



Lifts and service lifts

Part 5. Specification for dimensions of standard electric lift arrangements

Ascenseurs et monte-charge

Partie 5. Spécification relative aux dimensions de l'agencement normal des ascenseurs électriques

Personen- und Lastenaufzüge sowie Güteraufzüge

Teil 5. Spezifikation für Abmessungen der normalen Anordnung der Elektroaufzüge

BS 5655 : Part 5 : 1981

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Foreword

This Part of this British Standard, prepared under the direction of the Mechanical Engineering Standards Committee, revises and supersedes BS 5655 : Part 5 : 1979 and also supersedes BS 2655 : Part 3 : 1971, which are therefore withdrawn. It is Part 5 of a British Standard, relating to lifts and service lifts, which will progressively supersede portions of BS 2655. The complete standard will comprise the following Parts:

Part 1 Safety rules for the construction and installation of electric lifts (implements EN 81-1)

Part 2* Safety rules for the construction and installation of hydraulic lifts (will implement EN 81-2)

Part 3* Safety rules for the construction and installation of electric service lifts (will implement EN 81-3)

Part 4* Safety rules for the construction and installation of hydraulic service lifts (will implement EN 81-4)

Subsequent Parts will deal with testing, inspection, control devices and signals, eyebolts, etc.

This Part reflects much of the technical content of ISO 4190/1 and ISO 4190/3 and includes additional requirements from BS 2655 : Part 3 which are considered relevant to United Kingdom practice.

Although this Part of the standard relates to electric lifts, certain dimensional aspects, such as lift cars or entrances are often equally applicable to hydraulic lift installations; the lift manufacturer, however, should be consulted for full details.

The specified dimensions for pit depth and headroom satisfy the safety requirements specified in Part 1 of this standard.

*In course of preparation.

British Standard

Lifts and service lifts

Part 5. Specification for dimensions of standard electric lift arrangements

1. Scope

This Part of this British Standard specifies outline dimensions related to loads, speeds and installation arrangements for electric traction lifts for the carriage of passengers and goods, which comply with the requirements of BS 5655 : Part 1.

The seven lift installations dealt with are as follows:

- (a) light passenger;
- (b) residential;
- (c) general purpose passenger;
- (d) intensive passenger;
- (e) bed/passenger;
- (f) general purpose goods;
- (g) heavy duty goods.

2. References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3. Definitions

For the purposes of this standard the following definitions apply.

3.1 car depth (C_d). The horizontal dimension* between the inner surfaces of the car walls measured at right angles to the car width and at 1 m above the car floor (see figure 1).

3.2 car height (C_h). The inside vertical distance between the entrance threshold and the constructional roof of the car. Light fitting and false ceilings are accommodated within this dimension.

3.3 car width (C_w). The horizontal dimension* between the inner surfaces of the car walls measured parallel to the front entrance and at 1 m above the car floor.

NOTE. See figure 1 for a typical example of car internal dimensions and figures 2 to 8 for particular examples.

3.4 clear entrance into car (E_w and E_h). The width and height of the entrance measured when the landing and car doors are fully open.

3.5 group collective lifts. A group of electrically inter-connected lifts for which landing controls are common and having the same rated load, the same rated speed, the same car dimensions, serving the same levels and for which the landing entrances at those levels are adjacent to and/or opposite each other.

3.6 height above the highest level served (S_h). The vertical distance between the finished floor of the highest level served and the roof of the well.

3.7 landing. An area for access to the car at each level served.

