

Code 7 CURRENT DEMAND

7A Current Demand of a Circuit

The current rating of a circuit should not be less than the current demand of the circuit.

7B Determination of Current Demand

(1) General

The information and values given in this CoP for determination of current demand are intended for general guidance only as it is impossible to specify the appropriate allowances for diversity for every type of electrical installations.

(2) For circuit supplying non-simultaneous or cyclic loads

For a circuit having non-simultaneous or cyclic loads such that only one of these loads can be in use at any one time, the greatest of these loads should be used in calculating the current demand of the circuit.

(3) For final circuits

To determine the current demand of a final circuit, the following methods should be used:

- (a) For standard final circuits designed in accordance with Code 6, the current demand of the circuit concerned should be the same as the rating of the overcurrent protective device of the circuit.
- (b) The current demand of a final circuit other than subparagraph (a) should be assessed by summing the assumed current demands of current using equipment connected or intended to be connected as follows:
 - (i) each socket outlet in a radial final circuit should be assumed to demand its rated current rating;
 - (ii) lighting outlets should be assumed to demand the connected load with 60W per lampholder for incandescent lamps or the actual wattage of the lamp to be installed, whichever is the greater, except if the design of the luminaire associated with the lampholder only permits lamps of less than 60W to be inserted in any lampholder, in which case, the connected load of that lampholder is the wattage of the highest rated lamp that may be accommodated;

- (iii) electric clock, shaver socket outlet, bell transformer, and current using equipment of a rating not greater than 5 VA may be neglected;
- (iv) fluorescent and other discharge lamps (e.g. low or high pressure sodium lamp, metal halide lamps, etc) should be assumed to have a demand in volt-amperes of the rated lamp wattage multiplied by a factor, which takes into account control gear losses and harmonic currents. In the absence of more precise information from manufacturer, a factor of not less than 1.8 could be adopted; and
- (v) all other fixed equipment should be assumed to demand the rated or normal current.

(4) For circuits supplying a number of final circuits

The current demand of a circuit supplying a number of final circuits may be determined by applying the allowances for diversity given in Table 7(1) to the total current demand of all the equipment connected to the circuit and not by summing the current demands of the individual final circuits obtained according to paragraph (3).

While using Table 7(1), the following points should be noted:

- (a) Table 7(1) applies only to LV installations having a current demand not exceeding 400A in each phase.
- (b) For installations having a current demand exceeding 400A per phase, the allowances for diversity should be assessed by a grade B or grade C registered electrical worker as appropriate.
- (c) In Table 7(1) the allowances are expressed either as a percentage of the current demand or, where followed by the letters f.l., as a percentage of the rated full load current of the current using equipment.
- (d) Table 7(1) does not apply to installations in factories and industrial undertakings. Allowances for diversity of such installations will depend on the type of plant and machinery and their operational requirements.

Table 7(1)**Allowance for Diversity**

This table is applicable to installations having a current demand not exceeding 400A in each phase.

Purpose of Conductors or Switchgear to which Diversity Applies	Type of Premises		
	Individual Household Installations, Individual 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. Heating and Power (Also see 3 to 10 below)	100% of total current demand up to 10 amperes+50% of any current demand in excess of 10 amperes	100% f.l. of largest appliance+75% f.l. of remaining appliances	100% f.l. of largest appliance+80% f.l. of 2 nd largest appliance+60% f.l. of remaining appliances
3. Cooking Appliances	10 amperes+30% f.l. of connected cooking appliances in excess of 10 amperes+5 amperes if socket outlet incorporated in unit	100% f.l. of largest appliance+80% f.l. of 2 nd largest appliance+60% f.l. of remaining appliances	100% f.l. of largest appliance+80% f.l. of 2 nd largest appliance+60% f.l. of remaining appliances

Purpose of Conductors or Switchgear to which Diversity Applies	Type of Premises		
	Individual Household Installations, Individual Dwellings of a Block	Small Shops, Stores, Offices and Business Premises	Small Hotels, Boarding Houses, Guest Houses, etc.
4. Motors (other than lift motors, see 8)	—	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
5. Water-Heaters (instantaneous type)	100% f.l. of largest appliance+100% f.l. of 2 nd largest appliance+25% f.l. of remaining appliances	100% f.l. of largest appliance+100% f.l. of 2 nd largest appliance+25% f.l. of remaining appliances	100% f.l. of largest appliance+100% f.l. of 2 nd largest appliance+25% f.l. of remaining appliances
6. Water Heaters (thermostatically controlled)	No diversity allowable Note: It is important to ensure that the distribution board is of sufficient rating to take the total load connected to it without the application of any diversity.		
7. Thermal Storage Space Heating Installations			
8. Lift motors	Note: Subject to requirements specified by the lift engineer registered under Cap. 618, Lifts & Escalators Ordinance.		
9. Water Pumps	100% f.l. of the largest pump motor and 25% of the remaining motors		
10. Air conditioners	100% f.l. of the largest air-conditioner in the premises and 40% f.l. of the remaining air-conditioner(s)	100% of current demand of largest point of utilisation+ 75% of current demand of every other point of utilisation	100% of current demand of largest point of utilisation+ 75% of current demand of every other point of utilisation

Purpose of Conductors or Switchgear to which Diversity Applies	Type of Premises		
	Individual Household Installations, Individual Dwellings of a Block	Small Shops, Stores, Offices and Business Premises	Small Hotels, Boarding Houses, Guest Houses, etc.
11. Arrangements of Final Circuits in accordance with code 6D	100% of current demand of largest circuit+30% of current demand of every other circuit	100% of current demand of largest circuit+ 40% of current demand of every other circuit	
12. Arrangements of Final Circuits in accordance with code 6E	100% of current demand of largest circuit+40% of current demand of every other circuit	100% of current demand of largest circuit+ 50% of current demand of every other circuit	
13. Fixed Equipment of the same type e.g. Refrigerators and freezers other than those listed above	100% of current demand of largest point of utilisation+ 40% of current demand of every other point of utilisation	100% of current demand of largest point of utilisation+ 75% of current demand of every other point of utilisation	100% of current demand of largest point of utilisation+ 75% of current demand of every point in main rooms (dining rooms, etc.) + 40% of every other point of utilisation