

*Draft Indian Standard*

**LIFTS FOR THE TRANSPORT OF PERSONS AND GOODS  
PART 3 : SPECIFICATIONS FOR PLANNING AND SELECTION  
SECTION 2 : GOODS / AUTOMOBILE LIFT**

व्यक्तियों और वस्तुओं के परिवहन के लिए लिफ्ट भाग 3 : योजना और चयन के लिए  
विशिष्टताएँ

**LIFTS FOR THE TRANSPORT OF PERSONS AND GOODS**  
**PART 3 : SPECIFICATIONS FOR PLANNING AND SELECTION**  
**SECTION 2 : GOODS / AUTOMOBILE LIFT**

**FOREWORD**

This draft Indian Standard (Part 3 Sec. 2) will be adopted by the Bureau of Indian Standards, after the draft finalized by the Lifts, Escalators and Moving Walks Sectional Committee will be approved by the Electrotechnical Division Council.

This draft Indian Standard is a part of series of Indian Standards on ‘Lifts for the transport of persons and goods.’ Other parts of this series of standards cover various requirements like specifications for planning and selection, guide for inspection and maintenance of lifts, lifts for special applications, dumbwaiters etc. Parts 1, 2, 3 and 6 of this series of standards are being published as Indian Standards and other parts of this series are under development.

This draft Indian Standard specifies the requirements for planning, installation of Goods Lifts and Automobile lifts in factories, warehouses buildings, shopping malls, data centres, mix use buildings, etc. The document permits the number and configuration of lifts and their main Specifications to be determined at an early stage of building design, provided that the size and intended use of the building is known. It also gives guidance on the necessary dimensions to permit the installation of the lifts.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test, shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding off numerical values (revised)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**1 SCOPE**

This standard IS 17900 Part 3/Section 2 covers the requirements for planning, installation of Goods Lifts and Automobile lifts in factories, ware houses buildings, shopping malls, data centers, mix use

buildings, etc. The document permits the number and configuration of lifts and their main specifications to be determined at an early stage of building design, provided that the size and intended use of the building is known. It also gives guidance on the necessary dimensions to permit the installation of the lifts.

This standard deals with electric and hydraulic lifts. It covers lifts with both horizontal and vertical power-operated sliding doors.

Two types of loading (load per unit area) are addressed:

**SERIES A** — Passenger and goods (freight) lifts with loading conforming to IS 17900 Part 1 (clause no. 5.4.2) and IS 17900 Part 2.

**SERIES B** — Goods (freight) and automobiles lifts which have lesser loading as compared to that for series A.

## 2 REFERENCES

The following Indian Standards contain provisions which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS/HANDBOOK NO.	TITLE
IS 17900 (Part 1)	Lifts for the transport of persons and goods - Part 1: Safety Rules?
IS 17900 (Part 2)	Lifts for the transport of persons and goods - Part 2: Design rules, calculations, examinations, and tests of lift components?
NBC-2016	National Building Code of India - 2016

## 3 TERMINOLOGY

For the purpose of this standard, definitions given in IS 17900: Part 1, IS 17900: Part 2 and NBC-2016 shall apply.

**3.1 Goods Lift** — A lift designed primarily for the transport of goods but which may however; carry a lift attendant and / or other authorized personnel necessary for the loading or unloading of goods.

**3.2 Automobile Lift** — A lift designed primarily for the transport of vehicles which may however, carry a lift attendant and / or occupants of the vehicle.

## 4 DESIGN GUIDELINES

**4.1 Goods Lift** — The width, depth and height of a goods lift; and the width, height of its entrance are often a function of the nature, the overall dimensions, and the weight of the goods carried; and the way in which they are moved (e.g. pallets of a known size or in containers, or by fork lift, etc.). Where possible, the designer should select one of the standardized sizes shown, since lifts manufactured to these sizes are likely to be more economical than customized designs.

Consideration should also be given to the possibility that items other than those for which the lift has been designed may also need to be carried. For example, the goods lift may be the only means of

transporting items such as office furniture and partitions, etc. Standard access doors are not always wide enough for such items.

For safe loading and unloading, goods lifts should be located in a position which provides adequate free space in front of the entrance to allow easy access. If wheeled trolleys or fork-lift trucks are to be used, adequate space to maneuver shall be provided, with clear access to the loading/unloading area. Additional space shall be allowed for any personnel who may be required to accompany the goods for loading/unloading.

The location of lifts in factories, warehouses and similar buildings should be planned to suit the progressive movement of goods throughout the buildings, having regard to the nature of position of the loading platforms, railway sidings, etc. The placing of a lift in a fume or dust laden atmosphere or where it may be exposed to extreme temperatures, should be avoided, wherever possible. Where it is impossible to avoid installing a lift in an adverse atmosphere, the equipment should be of suitable design and construction to meet the conditions involved.

When loading/unloading is to be carried out by fork-lift trucks or other vehicles, the design of the lift shall take into account the additional loads imposed by the weight of any vehicle which may enter the lift car or may even be carried in the lift car. Consideration shall be given to the localized high loads imposed by the vehicle wheels while designing the car sill, sling, platform, etc. It may also be necessary to consider reinforcing the car guide rail supporting structures, etc.

The doors and car walls shall consider the possible impact of the material or equipment used to load or unload the lift. Wood or rubber bumpers shall be provided at the entrances and within the car to prevent any damage to the doors or the car walls while loading and unloading.

Normally goods lifts have lower speeds than passenger lifts for the same travel because traffic conditions are less demanding, and more time is required for loading and unloading. As loads for goods lifts increase in size and weight, so the operation of loading and unloading becomes more difficult. Therefore, it is usual to require greater accuracy of levelling as the capacity of the goods lift increases.

A large capacity goods lift operating at high speed is often a very uneconomical solution. The inherent high cost is enhanced due to the very small demand for such equipment, much of which is custom made. The high capital cost of the lift, building work and electrical supply equipment usually shows a much smaller return as an investment than more normal sizes of lifts.

