

EYES OF THE SKIN: A DESIGN CONSIDERATION FOR VISUALLY IMPAIRED PEOPLES

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Abstract - The intent of this study is to give architecture a sensory effect on visually impaired people, and to help create spaces thus creating spaces for blinds, who can see through their other senses than the eyes. The study implies that vision forms the most common way of communication in architecture whereas other senses such as smell, touch, taste and sound- gives architecture a deeper effect and are unfortunately neglected.

The study shows the research on spaces that can be built with sensory effects with the case studies and other building example to provide design consideration for the people with vision impairment through senses and effects on a human mind. Thus using less equipment and sensory alarms than using materials. The study will imply that the person with vision impairment has a great ability to live in the space through their senses other than vision hence creating spaces which has its physical impact more than its visual beauty.

1. INTRODUCTION

The visual impairment or low vision, means that even with eyeglasses, contact lenses, medicine, surgery, someone is not able to see properly. There are various symptoms, causes and types for blindness.

SYMPTOMS OF BLINDNESS:

- cloudy vision
- an inability to see shapes
- seeing only shadows
- poor night vision
- tunnel vision

Though unintended, most of the buildings remain inaccessible to many. This is because there is lack of consciousness, concerns for disabled and lack of basic knowledge for what constitutes an accessible design. It does not implies an additional demand or any extra cost. Today accessibility for all is recognized as a basic necessity, which does not remain synonymous only with provision of ramps, but also involves many more aspects to be considered.

The main aim is to make visually impaired person self-confident by designing for them good facilities and using an architecture sensitive approach to create barrier free environment for them. . This approach incorporates the inclusive design and universal design strategies including social aspects enhancing the concept.

I. RELATED WORK

- **CONSIDERING FIVE SENSES IN ARCHITECTURE (2015):**

The article describes the experience of a museum where a person will experience different senses in each gallery where the difference in material and aromas are used to create difference in environment and to enhance sensory effects.

Human precepts and reminds the environment through the senses, conscious or unconscious. This state is to hear without listening, to smell without breathing hard, to taste without the tongue and to touch without contact and press the object. And all of them is the perception of spirit. The spirit is real only when it acts perfectly and this situation is true only when we do not feel its presence. It means knowing will not act. Also the eye see properly only when it does not try to see itself.

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OLFACTION-

In olfaction gallery of the related museum visitors walk through a way, visiting earthen sculptures at first until they reach to a tow-way. They must pay attention to the smell of the clay and follow the rest of earthen sculptures. If they do not pay attention to this smell, they might miss the way and walk in a way that there is wooden sculptures that they can smell wax eaten wood of the roof. Gradually they will face to spaces with variety of aromas and they will see sculptures with different materials or they get in to a perfume exhibition and will stop where it needs less perception and attention to senses. Or they get in to a greenhouse and visit the season flowers.

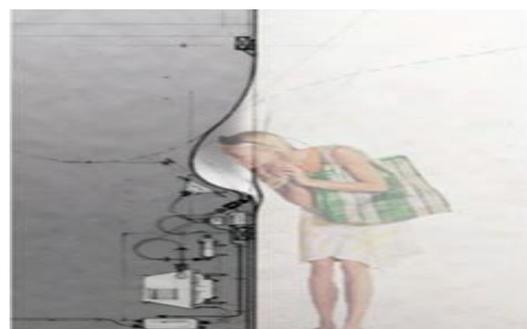


Fig -1: olfaction in a museum

TACTILITY-

As existing the olfaction gallery while the visitors were following the smell of the clay, they will face to a place that the material of its walls is thatch and the floor is covered with clay tiles. If they understand this point, they will reach to clay arts while following the material, otherwise they will visit wooden arts.



Fig -2: Tactility in a museum

HEARING-

In one part of this floor, there are fragile hanging partitions staying nested, that move with blowing of the wind produced in gallery. As getting closer to the centre of the museum, the variety of the sound hearing, will be diminished and a more clear tone will be heard.

• **JUHANI PALLASMA- ARCHITECTURE AND SENSES (1996):**

The relation that our body creates with the surrounding isn't just visual, but comes from the participation of us as whole. This is in clear contrast with today's architecture "which has adopted the psychological strategy of advertising and instant persuasion: Building have turned into image products detached from existential depth and sincerity." the industrial production of objects, the standardization and the kind of loss of a haptic approach to architecture affected the multi-sensoriality of our perception in our built environment.

Hearing structures and articulates the experience and understanding of space. We are not normally aware of the significance of hearing in spatial experience, although sound often provides the temporal continuum in which visual impressions are embedded. When the soundtrack is removed from a film, for instance, the scene loses its plasticity and sense of continuity in life.

Adrian stokes, the English painter essayist makes perceptive observation about the interaction if space and sound, sound and stone. 'Like mothers of men, the buildings are good listeners. Long sounds, distinct or seemingly in bundles, appease the orifices of palaces that lean back gradually from to pavements. A long sound with echoes brings consummation to the stone.

• **BARRIER FREE ENVIRONMENT (2015):**

LIGHTING:

Adequate lighting is the single most important aid to vision. The lighting needs of persons who are visually impaired vary according to the individual and their particular eye condition. Avoid glare and reflection, which are often caused by shinny or glossy surfaces. Place light sources in locations to avoid creating shadows.