3.8 lift. Permanent lifting equipment serving defined landing levels, comprising a car, whose dimensions and means of construction clearly permit the access of

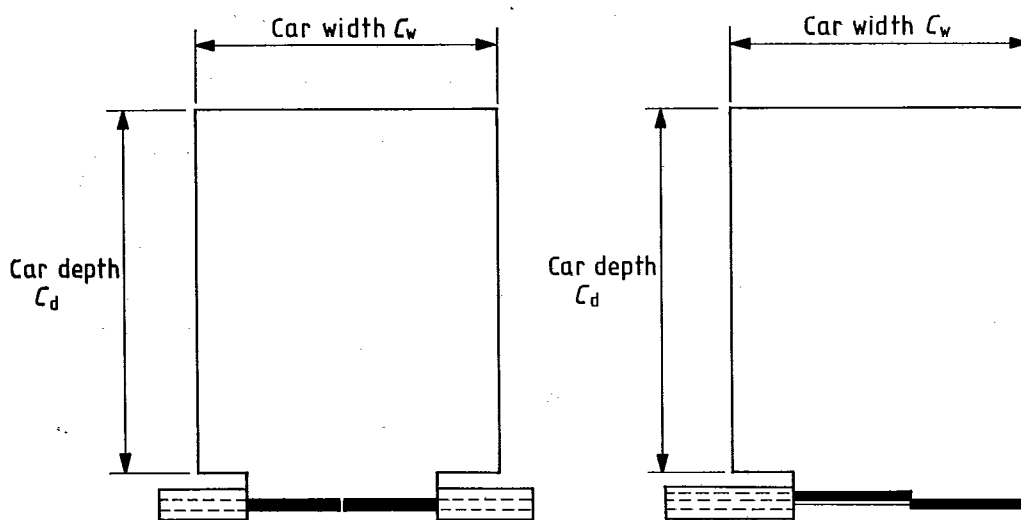


Figure 1. Typical example of car internal dimensions

*Decorative or protective panels or handrails, if any, are accommodated within these dimensions.

passengers, running at least partially between rigid vertical guides or guides whose inclination to the vertical is less than 15 %.

3.9 lift car. The part of the lift which carries the passengers and/or other loads.

3.10 machine room. A room in which machine or machines and/or the associated equipment are housed.

3.11 machine room area (R_a). The area of the machine room floor.

3.12 machine room depth (R_d). The horizontal dimension measured parallel to the car depth.

3.13 machine room height (R_h). The vertical distance between the finished machine room floor above the well and the machine room ceiling. Any lifting beam is included within this height.

3.14 machine room width (R_w). The horizontal dimension measured parallel to the car width.

3.15 multiple lift. Any two or more lifts sharing a common machine room.

3.16 overall headroom (U_h). The vertical distance between the finished floor of the highest level served by the lift and the machine room ceiling.

3.17 pit. That part of the well situated below the lowest landing level served by the lift car.

3.18 pit depth (P_h). The vertical distance between the finished floor of the lowest level served by the lift and the bottom of the finished well floor.

3.19 rated load (Q). The load for which the equipment has been built and for which normal operation is guaranteed by the vendor.

3.20 rated speed (v). The speed of the car for which the equipment has been built and for which normal operation is guaranteed by the vendor.

3.21 well. The space in which the car and the counterweight, if there is one, travels. This space is bounded by the bottom of the pit, the walls and the roof of the well.

3.22 well depth (W_d). The horizontal distance between the inner surfaces of the well walls measured parallel to the car depth.

3.23 well width (W_w). The horizontal distance between the inner surfaces of the well walls measured parallel to the car width.

4. Lift characteristics

4.1 Rated load. The rated loads, which are the basis for the derivation of the other characteristics and dimensions in this standard, shall be as specified in tables 2 to 8. These loads specified in tables 2 to 5 have been selected from the R10 series of preferred numbers recommended in BS 2045.

4.2 Number of passengers. The maximum number of passengers shall be as specified in tables 2 to 8. This number is in accordance with the criteria specified in table 1 of BS 5655 : Part 1 : 1979.

4.3 Typical applications. Although the applications listed in tables 2 to 8 are for guidance only, the actual lift selected shall be appropriate to operational requirements. (Guidance is given in CP 407.)

4.4 Entrances. The types of door fitted to the landing and the car, and the method of operation shall be as specified in tables 2 to 8.

4.5 Access for the disabled. With the exception of the 400 kg lift in table 2, all lifts will accommodate disabled persons in wheelchairs. These lifts are identified by the symbol  in tables 2 to 6.