The lift shall be designed and selected for the applicable class of loading (see 5.1.3). A capacity / instruction plate shall be installed in each goods lift in a very conspicuous position stating –

1. Maximum Total Rated Load
2. Maximum Single Piece Load expressed as kg/m<sup>2</sup>
3. This Is A Goods (Freight) Lift And Not For General Public Use

All other requirements as laid by IS 17900 Part 1 & 2 shall apply.

**4.2 Automobile Lift** — Where required, lifts suitable for moving passenger vehicles such as Light Motor Vehicles (LMV), Small Utility Vehicles (SUV), etc. may be provided to park vehicles at multiple levels. The availability of adequate space at the entry & exit from the lift shall be carefully considered. Through type of lift cars are obviously preferred due to ease of maneuvering the vehicles.

All other requirements as laid by IS 17900 Part 1 & Part 2 shall apply.

## 5 PLANNING DIMENSIONS

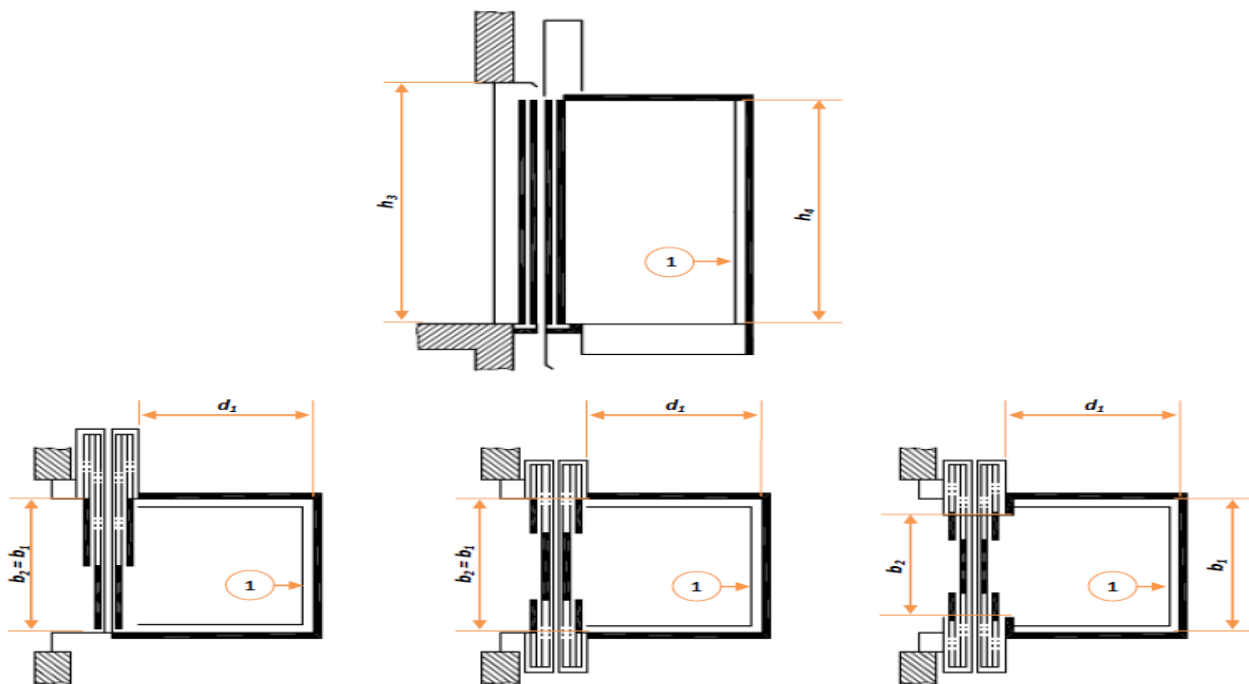
### 5.1 Planning Dimensions for Goods Lift

**5.1.1 Planning Outline Dimensions for Machine Room Lifts** — For deciding lift arrangements and for planning dimensions of goods lifts with machine room having series A Cars with horizontal sliding doors (Fig 1), reference shall be made to Table 14 and Table 15 of Part 8 Building Services, Section 5 Installation of Lifts, Escalators, & Moving Walks, 5A Lifts; of the National Building Code of India 2016.

For deciding lift arrangements and for planning dimensions of goods lifts with machine room having series A cars with vertical sliding doors (Fig 2, Table 5), reference shall be made to Fig 3, Fig 4 and Table 1.

For deciding lift arrangements and for planning dimensions of goods lifts with machine room having series B cars with horizontal sliding doors (Fig 1), reference shall be made to Fig 3, Fig 4 and Table 2.

For deciding lift arrangements and for planning dimensions of goods lifts with machine room having series B cars with vertical sliding doors (Fig 2, Table 5), reference shall be made to Fig 3, Fig 4, Table 3 and Table 4.

