

FACILITIES IN LIFT INSTALLATIONS FOR PEOPLE WITH DISABILITIES

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ABSTRACT:

This paper will cover the situation "Down Under" regarding the disabled people's requirement in relation to lifts and how the Code rules were developed in conjunction with a committee philosophy to satisfy the expressed needs of these lift users. During the drafting of the rules, many overseas codes and documents were reviewed. Special consideration was given to the operating functions that would provide 'independent access' for the users.

COMMUNITY PRESSURE:

In the Year of the Disabled, many Australian and overseas government bodies became interested in, or were directed by politicians to fulfil the expressed needs of pressure groups in the community.

If one were to look at the percentage of population that is disabled and, more importantly, the numbers of disabled persons in each category of disability, we would find that the provisions made in the code were not always in relationship to the need but more often than not were related to the efforts of particular handicapped organisation representatives.

Action is stimulated for, or about the disabled, in some of the following ways:

Accidents, awareness, wars, living conditions, desire to help, sympathy, high rise buildings and technology.

In the case of technology it has been its availability and its failures that have changed the lifestyle of the disabled and in some cases brought about new disabilities not before experienced in community living.

DESIGN CRITERIA:

To find a common set of criteria to satisfy the needs of disabled people was not easy when you consider the following list of disabilities:

| | |
|-------------------|-----------------------|
| Blind | Deaf |
| Partial-sight | Aged/Infirm |
| Illiterate | People in wheelchairs |
| Partial hearing | People on crutches |
| Mentally retarded | Arthritic |
| Paraplegic | Quadriplegic |
| Dwarfism | Partial Limbs |

And many reductions in motor skills.

As the standard was being developed for the minimum requirements that would increase independent access to lifts other than those lifts in Institutions for the Disabled, it was necessary for the committee to make some estimate of the percentage of disabled to be considered.

The decision was that the rules should cater for about 85% of the disabled persons that were likely, and able to arrive at a lift entrance independently.

The population of Australia is about 16 million of which there are approximately 15% disabled or disadvantaged to the extent that they would have difficulty in operating or find it impossible to negotiate in a conventional lift. (FIG. 1)

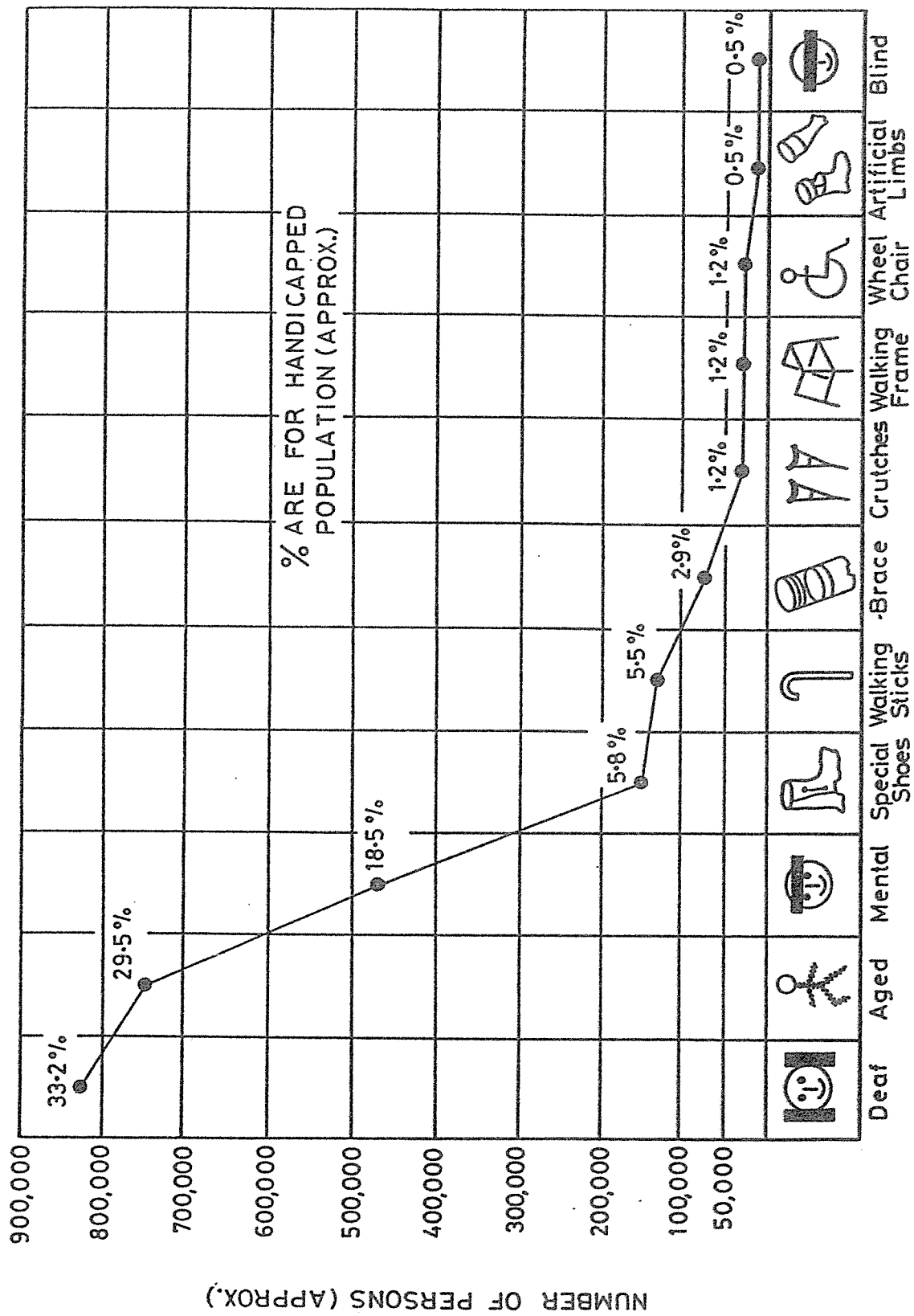
HELP FOR THE DISABLED:

There are many ways specialists and the community at large have assisted in the design of items that have increased the incident of independent access for the disabled. These items have had to cover such diverse things as wheelchairs, crutches, walking frames, seeing-eye dogs, electronic sensing, object enhancement and lifting or transporting devices.

For instance, in Australia there is a group of retired engineers who have joined an organisation called: Technical Aid for the Disabled "TAD", and they enjoy the challenge of inventing devices to assist the disabled.

All members of the community whether able or disabled, need to be informed, educated or skilled in performing many tasks we attempt in our daily life. These areas have to be addressed in the future and on an international basis.

Experience has shown that many of the requirements and facilities now incorporated in lifts for the disabled are equally suited to, or are even an advantage for the so-called "normal" lift user.



HANDICAPPED PERSONS IN AUSTRALIA 1981

OVERSEAS STANDARDS & EQUIPMENT:

Early code or regulations set up by governments or councils overseas have been rationalised or relaxed when it was found that the community could not afford to comply.

In some cases manufacturers had developed products that, in the eyes of some Australian committee members, were not functional. For example, tactile button identification was not easily deciphered; also, the use of "Braille" was only able to be read by a small percentage of blind or sight-impaired. (Fig. 2)

Button design was another critical item. This was one of the most important parts in operation of the lift by the disabled. Overseas buttons were lacking in the following: The button should project above its surroundings. The diameter of the button should be large enough for easy identification and have a recessed face for both finger operation as well as an aid, such as, a stick or push rod. (Fig. 3)

AUSTRALIAN CODE ELEMENTS:

Platform Size: The minimum platform size is governed by the space requirements for wheelchairs. These vary in size considerably, depending if they are manual or battery powered. The platform size must be considered in conjunction with the entrance width for a straight line approach or the wheelchair making a 90 degree turn out of a passageway.

The Australian Lift Code considers that if the platform is less than 1.45m/2 it is not suitable for wheelchair access.

If the width of lift car platform is less than 1580 mm, it is not possible for the average user to turn a wheelchair around; therefore, car control stations are required on each side of the cabin.

The minimum size of the cabin and the minimum width of entrance at first might seem excessive but it must be remembered that many of the wheel chair users are either unskilled in operating this device or their disability has caused them to have lack of power in their arms or upper body. In some cases this lack of control is associated with a very slow response in making corrective action.

Lighting: There should be sufficient light to locate controls. Such light should be glare-free and the equipment to be operated should be highlighted with contrasting colours. The current light level required by the Australian Code is 800 lux on the control panel. This was the light level requested by those people working with the sight-impaired people in the "low level of vision" clinics in Australia. These clinics had been working on a similar problem of correct identification of control knobs in the household kitchen. It is understood that they would consider that a lower light level to about 600 lux would be acceptable.