5. Installation arrangements and dimensions

5.1 General. The rated load, rated speed and dimensions of the lift arrangements shall be as specified in the following clauses and tables:

light passenger	table 2
residential	table 3
general purpose passenger	table 4
intensive passenger	table 5
bed/passenger	table 6
general purpose goods	table 7
heavy duty goods	table 8

5.2 Dimensions of the well

5.2.1 General. The well shall have a certain free volume enclosed by a rectangular parallelepiped inscribed in the well, with vertical edges and bases formed by the bottom of the pit and the top of the well.

The minimum clear plumb lift well plan inner dimensions shall be as specified in the respective tables, and 5.2.2 when relevant.

The architect (or the person assuming his functions), in agreement with the builder, shall ensure that adequate tolerances are added to the specified dimensions in the building design so that these minimum plan dimensions are met in the finished work (see figure 2 of CP 407 : 1972).

5.2.2 Common well. When several lifts utilize a common well, the inner plan dimensions shall be as specified below:

- the total width of the common well shall be equal to the sum of the individual well widths plus the sum of the boundary widths between the walls, each boundary width being at least 200 mm, unless otherwise agreed between the contracting parties;
- the depth of the constituent parts of the common well shall be the same as those laid down for the individual lifts;
- the pit depth shall be that specified for the fastest lift in the group;
- the minimum height above the highest level served shall be that specified for the fastest lift in the group.

NOTE. Requirements for partitions between moving parts of different lifts in a common well are specified in 5.6 of BS 5655 : Part 1 : 1979.

5.2.3 Rough opening for landing doors. The dimensions of the rough openings in the front walls of the well shall be selected to suit the design of the architrave: the lift manufacturer should be consulted for details of this opening.

5.2.4 Special requirements. When the counterweight is provided with a safety gear, it is sometimes necessary to increase either of the plan dimensions of the well (W_w and W_d): the lift manufacturer should be consulted for details.

5.3 Floor to floor distance. The minimum distance between two successive landings, to permit the accommodation of landing doors, shall be as given in table 1.

Table 1. Floor to floor distances

Clear entrance height, E_h	Direction of door opening	Floor to floor distance
mm		mm
2000	Horizontally	2450
2100		2550
2300		2750
2300	Vertically	3700
2500		4000

5.4 Landing area. The depth of the landing shall be as specified in table 9. This depth shall be maintained over at least the width of the well or the sum of the well widths.

NOTE. The above landing area does not take account of any additional space required for the through traffic of persons not using the lifts (see figure 1 of CP 407 : 1972). Recommendations for a minimum landing area to provide adequate access for disabled persons are given in 7.3.4 of BS 5810 : 1979.

5.5 Machine room dimensions for residential lifts

5.5.1 Individual lifts. The dimensions of the machine room for individual lifts shall be as specified in table 3.

5.5.2 Multiple lifts

5.5.2.1 Floor area. The dimensions of the machine room for multiple lifts shall be as follows.

(a) *Lifts having the same rated load.* The minimum floor area of the common machine room shall be equal to the sum of the minimum areas required for the individual lifts.

(b) *Two lifts having different rated load.* The minimum floor area of the common machine room shall be equal to the sum of the minimum areas required for the individual lifts plus the difference between the well areas of the two lifts.

(c) *More than two lifts having different rated loads.* The minimum floor area of the common machine room shall be equal to the sum of the minimum areas required for the individual lifts plus the sum of the differences between the well area of the largest lift and the well areas of each of the other lifts.

5.5.2.2 Width. The minimum width of the common machine room shall be equal to the total width of the common well plus a lateral extension corresponding to that appropriate to the lift with the greatest individual requirement (see also 5.5.2.1).

5.5.2.3 Depth. The minimum depth of the common machine room shall be equal to the depth of the deepest individual well plus 2100 mm (see also 5.5.2.1).

5.5.2.4 Height. The minimum height of the common machine room shall be equal to the height of the machine room having the greatest individual requirement.

5.6 Machine room dimensions for lifts, other than residential

5.6.1 Individual lifts. The dimensions of the machine room shall be as specified in tables 2 and 4 to 8.

5.6.2 Multiple lifts. The area and plan dimensions of the common machine room shall be as specified in table 10.

The minimum height of the common machine room shall be equal to the height of the machine room having the greatest individual requirement.

