

# CIRCULATION PATH, ACCESSIBLE ROUTES AND PATH OF TRAVEL: THE IMPACT OF SOCIAL DISTANCE ON SPACES.

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## ABSTRACT

The world is expanding and so is the network of travelling, advancement is the requirement of the hour, correspondingly the way travels networks are widening, it becomes important to analyse the requirements and the pattern of circulation accessed. To reach all the places one need to get to a path and have a assess to that go hand in hand. In every building there are pedestrian way and the most used part of the structure. But keeping in mind the guidelines place, similarly building and circulation of Covid-19 and having area that minimize the spread of it or any other type of such in the near future. The structure should be more flexible and aiming what needs to there in mind so that the design is not harmful on the people.

## 1. INTRODUCTION

If you can't even get to an area, regardless of how accessible that portion is, it'll still not be accessible. Not only is that the route or path itself required to be accessible, but there are a variety of component requirements that make it accessible. Outlining routes from the general

public point of view way, to site amenities, to the entry, and through the exits and other part of building.

Over the years there are different terminology for various types were pedestrian travel i.e., circulation path, accessible route and path of travel etc. The terminology is comparable and does overlap, but has some important differences. Path of Travel and Accessible route are mainly describing the "unobstructed" path that a wheelchair user would take. But a circulation path is speaking a few paths where any pedestrian would use to urge around.

The present Covid-19 pandemic has interested the entire world, changing habits and use of places and cities. Within the lockdown period, cities and public spaces became completely empty and new urban landscapes substituted the previous ones, transforming the private publicly. Children, young and elder people were those that mainly had problems: to them, real world was negated at the time of their life during which this is often more important. In Italy, the second country after China

which was inquisitive about the Covid-19 pandemic lockdown, the reopening of all the general public spaces happened after 2 months of closure. This allowed again “in presence” social interactions, although in respect of the physical distance, confirming the importance of those places for all people.

## 2. CIRCULATION PATH

The meaning of circulation in architecture isn't so different: it relates to how people, the blood of our structures, moves through space. circulation routes are the pathways people take through and around buildings or urban places. Specifically, Circulation is often thought of as the 'space between the spaces', having a connective function, but it can be much more than that. It is the perception that captures the experience of moving our bodies around a building, horizontally, vertically and through time.

Since every space an individual could enter or occupy is part of a building's circulation system, when we talk about circulation, we don't usually try to account for where every person could go. Instead, we frequently approximate the primary routes of the main majority of users.

If a circulation route is considered to be within a public zone, it suggests that the area is widely accessible; an example of this could be a lobby. Whereas a circulation route considered to as private, will include the back of house and staff circulation passageways.

### 2.1. THEORY AND TECHNIQUE

It is important to study the function of halls, stairs, and elevators in a variety of representative buildings under varying workloads in order to formulate generalisations regarding circulation. These results must then be analysed. This necessitates identifying the characteristics of sufficiency in relation to modes of circulation. When does a corridor become overcrowded? When are occupants unable to achieve their goals due to inadequate stair or elevator facilities? How can design elements be separated?

Finally, what is the best relationship between building pe and circulation areas?

The answers to these questions could be noticed by considering the basic function of circulation facilities and determining how well this function is fulfilled in a specific building. Corridors are passageways. Stairs and elevators exist to allow movement from one point in a building to the next, as well as from any interior point to the outside.

The effectiveness with which this is achieved may be considered in relation to the rate of travel permissible to the occupants. Thus, if a representative individual can walk from a room to a stair at the same rate as when walking alone in apparently crowded conditions. Then one must conclude that the crowded conditions in the corridor he travels through do not obstruct his progress and that the corridor space provided is adequate.

On the other hand, varying densities of persons per 1,000 square feet of corridor space may result in different rates of travel on the part of the occupants. In that case the adequacy of the corridor must be measured against the amount of time permitted for the fulfilment of the occupant's objectives at a particular time of day.

### 2.2. COMPONENTS OF CIRCULATION

Circulation spaces could also be categorised as those facilitating horizontal circulation, like corridors, and people facilitating vertical circulation, like stairs and ramps. they'll even be restricted to specific users groups, for instance, in buildings used by the general public there could also be public circulation spaces, and also, restricted access private circulation spaces. they'll be closed spaces like corridors, or open spaces like atria and in some cases may serve multiple functions.