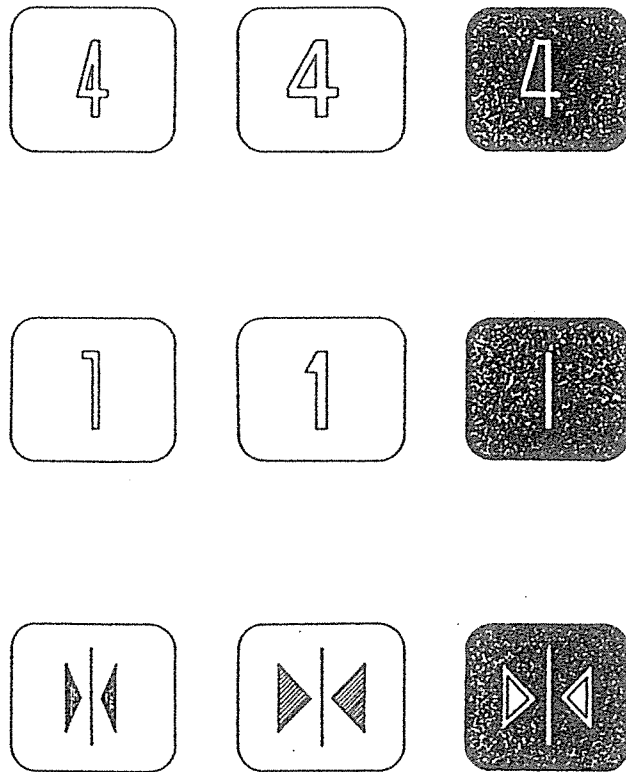
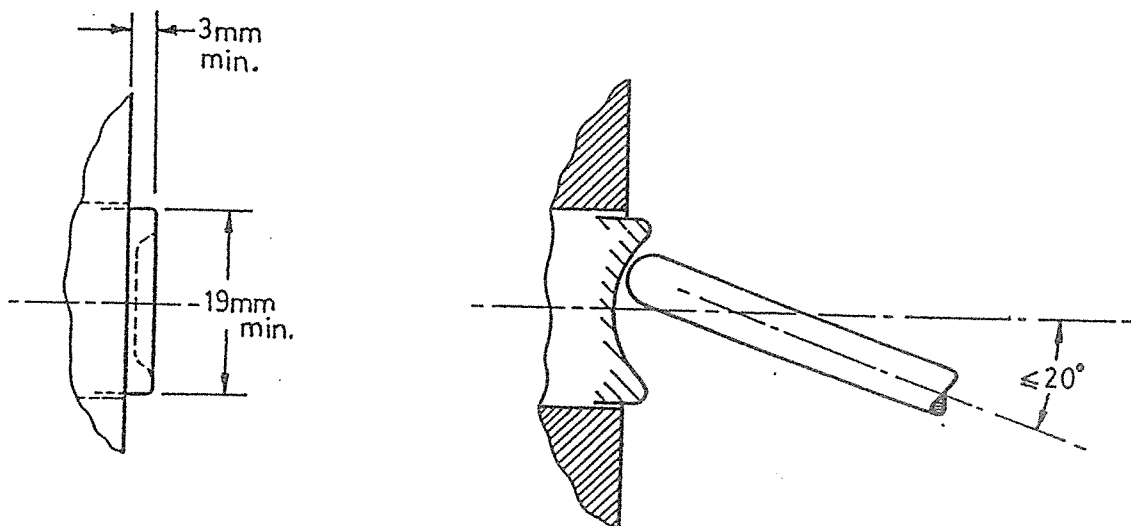
