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## BOW BARRACKS A REMINISCENT OF COLONIAL COSMIC FAIRY TALE

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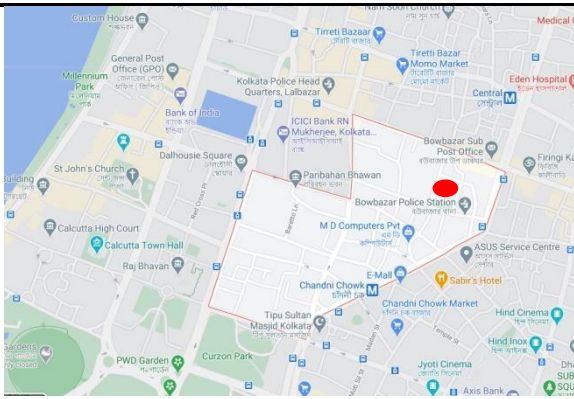
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**Abstract:** Bow barracks a.k.a garrison's mess is one of the prominent examples of the era of British raj in bow bazar area, Kolkata, India. Although it is tough to left impression of colonial gothic architectural elements by the river Hooghly, one of the prominent examples that still continuing its glory from 1919 during the First World War. The alluvial soil near the Hooghly River enhance the construction of garrisons mess (bow barracks) with the availability of silt and load bearing housing solutions to the user. The eminent architect Halsey Ricardo left one of his impressions at the capital of cultural cosmopolitan.

This century old settlement is an abode of Kolkata's last Anglo Indian, Jewish and some of Cantonese Chinese people along with the striking, sophisticated architectural features that symbolises the classical identity of this area. The red brick structure having its own fabric amalgamated with the cultural diaspora of the living community and surroundings. The aim of this paper to conserve the existing community of the area with the essence of a century old settlement rather than demolishing towards a high rise commercial sectors.

**Keywords:** Anglo Indian, bow barracks, colonial architecture, British raj, red bricks, urbanization, conservation, heritage structure.

**1. Introduction:** The "red" buildings which are located near The central avenue between "hare street" & "bow bazaar" police station, sometimes it Was the shelter to provide British soldiers From world war 1, the Kolkata Improvement trust (formerly known as city) is in charge of this garrison mess which Was on rental basis during 1919- 1920. The settlement includes families of Anglo-Indian, Anglo Chinese, Muslim, Hindu Bengali and Gujarati communities. Over 80% residents are Anglo-Indian Descendant, even a large no the Cantonese Chinese group which came after the post-World war situation. The bow barracks is situated at the central business district, heart of Kolkata surrounded by Chittranjan Avenue, Dalhousie, and chandni chowk near Hooghly River. The area encompasses the colonial urban fabric like governors house, High court, Laalbazaar & the various office buildings. The bow barracks was taken from KIT (Kolkata improvement trust) at 1919 during world war to provide shelter for American soldiers. Although by the time the people got married with Indian people and most of the descendants of these Anglo people started to live there.



Area of bow barracks (source – Google maps)

Around 132 families are still living there as tenant. But due to the negligence of these orphans of British raj left the area for without concern for years. Most of the people mainly the children, grandchildren live in abroad and the people of this area is also less interested to talk about their current scenario & the situations of the heritage. This study based upon the parent material and the urban heritage along its traditional culture at the city heart.

