

PART VIII
Appendix A
Maximum Demand and Diversity

Some information on the determination of the maximum demand for an electrical installation is provided in this appendix. It also includes some notes on the application of allowances for diversity. It is impossible however, to specify the appropriate allowances for diversity for every type of installation since determination of such allowances calls for special knowledge and experience. The figures shown in Table 8.A.1 are therefore, intended to act as guideline. The current demand of a final circuit is determined by summing the current demands of all points of utilization and equipment in the circuit. Typical values to be used for this summation are given in Table 8.A.2. For blocks of residential dwellings, large hotels, and industrial and large commercial premises, allowances are to be assigned by a competent Engineer.

The current demand of a circuit supplying a number of final circuits may be assessed by applying the allowances for diversity given in Table 8.A.2 to the total current demand of all the equipment supplied by that circuit. In the Table, the allowances are appraised either as percentages of the current demand or, where followed by the letters f.l., as percentages of the rated full load current of the current using equipment. After the design currents for all the circuits have been determined, enabling the conductor sizes to be chosen, it is necessary to check that the limitation on voltage drop is met.

Table 8.A.1: Allowances for Diversity

Purpose of final circuit fed from conductors or switchgear to which diversity applies	Type of Premises		
	Individual household installations, including dwellings of a block	Small shops, stores, offices and business premises	Small hotels, boarding houses, guest houses, etc.
1. Lighting	66% of total current demand	90% of total current demand	75% of total current demand
2. Cooking appliances	10 amperes + 30% f.l. of connected cooking appliances in excess of 10 amperes + 5 amperes if socket outlet is incorporated in unit.	100% f.l. of largest appliance + 80% f.l. of 2nd largest appliance + 60% f.l. of remaining appliances	100% f.l. of largest appliance + 80% f.l. of 2nd largest appliance + 60% f.l. of remaining appliances

Purpose of final circuit fed from conductors or switchgear to which diversity applies	Type of Premises		
	Individual household installations, including dwellings of a block	Small shops, stores, offices and business premises	Small hotels, boarding houses, guest houses, etc.
3. Motors (other than lift motors which are subject to special consideration)	————	100% f.l. of largest motor + 80% f.l. of 2nd largest motor + 60% f.l. of remaining motors	100% f.l. of largest motor + 50% f.l. of remaining motors.
4. Water heater (thermostatically controlled)		No diversity allowable	

Table 8.A.2: Current Demand to be Assumed for Points of Utilization and Current using Equipment

Point of Utilization or Current-using Equipment	Current Demand to be Assumed
15 A socket outlets	15 A with diversity applied
13 A socket outlets	13 A with diversity applied
5 A socket outlets	At least 0.5 A
Protected outlets other than the above mentioned socket outlets	Rated current
Lighting outlet	Current equivalent to the connected load, with a minimum of 100 W per lamp holder
House hold cooking appliance	The first 10 A of the rated current plus 30% of the remainder of the rated current plus 5 A if a socket outlet is incorporated in the control unit
All other stationary equipment / Appliances	Standard rated current or nominal current.

PART VIII
Appendix B
Useful Tables Relating to Conductor Sizes

Table 8.B.1: Number of Single-core Wire of Different Sizes for Various Sizes of Metal Conduits

Conductor Cross-sectional Area (mm ²)	Conduit Diameter					
	19 mm	25.4 mm	31.8 mm	38 mm	51 mm	63.5 mm
1.5	5	10	14	-	-	-
2.5	5	8	12	-	-	-
4.0	3	6	10	-	-	-
6.0	2	5	8	-	-	-
10.0	-	3	5	6	-	-
16.0	-	-	3	6	-	-
25.0	-	-	2	4	6	7
35.0	-	-	-	3	5	6
50.0	-	-	-	-	4	5

Table 8.B.2: Number of Single-core Wires of Different Sizes for Various Sizes of PVC Conduits

Conductor Cross-sectional Area (mm ²)	Conduit Diameter				
	19 mm	25 mm	32 mm	38 mm	51 mm
1.5	6	10	14	-	-
2.5	5	10	14	-	-
4.0	3	6	10	14	-
6.0	2	5	8	11	-
10.0	-	4	7	9	-
16.0	-	2	4	5	12
25.0	-	-	2	2	6
35.0	-	-	2	2	5
50.0	-	-	-	2	3