

HVAC Design Basis:

Based on ASHRAE 62-2001 Occupancy Std										Makeup Air Estimate Occupied Times		
Zone	Location	Occupancy	CFM required per person	Intake cfm max Economizer	exhaust cfm max Economizer	Total OA cfm Design Occupied	Heat load ( 19 F to 75F) BTUHR	Cooling load (87 F to 65 F) Tons	Cooling load (87 F to 65 F) Kw	NOTES		
1A	BASEMENT	50	20	8,000	8,000	1,000	60,480	2	7	Original boilers rated at 1.25 MMBTUHR each total 2.5 Hydrotherm KN-6 528 MBTUHR		
1	FIRST FLR	250	20	19,000	16,000	5,000	302,400	10	35			
2	SECOND FLR	250	20	18,000	16,000	5,000	302,400	10	35			
3	THIRD FLR	250	20	18,000	16,000	5,000	302,400	10	35			
ST							967,680	32	usgpm	101.9		
4	COMMERCIAL Kitchen					4,500	349,920	9	32	have 30 tonnes cooling now for first two floors none on third		
5,6,7,8,9	Offices ( est)	50	20			1,000	77,760	2	7			
10	SECURITY RM					0	0	0	0	stand alone AC- Future		
11	COMPUTER RM					0	0	0	0			
4	Kitchen					4,500	315,900	9	32	stand alone AC- Future		
						26,000	1,711,260	52	226			
Note: COMMERCIAL KITCHEN air requirement is satisfied by KVS MAU									btuhr			

  

Perimeter		BTUHR	
ZONE	First flr east:	5,000	
		8,000	
		8,000	
		12,200	
		14,000	hallway
		10,400	hallway
	First flr west:	10,400	hallway
		3,000	
		5,100	
		5,100	
		5,100	
		5,100	
Second flr east:	5,600		
	10,400	hallway	
	10,400	hallway	
	117,800	st	
Second flr west:	6,300		
	5,800		
	5,800		
	5,800		
	5,800		
	5,800		
	5,800		
	5,800		
	2,300		
	6,300		
	6,300		
	6,300		
Third flr east:	6,300		
	5,200		
	5,200		
	5,200		
	5,200		
	5,800		
	5,200		
	5,800		
	5,200		
	5,800		
	5,200		
	5,200		
Third flr west:	5,200		
	5,200		
	5,200		
	5,200		
	5,200		
	6,300		
	6,300		
	6,300		
	6,300		
	6,300		
	6,300		
	6,300		
		70/30 GLYCOL	
		usgpm	12.4
		usgpm	7.9
		usgpm	12.0
		usgpm	32.3
		usgpm	70.0
		usgpm	32.3

  

UNIT HEATER ZONE		BTUHR	
Basement:	#11	40,000	est
	#12	40,000	est
	#13	40,000	est
First flr:	#14	58,000	
	#15	58,000	
	#20	35,000	force
Second flr:	#16	58,000	
	#17	58,000	
Third flr:	#18	139,000	
	#19	139,000	
	TOTAL UNIT HEATERS	665,000	1 Boiler
			usgpm
			70.0
	TOTAL Heat	1,939,480	
	TOTAL Original Heat	2,500,000	Input
			3.673257576 Boilers required- TOTAL

Codes & Standards

- ASHRAE Fundamentals
- ASHRAE 62-201 (Air)
- ASHRAE 90.1 2004 (Energy Code)
  - Duct Seal Table 6.4.4.2A
  - Duct Insulation R Value Table 6.8.2B
  - Pipe Insulation Table 6.8.3
- Ministerial Order M 100 / BCBC 2006
- NFPA 96 (2008) Standard for Ventilation control & Fire protection for Commercial cooking operations.
- SMACNA HVAC Duct construction standards,
- SMACNA Seismic Restraint manual, ANSI/SMACNA 001-2000
- SMACNA Kitchen Ventilation Systems and Food Service Equipment fabrication & installation guidelines.
- TECA Ventilation guidelines.

AS BUILT  
DATE: \_\_\_\_\_

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HVAC Design Basis Planet Bingo		
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