## 2. CULTURAL BACKGROUND

A perfect example of cultural diaspora of Kolkata is bow barracks. Most of the Anglo people are generally follow Christianity, catholic and protestant both are present, on the other half mainly the Cantonese Chinese people who are devotee of Buddhist or Hindu culture the main attraction of this place is Christmas Eve and Chinese New Year celebration. The people celebrate their festivals with conventional rituals and also so have their homemade cookies and beverages (manly wine) create a cosmopolitan ambience to the tourist of country and outside. There are various recreational organizations that organize many cultural programs and the sport is enjoyed by the local residents. Hockey, football cricket are men sports theme, and many national level footballers took place in the football tournament of their team like Leslie Claudius, Gurbax Singh. It attracts the nearby Jewish community, old Chinese community in territa bazar, Anglo community from park Street, and various people around the city gather there. The thoroughfare and the payments are used for ceiling homemade products like cookies, bacon's, hot dog etc. and the Thor affair is mainly occupied by the performers and the tourist around the world. Bow barracks having the park also so but it mean Eve is celebrated along there thoroughfare at the gully. Also the area is connected with other religious sects like Parsi dharamshala and Buddha Dharmankur Sabah.



Buddha Dharmankur Sabha (temple)

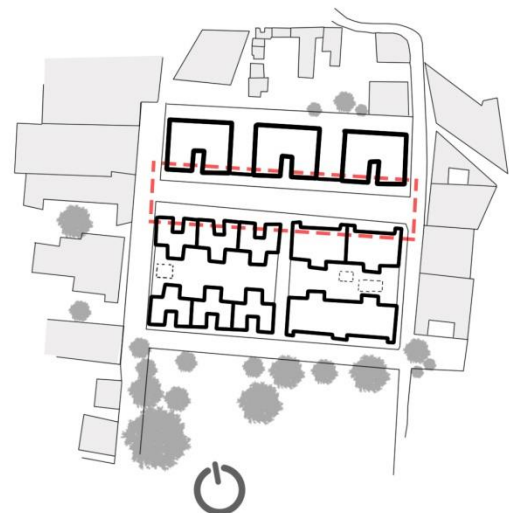
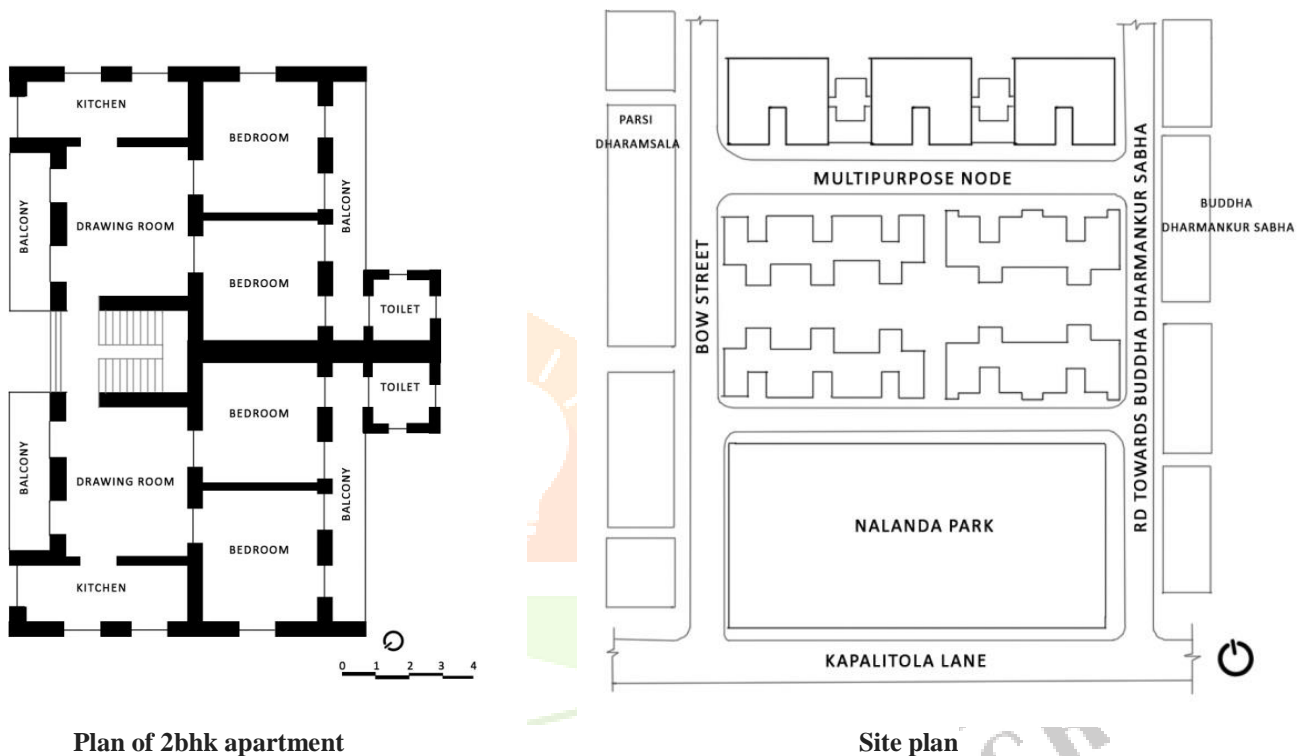


