

BOH TFS @ T1 DELHI - HLC SUMMARY

DESIGN DATA		
1	OUTDOOR DRY BULB	110°F / 40°C
	OUTDOOR WET BULB	75°F / 24.6°C
	INDOOR DRY BULB	73.4°F / 23°C
2	GLASS FACTOR	U - 0.9 Btu/hr.Sqft.F (Assumed) Shading Coefficient - 0.75 (Assumed)
3	WALL	U - 0.34 Btu/hr.Sqft.F
4	WOODEN PARTITION	U - 0.355 Btu/hr.Sqft.F
5	HEIGHT	BOS 12'
6	LIGHTING	1.5 Watts/ Sq.ft
7	SAFETY FACTOR	SENSIBLE - 10%
		LATENT - 10%
8	ADP	54°F - CHW Systems
9	UNTREATED FRESH AIR	As per ASHRAE Standard 62.1.2007
10	ABOVE FLOOR	AC AREA
11	BELOW FLOOR	Non - AC AREA

Sr.No.	Zone	Area	Occ	Treated FA	Eq. Load	D.CFM	TR	Selected Unit	CFM	TR	Qty	Total CFM	Total TR
		Sq.ft	Nos.	CFM	Watts								
1	SEATING AREA	534	15	103	1500	2051	3.83	Chilled Water Ceiling Suspended AHU	2100	3.83	1	2100	3.83
	TOTAL	534		103		2051	3.83				1	2100	3.83

Boh @ Tfs
HVAC Load Analysis

for

TFS

Elite Software

CHVAC COMMERCIAL
HVAC LOADS

Prepared By:

Safdar
Meptek Consultants
Mumbai

13 December 2023



General Project Data Input

General Project Information

Project file name: R0_BOH @ TFS, T1 DIAL - HLC 29.11.2023.CHV
 Project title: Boh @ Tfs
 Project address: t1 delhi
 Project date: 07 July 2023
 Weather reference city: NEW DELHI, INDIA
 Client name: TFS
 Company name: Meptek Consultants
 Company representative: Safdar
 Company address: Mumbai

Barometric pressure: 29.170 in.Hg.
 Altitude: 702.0997 feet
 Latitude: 29 Degrees
 Mean daily temperature range: 25.2 Degrees
 Starting & ending time for HVAC load calculations: 1am - 12am
 Number of unique zones in this project: 1

Building Default Values

Calculations performed: Cooling loads only
 Lighting requirements: 1.50 Watts per square foot
 Equipment requirements: 1.00 Watts per square foot
 People sensible load multiplier: 250 Btuh per person
 People latent load multiplier: 200 Btuh per person
 Zone sensible safety factor: 10 %
 Zone latent safety factor: 10 %
 Zone heating safety factor: 0 %
 People diversity factor: 100 %
 Lighting profile number: 0
 Equipment profile number: 0
 People profile number: 0
 Building default ceiling height: 12.00 feet
 Building default wall height: 12.00 feet

Internal Operating Load Profiles (C = 100)

	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr	hr
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C



General Project Data Input (cont'd)

Building-Level Design Conditions

Design Month	Outdoor Dry Bulb	Outdoor Wet Bulb	Indoor Rel.Hum	Indoor Dry Bulb	Grains Diff	In/Outdoor Correction
June	110	75	50%	73	14.92	17
Winter	41			75		

Master Walls

Wall No.	ASHRAE Group	Wall U-Fac	Wall Color
1	B	0.340	L

Wall #1 Description: 12 inch concrete wall, no insulation, light color, 150 lb./sq.ft.

Master Partitions

Partition No.	Partition U-Factor	Cool T-D	Heat T-D
1	0.355	10	0

Partition #1 Description: 8 inch concrete block partition wall, adjoining shipping and receiving area

Master Glass

Glass No.	Summer U-Factor	Winter U-Factor	Glass Shd.Coef.	Interior Shading	Interior Shd.Coef
1	0.900	0.900	0.750	2	0.000

Glass #1 Description: 1/4" single-pane window, low e, heat-absorbing pattern, insulated metal frame, no int shading



Building Summary Loads

Building peaks in June at 3pm.

