

# Healing Architecture: An approach towards Healing Environment

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**Abstract**— This study explores the influence of the physical environment and architectural features which help to enhance the environment of the healthcare centers in India. The main aim of this study is to create the healing environment in the healthcare centers which will reduce the stress on the patients, their relatives and staff, enhance the ability to cope and maximize the effectiveness of the medical treatment on the patient's body. The study is carried out in a public hospital of a city to understand the physical and psychological need of healthcare center in relation to physical environment by observation and questionnaires response by patients and staff. "Ultimately it is the senses that need to be revitalized as it is an integral part of healing." [1] The key findings on healing environment of the healthcare centers are noted.

**Index Terms**—Healing Architecture, Healing Environment, Healthcare center, Physical Environment

## I. INTRODUCTION

The design of the healthcare center is a complex task, which focuses on both functional needs and psychological needs. In order to utilize the maximum functional area i.e., to accommodate maximum number of patients, the physical environment of the space is often compromised. The spaces having no or very less natural light, views of dead wall of the premises or the view of the road are the results. But the building itself can help to reduce the stress on the patients, their families and staff by creating healing environment. "We build the buildings that end up shaping us." [2] The goal of the healing architecture is neither to cure nor to heal but to create the healing environment that will stimulate the process of healing.

Traditional healthcare centers were used to be located in the outskirts of the city to provide natural, pollution free, peaceful environment to heal the patient. Non-traditional healthcare centers are getting established in the city, but with the same concept of providing natural and peaceful environment. In modern times, with the increase in population and need, the healthcare centers are now getting established in limited area of land in the city, trying to achieve maximum functional needs and accommodate maximum number of patients, paying very little attention on the physical and psychological needs.

This study is an approach of understanding the need of the patient, their family and staff, how they experience the space and the evidence based design criteria that are necessary for creating a healing environment.

Many researches prove that the stress has negative impact on the health as it slows down the recovery rate. The healing environment can help to reduce the stress by providing positive distraction by beautiful view, art, access to landscape etc. It is also found that the comfort and feeling of relaxation also quickens the recovery rate. The thermal and visual comfort must also be included in a healing environment.

## II. RELATED WORK

The study of the healing architecture is carried out through multiple case studies to understand the relationship between space and patient. The following projects illustrate the relationship between built-up environment and human being creating healing environment-

1. Muktagan Mitra, Pune-Primary Healthcare cum drug de-addiction and rehabilitation center: It is designed by Ar. Sirish Beri. It has welcoming entrance in random rubble stone masonry. The balance is maintained between the sense of freedom and enclosure by providing visual connection with nature through balconies, cutouts and corridor. Flower-bed and planters are planted in window sills for connection with nature. Landscaped amphitheatre is designed as the focus point to provide visual and physical interaction as well as source of light and ventilation. All the spaces have ample amount of light and ventilation and views of landscaped areas.

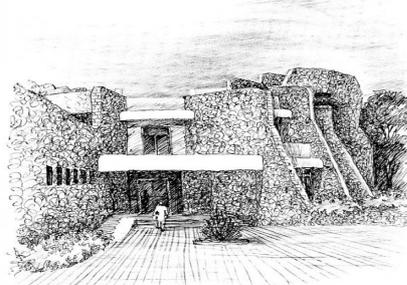


Fig. 1. Sketch of Muktagan Mitra by Ar. Sirish Beri



Fig. 2. Karunashraya Hospice Center

2. Karunashraya, Bangalore- Home for terminally ill patients: It is designed by Ar. Sanjay Mohe. It is a care center for the advanced stage cancer patients who are beyond cure. It has welcoming entrance, the building has stone structure with composite masonry. The balance is maintained between the sizes and forms of courtyards with relationship between the green spaces and water. All the rooms are designed to receive natural light and ventilation with the view of green landscaped spaces on one side and water on another. Individual spaces lead out to a Verandah which has a view of water.

Spaces are designed for recreational activities and for religious activities to create positive distraction of patients from sufferings.

3. Paimio Sanatorium, Finland-Tuberculosis Hospital: It is designed by Ar. Alvar Aalto on the mountainous slopes to provide beautiful views on the site. Its every space is designed by focusing on sunlight, fresh air, sun and views of nature. The wards are provided with cantilevered balconies facing roof top solarium and pathways have beautiful views of the surrounding landscapes and water fountain which visually and spatially connect the environment. The room lights are reflected from ceiling to provide visual comfort.



Fig. 3. Paimio Sanatorium

The aspects of healing environment in healthcare center and its effects on patients are reviewed through various literature studies. These aspects include the physical aspects, natural light and its control, views of the nature, visual and physical link with nature, spaces for privacy and dignity as well as for

interaction, thermal and visual comfort, integration of art to create positive distraction etc.

An understanding of the subject of 'healing architecture' is established to provide evidence based on the link between the built environment, its physical aspects and human health physically and psychologically. Four public hospitals in Indore have been selected and observed for the pilot studies.

### III. SCOPE OF RESEARCH

The main objective of conducting the study is to investigate the aspects which help in creating healing environment. The study will be helpful in reducing the stress on the patients, their families and staff in the health care centers. The aim is to enhance the process of healing.

### IV. PROPOSED METHODOLOGY AND DISCUSSION

The use of theoretical or empirical knowledge obtained from the questionnaires by the patient, their family and staff in design consideration to reduce pain, stay in the hospital, level of medication, stress and anxiety.