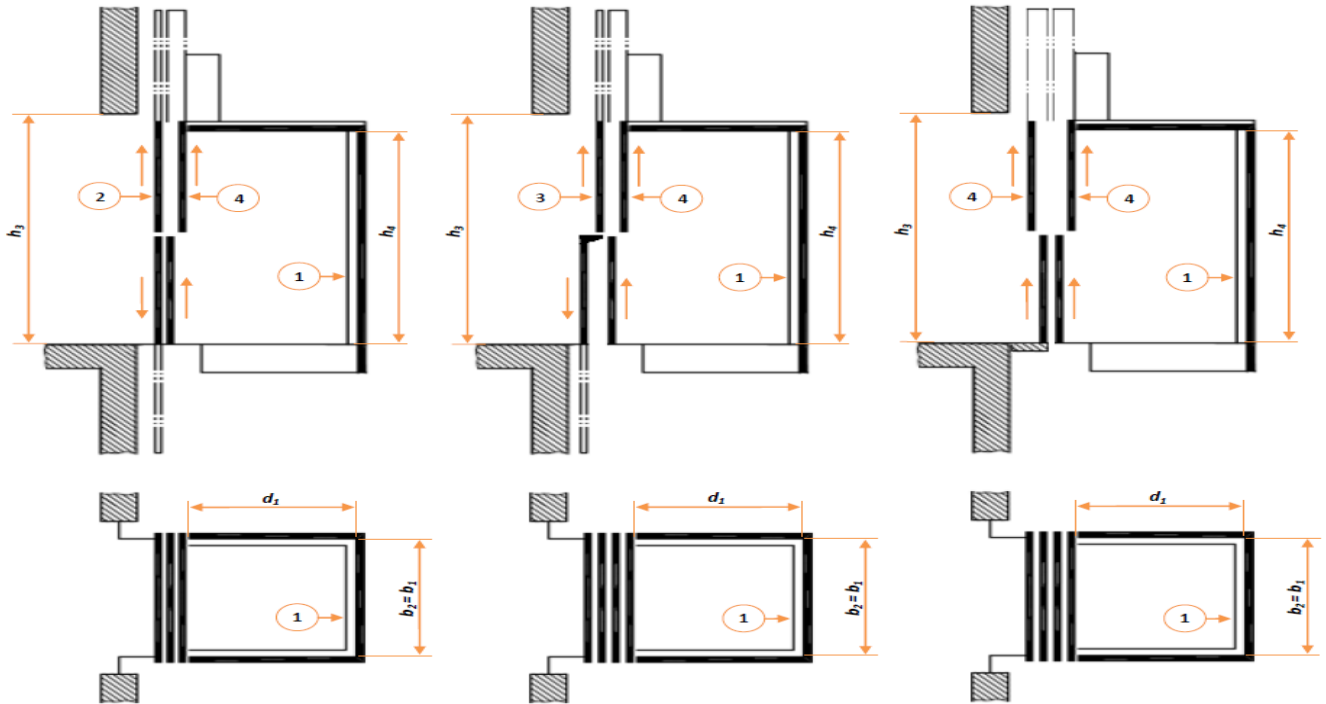


**FIG: 1 CAR & LANDING DIMENSIONS: HORIZONTAL SLIDING DOORS**

#### Key:

- 1 - Protective elements
- $b_1$  - Car width
- $b_2$  - Entrance width
- $d_1$  - Car depth
- $h_3$  - Entrance height
- $h_4$  - Car height

<b>ENTRANCE :</b>	<b>TYPE 1</b>	<b>TYPE 2</b>	<b>TYPE 3</b>
Landing Door :	Telescopic Door (Side opening)	Center Opening Door	Center Opening Door
Car Door :	Telescopic Door (Side Opening)	Center Opening Door	Center Opening Door

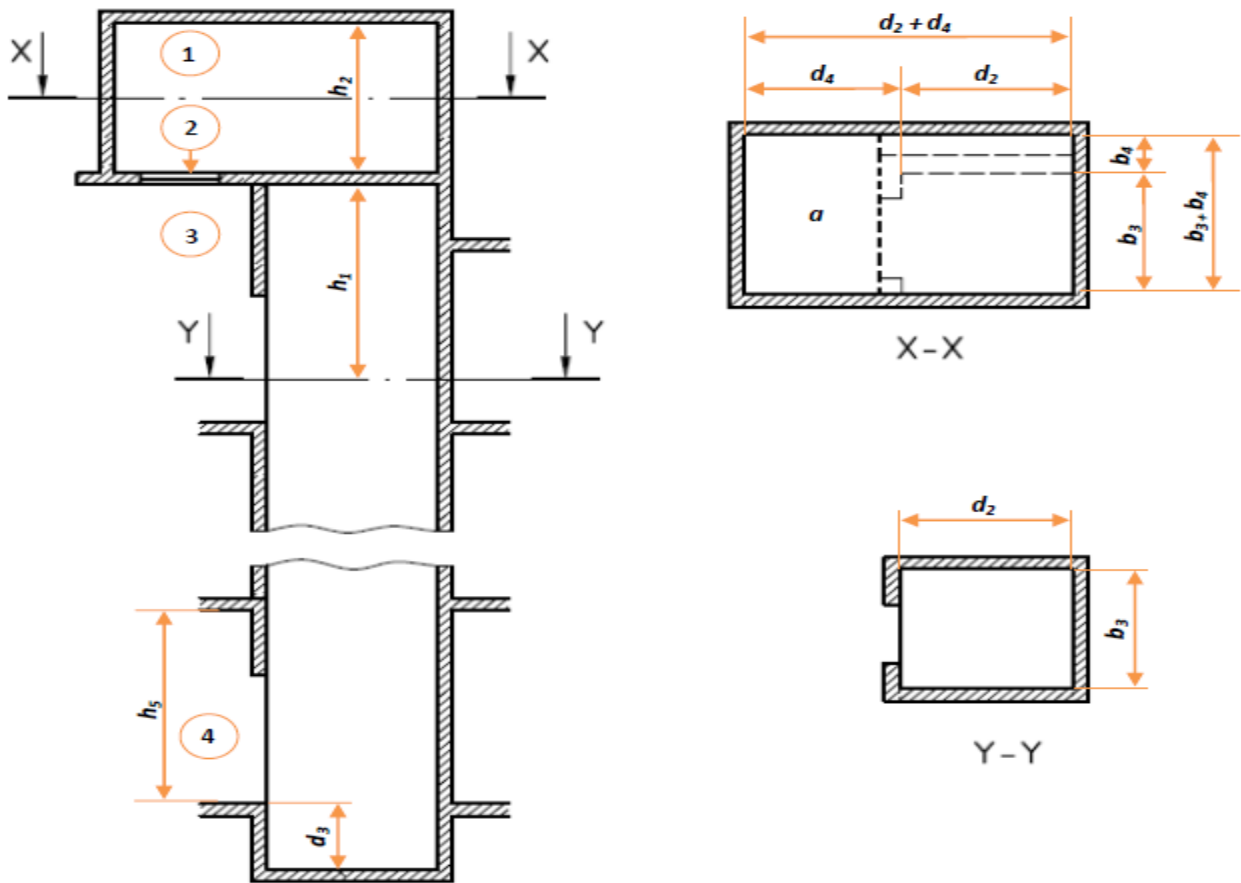


**FIG: 2 CAR & LANDING DIMENSIONS: VERTICAL SLIDING DOORS**

**Key:**

- |   |                         |
|---|-------------------------|
| 1 Protective elements                                 | $b_1$ - Car width       |
| 2 Biparting (central opening)                         | $b_2$ - Entrance width  |
| 3 Biparting, pass type (central opening, overlapping) | $d_1$ - Car depth       |
| 4 Telescopic upwards                                  | $h_3$ - Entrance height |
|   | $h_4$ - Car height      |

