Cond	-1,435	-1,435	17.80
Wall Cond	-3,095	-3,095	38.38
Partition/Door	0	0	0.00
Floor	-774	-774	9.59
Adjacent Floor	0.00	0.00	0.00
Infiltration	-315	-315	3.90
Sub Total ==>	-5,618	-5,618	69.67
Internal Loads			
Lights	0	0	0.00
People	0	0	0.00
Misc	0	0	0.00
Sub Total ==>	0	0	0.00
Ceiling Load	0	0	0.00
Ventilation Load	0	-477	5.91
Adj Air Trans Heat	0	0	0
Dehumid. Ov Sizing	0	0	0.00
Ov/Undr Sizing		0	0.00
Exhaust Heat		-1,970	24.42
RA Preheat Diff.		0	0.00
Additional Reheat		0	0.00
System Plenum Heat		0	0.00
Underflr Sup Ht Pkup		0	0.00
Supply Air Leakage		0	0.00
Grand Total ==>	-5,618	-8,065	100.00

TEMPERATURES

	Cooling	Heating
SADB	55.0	90.0
Ra Plenum	74.0	70.0
Return	74.5	70.0
Ret/OA	76.3	68.3
Fn Mn/TD	0.0	0.0
Fn Bld/TD	0.0	0.0
Fn Frict	0.0	0.0

AIRFLOWS

	Cooling	Heating
Diffuser	297	297
Terminal	297	297
Main Fan	297	297
Sec Fan	0	0
Nom Vent	34	34
AHU Vent	34	34
Infil	4	4
Min/Stop/Rh	0	0
Return	301	301
Exhaust	38	38
Rm Exh	0	0
Auxiliary	0	0
Leakage Dwn	0	0
Leakage Ups	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	11.3	11.3
cfm/ft²	0.72	0.72
cfm/ton	456.72	
ft²/ton	632.49	
Btu/hr·ft²	18.97	-27.96
No. People	4	

COOLING COIL SELECTION

	Total Capacity ton	Total Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	grs/lb	Leave DB/WB/HR °F	°F	grs/lb
Main Clg	0.7	7.8	5.7	297	76.3	61.2	71.1	55.0	51.5	61.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	34	93.2	70.2	93.8	92.0	69.9	93.8
Total	0.7	7.8								

AREAS

	Gross Total	Glass ft²	(%)
Floor	411		
Part	0		
Int Door	1		
ExFlr	197		
Roof	0	0	0
Wall	672	44	7
Ext Door	0	0	0

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-9.5	297	62.9	90.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	-2.0	34	-7.0	55.0
Total	-11.5			

Reserved for permit stamp

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date 11/18/2022

revisions:

no. date by

ISSUE FOR CONSTRUCTION
11/18/2022

HVAC LOAD CALCULATION

M0.14