Following are the results of the survey (source unknown) conducted on 6 patients suffering from same disease in a multispecialty hospital for 4 days-

TABLE I: EXPOSURE TO SUNLIGHT

	Little sun light	Ample sun light
Stress level	63%	51%
Sleeping performance	75%	80%
Overall Performance	49%	56%
Willing to heal	89%	93%

Following are the results of the survey conducted by Ulrich, of view through a window on recovery days from surgery.

TABLE II: VIEW FROM WINDOW

Year	Number of days in ICU, with no view	Number of days in ICU, with good view
2000	4.9	3.8
2001	4.7	3.9
2003	4.6	4.2
2005	4.9	4.5

Following are the results of the survey conducted by Hamilton, on single occupancy and multi occupancy room

TABLE III: SINGLE OCCUPANCY VERSUS MULTI OCCUPANCY WARD

	Single occupancy room	Multi occupancy room
Cost of treatment	more	less
Length of stay	shorter	longer
Medication error or infection rate	less	more
Level of medication	lower	higher
Privacy and comfort	more	less
Stress level	lower	higher
Interaction with family and relative	more	less
Interaction between patient	less	more

Following are the answers of the questionnaire conducted by us, on a doctor of a health care center in Indore

TABLE IV: INTERVIEW WITH A DOCTOR OF A HEALTHCARE CENTER

Q. How the stress of patients could be reduced?
A. By diverting their mind to beautiful view or art displays and engaging them in different activities.
Q. Which types of material and textures should be used?
A. It should make patient feel comfortable and it should not look clumsy.
Q. On what factors the built environment should focus?
A. Environment should be comfortable. Welcoming entrance and waiting areas. Calm and peaceful interior spaces. Social and interactive spaces. Outdoor spaces like terrace and balconies. Interrelationship between different internal spaces.
Q. Requirement of public and private spaces?
A. For privacy- Visual and acoustic privacy. Less risk of infection. For public spaces- Good interaction between patient and staff. Spaces for interaction between families of patient.

## V. EXPERIMENTAL RESULT

The physical aspects affecting the healing environment in the health care centers are identified on the basis of a pilot study and the critical observation. The following are the factors which influence health outcome-

- Welcoming entrance- As studied from the analysis. Entrance is the first view of the patient which creates the further image of the healthcare center, it should make good impression. It should be an inviting element. It should be easy to supervise and should have controlled flow of traffic. It could be well landscaped with trees, plants and water body.
- Daylight- The research shows that the exposure to sunlight gives better health outcomes. The building orientation, design of windows and use of different materials such that tinted glass should be designed to optimize the amount of light and the light should not create undesirable glare.
- Respecting patient's choice- As studied from the analysis, comfort is the most important need of the healing environment. As everyone has different comfort level, in terms of visual comfort, thermal comfort and acoustical comfort, there should be freedom of adjusting the temperature, opening the window, control of curtains and blinds. Room should be acoustically comfortable.
- Proximity of spaces- All the interactive spaces such as gathering spaces and activity rooms should be near to the wards, so that everyone can join easily and it should be centralized if possible, so that it should be beneficial to all.
- Normalcy- The patient feels comfortable, encouraged and supported in presence of familiar and

recognizable environment. The feeling of being cared and supported increases the health outcomes.

- Open spaces- Open and free environment fasten the recovery rate. If a person is isolated and not getting freedom, it will have adverse effect on his health. Openness provides life to the healing space. Large window and open window gives more sense of freedom.
- Access to nature- Nature has healing powers. Studies had shown that, access to nature gives sense of freedom to the patient and feeling of seclusion. It increases the recovery rate and decreases the stress, blood pressure and maintains normal heart rates.
- Views and vistas-All the spaces should have views and vistas of nature from every space of the health care center. The center having rooms on one side and landscaped views on other side is a dream. Openness and views make the rooms spacious.
- Dignified environment- To increase the rate of desire to heal and self heal, the patient should get dignified environment. The staff and spaces should respect the privacy and dignity of the patient as well as it should also provide care to the patient.
- Spaces for interaction- There should be freedom to the patient to decide own level of social interaction. There should be various interactive spaces of different seating capacities so that the patient would be able to interact according to his comfort level.
- Minimizing the rise of fall and infection- The spaces should be accessible to all the age groups as well as specially-abled persons and it should have minimum risk of fall. There should also be minimum risk of infection. Contact with water in landscaped area should be avoided to avoid the risk of infection.
- Easy way finding - Study has proved that difficult way finding may lead to stress and anxiety. It should have easy way finding by use of different colors, textures and materials for ease of patients, their family and relatives.
- Quality corridor- It has been proved in studies that staff spends most of the time in travelling from one space to another, and cannot give much attention to the patients. The corridor should be centrally placed and should have minimum necessary length.
- Creating positive distraction- Integration of art in architecture through art strategies, wall paintings, painting-exhibition creates the distraction of patients from their illness. Giving chance to the patient to get involved in painting can also make forget the patient about his problems. Literature, music, yoga, meditation and aroma also have the power to heal.

## VI. CONCLUSION

The evidence based on researches and the pilot study of the public health care center of Indore suggest that the healing environment has significant role in better health outcome of the patient. It has been observed that following links are

important to the patient in order to create healing environment-

- link with sunlight
- link with nature
- link with self
- link with surroundings

The above aspects should be incorporated in the design of the healthcare center to gain better health outcomes.

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