<b>ENTRANCE :</b>	<b>TYPE 4</b>	<b>TYPE 5</b>	<b>TYPE 6</b>
Landing Door :	Biparting (Central opening)	Biparting, pass type (Central opening, overlapping)	Telescopic upwards
Car Door :	Telescopic upwards	Telescopic upwards	Telescopic upwards

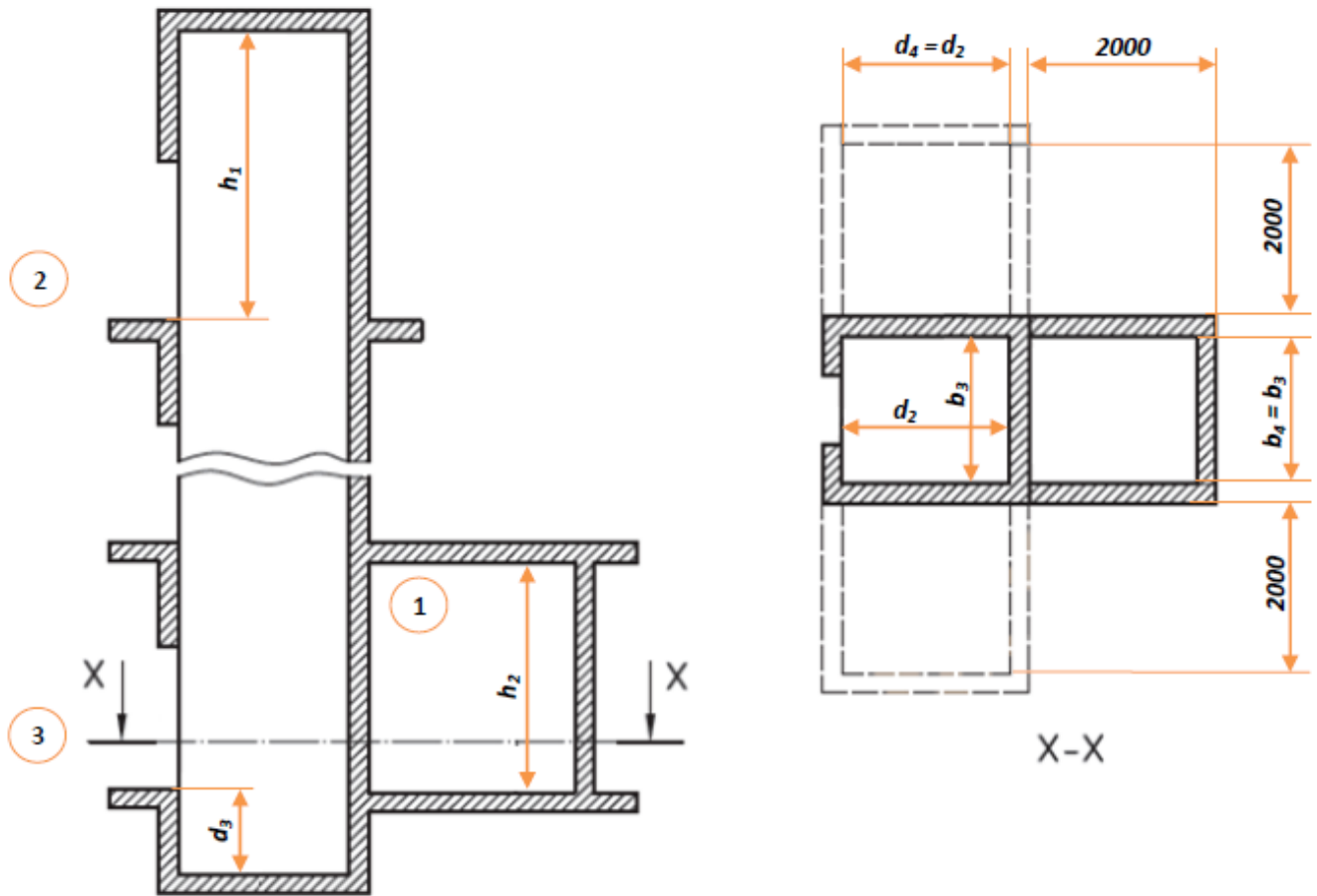


**FIG: 3 LIFT WELL & MACHINE ROOM DIMENSIONS: ELECTRIC LIFTS**

**Key:**

- 1 - Machine Room
- 2 - Trap Door
- 3 - Highest Level Served
- 4 - Lowest Level Served
- $b_3$  - Well width
- $b_4$  - Machine room width
- $d_2$  - Well depth
- $d_3$  - Pit depth
- $d_4$  - Machine room depth
- $h_1$  - Headroom height
- $h_2$  - Machine room height

It is necessary to have an access door to the machine room although this is not indicated on the sketch



**FIG: 4 LIFT WELL & MACHINE ROOM DIMENSIONS: HYDRAULIC LIFTS**

**Key:**

- 1 - Machine Room
- 2 - Highest Level Served
- 3 - Lowest Level Served
- $b_3$  - Well width
- $b_4$  - Machine room width
- $d_2$  - Well depth
- $d_3$  - Pit depth
- $d_4$  - Machine room depth
- $h_1$  - Headroom height
- $h_2$  - Machine room height