Fig.1. (Multipurpose node)

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### 3. ARCHITECTURE & PLANNING

Basically the place is consist of seven individual units which are having 72 no's 1 BHK Northern side (3 blocks), and in the central portion having 4 blocks with 36, 2 BHK and 24, 3 BHK rooms and the central side Consists a park. In between this 3 spaces North block and the central block having 10 to 12 meter thoroughfare with pedestrian pathway, disorganized parking spaces. The combination of Red and green (brick and weather board) are the primary material and the reflection of colonial architectural elements like ok arched window clerestory, cornices etc. The park side facing block having narrow pathway to connect the central realm, most of the rooms have respective bedrooms, one drawing and kitchen and a common bathroom facing towards outside connected through bedroom and balcony. The park side facing block having narrow pathway to connect the central realm, most of the rooms have respective bedrooms, one drawing and kitchen and a common bathroom facing towards outside connected through bedroom and balcony.



Plan of 2bhk apartment

Site plan

The plumbing fixtures and drain pipes are easily manageable from outside. The main design principle of architecture is rhythm proportion emphasis and symmetry has been used in this planning. The contrast of complementary colors Red and green creates an amazing present in monsoon assimilated with cloud capped sky and foliage's. The weather shield like weather boards are provided from the relief of humidity and the windows are recessed and casement windows having wooden louver for ample amount of light and pleasant ventilation.

### 4. STRIKING FEATURES

The building height is almost 12 M (3 storied apartment), having brick pier, buttress, decorative cornices with brick projection as the main exterior work. It consist also brick arched window with clerestory with louvered casement window to allow ample amount of wind & sunlight throughout the day. This load bearing structure have English bond and thick wall as exterior member & I section beam has been used to support the ceiling & roof.



### Building facade

These apartments have one entry to individual unit consist of two bedroom (mostly), one kitchen, living, balcony & a toilet facing towards outside so that the plumbing fixtures can be repaired easily & also connected to rain pipes. The balcony & some of the windows having weather shields mostly like old colonial style & the windows having stained glass work & segmented arch form. Use of I section beam in interior to support ceiling & the slabs are slightly projected outside to give a prominence between two floors.



Grotto area for prayer & offerings.



Building adjacent Parsi Dharamshala

## 5. PRESENT CONDITION

Most of the building's façade having the main problem is the authenticity loss like the replacement of the mother material "red brick" by other material or plastering. The other issues are rain pipe & plumbing fixtures affecting the façade, vegetative growth on the wall, some fungi & bacterial growth over skin. The replacement of the material and painting through the façade which is lacking its originality. Even the essence of red brick is vanishing due to new plastering layer applied by KMDA started in early 2021. Although patina, or layer formation due to weather and crystallisation /evaporation on bricks are the concerning factors. Unorganized parking & lack of waste management are also important factors. Some of the cracks or decay of materials cause the pockets for vegetative growth which is also elevated by birds. On other hand we can see in (fig.3) the decay or crystallisation / evaporation over bricks are clearly spotted, the window louvers are replaced by glass or acrylic sheets deteriorating its originality & the plumbing fixtures. Planters are provided only at gr floor level; most of them are not in good condition. The entrance from Parkside (precinct) is replaced by colourful pavers and kerbs but no harmony with the boundary fence.



