Building with Contaminated Waste Materials

When a School-based Health Needs Assessment Reveals Environmental Injustice

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BACKGROUND

- Environmental concerns discovered during school health needs assessment
- Study site (a small rural town in the Midwestern United States): site of a former zinc smelter (closed down in mid-1980s)
- Former smelter site now an EPA Superfund site
- Materials from the smelter (cinder blocks, fill dirt, etc.) widely distributed to community members for use in residential construction projects after the smelter closed down
- Possible contamination of these materials and corresponding health hazards for residents were disregarded
- EPA soil sampling found several residential yards with elevated lead levels (attributed to materials from former smelter) community members’ accounts of EPA interactions suggest that health hazards were downplayed.

THE EPA AND AN UNDERINFORMED COMMUNITY

- EPA reports: reasonable expectation of exposure from site contaminants due to lack of site containment
- 2011: EPA recommends site for inclusion in the National Priorities List (NPL), declaring the site a “superfund site” – a site containing “known releases or threatened releases of hazardous substances, pollutants, or contaminants” (1)

THE HEALTH NEEDS ASSESSMENT

- Community members expressed little concern with environmental toxins: Students and adults surveyed listed “environmental toxins” last of 8 possible areas of concern, after “drug use”, “jobs”, “addiction”, “having things to do”, “health”, “crime” and “safe housing”
- Community voices in focus group suggest lack of information by EPA and community denial:
  - “…the cinders and that...a lot of people put that in their driveways; I mean my mom’s house had the driveway with those cinders. The track out here was those cinders; that’s what they used back then, and they didn’t worry about lead poisoning or anything like that.”
  - “you’d basically have to eat a lot of the dirt for you to be affected, like to literally affect you...”

THE RESEARCHERS’ DILEMMA

- Community did not seem interested in further exploring environmental concerns or the (lack of) information provided by the EPA
- If we want to conduct community-focused research, how do we respond when the community does not wish to pursue a matter we perceive as an environmental injustice?

WHAT WE COULD DO

- Identify local champion(s) to improve community interest and buy-in in the matter.
- Facilitate educational activities for and with the community.
- Identify other rural communities who have already successfully addressed (or solved) similar issues – establish connections
- Engage community in community-based participatory research (CBPR) to explore environmental hazards in their town.
- Explore possible funding mechanisms the community could pursue to further explore environmental toxins and exposures in their community.

References: (1) https://www.epa.gov/superfund/superfund-national-priorities-list-npl all other references on file with the author to protect identity of study site and participants
Impact of Windows on the Visual Quality of Indoor Work Space Located in Hot and Arid Climates

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Benefitting from natural light and a view of the outdoors in any indoor space are considered to be the most important functions of windows. For a window to contribute effectively to the increase of visual efficiency in buildings; and especially in those located in areas with hot and arid climates, the selection of the best parameters must be made from the design stage in the construction process, but unfortunately most Algerian architects consider the window as an aesthetic aspect for the facade without paying attention to their yields. In this respect, this article presents an experimental study carried out to clarify the impact of different configurations of windows on visual efficiency using simulation software on models of real offices located in the city of Biskra; oriented south and released from a typological study. The simulation process was carried out during the 3 months (March, June, December), taking into account the climatic data of the city of Biskra. The experimental results obtained confirm the efficiency of the windows, as an element makes it possible to contribute to the achievement of comfort conditions within a space.

INTRODUCTION

In a whole building, the key element that connects the relationship between indoor space and the outdoor environment and guarantees an aesthetic indoor climate is "the window". Given its importance in a whole exchange outside - inside, we must first know its duality of advantage and inconvenience. Because according to (Go, 2015), the window is a complex element for more than one reason. It is required to perform various important functions: source of natural light, heat, natural ventilation and vision to the outside world, and each of these functions is related to an unavoidable effect: source of glare, overheating, noise and reduction of visual privacy (British, T. Mehtan, T, 2002). So the best window wins - in the absolute - the one that would improve all the functions in a well-studied and controlled way.

In a workspace, natural light and the view to the outside are the most requested window functions because they can reduce energy consumption due to the use of artificial lighting and reduce stress and fatigue, give the space user a vision on the outside conditions (Eldridge H. Hardjik T, 2013). For this, a window that guarantees access for natural light and provide a qualitative and qualitatively adequate external view for a workspace must be well studied in terms of all its paramount: configuration, sizing, position, type of glazing, sun protection... etc., in order to achieve comfort conditions and interior visual quality bearable for workers. (G. F. Minola, J. R. Wherrett, 2005)

PURPOSE OF WORK

The overall objective of this article is to study the effect of the windows on the visual climate within a space. But specifically, it aims to find the optimum settings related to window over the ratio of openness and sun protection in order to achieve a perfect visual quality for occupants of offices space located in a warm area and arid in terms of the amount of natural light and the view to the outside.