Bldg Load Descriptions	Area Quan	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Roof	0	0	0.00	0	0	0	0.00
Wall	68	0	0.00	0	610	610	1.33
Glass	340	0	0.00	0	21,935	21,935	47.71
Floor Slab	0	0	0.00	0	0	0	0.00
Skin Loads		0	0.00	0	22,545	22,545	49.04
Lighting	801	0	0.00	0	3,006	3,006	6.54
Equipment	1,500	0	0.00	0	5,630	5,630	12.25
People	15	0	0.00	3,300	4,125	7,425	16.15
Partition	1,572	0	0.00	0	6,139	6,139	13.35
Cool. Pret.	0	0	0.00	0	0	0	0.00
Heat. Pret.	0	0	0.00	0	0	0	0.00
Cool. Vent.	0	0	0.00	0	0	0	0.00
Heat. Vent.	0	0	0.00	0	0	0	0.00
Cool. Infil.	0	0	0.00	0	0	0	0.00
Heat. Infil.	0	0	0.00	0	0	0	0.00
Draw-Thru Fan	0	0	0.00	0	1,228	1,228	2.67
Blow-Thru Fan	0	0	0.00	0	0	0	0.00
Reserve Cap.	0	0	0.00	0	0	0	0.00
Reheat Cap.	0	0	0.00	0	0	0	0.00
Supply Duct	0	0	0.00	0	0	0	0.00
Return Duct	0	0	0.00	0	0	0	0.00
Misc. Supply	0	0	0.00	0	0	0	0.00
Misc. Return	0	0	0.00	0	0	0	0.00
Building Totals		0	0.00	3,300	42,674	45,974	100.00

Building Summary	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Ventilation	0	0.00	0	0	0	0.00
Infiltration	0	0.00	0	0	0	0.00
Pretreated Air	0	0.00	0	0	0	0.00
Zone Loads	0	0.00	3,300	41,445	44,745	97.33
Plenum Loads	0	0.00	0	0	0	0.00
Fan/Duct/Misc Loads	0	0.00	0	1,228	1,228	2.67
Building Totals	0	0.00	3,300	42,674	45,974	100.00

Check Figures

Total Building Supply Air (based on a 19° TD):	2,051 CFM
Total Building Vent. Air (0.00% of Supply):	0 CFM
Total Conditioned Air Space:	534 Sq.ft
Supply Air Per Unit Area:	3.8412 CFM/Sq.ft
Area Per Cooling Capacity:	139.4 Sq.ft/Ton
Cooling Capacity Per Area:	0.0072 Tons/Sq.ft
Heating Capacity Per Area:	0.00 Btuh/Sq.ft
Total Heating Required With Outside Air:	0 Btuh
Total Cooling Required With Outside Air:	3.83 Tons



Air Handler #1 - Boh - Summary Loads

Zn No	Description Zone Peak Time	Area People Volume	Htg.Loss Htg.CFM CFM/Sqft	Sen.Gain Clg.CFM CFM/Sqft	Lat.Gain S.Exh W.Exh	Htg.O.A. Req.CFM Act.CFM	Clg.O.A. Req.CFM Act.CFM
1	Boh 3pm June	534 15 6,408	0 0 0.00	41,445 2,051 3.84	3,300 0 0	None 0 0	None 0 0
Zone Peak Totals:		534	0	41,445	3,300		
Total Zones: 1		15	0	2,051	0	0	0
Unique Zones: 1		6,408	0.00	3.84	0	0	0



Air Handler #1 - Boh - Total Load Summary

Air Handler Description: Boh Constant Volume - Proportion
 Supply Air Fan: Draw-Thru with program estimated horsepower of 0.50 HP
 Fan Input: 65% motor and fan efficiency with 1 in. water across the fan
 Sensible Heat Ratio: 0.93 --- This system occurs 1 time(s) in the building. ---

Air System Peak Time: 3pm in June.
 Outdoor Conditions: Clg: 110° DB, 75° WB, 77.75 grains
 Indoor Conditions: Clg: 73° DB, 50% RH

Summer: Exhaust controls outside air, ----- Winter: Exhaust controls outside air.