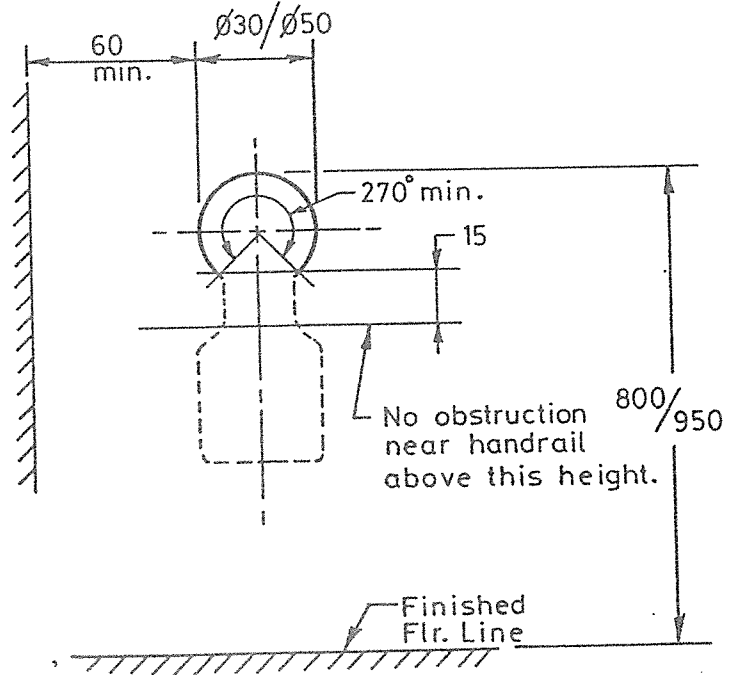
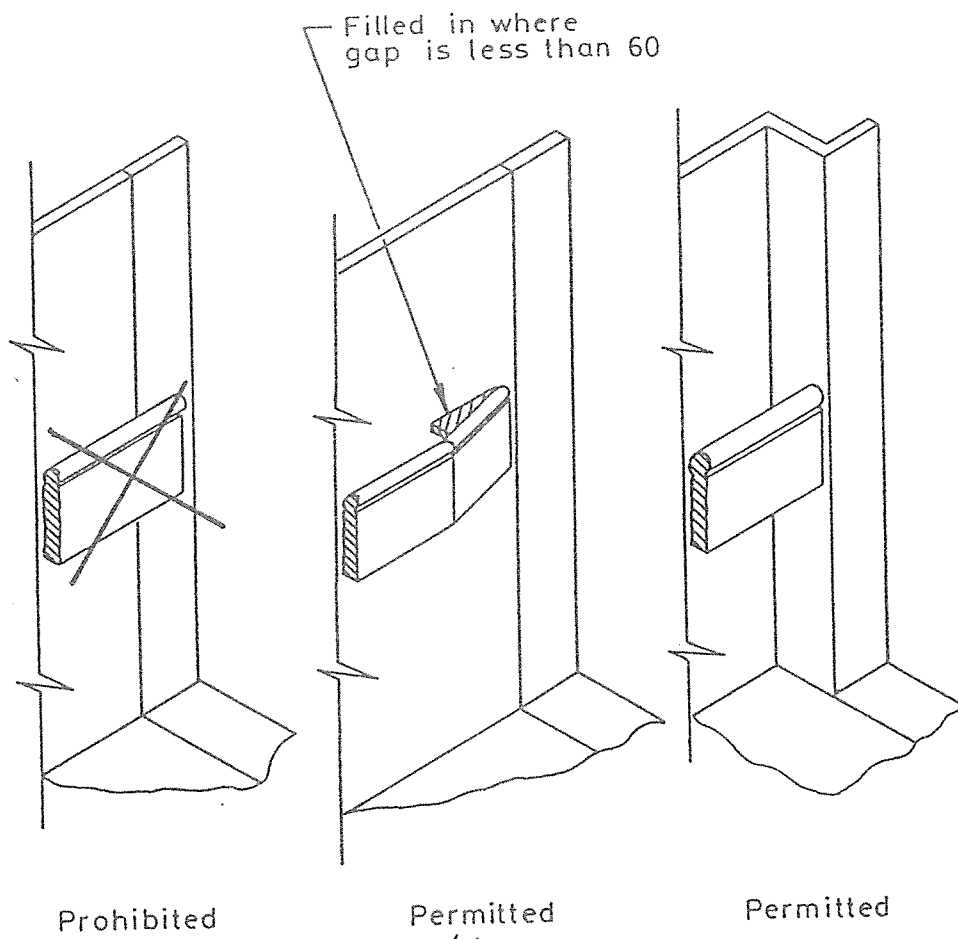


