### Table 7 Minimum Requirements for Fire Fighting Installations

[Clauses 4.9(a), 4.9(c), 4.9(e), 5.1.1(a), 5.1.1(d), 5.1.2.1, 5.1.3(a), E-7, H-2(f) and Table 2]

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Type of Building Occupancy</th>
<th>Type of Installation</th>
<th>Water Supply (litre)</th>
<th>Pump Capacity (litre/min)</th>
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<tbody>
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<td></td>
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<td>Fire Extinguisher</td>
<td>First Aid Hose Reel</td>
<td>Wet Riser</td>
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<td>R</td>
<td>NR</td>
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<tr>
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<td>i) Up to 15 rooms</td>
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<td>NR</td>
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<tr>
<td>1</td>
<td>ii) More than 15 and up to 30 rooms</td>
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<td>R</td>
<td>NR</td>
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<tr>
<td>1</td>
<td>iii) More than 30 rooms</td>
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<td>c) Dormitories (A-3) and Apartment Houses (A-4)</td>
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<td>Pump Capacity (litre/min)</td>
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<td>Down Comer</td>
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<td>Yard Hydrant</td>
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<td>Automatic Sprinkler System</td>
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<td>Manually Operated Electronic Fire Alarm Systems (see Note 1)</td>
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<td>Under-ground Storage Tank Combined Capacity for Wet Riser, Yard Hydrant and Sprinklers per Set of Pumps</td>
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<td>Terrace Tank over Respective Tower Terrace</td>
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<td>Pump Near Underground Storage Tank (Fire Pump) with Minimum Pressure of 3.5 kg/cm²</td>
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<td>At the Terrace Tank Level with Minimum Pressure of 3.5 kg/cm²</td>
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<tr>
<td>2)</td>
<td>15 m and above but not exceeding 35 m in height</td>
<td>R R NR R (see Note 4)</td>
<td>NR 25000 NR 900</td>
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<tr>
<td>3)</td>
<td>Above 35 m but not exceeding 45 m in height</td>
<td>R R R NR (see Note 4)</td>
<td>R NR 75000 5000 (see Note 10) NR</td>
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<tr>
<td>4)</td>
<td>Above 45 m in height but not exceeding 60 m in height</td>
<td>R R R NR (see Note 4 and Note 9)</td>
<td>R NR 150000 10000 (see Note 11) NR</td>
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<td>5)</td>
<td>Above 60 m in height</td>
<td>R R R NR R R R NR</td>
<td>200000 10000 (see Note 12 &amp; Note 13) NR</td>
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<td>d)</td>
<td>Hotels (A-S)</td>
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<td>Less than 15 m in height</td>
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<tr>
<td>i)</td>
<td>Floor area not exceeding 300 m² on any of the floor</td>
<td>R R NR NR NR (see Note 4)</td>
<td>R NR 5000 (see Note 6) NR 450 (see Note 6)</td>
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<td>ii)</td>
<td>Floor area exceeding 300 m² but not more 1000 m² on any of the floor</td>
<td>R R (see Note 7) NR NR (see Note 4)</td>
<td>R R 10000 for every 500 m² floor area subject to minimum of 50 000 (see Note 7) 10 000 (see Note 6) (see Note 14 in case of provision of wet riser) 450 (see Note 6)</td>
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<tr>
<td>iii)</td>
<td>Floor area exceeding 1000 m² on any of the floor</td>
<td>R R (see Note 15) NR NR R (see Note 1) R</td>
<td>100 000 (see Note 15) 10 000 (see Note 4)</td>
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<tr>
<th>Sl No.</th>
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<th>Type of Installation</th>
<th>Water Supply (litre)</th>
<th>Pump Capacity (litre/min)</th>
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<tbody>
<tr>
<td></td>
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<td>Under-ground Static Water Storage Tank Combined Capacity for Wet Riser, Yard Hydrant and Sprinklers per Set of Pumps</td>
<td>Terrace Tank over Respective Tower Terrace</td>
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<td>Pump Near Underground Static Water Storage Tank (Fire Pump) with Minimum Pressure of 3.5 kg/cm² at Remotest Location</td>
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<td>At the Terrace Tank Level with Minimum Pressure of 3.5 kg/cm²</td>
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**EDUCATIONAL BUILDINGS (B) (see Note 16)**

