

DESIGN ATMOSPHERIC CONDITION

A. Outside Conditions (Both Rihand & Delhi)

I. Temperatures

- a) Maximum dry bulb temperature (1 hour average) 50°C
- b) Maximum dry bulb temperature (24 hours average) 40°C
- c) Annual mean dry bulb temperature 33°C
- d) Maximum wet bulb (1 hour average)

Delhi	27°C
Rihand	32°C

- e) Wet bulb temperature (for low ambient rating)

Delhi	20°C
Rihand	25°C

- f) Dry bulb temperature (for low ambient rating)

Delhi	33°C
Rihand	33°C

II. Wind

- a) Maximum design wind pressure : 195 kg/m² upto 30 M height

b) Maximum wind velocity (KM/Hr.)	Delhi	150
	Rihand	129

III. Relative Humidity

- a) Maximum 100%

IV. Solar Radiation

520 W/M²

V. Maximum Rainfall in 24 hours

Delhi	267 mm
Rihand	300 mm

APPENDIX-I

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VI. Air Pollution

a) Both Rihand & Delhi - Heavily polluted

VII. Seismic Coefficient

According to IS : 1893-1975 Zone - III and IV.

VIII. Cooling Water temperature

	Rihand (from Lake)	Delhi
Maximum temperature	35°C	35°C
Minimum temperature	15°C	10°C
Average temperature	28°C	25°C

B. DESIGN OUTSIDE CONDITIONS

I. <u>RIHAND</u>	<u>Dry Bulb temp.</u>	<u>Wet Bulb temp.</u>
i) Summer	45°C	26°C
ii) Monsoon	35°C	28.9°C
iii) Winter	8.9°C	7.2°C
II. <u>DELHI</u>		
i) Summer	45°C	26°C
ii) Monsoon	35.8°C	28.3°C
iii) Winter	2°C	0°C

C. INSIDE CONDITION FOR AIR-CONDITIONING SPACE

- i) Temperature : 25°C ± 1°C
- ii) Relative Humidity : 47% ± 5%

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D. INSIDE CONDITIONS FOR VENTILATED SPACES

I) Valve Hall

- i) Maximum air temperature at the top of Valve Hall : 55°C
- ii) Maximum Dust Content : 0.10 PPM
- iii) Maximum relative humidity : 60% *
- iv) Equipment heat load : 30 KW

* Upto 85% for 30 minutes per day

II) Battery Room

- i) Minimum air changes/hour : 15
- ii) Maximum Hydrogen Concentration in air : 1%

III) Sanitary Facilities

- i) Minimum air changes/hour : 20

IV) Other Facilities

- i) Temperature rise above outside dry bulb temperature : 4.5°C

V) D.G. Room

- i) Maximum indoor temperature : 50°C

APPENDIX - II

Thermal Load Data

Sheet 1 of 2

Sl. No.	Area Bldg. Designation	Conditioned Area (m ²)	Glass Area (m ²)	Out side Exposed Wall (m ²)	Partition Wall to non A/C Area (m ²)	Lighting Load (KW) (Including ballast heat gain)	Eqpt Load (KW)	Occu- pancy Nos (Stat ioned)	Other Particulars
1.	Control Room (SS 3.01)	342	25	150	55	10.0	10.3	15	Room Height = 4200. False Ceiling = 3400 Roof exposed to Sun constructed of 8" thick concrete with suspended acoustic/*
2.	Conference Room SB 3.15	20.25	4.5	-	20	0.75	-	12	Room Height = 4200. False Ceiling = 5000 Roof exposed to Sun
3.	Storage Doc. Room SS 3.14	13.05	NIL	-	12	0.25	-	2	-do-
4.	Lunch Room SB 3.13	29.7	N/L	15	28	0.375	-	12	-do-
5.	Office-1 SB 3.12	22.5	3.0	15	-	0.75	-	5	-do-
6.	Office-2 SB 3.11	22.5	3.0	15	22	0.75	-	7	-do-
7.	Lobby & Passage SB 3.05	65.56	NIL	-	15	1.25	-	5	-do-
8.	Telecomm. Room SB 3.02	20.25	NIL	-	-	0.625	1.5	4	Room Height = 4200. No false Ceiling. Roof exposed to Sun construction as above
9.	Storage Office SB 3.06	11.25	NIL	-	-	0.425	-	2	-do-

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Thermal Load Data

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Sl. No.	Area Bldg. Designate	Conditioned Area (M ²)	Glass Area (M ²)	Outside Exposed Wall (M ²)	Partition Wall to Non A/C Area (M ²)	Lighting Load (KW)	Eqpt. Load (KW)	Occupancy Nos. (Stationed)	Fresh Air M ³ /hr.	Other Particulars
10.	Telecomm. Workshop (SB 3.02)	20.25	Nil	-	15	0.675	-	4		Room Height=4200 No false ceiling Roof exposed to Sun Construction as before.
11.	Control & Protection Workshop (SB 3.04)	20.25	Nil	-	15	0.75	-	4		- do -
12.	First Floor Lobby + Locker Room (SB 2.07, 2.10)	51.48	4.0	-	125	1.5	-	4		Room Height = 4200 False Ceiling = 3000 Roof to air cond. space.
13.	Reception (SB 2.08)	7.4	Nil	-	25	0.25	-	2		- do -
14.	First Aid Room (SB 2.09)	7.4	Nil	-	25	0.29	-	2		- do -
15.	Toilet (SB 3.07 0.8 & 0.9)	7.5	Nil	-	55	0.25	-	2		- do -
16.	Valve Module Workshop (SB 02.19)	50.0	Nil	-	109	1.75	3.0	3		Room Height = 6500 No false ceiling.
17.	Valve Module Storage (SB 02.18)	50.0	Nil	-	100	1.75	1.0	1		- do -
18.	Mech. Elec. Workshop (SB 02.17)	110.0	Nil	150	150	5.0	4.5	4		- do -

Note : - Floor to non-A/C area to be considered based on enclosed drawings.

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