The size of circulation spaces could also be determined by factors such as; the type of use, the numbers of individuals using them, the direction of travel, crossing flows then on.

In complex buildings like hospitals or transport

exchanges, signage or other sorts of way finding could also be necessary to help people navigate circulation spaces. Some circulation spaces may have very specific uses, like for the movement of products, or for evacuation.

To make it even simpler, the character and scope of those divisions may vary depending on the project, but they will include:

- Direction of movement: horizontal or vertical
- Type of use: public or private
- Frequency of use: common or emergency
- Time of use: morning, day, evening, continuous

### 2.3. DIRECTION

Horizontal circulation might include hallways, atria, paths, entries and exits. It is also affected by the furniture layout, or other objects in the space such as columns, trees, or topographic changes. This is why architects usually furnish as part of a concept design, because it is critically linked to the flow, function and feeling of the space.

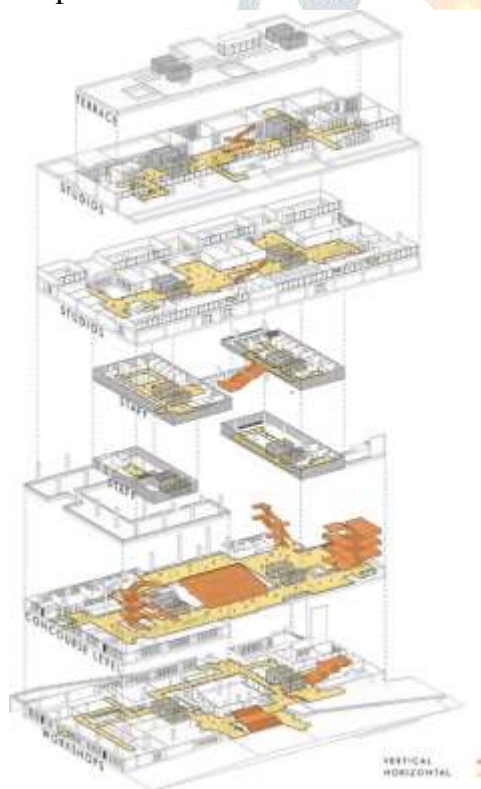


Figure1 Vertical and Horizontal Circulation in The School of Planning and Architecture campus at Vijayawada.

On the other hand, vertical circulation is how people move up and down within the building,

so includes things like stairs, lifts, ramps, ladders and escalators which allow us to move from one level to another.

### 2.4. USE

Public circulation is the areas of the building which are most widely and easily accessible. In this guise, circulation is often overlapped with other functions, such as a lobby, atrium, or gallery, and is enhanced to a high level of architectural quality. Issues of visibility, how crowds move, and clear escape paths are key.

Private circulation accounts for the more intimate movements within the building, or the unpleasant ones which require a degree of privacy. In a house this might be the back door, in a large building the back of house, staff offices or storage zones.

These two types of circulation zones will differ functionally, in terms of the level of use and the Aesthetic. Circulation routes within private areas will be designed to optimise productivity and efficiency, whereas public circulation routes will be more attractive and aesthetically pleasing.

When you are planning your design of these methods of circulation, they do not need to be ugly or hidden away circulation routes can be a beautiful key architectural feature. Do not forget, you must communicate the routes for public and private circulation as well as fire safety and general use circulation clearly within your design.

### 2.5. DESIGNING CIRCULATION

There are two rules of thumb when it involves designing circulation. The key circulation pathways should:

- Be clear and unobstructed.
- Follow the shortest distance between two points.

The reason for these two rules of thumb is fairly obvious, people want to be ready to move around a building with ease and efficiency, and without feeling or being lost.

but, once you've these rules sorted, you're welcome to interrupt them.

Sometimes for architectural reasons you'll be wanting to interrupt an immediate circulation path with an item of furniture or a change in level to define a change in situation, make people hamper, or provide attention point. Similarly, circulation doesn't necessarily need to follow the shortest distance between two points. Rather, it can take under consideration the sequence of spaces, thresholds, and atmospheres encountered through movement, which prepare you for the transition from one space to subsequent. Circulation is often choreographed, to feature architectural interest.