1) Less than 15 m in height
   - i) Ground plus one or more storeys
     - R R NR NR R (see Note 4) R NR NR 10 000 (5 000) NR 450 (450) (see Note 6)
   - ii) 15 m and above but not exceeding 24 m in height
     - R R NR R NR (see Note 4) R NR NR
   - iii) Above 24 m but not exceeding 30 m in height
     - R R NR R (see Note 4) R NR NR 50 000 (5 000) (see Note 6) NR

**INSTITUTIONAL BUILDINGS (C) (see Note 16)**

a) Hospitals, Sanatoria and Nursing Homes (C-1)

1) Less than 15 m in height with plot area up to 1 000 m²
   - i) Up to ground plus one storey, with no beds
     - R NR NR NR NR R (see Note 4) R NR NR (5 000) (see Note 6) NR 450 (see Note 6)
<table>
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<tr>
<th>Sl No.</th>
<th>Type of Building Occucpy</th>
<th>Type of Installation</th>
<th>Water Supply (litre)</th>
<th>Pump Capacity (litre/min)</th>
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<tr>
<td>i)</td>
<td>Up to ground plus one storey with beds</td>
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<td>ii)</td>
<td>Ground plus two or more storeys, with no beds</td>
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<td>iii)</td>
<td>Ground plus two or more storeys, with beds</td>
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<td>iv)</td>
<td>Less than 15 m in height with plot area more than 1000 m²</td>
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<td>v)</td>
<td>15 m and above but not exceeding 24 m in height</td>
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<td>Above 24 m and not exceeding 45 m in height</td>
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<td>b)</td>
<td>Custodial (C-2), and Penal and Mental (C-3)</td>
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<tr>
<td>i)</td>
<td>Less than 10 m in height</td>
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<tr>
<td>ii)</td>
<td>More than 300 persons</td>
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## Table 7 — (Continued)

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<th>Pump Capacity</th>
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<td>and Alarm</td>
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|        |                  |                      | Under-ground |              |
|        |                  |                      | Static Water |              |
|        |                  |                      | Storage Tank |              |
|        |                  |                      | Combined     |              |
|        |                  |                      | Capacity for  |              |
|        |                  |                      | Wet Riser,   |              |
|        |                  |                      | Yard Hydrant |              |
|        |                  |                      | and Sprinklers|              |
|        |                  |                      | per Set of   |              |
|        |                  |                      | Pumps        |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

### ASSEMBLY BUILDINGS (D) (see Note 16)

#### a) Buildings (D-1 to D-5)

|        |                  |                      |              |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

1) Less than 10 m in height
   i) Up to 300 persons

|        |                  |                      |              |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

2) Above 10 m but not exceeding 15 m in height

|        |                  |                      |              |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

3) Above 15 m but not exceeding 24 m in height

|        |                  |                      |              |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

4) Above 24 m but not exceeding 30 m in height

|        |                  |                      |              |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

#### b) D-6

|        |                  |                      |              |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

#### c) D-7

For details see 6.4.4

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**Part 4: Fire and Life Safety**

**Table 7 — (Continued)**

<table>
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<tr>
<th>Sl No.</th>
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<th>Type of Installation</th>
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<th>Pump Capacity</th>
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<td>(litre/min)</td>
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<td>and Alarm</td>
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<td>System (see</td>
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<td>Note 2)</td>
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<td>Capacity for</td>
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<td>Wet Riser,</td>
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<td>Yard Hydrant</td>
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**Water Supply Pump Capacity**

|        |                  |                      |              |              |
|        |                  |                      | Automatic    |              |
|        |                  |                      | and Alarm    |              |
|        |                  |                      | System (see  |              |
|        |                  |                      | Note 2)      |              |
|        |                  |                      |              |              |
|        |                  |                      |              |              |