It is necessary to have an access door to the machine room although this is not indicated on the sketch

**TABLE 1: SERIES A CAR WITH VERTICAL SLIDING DOOR**



**Table 1 - Recommended Dimensions of Goods Lifts with Machine Room - Series A cars - Vertical Sliding Door All dimensions are in mm.**

Rated Load	Rated Speed	Car Size		Car Area	Loading	Door	Shaft Size			Car Height	Entrance Height	Overhead Height	Pit Depth	Machine Room Size		Machine Room Height	Min Floor to Floor Height
		Width (b <sub>1</sub> )	Depth (d <sub>1</sub> )				m <sub>2</sub>	kN/m <sup>2</sup>	Width (b <sub>2</sub> )					Width (b <sub>3</sub> )	Depth (d <sub>2</sub> )		
1000	0.5 to 1.0	1400	1800	2.520	3.892	1400	2350	2300	2200	2000	4800	1600	(b <sub>3</sub> + b <sub>4</sub> )	(d <sub>2</sub> + d <sub>4</sub> )	2500	(h <sub>3</sub> + X)	
1500		1700	2000	3.400	4.327	1700	2650	2500	2200	2000	4800	1600			2500		
1600		1700	2100	3.570	4.395	1700	2650	2600	2200	2000	4800	1600			2500		
2000		1700	2500	4.250	4.615	1700	2800	3000	2200	2000	4800	1600			2500		
2500		2000	2500	5.000	4.903	2000	3050	3000	2200	2000	4800	1600			2500		
3000	0.5	2000	3000	6.000	4.903	2000	3100	3600	2200	2000	4800	1800	(b <sub>3</sub> + b <sub>4</sub> )	(d <sub>2</sub> + d <sub>4</sub> )	3000	(h <sub>3</sub> + X)	
3500		2500	2550	6.375	5.384	2500	3700	3100	2200	2000	4800	1800			3000		
4000		2500	3000	7.500	5.230	2500	3700	3600	2200	2000	4800	1800			3000		
5000		2500	3600	9.000	5.448	2500	3700	4100	2200	2000	4800	1800			3000		

**Note:** For width & depth of Machine size dimensions & minimum floor to floor height requirement refer below,

1. Machine room Width is (b<sub>3</sub>+b<sub>4</sub>), where b<sub>3</sub> is width of shaft size and b<sub>4</sub> as 1000 mm to be considered.
2. Machine room Depth is (d<sub>2</sub>+d<sub>4</sub>), where d<sub>2</sub> is depth of shaft size and d<sub>4</sub> as 2500mm to be considered.
3. Minimum floor to floor height (h<sub>5</sub>) for landings for vertical sliding door is (h<sub>3</sub> + X), where 'h<sub>3</sub>' is clear entrance height & 'X' dimensions is depending upon types of doors and refer Table 5 for vertical sliding doors types.
4. In case counterweight safety is applicable check for dimensions with lift manufacturer.
5. Recommended dimensions for pit depth, overhead and machine-room for different lift speeds are given in the table above. These dimensions may differ in practice as per individual manufacturer's design depending upon load, speed and drive. However, the pit depth and overhead shall be such as to conform to the requirements of bottom clearance and top clearance in accordance with the accepted standards [8-5A (7)].
6. All dimensions given above for machine room lifts are recommended dimensions for architects and building planners. Any variations mutually agreed to between the manufacturer and the purchasers are permitted. However, the minimum rated load for the goods lift shall be based on Class of loading for the net inside car area. Refer 5.1.3 for Class of loading.

**TABLE 2: SERIES B CAR WITH HORIZONTAL SLIDING DOOR**

**Table 2 - Recommended Dimensions of Goods Lifts with Machine Room - Series B : Horizontal Sliding Doors (Entrance, Type 3) All dimensions are in mm.**

Rated Load	Rated speed	Car Size		Car Area	Loading	Door	Shaft Size			Car Height	Entrance Height	Overhead Height	Pit Depth	Machine Room Size		Machine Room Height	Min Floor to Floor height
		Width	Depth				m <sup>2</sup>	kN/m <sup>2</sup>	Width					Width	Depth		
		(b <sub>1</sub> )	(d <sub>1</sub> )			(b <sub>2</sub> )	(b <sub>3</sub> )	(d <sub>2</sub> )	(h <sub>4</sub> )	(h <sub>3</sub> )	(h <sub>1</sub> )	(d <sub>3</sub> )			(h <sub>2</sub> )	(h <sub>5</sub> )	
2000	0.5 to 1.0	1800	3100	5.580	3.515	1250	2700	3750	2500	2100	4800	1800	b <sub>3</sub> +1200	d <sub>2</sub> +2000	3000	(h <sub>3</sub> + 750)	
2500		2100	3300	6.930	3.538	1500	3000	3950	2500	2100	4800	1800	b <sub>3</sub> +1200	d <sub>2</sub> +2000	3000		
3500	0.25 to 0.5	2400	3600	8.640	3.973	1750	3300	4250	2500	2100	5000	2000	b <sub>3</sub> +1200	d <sub>2</sub> +2000	3000		
5000		3000	3600	10.800	4.540	2200	4000	4250	2500	2100	5000	2000	b <sub>3</sub> +1200	d <sub>2</sub> +2000	3000		

**Note:** For minimum floor to floor height requirement refer below,

1. Minimum floor to floor height (h<sub>5</sub>) for landings on same side for horizontal sliding door is (h<sub>3</sub> + 750), where 'h<sub>3</sub>' is clear entrance height.
2. In case counterweight safety is applicable check for dimensions with lift manufacturer.
3. Recommended dimensions for pit depth, overhead and machine-room for different lift speeds are given in the table above. These dimensions may differ in practice as per individual manufacturer's design depending upon load, speed and drive. However, the pit depth and overhead shall be such as to conform to the requirements of bottom clearance and top clearance in accordance with the accepted standards [8-5A (7)].