Fig.2.

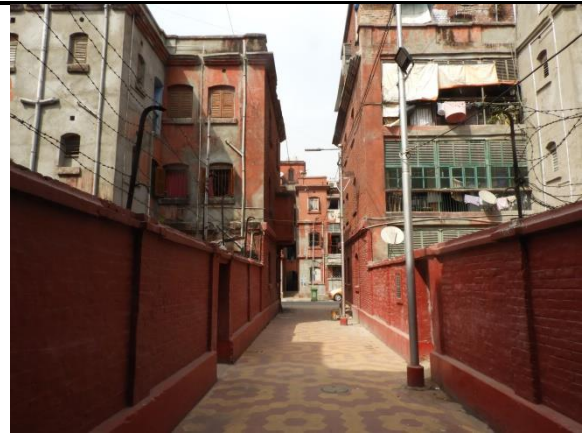


Fig.3.

Repair work took place by KMDA this 28 Th January, 2021 but the repair work is like to plastering or net cement, damp rising which is violating its fabric. Although the space between two towers have more than 10 mt distance having pathways but parking problems , even the electrical cables wrapped the whole building dangerously that can lead to a fire catching . The reservoir for the community was at stake but recently got repaired. The sewage is too old & sanitation problem is the biggest challenge.

## 6. SCOPE & LIMITATION

Architectural character of the buildings are retained, some minor modifications and changes are visible. For example, galvanized iron or fiber corrugated sheets or burnt clay tiles have been added as roofing over the balcony to give some protection of the interior from invasion of rain during monsoon. Some portions of the exterior walls that originally had exposed-bricks skin are seen having plastered and painted in red color. The self-imitation with globalization is the biggest factor to revive its original fabric. Technical and cultural fabric analysis to propose the conservation techniques, lesson of preserve the essence of cultural relevance with its urban form and space.

## 7. OBJECTIVE & METHODOLOGY

- Understanding of the behavior of people, culture, tangible objects, built mass & its degradation with time.
- Conservation proposals how to conduct a study to resolve various aspects of bow barracks.
- Preservation of building material with its originality.
- Growth of vegetation and foreign patina removal.
- Proper waste management plan.
- Urban fabric & its impact to human culture & creed.
- Documenting the current situation of the area with the help of Computer Aided Drawings, GIS and photographs.
- Oxygen bleach, oxidization, scrubbing with stiff bristle brush.
- Investigation of urban development around the built heritage & its consequences.
- Case-study of conservation proposal of similar project.

## 8. CHALLENGES ON SITE

By preparing questionnaire & interviewing's the people of bow barracks, came to know that the Anglo community is living a life like segregated by the other people of city which is an identity problem. The localities try to copy their livelihood which has no match of their culture like curio collection, dress up like Anglo Indians etc. The people living in here are neglected for a long time even they are consider as outsiders till now. The lack of money & economic condition led them hinder to study technological courses.

- Lack of soft-scape.
- Absence of sitting accommodation for social bonding (chitchats).
- Drainpipe disposal straight to the road.
- No foliage & less planter between blocks & adjacent to buildings.