Zone Space sensible loss:	0 Btuh	
Infiltration sensible loss:	0 Btuh	0 CFM
Outside Air sensible loss:	0 Btuh	0 CFM
Supply Duct sensible loss:	0 Btuh	
Return Duct sensible loss:	0 Btuh	
Return Plenum sensible loss:	0 Btuh	
Total System sensible loss:		0 Btuh

Heating Supply Air: $0 / (.975 \times 1.08 \times 0) =$		0 CFM
Winter Vent Outside Air (0.0% of supply) =		0 CFM

Zone space sensible gain:	41,445 Btuh	
Infiltration sensible gain:	0 Btuh	
Draw-thru fan sensible gain:	1,228 Btuh	
Supply duct sensible gain:	0 Btuh	
Reserve sensible gain:	0 Btuh	
Total sensible gain on supply side of coil:		42,674 Btuh

Cooling Supply Air: $42,674 / (.975 \times 1.1 \times 19) =$		2,051 CFM
Summer Vent Outside Air (0.0% of supply) =		0 CFM

Return duct sensible gain:	0 Btuh	
Return plenum sensible gain:	0 Btuh	
Outside air sensible gain:	0 Btuh	0 CFM
Blow-thru fan sensible gain:	0 Btuh	
Total sensible gain on return side of coil:		0 Btuh
Total sensible gain on air handling system:		42,674 Btuh

Zone space latent gain:	3,300 Btuh	
Infiltration latent gain:	0 Btuh	
Outside air latent gain:	0 Btuh	
Total latent gain on air handling system:		3,300 Btuh
Total system sensible and latent gain:		45,974 Btuh

Check Figures

Total Air Handler Supply Air (based on a 19° TD):		2,051 CFM
Total Air Handler Vent. Air (0.00% of Supply):		0 CFM
Total Conditioned Air Space:	534 Sq.ft	
Supply Air Per Unit Area:	3.8412 CFM/Sq.ft	
Area Per Cooling Capacity:	139.4 Sq.ft/Ton	
Cooling Capacity Per Area:	0.0072 Tons/Sq.ft	
Heating Capacity Per Area:	0.00 Btuh/Sq.ft	
Total Heating Required With Outside Air:	0 Btuh	
Total Cooling Required With Outside Air:	3.83 Tons	



Zone Detailed Loads (At Zone Peak Times)

Load Description	Unit Quan	-SC- CFAC	CLTD SHGF	U.Fac -CLF-	Sen. Gain	Lat. Gain	Htg. Mult.	Htg. Loss
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Zone 1-Boh peaks (sensible) in June at 3pm, Air Handler 1 (Boh), Group 0, 534.0 x 1.0, Construction Type: 1 (Light)

Wall-1-N-B-L	68	0.65	24.0	0.340	555		11.628	791
Partition-2-1	984		10/0	0.355	3,493		0.000	0
Partition-3-1	588		10/0	0.355	2,087		0.000	0
Gls-N-1-90-Tran	340.0	1.000	31	0.900	9,486		30.780	10,465
0%S-0-NS-Solar	340.0	0.750	50	0.820	10,455			
Lights-Prof=0	801	1.000			2,733			
Equipment-Prof=0	1,500	1.000			5,118	0		
People-Prof=0	15.0	1.000			3,750	3,000		
Sub-total					37,678	3,000		0
Safety factors:					+10%	+10%		+0%
Total w/ safety factors:					41,445	3,300		0