FIG. 2.



BUTTON DESIGN
FIG. 3.



HANDRAIL ARRANGEMENTS
FIG. 4.

This lower light level would be of great assistance to the lift manufacturer as it would reduce the heat problem caused by the current 800 lux requirement. The Australian Lift Code does not allow or consider turning off or reducing lighting in lift cars not in use.

Cabin Finishes: Low reflective surface, smooth and free of sharp projections should be provided. The floor surface should be firm for wheels and crutch tips to negotiate but not too slippery. The shape and location of handrails have been designed to assist in supporting passengers when the lift is moving. In some cases disabled people are not able to clutch the handrail but can push their arm, hand, or stump of the arm, in behind the handrail. (Fig. 4)

Stopping Accuracy: Floor level stopping accuracy should be a maximum out-of-level of 12 mm. Machinery and control equipment should have been selected to achieve and maintain this condition.

Equipment Height: The vertical height or location of buttons or indicator lights was considered and a chart comparing the heights for various disabilities is included. (Fig. 5)

Press Button Location: The location of press button units either in the lift cabin or on the landing should conform to the following criteria:

Be at an accessible height of not less than 850 mm and not more than 1250 mm high from floor level.

Located away from corners by 350 mm so that persons in wheelchairs, on crutches, or using walking frames, can reach the buttons or control devices. (Fig. 6)

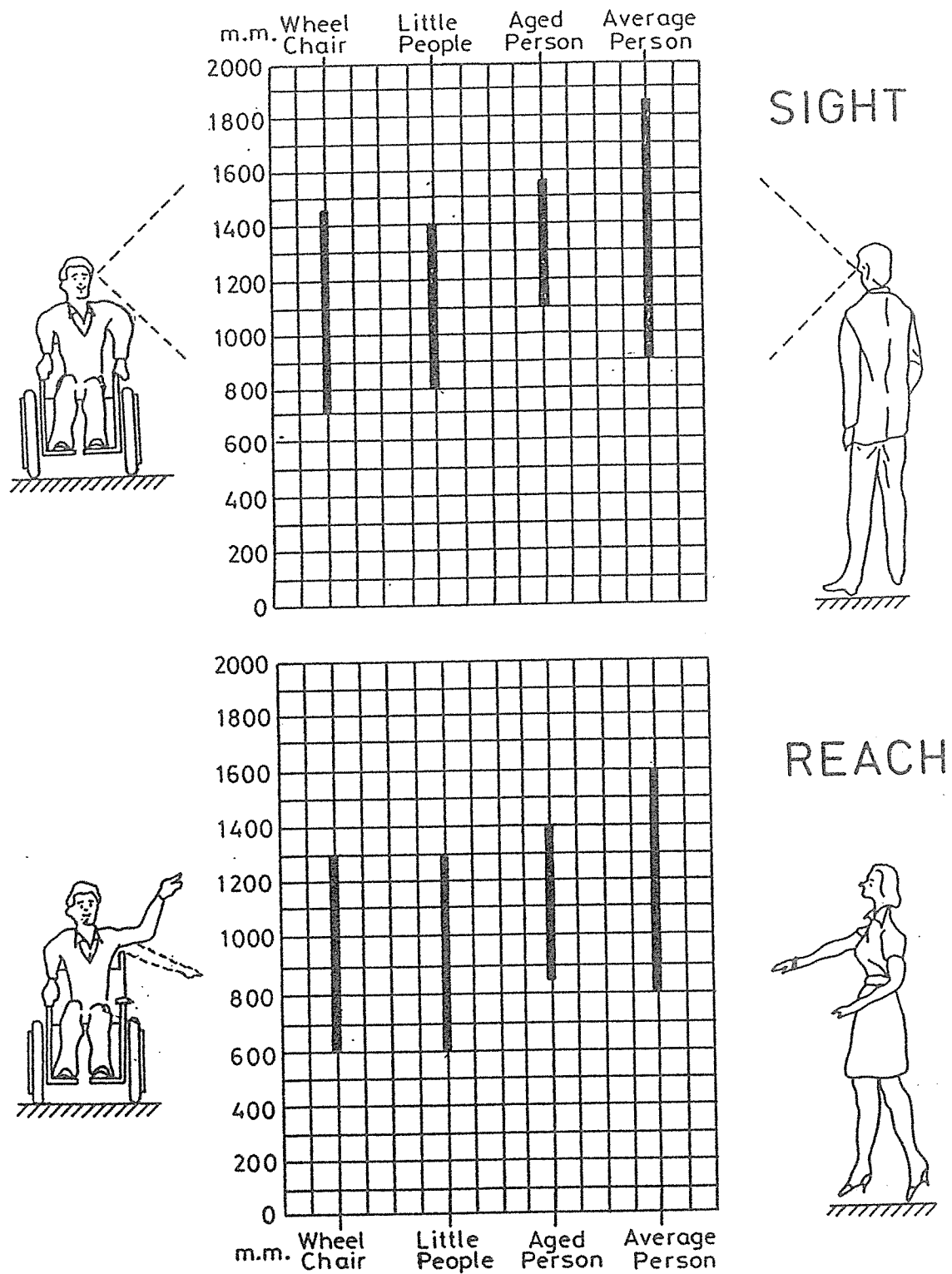
The test for checking suitability of button location inside the lift car is, that a 700 mm diameter disk should be able to touch the top of any button or control device that is to be available to the disabled. (Fig. 7)

Communication: A device used for communication between the lift and the outside is there to obtain help. It should be reliable, easy to operate and require little knowledge to operate.