4. All dimensions given above for machine room lifts are recommended dimensions for architects and building planners. Any variations mutually agreed to between the manufacturer and the purchasers are permitted. However, the minimum rated load for the goods lift shall be based on Class of loading for the net inside car area. Refer 5.1.3 for Class of loading.

**TABLE 3: SERIES B CAR WITH VERTICAL SLIDING DOOR TYPE 4 & 5**

**TABLE 3 - RECOMMENDED DIMENSIONS OF GOODS LIFTS WITH MACHINE ROOM – SERIES B : VERTICAL SLIDING DOORS (ENTRANCE, TYPE 4 & 5) ALL DIMENSIONS ARE IN MM.**

Rated Load	Rated speed	Car Size		Car Area	Loading	Door	Shaft Size			Car Height	Entrance Height	Overhead Height	Pit Depth	Machine Room Size		Machine Room Height	Min Floor to Floor height
		Width	Depth				Width	Width	Depth					CH	EH		
		$(b_1)$	$(d_1)$			$(b_2)$	$(b_3)$	$(d_2)$	$(h_4)$	$(h_3)$	$(h_1)$	$(d_3)$			$(h_2)$	$(h_5)$	
2000	0.5 to 1.0	1800	3100	5.580	3.515	1800	2700	3550	2500	2500	5300	1800	$b_3+1200$	$d_2+2000$	3000	$(h_3 + X)$	
2500		2100	3300	6.930	3.538	2100	3000	3850	2500	2500	5300	1800	$b_3+1200$	$d_2+2000$	3000		
3500	0.25 to 0.5	2400	3600	8.640	3.973	2400	3300	4050	2500	2500	5300	2000	$b_3+1200$	$d_2+2000$	3000		
5000		3000	3600	10.800	4.540	3000	4000	4050	2500	2500	5300	2000	$b_3+1200$	$d_2+2000$	3000		

**Note:** For minimum floor to floor height requirement refer below,

1. Minimum floor to floor height ( $h_5$ ) for vertical sliding door is  $(h_3 + X)$ , where ' $h_3$ ' is clear entrance height & for ' $X$ ' dimensions is depending upon types of doors and refer Table 5 for vertical sliding doors types.
2. In case counterweight safety is applicable check for dimensions with lift manufacturer.
3. Recommended dimensions for pit depth, overhead and machine-room for different lift speeds are given in the table above. These dimensions may differ in practice as per individual manufacturer's design depending upon load, speed and drive. However, the pit depth and overhead shall be such as to conform to the requirements of bottom clearance and top clearance in accordance with the accepted standards [8-5A (7)].
4. All dimensions given above for machine room lifts are recommended dimensions for architects and building planners. Any variations mutually agreed to between the manufacturer and the purchasers are permitted. However, the minimum rated load for the goods lift shall be based on Class of loading for the net inside car area. Refer 5.1.3 for Class of loading.

**TABLE 4: SERIES B CAR WITH VERTICAL SLIDING DOOR TYPE 6**

**TABLE 4 - RECOMMENDED DIMENSIONS OF GOODS LIFTS WITH MACHINE ROOM - SERIES B : VERTICAL SLIDING DOORS (ENTRANCE, TYPE 6) ALL DIMENSIONS ARE IN MM.**

Rated Load	Rated speed	Car Size		Car Area	Loading	Door	Shaft Size			Car Height	Entrance Height	Overhead Height	Pit Depth	Machine Room Size		Machine Room Height	Min Floor to Floor height
		Width	Depth				Width	Width	Depth					CH	EH		
		$(b_1)$	$(d_1)$			$(b_2)$	$(b_3)$	$(d_2)$	$(h_4)$	$(h_3)$	$(h_1)$	$(d_3)$			$(h_2)$	$(h_5)$	
2000	0.5 to 1.0	1800	3100	5.580	3.515	1800	2750	3550	2500	2500	5300	1800	$b_3+1200$	$d_2+2000$	3000	$(h_3 + X)$	
2500		2100	3300	6.930	3.538	2100	3050	3850	2500	2500	5300	1800	$b_3+1200$	$d_2+2000$	3000		
3500	0.25 to 0.5	2400	3600	8.640	3.973	2400	3350	4050	2500	2500	5300	2000	$b_3+1200$	$d_2+2000$	3000		
5000		3000	3600	10.800	4.540	3000	4050	4100	2500	2500	5300	2000	$b_3+1200$	$d_2+2000$	3000		

**Note:** For minimum floor to floor height requirement refer below,

1. Minimum floor to floor height ( $h_5$ ) for vertical sliding door is  $(h_3 + X)$ , where ' $h_3$ ' is clear entrance height & for ' $X$ ' dimensions is depending upon types of doors and refer Table 5 for vertical sliding doors types.
2. In case counterweight safety is applicable check for dimensions with lift manufacturer.
3. Recommended dimensions for pit depth, overhead and machine-room for different lift speeds are given in the table above. These dimensions may differ in practice as per individual manufacturer's design depending upon load, speed and drive. However, the pit depth and overhead shall be such as to conform to the requirements of bottom clearance and top clearance in accordance with the accepted standards [8-5A (7)].

4. All dimensions given above for machine room lifts are recommended dimensions for architects and building planners. Any variations mutually agreed to between the manufacturer and the purchasers are permitted. However, the minimum rated load for the goods lift shall be based on Class of loading for the net inside car area. Refer 5.1.3 for Class of loading.

**TABLE 5: ENTRANCE TYPE: VERTICAL SLIDING DOORS**

<b>TABLE 5: ENTRANCE TYPE : VERTICAL SLIDING DOORS</b>	
<b>Type 4</b>	<b>Landing Door</b> : Biparting (central opening)
	<b>Car Door</b> : Telescopic upwards
<b>Type 5</b>	<b>Landing Door</b> : Biparting pass type (central opening, overlapping)
	<b>Car Door</b> : Telescopic upwards
<b>Type 6</b>	<b>Landing Door</b> : Telescopic upwards
	<b>Car Door</b> : Telescopic upwards

**5.1.2 Planning Outline Dimensions for Machine Room-Less Lifts (Mrl) Goods Lift** — For deciding lift arrangements and for planning dimensions of electric machine room-less lifts having series A cars & horizontal sliding doors, reference shall be made to Table 22 of Part 8 Building Services, Section 5 Installation of Lifts, Escalators, & Moving Walks, 5A Lifts; of the National Building Code of India 2016.