### 3. ACCESSIBLE ROUTES

Accessible route is also a general term and basically describes a route taken by pedestrians that is accessible. With a few exceptions, the accessible route connects the accessible parking spaces, accessible passenger loading zones, to the public right of way and public transportation stops with the accessible building entrance, to accessible elements and spaces both on the site and within the building including each story and mezzanine. If spaces and elements are connected by a circulation path then for the most part they are also required to be connected by an accessible route. If spaces or elements are accessible, they are to be on an accessible route.

An accessible route should be provided as follows.

- At least one accessible route within the boundary of the site should be provided from each public transportation stop, accessible parking, accessible passenger-loading zone, or public street or sidewalk to the accessible building entrance it serves. The accessible route should, to the maximum extent feasible, coincide with the route for the general public.
- At least one accessible route should connect accessible buildings, facilities, elements, or spaces that are on the same site.
- At least one accessible route should connect accessible buildings or facility entrances

with all accessible spaces and elements and with all accessible dwelling units within each building or facility.

### 3.1. LOCATION OF ROUTES

Accessible routes shall be provided to offer direct access to the principal entrance to the building where practical. If it's not practical, the choice most direct practical route to the space served by the principal entrance shall be used.

Where a site has separate buildings as a part of one complex, accessible routes shall not deviate substantially from the convenient or direct route commonly used.

Where accessible units of Community service buildings are provided, an accessible route shall connect all accessible units to reception areas, offices, shops, dining rooms, kitchens, laundries, ablution blocks, recreation rooms and the other communal facilities.

### 3.2. DESIGN CONSIDERATION

#### 3.2.1. GENERAL

Street pavements, pedestrian passages in open spaces and recreational areas, pedestrian underpasses and overpasses are all considered pathways or ramps.

Pedestrian routes in recreational areas and open spaces should be broken regularly by detectable obstructions such as plants and/or by changing the alignment to discourage bicyclists

#### 3.2.2. GUIDE STRIPS

The path of travel should be easy to detect by a sightless person using a long white cane. Natural guide lines and guide strips are used to help identify travel routes. A guide strip is a line means constructed in or on the road surface to facilitate orientation for sightless pedestrians in the following manner:

- To replace missing natural guidelines, fill gaps of more than 10.00 m in a guide strip

- Guide strips should be laid in a simple and logical manner and should not be located close to manholes or drains to avoid confusing sightless people.
- Guide strips should have a colour which contrasts with the surrounding surface for the benefit of people with sight problems.
- The guide strip ridge profile should be parallel to the main direction of movement and should be flush with the top layer of the adjacent road surface so as not to hinder people with mobility problems.

### 3.2.3. TACTILE MARKING

Tactile tiling on the pedestrian route of travel should be placed at the following locations:

- On a guide strip where alternative routes exist or at a junction of guide strips
- At a pedestrian crossing
- Around obstructions which are difficult for the sightless to detect
- A tactile guiding area, preferably of rubber tiles with minimum dimensions of 0.90 m x 0.90 m, should be constructed in a guide strip at cross pathways where the route branches off in several directions

### 3.2.4. CURBS

The height of a curb should be between 0.07 m and 0.15m. Stepped curbs should be avoided, as they are hazardous to all pedestrians, especially in darkness.

### 3.2.5. CURB RAMPS

Curbs should not obstruct the free passage of physically disabled people, mainly wheelchair users.

### 3.2.6. WIDTH

The minimum width of an unobstructed pathway should be 0.90 m. The minimum width of a two-way wheelchair traffic passage is 1.50 m. The preferable width is 1.80 m.

### 3.2.7. SLOPE

The slope of an accessible path should not exceed 1:20. Pathways with a slope of more than 1:20 should be designed as ramps the slope across a path should not exceed 1:50.

### 3.2.8. SURFACE

The surface of an accessible pathway should be smooth, continuous, non-slip and even. Pathways which are level and even with adjacent surfaces should be given a different texture and colour finish for differentiation. Intersecting pathways should blend at one common level.

### 3.2.9. GRATINGS

Gratings can be hazardous to wheelchair users, cane and crutch users, parents with prams and women with high heels. Manholes, drains and gratings should generally be placed outside the pedestrian pathway. Gratings should be flush with the pathway surface and should have narrow patterns of not more than 13 mm. Elongated grating openings should be perpendicular to the pedestrian travel path.