The unit should connect directly to or have a self-dialling facility to a full-time monitored answering service.

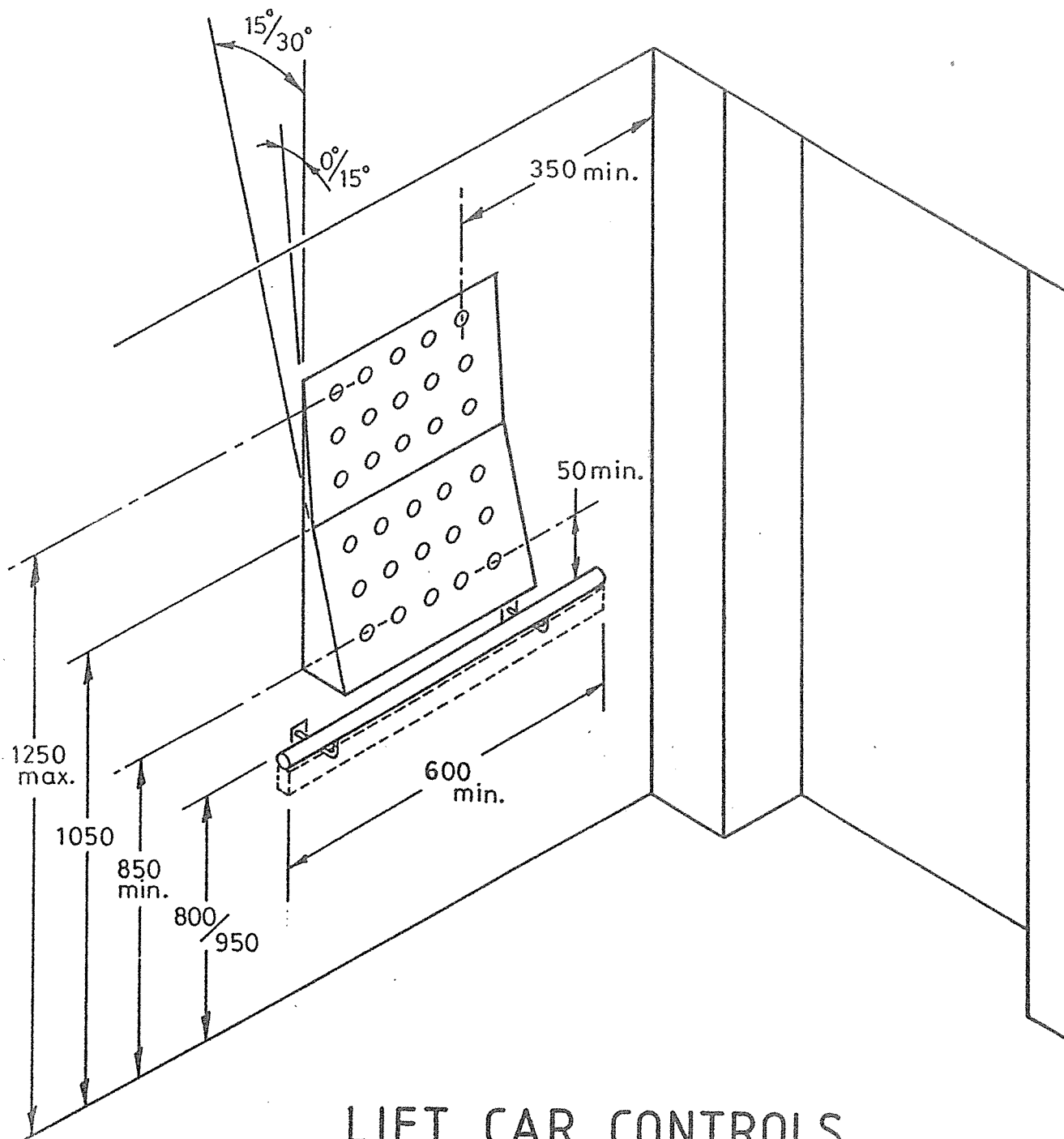
Such a system must provide a two-way voice communication at a sound level to suit the environment.