5.7 Machine room arrangement. The area of the machine room shall be located directly above the well (or common well) and landings.

NOTE. Any necessary extension to achieve this minimum machine room area should be made by increasing the overall width.

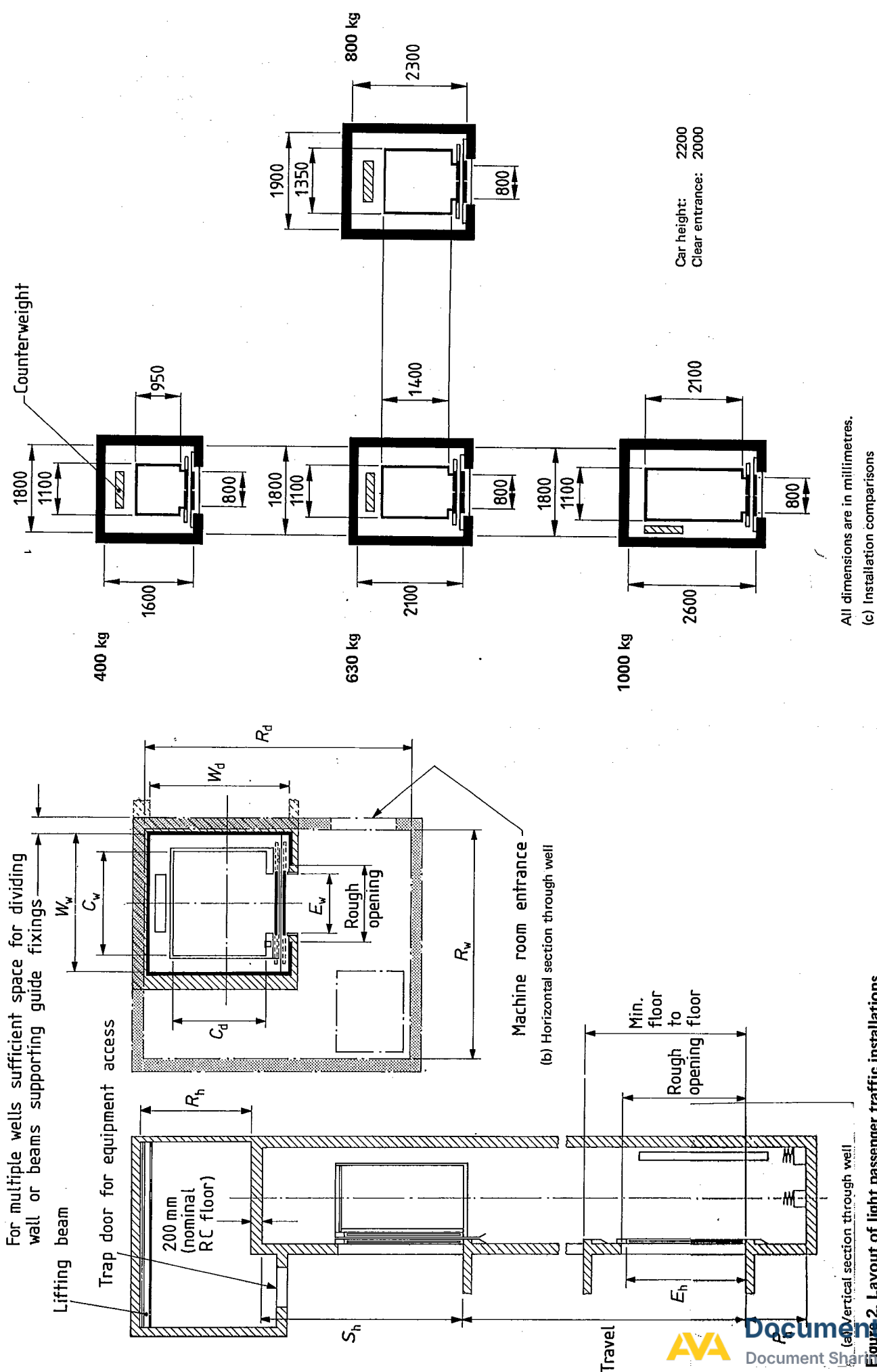


Table 2. Dimensions for light passenger traffic installations

Typical applications. For the carriage of passengers in hotels, small offices, etc. and residential buildings (see also table 3).