RESULTS & DISCUSSION

Model 1 before and after the correction
- Horizontal mode: reducing (opening)
- The windows are natural illumination sources that place the discontinuity with 18% difference compared to the model before the correction. This was a reason for reducing the risk of direct glare caused by the surface of the unoccupied part of the window and especially in areas with the extension of the area of the unoccupied part of the window (more than 10% to 14%).
- Almost an increase of 8% in the visual comfort level in the model after the correction from that before correction which gives the space a shearing of definitions especially in the model maintained the same visual comfort levels.

Model 2 before and after the correction
- The addition of the light shelf helped to reduce the average level of illumination from 580 lux to 450 lux which presents the decrease in the level of visual comfort.
- The addition of the light shelf helped to reduce the risk of direct glare caused by the surface of the unoccupied part of the window and especially in areas with the extension of the area of the unoccupied part of the window (more than 10% to 14%).
- Almost an increase of 8% in the visual comfort level in the model after the correction from that before correction which gives the space a shearing of definitions especially in the model maintained the same visual comfort levels.

Model 3 before and after the correction
- The LG5 decreased the area that is illuminated by 60% to 90% from 14% to 6% as well, reducing the average level of illumination from 3000 lux to 950 lux.
- The model maintained an adequate illumination level of 5% with correction compared to a value of 8% in the model without correction.

CONCLUSION

The study of the impact of window on visual comfort cannot be approached with a look of the whole model without going into detail by each of the elements that constitute the window. The results of the study showed the importance of considering the visual comfort in the planning stage of windows' designing and the contribution of this paper is to improve the visual comfort level in the office environment and to choose the most suitable type of the window according to the conditions of the environment and the regional context.
Colonial Public Markets of Poona: Hegemony of British Raj

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Abstract

Colonial urban edifices of Poona mark political statements and demarcate commencement of the early modern age in the setting of “native” Maratha architectural character. Those were key components helping in constructing the image of the city in late nineteenth century. Neither those religious structures, educational buildings, and offices built, which were the first of its kind, emerged as colonial public architectural landmarks in the Pune context utterly following western notions. The concept and its manifestation in architectural form both could be out of context in a typical Maratha-Pashchim town in various ways. There were several oppositions from local reformists and communities for constructing structures such as covered markets at the heart of indigenous towns. Which was eventually constructed under supervision of local contractor Vasudeo Kanikar under the guidelines of royal engineer, Walter Ducat. The paper emphasizes the architectural models followed as a powerful symbol during the reign of the British, in Pune especially in the case of public architectural edifices eventually intervened strongly as colonial public landmarks. These religious, educational structures ultimately helped British “Raj” to build an image as ruler and to control on existing economic, social, and cultural system. These colonial landmarks are neglected from their significance as vital cultural resources and seen as alienated structures from the locals’ point of view. With the help of qualitative research methods and archival resources, this paper examines the importance of these edifices as a manifestation of power by sovereign imposed on numerous classes, castes of Pune.

Conclusion

19th century covered markets in west and 18th century in Poona. The market building with Octagonal form with 80 feet tall tower at centre, this very unique form symbolises colonial control over old administrative and economic systems. Distance between ruler and the subject was though maintained, but the market building and the scale and architectural vocabulary but at the same time creation of such public civic culture was very symbolic to notify commencement of democratic space breaking earlier feudal setup of Poona. Likewise this represents modern economic system implemented through government agents and local philanthropists in Indian towns. Reay Market as an important cultural heritage proposed and built by R.E. Walter Ducat and Local contractor Vasudeo Kanikar though neglected, as colonial past of town should be emphasized as an important colonial urban landscape of town, Connaught and Reay markets originated by R.E. Walter Ducat and executed by local contractors are significant examples from colonial architectural history in Indian context as vibrant public space.

References:

Das Prabodh Kumar, 2016, Henry Heine and the Indo Saracenic Movement reconsidered, Parsippe Publishing.
Letter from Executive engineer to the Secretary of Committee Poona, 1850, Mumbai, PWG archives, 17th Od.

Figure 1. Map of the locations of 2 covered market built during 19th century in Pune, India before partition.

Figure 2. Open market opposite to fortress in 18th century, Ref: Pune Queen of Deccan, Didji J., Guptaji S.

Figure 3. Covered Markets of Poona- Reay Market context.

Figure 4. Conjectural map showing Open Space in Shashurwadi Patil Ward with Reay Market, Ref: Sowani, Haraveli Pune, 1985 map.

Figure 5. Mixed use street markets in early 19th century Ref: Pune Queen of Deccan, Didji J., Guptaji S.

Figure 6. Area view of Reay Market courtesy to Kimaya architects, Pune.

Figure 7, 8, 9 Classical Façade treatment, central watch tower and wrought iron ornamental bracket and column supporting roof.