Lift Entrance Arrangement: The location of equipment and signs is part of the visual communication system at the entrance of a lift. This is to assist the disabled in identifying and using the lift that has been made accessible. (fig. 8)



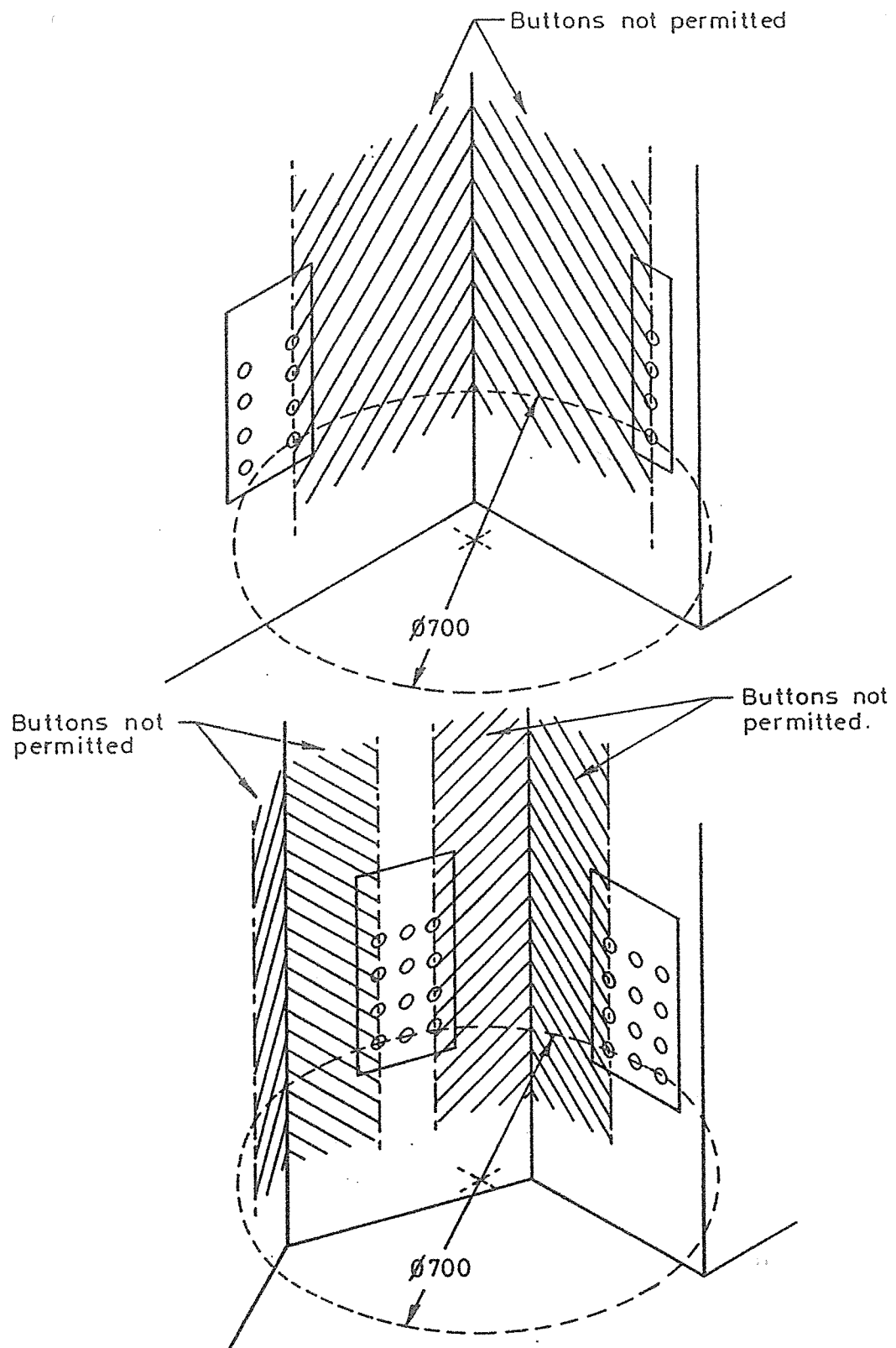
SIGHT & REACH COMPARISON

FIG. 5.



LIFT CAR CONTROLS
AND HANDRAIL FOR THE DISABLED

FIG. 6.



BUTTON LOCATIONS

FIG. 7.

SIMULATED SITUATIONS & MODEL DISPLAY:

At the conclusion of the draft Code, the Lift Manufacturers' Association in Australia produced a full size model lift cabin and button control units for demonstration and evaluation by disabled organisations and interested members of the public.

IMPLEMENTATION & UNIFORMITY PROBLEMS:

The lack of time spent by people reading draft rule and the shock and realisation of what they had agreed to only became evident after publication.

