



Electrical load Calculation - HEMISPHERE
GREATER NOIDA (Combined 3311 kV Substation)

S.No	Description	No. of unit	Load per Unit	Total Load
Dwelling Units Phase - I				
1	Type-A (400 Sq. Yards) (835 sq M @ 50 WsqM = 26.75 KW)	36 units @	26.8 KW	= 963 KW
2	Type-B (275 Sq. Yards) (394 sq M @ 50 WsqM = 19.70 KW)	18 units @	19.7 KW	= 355 KW
3	Type-C (200 Sq. Yards) (296 sq M @ 50 WsqM = 14.90 KW)	34 units @	14.9 KW	= 507 KW
4	Type-D (150 Sq. Yards) (250 sq M @ 50 WsqM = 12.50 KW)	78 units @	12.5 KW	= 975 KW
5	Type-E (125 Sq. Yards) (200 sq M @ 50 WsqM = 10.00 KW)	56 units @	10.0 KW	= 560 KW
6	Type-F (100 Sq. Yards) (132 sq M @ 50 WsqM = 6.60 KW)	56 units @	6.6 KW	= 370 KW
7	3 BRK Duplex (168 sq M @ 50 WsqM = 8.40 KW)	180 units @	8.4 KW	= 1512 KW
8	2 BRK Simplex (102 sq M @ 50 WsqM = 5.10 KW)	180 units @	5.1 KW	= 918 KW
Common Services - Phase-I				
9	STP-1	1 Job @	50 KW	= 50 KW
10	Tube wells/Water Supply Pumps Room-1	1 Job @	50 KW	= 50 KW
11	Fire pumps (only jockey pumps have been considered)	2 set @	15.0 KW	= 30 KW
12	External / Gate / Landscape lighting	1 Set @	10 KW	= 10 KW
13	Club	1 Job @	300 KW	= 300 KW
14	Elevators (16 Passenger) 1.5 mps	15 nos @	15 KW	= 225 KW
15	Elevators (13 Passenger) 1.5 mps	45 nos @	10 KW	= 450 KW
16	Basement lighting	49877 sqm @	1.0 W/sqm	= 50 KW
17	Basement Ventilation			= 500 KW
Total Load (A)				= 7824 KW

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S.No	Description	No. of unit	Load per Unit	Total Load
Phase - II				
18	Type-A (400 Sq. Yards) (835 sq M @ 50 WsqM = 26.75 KW)	41 units @	26.8 KW	= 1097 KW
19	Type-B (275 Sq. Yards) (394 sq M @ 50 WsqM = 19.70 KW)	22 units @	19.7 KW	= 433 KW
20	Type-C (200 Sq. Yards) (296 sq M @ 50 WsqM = 14.90 KW)	31 units @	14.9 KW	= 462 KW
21	Type-D (150 Sq. Yards) (250 sq M @ 50 WsqM = 12.50 KW)	60 units @	12.5 KW	= 750 KW
22	Type-E (125 Sq. Yards) (200 sq M @ 50 WsqM = 10.00 KW)	48 units @	10.0 KW	= 480 KW
23	Type-F (100 Sq. Yards) (132 sq M @ 50 WsqM = 6.60 KW)	49 units @	6.6 KW	= 323 KW
24	3 BRK Duplex (168 sq M @ 50 WsqM = 8.40 KW)	156 units @	8.4 KW	= 1310 KW
25	2 BRK Simplex (102 sq M @ 50 WsqM = 5.10 KW)	156 units @	5.1 KW	= 796 KW
Common Services - Phase-II				
26	STP-2	1 Job @	40 KW	= 40 KW
27	Tube wells/Water Supply Pumps Room-2	1 Job @	40 KW	= 40 KW
28	Fire pumps (only jockey pumps have been considered)	2 set @	15.0 KW	= 30 KW
29	External / Gate / Landscape lighting	1 Set @	10 KW	= 10 KW
30	Club	1 Job @	300 KW	= 300 KW
31	Elevators (16 Passenger) 1.5 mps	13 nos @	15 KW	= 195 KW
32	Elevators (13 Passenger) 1.5 mps	39 nos @	10 KW	= 390 KW
33	Basement lighting	49877 sqm @	1.0 W/sqm	= 50 KW
34	Basement Ventilation			= 500 KW
Total Load (B)				= 7296 KW

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S.No	Description	No. of unit	Load per Unit	Total Load
Phase - III (Commercial)				
35	1 BRK (51 sq M @ 50 WsqM = 2.55 KW)	192 units @	2.8 KW	= 490 KW
36	2 BRK (102 sq M @ 50 WsqM = 5.11 KW)	96 units @	5.1 KW	= 491 KW
37	Commercial	9300 sqm @	50.0 W/sqm	= 465 KW
Common Services - Phase-III				
38	STP-3	1 Job @	20 KW	= 20 KW
39	Tube wells/Water Supply Pumps Room-3	1 Job @	20 KW	= 20 KW
40	Fire pumps (only jockey pumps have been considered)	2 set @	15.0 KW	= 30 KW
41	External / Gate / Landscape lighting	1 Set @	5 KW	= 5 KW
42	Elevators (16 Passenger) 1.5 mps	2 nos @	15 KW	= 30 KW
43	Elevators (13 Passenger) 1.5 mps	4 nos @	10 KW	= 40 KW
44	Basement lighting	6000 sqm @	1.0 W/sqm	= 6 KW
45	Basement Ventilation			= 80 KW
Total Load (C)				= 1676 KW
Phase-IV (Future Expansion)				
46	2 BRK (111 sq M @ 50 WsqM = 5.57 KW)	1008 units @	5.8 KW	= 5919 KW
Common Services - Phase-IV				
47	STP-4	1 Job @	60 KW	= 60 KW
48	Tube wells/Water Supply Pumps Room-4	1 Job @	60 KW	= 60 KW
49	Fire pumps (only jockey pumps have been considered)	2 set @	20.0 KW	= 40 KW
50	External / Gate / Landscape lighting	1 Set @	5 KW	= 5 KW
51	Elevators (16 Passenger) 1.5 mps	12 nos @	15 KW	= 180 KW
52	Elevators (13 Passenger) 1.5 mps	24 nos @	10 KW	= 240 KW
53	Basement lighting	47000 sqm @	1.0 W/sqm	= 47 KW

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S.No	Description	No. of unit	Load per Unit	Total Load
54	Basement Ventilation			= 635 KW
Total Load (D)				= 6886 KW
Total Load (A+B+C+D)				= 23592 KW
By taking Overall Diversity factor 50 %				= 11796 KW
By taking Additional Diversity factor 80 %				= 9437 KW
By taking Power factor 0.90				= 10490 KVA
Total Electrical Load = 10490 KVA				
Recommended Transformers (at 85% loading) = 2 nos. 6.0 MVA, 3311 kV Power Transformers.				
Total Load				= 23592 KW
By taking Overall Diversity factor 50 %				= 11796 KW
By taking Additional Diversity factor 70 %				= 8257 KW
By taking Power factor 0.80				= 10320 KVA
Total Electrical Load = 10320 KVA				
Recommended DG Sets (at 90% loading) = 5 nos. 2.0 MVA & 2 Nos 1.0 MVA, 11 kV HT DG Sets.				

Rev. No.	Date	No's OF Prints	Revision

project

title
SITE PLAN

subtitle
EXTERNAL ELECTRICAL SYSTEM

drawing released for

APPROVAL SUBMISSION

ADVANCE COPY CONSTRUCTION

drg. no. HEMISPHERE / EX / EL-01 drawn by Satyam Sharma

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