The rated load of the elevator shall be not less than the load (including any truck) to be carried, and shall in no case be based on less than 3.45 kN/m<sup>2</sup> of inside net platform area.

### **5.1.3 Class of Loading**

**5.1.3.1 Type 1: general loading** — Where the load is distributed, the weight of any single piece of freight or of any single loaded hand truck is not more than 25% of the rated load of the elevator, and the load is handled on and off the car platform manually or by means of hand trucks.

For this class of loading, the rated load of the elevator shall be not less than the load (including any truck) to be carried, and shall in no case shall be based on less than 3.45 kN/m<sup>2</sup> of inside net platform area.

**5.1.3.2 Type 2: motor vehicle loading** — Where the elevator is used solely to carry passenger automobiles up to the rated capacity of the elevator.

For this class of loading, the rated load of the elevator shall be not less than the load be carried, and shall in no case shall be based on less than 1.45 kN/m<sup>2</sup> of inside net platform area.

**5.1.3.3 Type 3: concentrated load with / without powered / manual industrial truck** — Where the weight of the concentrated load including a powered industrial or hand truck, if used, is more than 25% of the rated load; during loading & unloading the maximum weight on the car platform may exceed the rated load up to a maximum of 150% of rated load; however the load to be carried does not exceed the rated load.

For this class of loading, the car platform, car frame shall be designed for 150% of rated load. The driving-machine motor, safety gear, brake, and traction relation shall be designed to sustain and level the full 150% of rated load. The guide rails, guide fixings, car frame and platform shall be designed to withstand the horizontal thrust imposed by power trucks, motor vehicles and the like.

The rated load of the elevator shall be not less than the load (including any truck) to be carried, and shall in no case be based on less than 3.45 kN/m<sup>2</sup> of inside net platform area.

**5.1.3.4 Type 4: other loading with heavy concentrations** — Where the weight of the concentrated load including a powered industrial or hand truck, if used, is more than 25% the rated load; where the static load during loading and unloading does not exceed the rated load; and where the load to be carried does not exceed the rated load.

For this class of loading; the guide rails, guide fixings, car frame and platform shall be designed suitable for the forces due to the heavy concentrated load and its location in the car. The rated load of the elevator shall be not less than the load (including any truck) to be carried, and shall in no case be based on less than 3.45 kN/m<sup>2</sup> of inside net platform area.

**5.2 Planning Dimensions for Automobile Lift**

**5.2.1 Planning Outline Dimensions for Machine Room Lifts** — For deciding lift arrangements and for planning dimensions of machine room lifts having series B cars & horizontal sliding doors, reference shall be made to Table 16 of Part 8 Building Services, Section 5 Installation of Lifts, Escalators, & Moving Walks, 5A Lifts; of the National Building Code of India 2016.

For deciding lift arrangements and for planning dimensions of machine room lifts having series B cars & vertical sliding doors, reference shall be made to Fig 5 and Table 6.

However for planning the minimum rated load for Automobile lift shall be based on a load of not less than 1.45 kN/m<sup>2</sup> of the net inside car area.

**TABLE 6: AUTOMOBILE LIFTS WITH MACHINE ROOM - THROUGH TYPE CAR SERIES B - VERTICAL SLIDING DOOR**

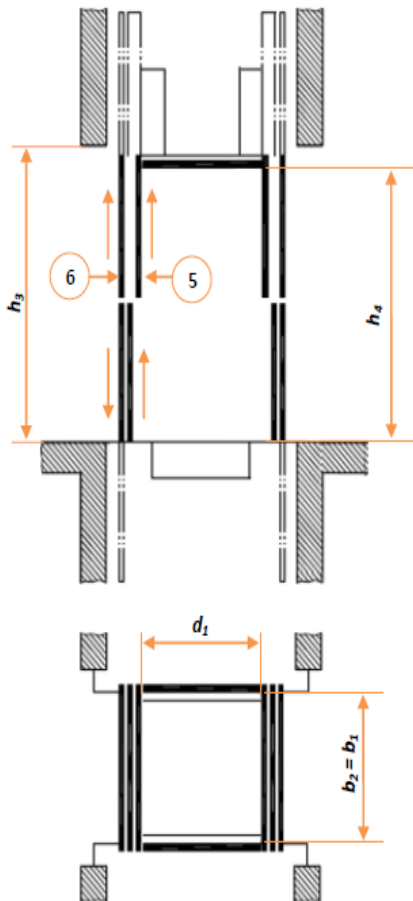
TABLE 6 - RECOMMENDED DIMENSIONS OF AUTOMOBILE LIFTS WITH MACHINE ROOM - THROUGH TYPE CAR SERIES B - VERTICAL SLIDING DOOR																		
ALL DIMENSIONS ARE IN MM																		
Rated Load	Rated Speed	Car Size		Car Area	Loading	COPD Door	Shaft Size			Car Height	Entrance Height	Overhead Height	Pit Depth	Machine Room Size		Machine Room Height	Below Lintel Height	Min Floor to Floor Height
		Width (b <sub>1</sub> )	Depth (d <sub>1</sub> )				m <sub>2</sub>	kN/m <sup>2</sup>	Width (b <sub>2</sub> )					Width (b <sub>3</sub> )	Depth (d <sub>2</sub> )			
2500	0.5 & 1.0	2500	5300	13.250	1.850	2500	3600	5910	2200	2000	5000	1600	(b <sub>3</sub> + b <sub>4</sub> )	(d <sub>2</sub> + d <sub>4</sub> )	2500	2075	(h <sub>3</sub> + X)	
3000	0.5	2700	5400	14.580	2.018	2700	3900	6010	2200	2000	5000	1800			3000	2075		
4000		3000	5800	17.400	2.254	3000	4200	6410	2200	2000	5000	1800			3000	2075		
5000		3000	6000	18.000	2.724	3000	4200	6610	2200	2000	5000	1800			3000	2075		

