

VERTEX CONSULTANT							
BASIS OF DESIGN - HVAC SYSTEM							
Proj	KFC - T1 FF AHMEDABAD	Description	A.C System- Basis of Design				
Date	27-Feb-24	Prepared By	ZAKIR				
Rev.No	R-0	Checked By					
	Project Location	:	Ahmedabad				
S.No	Description		DB	WB	RH	Gr/ Lb	H
1	Outside Design Data- Summer	:	110	78	24	94	
2	Outside Design Data- Monsoon	:	80	85	82	177	
3	Inside Design Data (General)	:	72		50	60	
Area Wise Details							
S.No	Description		Details				
		Area	Occupancy	Fresh Air	Lighting	Eqpt	Inside Temp
		(Sqft)	(Nos)	CFM/ Person	W/Sq.ft	W	Deg F
FIRST FLOOR							
1	BOH	630.00	10	10	1.00	12,000.00	72.00
Basic Governing Parameters							
	Wall - U Value	0.35	BTU/ Hr/ Sqft/ F		To be confirmed by Arch/ Client		
	Glass - U Value	1.10	BTU/ Hr/ Sqft/ F		To be confirmed by Arch/ Client		
	Glass- SHGC	0.56	-		To be confirmed by Arch/ Client		
	Partition - U Value	0.41	BTU/ Hr/ Sqft/ F		To be confirmed by Arch/ Client		

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Job Name :-		KFC - T1 FF AHMEDABAD							Dated :		27-02-2024
Floor:-		FIRST FLOOR									
Space Used For :-		BOH							Sheet No.		R-0
Seasons		Summer				Monsoon				Winter	
COND	DB	WB	RH	GR/LB	DB	WB	RH	GR/LB	DB	RH	
Outside	110	78	24	94	80	85	82	177			
Inside	72		50	60	72		50	60			
Difference	38	78	-26	34	8	85	32	117			
Sensible Heat Factor					Dehumidified Rise						
SHF =	73592	RSH	=	0.96	0.9	X	(Rm Temp-	ADP) =	15		
	76540	RTH									
Ind ADP		Seic ADP	54		De-Humidified CFM						
					Summer	=	4454				
Equipment:	12000	Watts	Cfm/per	10	Monsoon	=	3179				
Occupancy:	10	Nos	ACPH	1	F.Air	=	11970	CUFT X	ACPH =	200	
Light :	1	Watts/sft			F.Air	=	10	PER X	CFM/PER =	100	
Area	630	sft X ht	19	=	11970	cuft				200	
Sensible Heat											
	AREA	SUN GAIN/TEMP DIFF				FACTOR		BTU/HOUR			
		SUMMER	MONSOON	WINTER	Shading Factor			SUMMER	MONSOON	WINTER	
N-glass			14			0.560		0	0	-	
NE-glass			12			0.560		0	0	-	
E-glass			12			0.560		0	0	-	
SE-glass			12			0.560		0	0	-	
S-glass			12			0.560		0	0	-	
SW-glass			100			0.560		0	0	-	
W-glass			164			0.560		0	0	-	
NW-glass			123			0.560		0	0	-	
Horizontal			123			0.560		0	0	-	
Poly-Carbo			60			1.000		0	0	-	
N-wall		38	8	0		0.350		0	0	-	
NE-wall		38	8	0		0.350		0	0	-	
E-wall		38	8	0		0.350		0	0	-	
SE-wall		38	8	0		0.350		0	0	-	
S-wall		38	8	0		0.350		0	0	-	
SW-wall		48	18	0		0.350		0	0	-	
W-wall		53	23	0		0.350		0	0	-	
NW-wall		48	18	0		0.350		0	0	-	
R-Sun	630	63	33	0		0.120		4763	2495	-	
R-Shaded						0.000		0	0	-	
All-Glass	0	38	8	0		1.100		0	0	-	
Partition-1	679	28	-2	0		0.410		7800	-557	-	
Partition-2		28	-2	0		0.410		0	0	-	
Ceiling		28	-2	0		0.400		0	0	-	
Floor	630	28	-2	0		0.400		7056	-504	-	
Infiltration and Outside Air											
Infiltration		38	8	0			1.08	0	0	-	
Outside Air	200	38	8	1	0.15	X	1.08	1228	259	-	
Internal Heat											
People	10					X	245		2450	-	
Equipment	12000					X	3.41		40920	-	
Lights	630				1.25	X	3.41		2685	-	
Appliance						X	3.968		0	-	
Sub Total of Room Sensible Heat								66902	47748	-	
Credit for Sensible Heat = Sub Total X 0.1								6690	4775	-	
Total Room Sensible Heat								73592	52522	-	
Room Latent Heat											
Infiltration		34	117	0		X	0.68	0	0	-	
Outside Air	200	34	117	1	0.15	X	0.68	692	2381	-	
People	10					X	205	2050	2050	-	
Steam						X	1080	0	0	-	
Sub Total of Room Latent Heat								2742	4431	-	
Credit for Latent Heat = Sub Total X 0.075								206	332	-	
Total Room Latent Heat								2948	4763	-	
Room Total Heat								76540	57285	-	
Ventilation Air Heat											
Sensible	200	38	8	1	0.85	X	1.08	6959	1465	-	
Latent	200	34	117	1	0.85	X	0.68	3921	13491	-	
Grand SubTotal								87420	72242	-	
Grand Total = Grand Sub Total X 1.05								91791	75854	-	
DETAILS											
LOAD		RSH			RTH		GTH				
Summer	7.65	TR	18398.12	K.Cal/HR	19135.00	K.Cal/HR	22947.73	K.Cal/HR			
Monsoon	6.32	TR	13130.59	K.Cal/HR	14321.37	K.Cal/HR	18963.53	K.Cal/HR			
Winter	-	KW	-	K.Cal/HR			-	K.Cal/HR			

MASTER SUMMARY**KFC - T1 FF AHMEDABAD**

S.No	Description	Area	Occupancy	Fresh Air	Eqpt	Lighting	Summer	Summer	Monsoon	Monsoon
		Sqft	Nos	CFM	Watts	Watts	TR	CFM	TR	CFM
FIRST FLOOR										
1	BOH	630	10	200	12000	630	7.65	4454	6.32	3179
	TOTAL	630	10	200	12000	630	7.65	4454	6.32	3179