COLOURS:

Limit use of color and keep color schemes simple and avoid large-scale patterns. Keeping in mind that too many Colors used in design can create confusion.

TEXTURES:

Using detectable warning surfaces which have a texture that can be felt under foot or detected by a person using a long cane to alerts a person who is visually impaired to a hazard.

ACOUSTICS:

Sounds can assist in providing orientation clues about a space. The key for the designer is to utilize the Acoustics optimally and considering that Provide acoustically well-defined position items such as escalators, fountains, and elevators to create useful sounds. Avoid noise sources from mask sounds intended to provide directional cues.

II.CASE-STUDY-

BLIND PEOPLE'S ASSOCIATION- AHMEDABAD:

The institution itself has a great impact on blind people as it incorporates the criteria of PWD for specially abled peoples, this institute provides many facilities for specially abled peoples as well it gives the job placements for themselves to get independent. The institute consists of 7 blocks in about 15,600 square foot campus area with learning experience at every turn with light, sound, touch, smell and even taste. The approach towards designing and easy movement for the people with vision impairment has been its major part which includes:

- The Sensory Garden, located to the entrance, is a feast for the senses. It features pathways, varying surface textures, bench seating, and native plantings selected for their texture, scent and colour.
- Ramps provided on the outer surface of building, the ramps provided are easy accessible to everyone as the ratio of slope is gradual.
- Circular charity haat given for students in which the seating is done in a radial manner in circular shape to avoid any kind of confusion to the visual impaired persons.

- For computer programming also braille tactility is used to educate children with visual impairment.
- Internal linking of blocks through bridges.



BLIND PEOPLE MODEL VOCATIONAL TECHNICAL SCHOOL BY Adu Ofrio Eric:

Street

- Guard rails at side of street
- Tactile clues at shoulders of street
- Covered drains along shoulders of street Walkways
- Fit visual signs and tactile clues (eg. Braille blocks)
- Finishes of different colors and textures
- Plants to emphasize pavement edges Wall and ceiling design
- Light colored ceiling for walls and ceilings
- Textures on walls to facilitate movement
- Non-injurious finish on walls Floor finishes
- Matt finish for floor surfaces
- Highly reflective floor surfaces
- Good placement of changing floor textures at strategic points to help mobility Doors
- Simple operational doors
- Door with signs and door handles (i.e. simple lever)
- Extra pull handle for doors
- Kick plate for doors

APPENDIX II – PRESENTATION OF ANALYSIS OF QUESTIONNAIRE AND RESPONSES

Analyzed questions	Analyzed sample unit responses to questions			
	Male (20)		Female (30)	
	Yes (100%)	No (0%)	Yes (100%)	No (0%)
1. Architectural barriers at staircases (lack of tactile clues, same color for treads and others)	◆		◆	
2. Architectural barriers with the street design (fear of accidents, uncovered drains on the shoulders of the streets)	◆		◆	
3. Architectural barriers at the dining hall (columns, lack of tactile clues on floor and wall surfaces among others)	◆		◆	
4. Architectural barriers at the playground (debris tripping students, lack of tactile clues on the ground to warn users of metallic play equipment among others)	◆		◆	
5. Architectural barriers at the classrooms (padlocks on doors, lack of room embossments on doors, door thresholds, lack of tactile clues on walls and floors etc)	◆		◆	
6. Architectural barriers at corridors and circulation areas (Lack of tactile clues on the ground, fixtures in corridors, lack of curbs, poorly defined walkways etc)	◆		◆	

III. SCOPE OF RESEARCH-

The scope of this study is to see how other senses contributes in architecture and to make public spaces easy accessible to each and every person as in India there is no criteria given for the specially abled peoples because of which they suffer in their day to day life activity, the goal is to make peoples with vision impairment self-dependent and confident.

2. PROPOSE DESIGN CRITERIA:

STAIRCASE-

The staircase can be brailled at its top and bottom to indicate that there must be steps in between so that the visually impaired person can move freely.

COURTYARD-

The use of courtyard to define interior and exterior spaces in a building can also be useful by planting fragrance flowering plants that is recognizable to a person hence using their senses instead of using any alarms or any sensors.

FOOTPATH-

Using detectable warning surfaces which have a texture that can be felt under foot or detected by a person using a long cane to alerts a person who is visually impaired to a hazards. The surfaces can be embedded tiles.

ZEBRA-CROSSING-

The audible alarms can be used at traffic signals to prevent the visually impaired person from moving in heavy traffic period.

MASTER- PLANNING

The planning should be in a linear manner with as less as possible turns to avoid any confusion.

DAYLIGHTING-

Adequate lighting is the single most important aid to vision. The lighting needs of persons who are visually impaired vary according to the individual and their particular eye condition.

RAMPS-

Ramps should be created with a gradual slope possible with the ratio given as 1:10 to 1:12 in NBC.

LANDSCAPING-

The designer employed both soft and hard landscaping. Walkways are finished with different textures.

3. CONCLUSION

The evidence based on researches and the study on blind association of Ahmadabad, also the interaction with blind peoples, suggests that the public spaces needs to be redefined according to the guidelines of PWD and Nation Building Codes for specially abled peoples to create the effective spaces for blind peoples nonetheless of the visual beauty the spaces needs to be emphasized on its physical appearances as well by promoting the use of local material in the building to make it barrier free spaces.

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