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<th>Fire Extinguisher</th>
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<th>Wet Riser</th>
<th>Down Comer</th>
<th>Yard Hydrant</th>
<th>Automatic Sprinkler System</th>
<th>Manually Operated Electronic Fire Alarm System (see Note 1)</th>
<th>Automatic Detection and Alarm System (see Note 2)</th>
<th>Under-ground Static Water Storage Tank Combined Capacity for Wet Riser, Yard Hydrants and Sprinklers per Set of Pumps</th>
<th>Terrace Tank over Respective Tower</th>
<th>Pump Near Underground Static Water Storage Tank (Fire Pump) with Minimum Pressure of 3.5 kg/cm² at Remote Location</th>
<th>Water Supply (litre)</th>
<th>Pump Capacity (litre/min)</th>
<th>At the Terrace Tank Level with Minimum Pressure of 3.5 kg/cm²</th>
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<td>50 000 (5 000) (see Note 6)</td>
<td>(see Note 14) 450 (450) (see Note 6)</td>
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**Table 7**

**BUSINESS BUILDINGS (E)**

**MERCANTILE BUILDINGS (F)**

| a)    | F-1 and F-2 (see Note 16) |                             |                  |                    |           |            |             |                          |                                                          |                                                   |                                                               |                                 |                                                             |                             |                             |                                                               |
|-------|---------------------------|-----------------------------|------------------|--------------------|-----------|            |             |                          |                                                          |                                                   |                                                               |                                 |                                                             |                             |                             |                                                               |
| 1)    | Less than 15 m in height  |                             |                  |                    |           |            |             |                          |                                                          |                                                   |                                                               |                                 |                                                             |                             |                             |                                                               |
| i)    | Ground plus one storey, with total of all floor area not exceeding 500 m³ | R    | R                  | NR         | NR        | NR          | R (see Note 4)           | R                                                        | NR                                                 | NR                                              | 5 000 (5 000) (see Note 6) | NR                                           | 450 (450) (see Note 6) |                             |                                                               |
## Table 7 (Continued)

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Type of Building Occupancy</th>
<th>Type of Installation</th>
<th>Water Supply (litre)</th>
<th>Pump Capacity (litre/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>At the Terrace Tank Level with Minimum Pressure of 3.5 kg/cm²</td>
</tr>
<tr>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii)</td>
<td>Ground plus one storey and total of all floor area exceeding 500 m²</td>
<td>R R NR R R NR R (see Note 4) R NR</td>
<td>NR</td>
<td>20 000 (5 000) (see Note 6) NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii)</td>
<td>More than ground plus one storey</td>
<td>R R NR R R NR R (see Note 4) R NR</td>
<td>NR</td>
<td>25 000 (5 000) (see Note 6) NR</td>
</tr>
<tr>
<td>2)</td>
<td>Above 15 m but not exceeding 24 m in height</td>
<td>R R R NR R R R R</td>
<td>100 000 10 000 (see Note 10) NR</td>
<td></td>
</tr>
<tr>
<td>3)</td>
<td>Above 24 m but not exceeding 30 m in height</td>
<td>R R R R R</td>
<td>200 000 20 000 (see Note 11) NR</td>
<td></td>
</tr>
<tr>
<td>b) Underground shopping complex (F-3)</td>
<td>R R R NR R R R R</td>
<td>150 000 10 000 (see Note 11) NR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### INDUSTRIAL BUILDINGS (G) (see Note 17)

<table>
<thead>
<tr>
<th></th>
<th>Low Hazard (G-1) (see Note 18)</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Low Hazard (G-1) (see Note 18)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>Covered area up to 100 m²</td>
<td>R NR NR NR NR NR (see Note 4) NR NR</td>
<td>NR</td>
<td>5 000 (see Note 5) NR</td>
</tr>
<tr>
<td>ii)</td>
<td>Covered area more than 100 m² and up to 500 m²</td>
<td>R R NR NR R (see Note 8) NR R (see Note 4) NR NR</td>
<td>NR</td>
<td>20 000 (5 000) (see Note 6) NR</td>
</tr>
</tbody>
</table>

### Notes:
- See Note 1 for Water Supply and Pump Capacity.
- See Note 2 for Water Supply and Pump Capacity.
- See Note 3 for Water Supply and Pump Capacity.
- See Note 4 for Water Supply and Pump Capacity.
- See Note 5 for Water Supply and Pump Capacity.
- See Note 6 for Water Supply and Pump Capacity.
- See Note 7 for Water Supply and Pump Capacity.
- See Note 8 for Water Supply and Pump Capacity.
- See Note 9 for Water Supply and Pump Capacity.
- See Note 10 for Water Supply and Pump Capacity.
- See Note 11 for Water Supply and Pump Capacity.
- See Note 12 for Water Supply and Pump Capacity.
- See Note 13 for Water Supply and Pump Capacity.
- See Note 14 for Water Supply and Pump Capacity.
- See Note 15 for Water Supply and Pump Capacity.
- See Note 16 for Water Supply and Pump Capacity.
- See Note 17 for Water Supply and Pump Capacity.
### Table 7 — (Continued)