Figure 8. THE REAY MARKET OPENED BY HIS ROYAL HIGHNESS THE DUKE OF CONNAUGHT AND STRATHEARN K.G. ON THE 3RD OF OCTOBER 1886. NAMED AFTHER HIS EXCELLENCY THE RIGHT HONOURABLE LORD REAY LLD. C. I. E GOVERNOR OF BOMBAY PROJECTED BY THE MUNICIPALITY OF POONA IN 1882. J.G. MOORE E.S.Q. BEING PRESIDENT COMPLETED IN 1888 KHAN BAHADUR DORAIJEE PHOOGUMEE BEING PRESIDENT. DESIGNED BY COLONEL W. M DUCAT R.E. AND CARRIED OUT BY RAO BAHADUR WASKUDY BAPLU KANIKAR RAO SAHIB NARASO RAMCHANDRA GODBOLE SECRETARY P.M.

Figure 10. Plaque above and its text on right, at Reay Market on its inaugural day.

Figure 11. Areal view of Connaught Shivaj Market.

Figure 12. Vasudev Kanikar.

Local contractor.
ABSTRACT

Given the importance of housing to promote urban dynamics in central areas, it is believed that the re-use of existing unoccupied structures is conducive to the revitalization of historic centers. The diffusion of the private house, isolated, single family and decentralized of the housing action, together with the very low investments in infrastructure, constitute the history of Brazilian popular housing. The homogenization of space, with inflexible projects, frequently presented in housing programs in Brazil, such as the urban house project, which supposes that all individuals have the same housing needs, and that whether they are located in a cosmopolitan or economically globalized world, architectural standardization exteriors an authoritarian function on users and their authenticity, and has become the new object of desire. However, the laws and norms applied today in the recovery of historical spaces do not consider the exceptionality of the identity characteristics of the old constructions. In this sense, re-use requires that creativity be a protagonist in contemporary housing projects. This article proposes the challenge of thinking about the reoccupation of the preexisting patrimony of Brazilian historical buildings, in order to be recognized both by modern and current. The hypothesis assumed here goes beyond historicist rigidity that inhibits the "iconoclastization of architecture", with the restoration of patrimony and the implementation of architectural programs of a housing or mixed nature. However, it is difficult to establish the concept of contemporary housing, paying respect to the identity of the building, taking advantage of its morphological patterns in the project. In this context, flexibility and adaptability, essential characteristics that will give the resident the ability to express himself and, above all, to understand spaces with diversified ambiances.

INTRODUCTION

The challenge of reinventing of housing in historical sites, contrary to what may seem, is not new in Brazil. Some decades of experience allows us to reflect from a historical perspective, be it of the morphological and functional evolution of these sites, or of the attempt to understand the processes of degradation and loss of the residential areas. The historical centers were, until at least the first half of the 20th century, part of less complex urban contexts. For some time, as a multifunctional areas. The multiplicity of situations and personalities together with an affective relationship with the site explain much of the charming portrayed by these areas, and make the attempt to reproduce forms of sociality and relationship with the city that have been lost over time.

If it is true to live the space, integrating a set of daily activities, defined in 1931 in the letter of Ahrens. Realizing that each of us has distinct identities throughout life and that housing is the place where we are housed and how we live housing policy and designing the new housing ways. Architecture must contemplate not only the diversity of inhabitants, but also the individuality of housing relationships.

1. INTERNATIONAL MODELS AND THE BRAZILIAN EXPERIENCE

When facing the differences between Latin American and European or American cities, the discrepancy is in the extent to which diverse and recurrent social, political and economic problems solutions, especially when we consider their processes of formation, expansion, insertion in the global economy, income distribution and strategy of survival of the lower classes. Considering this context, how should we apply in Brazil the models and experiences of urban planning to our country? This project assumes that all individuals have the same housing needs, and that whether they are located in a cosmopolitan or economically globalized world, architectural standardization exteriors an authoritarian function on users and their authenticity, and has become the new object of desire. In this sense, re-use requires that creativity be a protagonist in contemporary housing projects. This article proposes the challenge of thinking about the reoccupation of the preexisting patrimony of Brazilian historical buildings, in order to be recognized both by modern and current. The hypothesis assumed here goes beyond historicist rigidity that inhibits the "iconoclastization of architecture", with the restoration of patrimony and the implementation of architectural programs of a housing or mixed nature. However, it is difficult to establish the concept of contemporary housing, paying respect to the identity of the building, taking advantage of its morphological patterns in the project. In this context, flexibility and adaptability, essential characteristics that will give the resident the ability to express himself and, above all, to understand spaces with diversified ambiances.

2. HOUSING POLICIES IN BRAZIL

Faced with capitalist societies of underdeveloped countries, the wealth generated is selectively appropriated, without much environmental awareness, generating a need for compensatory programs. This condition enabled them to remain, for some time, as multifunctional areas. The multiplicity of situations and personalities together with an affective relationship with the site explain much of the charming portrayed by these areas, and make the attempt to reproduce forms of sociality and relationship with the city that have been lost over time.

REFERENCES