**Note:** For width & depth of Machine size dimensions requirement refer below,

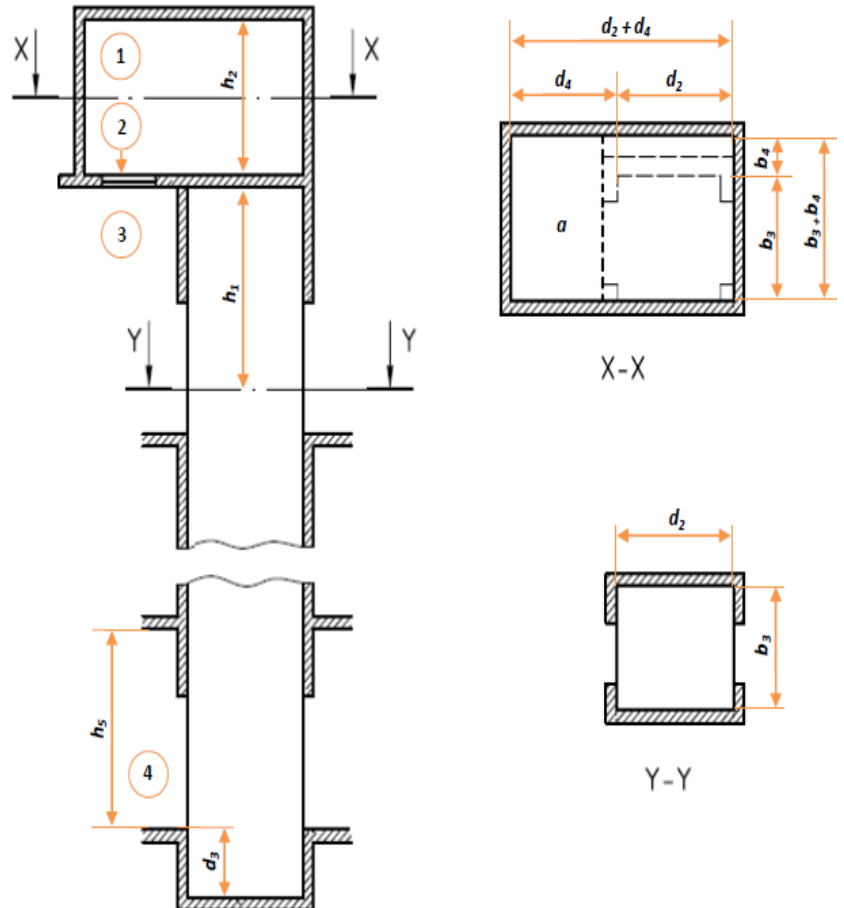
- Machine room Width is (b<sub>3</sub>+b<sub>4</sub>), where b<sub>3</sub> is width of shaft size and b<sub>4</sub> as 1000 mm to be considered.
- Machine room Depth is (d<sub>2</sub>+d<sub>4</sub>), where d<sub>2</sub> is depth of shaft size and d<sub>4</sub> as 2500mm to be considered.
- Minimum floor to floor height (h<sub>5</sub>) for vertical sliding door is (h<sub>3</sub> + X), where 'h<sub>3</sub>' is clear entrance height & for 'X' dimensions is depending upon types of doors and refer Table 5 for vertical sliding doors types.
- Car height normal range is 2200 mm to 2700 mm.
- Overhead height for all values of car height CH shown above.
- In case counterweight safety is applicable check for dimensions with lift manufacturer.
- All dimensions given above for machine room less lifts with 6 panel centre opening doors (6P COPD) used for automobiles are recommended dimensions for architects and building planners. Any variations mutually agreed to between the manufacturer and the purchasers are permitted. However, the minimum rated load for the automobile lift shall be based on a load of not less than 1.45kN/m<sup>2</sup> of the net inside car area.

8. Dimensions of pit depth and overhead may differ in practice as per individual manufacturer's design depending upon load, speed and drive. However, the pit depth and overhead shall be such as to conform to the requirements of bottom clearance and top clearance in accordance with the accepted standards [8-5A (7)].
9. The lift car width should be selected such that in case of emergency while the automobile is in the lift car the driver should be able to open the automobile door and come out of the automobile.

**Car & Landing Dimensions**



**Lift Well & Machine Room Dimensions**



**FIG: 5 AUTOMOBILE LIFTS WITH MACHINE ROOM - THROUGH TYPE CAR SERIES B - VERTICAL SLIDING DOOR**

**Key:**

- |                               |                             |
|-------------------------------|-----------------------------|
| 1 - Machine Room              | $b_3$ - Well width          |
| 2 - Trap Door                 | $d_1$ - Car depth           |
| 3 - Highest Level Served      | $d_2$ - Well depth          |
| 4 - Lowest Level Served       | $d_3$ - Pit depth           |
| 5 - Telescopic upwards        | $h_1$ - Overhead height     |
| 6 - Bearding (center opening) | $h_2$ - Machine room height |
| $b_1$ - Car width             | $h_3$ - Entrance height     |
| $b_2$ - Entrance width        | $h_4$ - Car height          |

It is necessary to have an access door to the machine room although this is not indicated on the sketch

**5.2.2 Planning Outline Dimensions For Machine Room-Less Lifts (Mrl)** — For deciding lift arrangements and for planning dimensions of machine room-less lifts, reference shall be made to Table 23 of Part 8 Building Services, Section 5 Installation of Lifts, Escalators, & Moving Walks, 5A Lifts; of the National Building Code of India 2016.

However the minimum rated load for Automobile lift shall be based on a load of not less than 1.45 kN/m<sup>2</sup> of the net inside car area.