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Type of Building Occupancy</th>
<th>Type of Installation</th>
<th>Water Supply (litre)</th>
<th>Pump Capacity (litre/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fire Extinguisher</td>
<td>First Aid Hose Reel</td>
<td>Wet Riser</td>
<td>Down Corner</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>iii) Covered area more than 500 m² (for building height up to 15 m)</td>
<td>R</td>
<td>R</td>
<td>NR</td>
<td>R</td>
</tr>
<tr>
<td>iv) Covered area more than 500 m² (for building height above 15 m)</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>b) Moderate Hazard (G-2) (see Note 18)</td>
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</tr>
<tr>
<td>i) Covered area up to 100 m²</td>
<td>R</td>
<td>R</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>ii) Covered area more than 100 m² and up to 500 m²</td>
<td>R</td>
<td>R</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>iii) Covered area more than 500 m² and up to 1000 m² (for height up to 15 m)</td>
<td>R</td>
<td>R</td>
<td>NR</td>
<td>R</td>
</tr>
<tr>
<td>iv) Covered area more than 500 m² and up to 1000 m² (for height above 15 m)</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>NR</td>
</tr>
<tr>
<td>v) Covered area more than 1000 m²</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>NR</td>
</tr>
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</table>
### Table 7 (Continued)

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Type of Building Occupancy</th>
<th>Type of Installation</th>
<th>Water Supply (litre)</th>
<th>Pump Capacity (litre/min)</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td>Fire Extinguisher</td>
<td>First Aid Hose Reel</td>
<td>Wet Riser</td>
</tr>
<tr>
<td>(1)</td>
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<tr>
<td></td>
<td>High Hazard (G-3)</td>
<td>(see Note 19)</td>
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<tr>
<td></td>
<td>i) Covered area</td>
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<tr>
<td></td>
<td>up to 50 m²</td>
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<tr>
<td></td>
<td>ii) Covered area</td>
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<tr>
<td></td>
<td>more than 50 m² and up</td>
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<td>to 150 m²</td>
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<tr>
<td></td>
<td>iii) Covered area</td>
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<tr>
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<td>more than 150 m² and up</td>
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<td>to 300 m²</td>
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<td></td>
<td>iv) Covered area</td>
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<td>more than 300 m² and up</td>
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<td>to 500 m²</td>
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<tr>
<td></td>
<td>v) Covered area</td>
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<tr>
<td></td>
<td>more than 500 m²</td>
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<td>STORAGÉ BUILDINGS (H)</td>
<td>(see Note 20)</td>
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</tr>
<tr>
<td></td>
<td>1) Below 15 m in height</td>
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<td>and covered area less than</td>
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<td>250 m²</td>
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<tr>
<td></td>
<td>2) Below 15 m in height</td>
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<tr>
<td></td>
<td>and covered area more than</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>250 m²</td>
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<tr>
<td></td>
<td>i) Ground floor only</td>
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</tr>
<tr>
<td></td>
<td>ii) Ground plus one floor</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sl No</td>
<td>Type of Building Occupancy</td>
<td>Type of Installation</td>
<td>Water Supply (litre)</td>
<td>Pump Capacity (litre/min)</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Fire Extinguisher</td>
<td>First Aid Hose Reel</td>
<td>Wet Riser</td>
</tr>
<tr>
<td>(1)</td>
<td></td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>(4)</td>
<td></td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>

HAZARDOUS BUILDINGS (J) (see Note 20)

1) Up to 15 m in height
   i) Single Storey Building
      R   R   R   NR   R   R   R   R
      Minimum 240 min firefighting requirements
      NR
      (see Note 21)
      NR

   ii) More than one floor building but not exceeding 15 m
      R   R   R   R   R   R   R   R
      Minimum 240 min firefighting requirements
      50 000
      (see Note 21)
      900