Entrances. Power operated, two panel centre opening, sliding doors.

Standard speeds (see note 1). These speeds are as follows:

- (a) single speed $v = 0.50$ m/s
 (b) two speed $v = 0.63$ m/s and 1.00 m/s
 (c) variable speed $v = 1.00$ m/s and 1.60 m/s

Rated load Q	No. of passengers	Rated speed v	Car internal sizes				Well min. dimensions		Clear entrance		Pit depth P_h	Headroom S_h	Machine room min. dimension (see note 2)			
			Width C_w	Depth C_d	Height C_h	Width W_w	Depth W_d	Width E_w	Height E_h	Area R_a			Width R_w	Depth R_d	Height R_h	
kg		m/s	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	m ²	mm	mm	mm
400	5	0.50	1100	950	2200	1800	1600	800	2000	1400	3900	4000	7.5	2200	3200	2300
		0.63														
		1500														
		4000														
630	8 	0.50	1100	1400	2200	1800	2100	800	2000	1400	4000	4200	15	2500	3700	2600
		0.63														
		1700														
800	10 	0.50	1350	1400	2200	1900	2300	800	2000	1500	4000	4200	15	2500	3700	2600
		0.63														
		1700														
1000	13 	0.50	1100	2100	2200	1800	2600	800	2000	1500	4000	4200	15	2500	4200	2600
		0.63														
		1700														
		4200														

NOTE 1 The dimensions specified in this table are also valid for rated speeds lower than those stated.

NOTE 2 Select dimensions for R_w and R_d

(a) which are equal to or greater than those specified, and

(b) whose product produces an area which is equal to or greater than that specified for R_a .