### 3.2.10. GUARDS

For changes in level of quite 13 mm between the pathway and therefore the surrounding surface, guards, upstands or other sorts of barriers should be used. Guards with a minimum height of 0.15 m should be used to separate pathways from planting areas, pools and landscape features the edges of the pathway should be bevelled wherever changes in level between 6 mm and 13 mm exist between the pathway and therefore the surrounding area.

### 3.2.11. LANDSCAPING

Plant varieties and locations within the travel route should be chosen with caution. Thorny and poisonous plants shouldn't be used immediately adjacent to pedestrian paths. Plants that drop seeds and leaves creating a hazard underfoot should be avoided. Trees with shallow

roots are hazardous because the roots may breakthrough the pathway surface.

#### 4. PATH OF TRAVEL

An alteration that affects or could affect the usability of or access to an area of a facility that contains a primary function shall be made so as to ensure that, to the maximum extent feasible, the path of travel to the altered area and the restrooms, telephones and drinking fountains serving the altered area are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless the cost and scope of such alterations is disproportionate to the cost of the overall alteration.

When you alter a Primary Function Area in a building, and that alteration affects usability, an accessible Path of Travel is required to that area, up to the point it is not disproportionate

##### 4.1. ALTERATION

An Alteration is a change to a building or facility that affects or could affect the usability of the building or facility or portion thereof. Alterations include, but are not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, resurfacing of circulation paths or vehicular ways, changes or rearrangement of the structural parts or elements, and changes or rearrangement in the plan configuration of walls and full-height partitions. Normal maintenance, reroofing, painting or wallpapering, or changes to mechanical and electrical systems are not alterations unless they affect the usability of the building or facility.

##### 4.2. AFFECTING USABILITY

The term affecting usability often means the work (even if it is maintenance) involving elements or spaces covered by the standards. For example, if you're installing a new HVAC system; that wouldn't necessarily require compliance with the standards. However, if the new HVAC system involves installing new thermostats, then the new thermostats will need to comply.

#### 4.3. PRIMARY FUNCTION

A primary function is a major activity for which the facility is intended. Areas that contain a primary function include, but are not limited to, the dining area of a cafeteria, the meeting rooms in a conference centre, as well as offices and other work areas in which the activities of the public entity using the facility are carried out.

#### 4.4. DISPROPORTIONALITY

Alterations made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds 20% of the cost of the alteration to the primary function area.

#### 5. SPACES AND PANDEMIC

Social distance dictated by COVID-19 health emergency affects access to public space and with it creating a variety of impacts on different levels. While global lockdown is destabilizing economy and challenging country leaders, at the human level the pandemic is generating isolation and loneliness, with a big raise of helplessness and fear. Most are asked to remain home and rearrange daily routines and work activities in indoor domestic spaces, watching the planet from behind a window. People are dying alone; numbers are increasingly high. Outdoor physical activities are not any longer allowed. Many governments seem to lack proper strategies to manage the danger of massive contagion. With all these situations and there are many questions in our mind such as What is the future of public space? How can we face this unprecedented emergency and get prepared to its consequences, in specific regard to health disparity? Public space restrictions will stay in place after recovering from the pandemic? Is there something we can do now all together?

Buildings will also have to be redesigned to offer more natural ventilation and outdoor spaces, be they individual or communal. These could take the form of rooftop terraces, courtyards and balconies. In the city, common spaces and

facilities such as bus shelters, sidewalks, pedestrian crossings and rest areas will have to be re-designed in a sustainable way.

Some temporary reallocations of car space may well become permanent after the end of the pandemic. There is already increased use of active transportation, which can have a positive long-term effect on urban congestion and public health. Many cities are rethinking their entire urban mobility system. Paris is already planning to remove 72 per cent of on-street parking spaces to make more space for bicycles

## 6. CONCLUSION

The vocabulary is parallel and does have connection, but has some significant differences. Circulation path is general for a pedestrian way. It is not necessarily accessible but does need to have an accessible route in the same vicinity if it is not overlapping and if it leads to an accessible space or element. An accessible route has specific minimum requirements in order to be accessible including no projecting objects into its minimum required clear width. Path of travel is the terminology for alterations. It includes the concept of an accessible route but it has a broader definition including other elements as part of proportional spending for alterations. Thus, this paper states about the requirement of such efficient structure to enhance the patterns and circulation of travelling and also about the design considerations which play a very effective role in making those attempts smooth and successful, this paper helps in understanding the deeper meaning of circulation and the ways of making it efficient for the society in this rapidly growing world.

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