R – Required
NR – Not Required

NOTES
1 MOEFA System shall also include talk-back system and public address system for the occupancies given in the table for (d) (1) (iii) under A-5, (a) (1) (iv) and (a) (2) under C-1, and (a) (2) under D-1 to D-5, in all buildings 15 m and above in height, except for A-3 and A-4 occupancies where these shall be provided for buildings of height 24 m and above. These shall also be provided in car parking areas more than 300 m² and in multi-level car parking irrespective of their areas.
2 Automatic detection and alarm system is not required to be provided in car parking area. Such detection system shall however be required in other areas of car parking such as electrical rooms, cabinets and other areas.
3 Buildings above 15 m in height are not to be permitted for occupancies A-1 and A-2.
4 Required to be installed in basement, if area of basement exceeds 200 m².
5 Required to be provided if basement area exceeds 200 m².
Table 7 — (Concluded)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Additional value given in parenthesis shall be added if basement area exceeds 200 m².</td>
</tr>
<tr>
<td>7</td>
<td>Required to be provided for buildings with more than two storeys (Ground + One).</td>
</tr>
<tr>
<td>8</td>
<td>Required to be provided for buildings with height above 15 m and above.</td>
</tr>
<tr>
<td>9</td>
<td>Sprinklers shall be fed water from both underground static water storage tank and terrace tank.</td>
</tr>
<tr>
<td>10</td>
<td>Provide required number of sets of pumps each consisting of one electric and one diesel pump (stand by) of capacity 2 280 litre/min and one electric pump of capacity 180 litre/min (see Fig. 11) (see also notes 22 and 23).</td>
</tr>
<tr>
<td>11</td>
<td>Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2 280 litre/min and two electric pump of capacity 180 litre/min (see Fig. 12) (see also Notes 22 and 23).</td>
</tr>
<tr>
<td>12</td>
<td>Provide required number of sets of pumps each consisting of two electric and one diesel pump (stand by) of capacity 2 850 litre/min and two electric pump of capacity 180 litre/min (see Fig. 12) (see also Notes 22 and 23).</td>
</tr>
<tr>
<td>13</td>
<td>Lower levels in high rise buildings 60 m or above in height are likely to experience high pressure and therefore, it is recommended to consider multi-stage, multi-outlet pumps (creating pressure zones) or variable frequency drive pumps or any other equivalent arrangement.</td>
</tr>
<tr>
<td>14</td>
<td>Provide required number of sets of pumps each consisting of one electric and one diesel pump (stand by) of capacity 1 620 litre/min and one electric pump of capacity 180 litre/min (see Fig. 11) (see also Notes 22 and 23).</td>
</tr>
<tr>
<td>15</td>
<td>Required to be provided for buildings with more than one storey.</td>
</tr>
<tr>
<td>16</td>
<td>Buildings above 30 m in height not to be permitted for Group B, Group C, Group D and Group F occupancies.</td>
</tr>
<tr>
<td>17</td>
<td>The requirements given in this table for Group G Industrial Buildings are for small scale industry units. For other industries the requirements will have to be worked out on the basis of relevant Indian Standards and also in consultation with the local fire authorities.</td>
</tr>
<tr>
<td>18</td>
<td>Buildings above 18 m in height not to be permitted for G-1 and G-2 occupancies.</td>
</tr>
<tr>
<td>19</td>
<td>Buildings above 15 m in height not to be permitted for G-3 occupancies.</td>
</tr>
<tr>
<td>20</td>
<td>Buildings above 15 m in height not to be permitted for Group H and Group J occupancies. However, buildings above 45 m in height shall not be permitted for multi-level car parking (MLCP) occupancy.</td>
</tr>
<tr>
<td>21</td>
<td>Pump capacity shall be based on the covered area of the building.</td>
</tr>
<tr>
<td>22</td>
<td>One set of pumps shall be provided for each 100 hydrants or part thereof, with a maximum of two sets. In case of more than one pump set installation, both pump sets shall be interconnected at their delivery headers.</td>
</tr>
<tr>
<td>23</td>
<td>Alternative to provisions of additional set of pumps, the objective can be met by providing additional diesel pump of the same capacity and doubling the water tank capacity as required for one set of pumps.</td>
</tr>
<tr>
<td>24</td>
<td>As per the requirement of local authority dry riser may be used in hilly areas, industrial areas or as required.</td>
</tr>
</tbody>
</table>