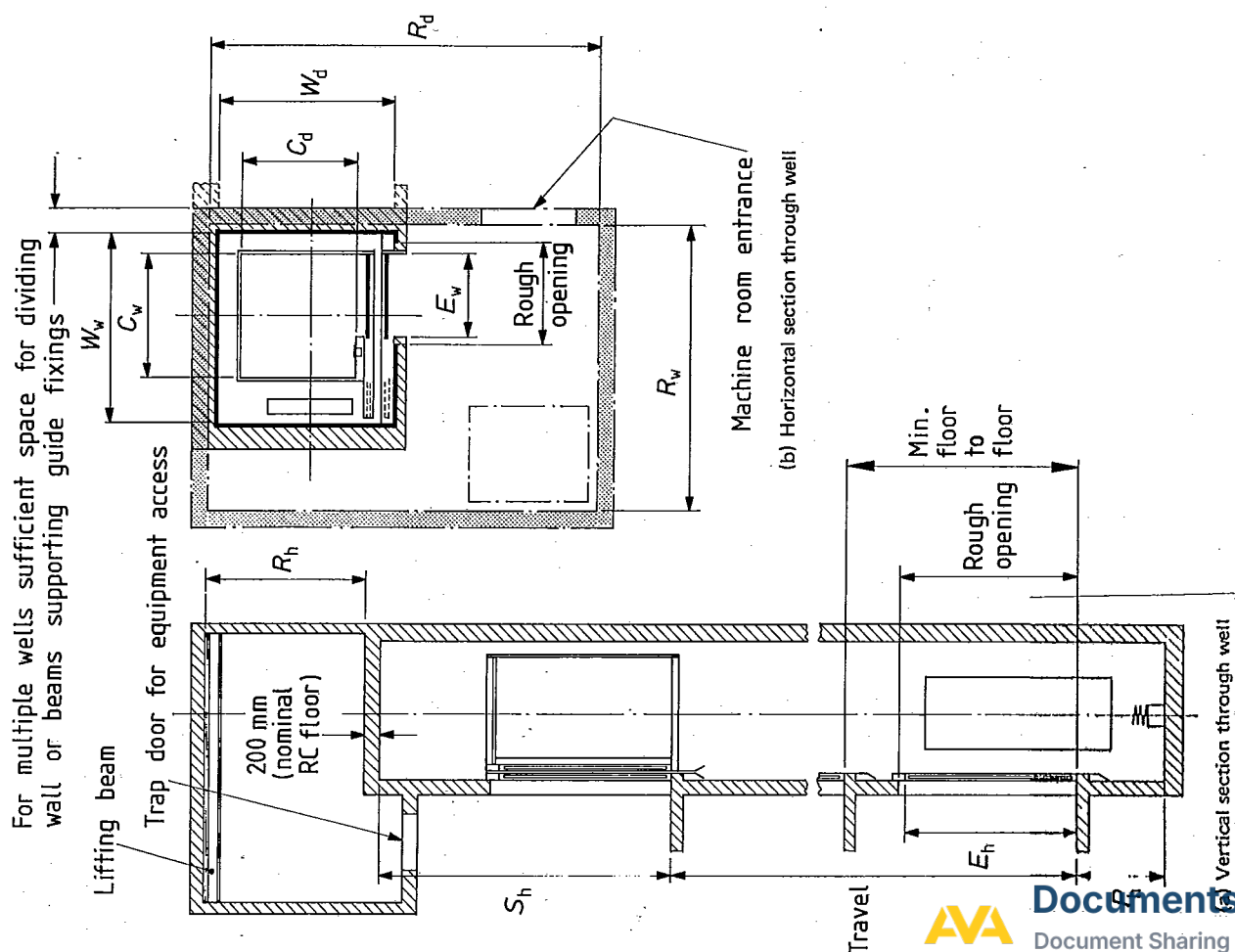
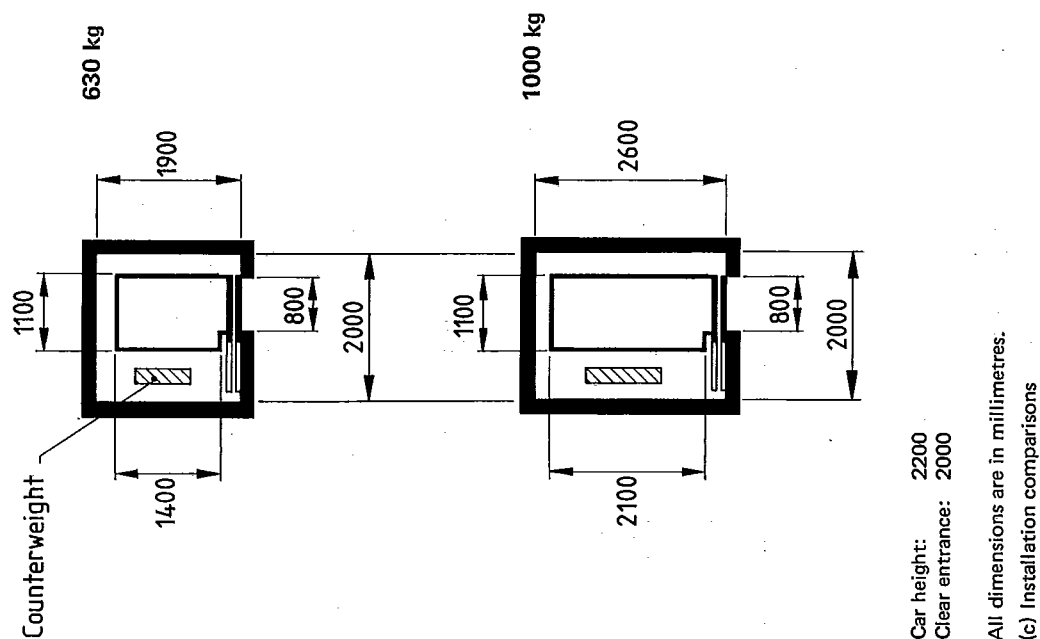


Figure 3. Layout of residential installations