Some consultants and/or architects found that some of their freedom of choice was limited now by law and their desire to create original designs of lifts had been constrained for the needs of the disabled.

The Lift Code does not state the number of lifts that shall be in a building nor does it indicate how many lifts shall be provided with "Facilities for the Disabled". The designers of buildings and the lift contractors must be practical in their approach to the problem. For example, if there is only one accessible lift in the building and it is out of service for an extended time without warning, it could restrict movement of a disabled person who had already made a trip in one direction.

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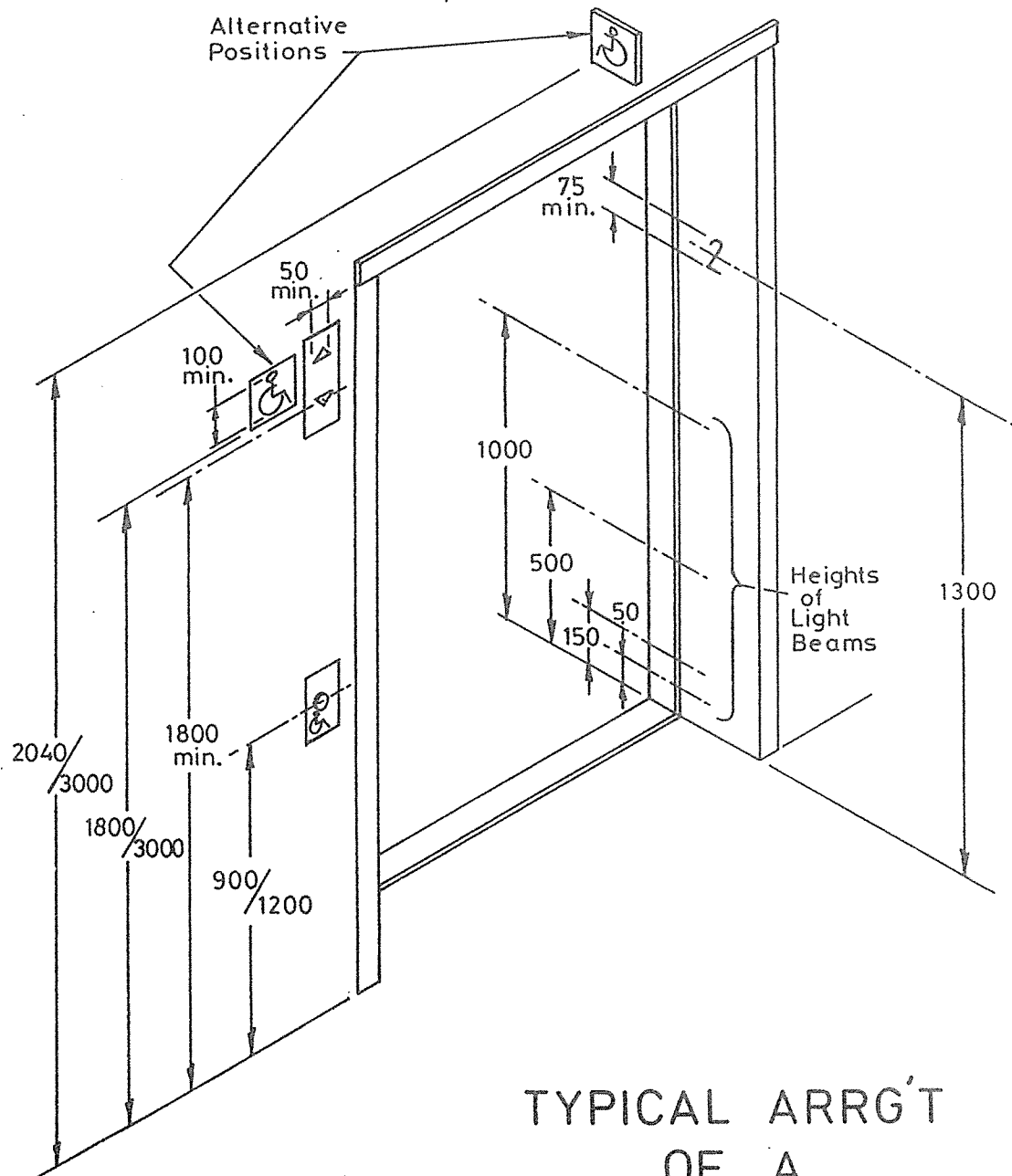


FIG. 8.

TYPICAL ARRANGEMENT
OF A
LIFT ENTRANCE