- Proper ventilation blocked by high-rises around the site.
- Poor sanitation.
- **CULTURAL CONTEXT**

COMMUNITY (1) → ANTHROPOLOGY → ASSIMILATION OF CULTURE (2)

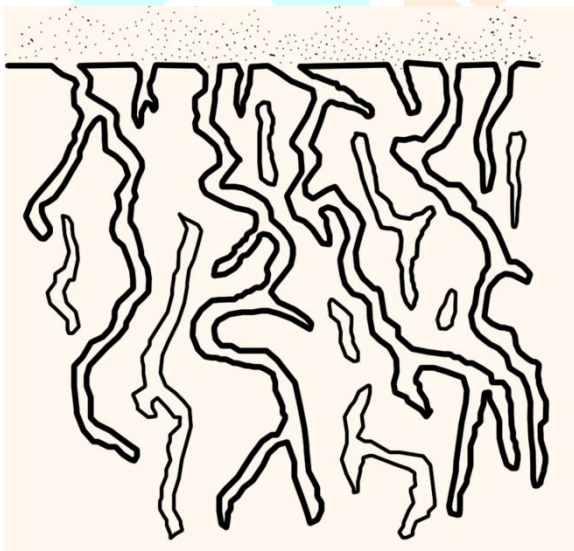
(Christian, Anglo, Chinese) (1) (Festivals, effects on culture, languages, and practices) (2)

## 9. SACRIFICIAL INTERVENTIONS

By analyzing present context & challenges on site came to know some interventions that could be done over there. Most suitable repair form is plastic repair which can be applied over damaged or cracked surface of brick masonry. The other option is sacrificial staining can be applied to injured surface to look exactly as it was before. The other option i.e. dowelling, if any brick surface is heavily damaged then the portion of brick is replaced by same material on that part.

## 10. THE DETERIORATION OF RED BRICKS

There is so many processes that affects the nature, physical and chemical properties of fired brick. This depends upon the quality of masonry, expose to nature, chemical reaction, and improper structural execution. Generally the crystallization of soluble salts is the processes most often responsible for the severe deterioration of bricks. The chemical reactions on red fired bricks are mostly found with alkali, alkaline substrate, due to the presence of water in humidity & thin layer is the main cause of brick Degradation. The weathering due to water leads to platelet weathering by 0.01 millimeters in a century. Besides these there is pollutants decay, salt formation one unique decay efflorescence occurs due to relative humidity.



Flakes & efflorescence cause by the water vapor



plastering over damaged surface

## 11. CONCLUSION

It is needless to say that conservation of some tangible and intangible factors there are various objects like form, pattern, functions and some striking features of an era should be restored as well as the built form. How about the magical red bricks and the green balconies has an amalgamation with the nature that's creates an urban precinct, a great example for urban heritage. However there are so many methods of big machinery conservation are mentioned here but the actual proposal could be made by the expertise of chemical properties. The place and the Thor affair like a little bit of greenery and the electrical wires and cables are placed haphazardly that can cause of fire catching incident also. Most of the apartments are have replaced they are casement windows and lowered by glass for acrylic sheets and due to lack of proper maintenance the vegetation growth is noticed over the facade. Even some of the facades are replaced by normal plastering which deteriorate its authenticity. However the social cultural and anthropological assimilation like festivals languages and different religions mostly Anglos and Chinese has its own importance to the heart of Kolkata. Repair work by KMDA has been started in 2021 which has improved the situation of the

water reservoir which was damaged very badly but the sewage and sanitation problem is the biggest concern over that area. To the ending note the bow barracks project should be taken for serious concern for the sake of living orphan of British Raj.

## LIST OF ABBREVIATIONS

ABBREVIATION	MEANING	PAGE NO.
KIT	Kolkata Improvement Trust	1
BHK	Bathroom, Hall & Kitchen	3
MT	Meters	7
KMDA	Kolkata Metropolitan Development Authority	4,5,7
GIS	Geographical information system	5
HVAC	Heating, Ventilation & Air-conditioning	8
XRD	X-ray diffraction analysis	9
XRF	X-ray fluorescence	9
LA	Laser Ablation	9
ICP	Inductively Coupled Plasma	9
MS	Mass Spectrometry	9
NAA	Neutron Activation Analysis	9
RFA	Radiofrequency Ablation	9

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**APPENDICES****QUESTIONNAIRE**

Housing scenario in bow barracks in Kolkata

- Q.1- age group- occupation- years of residing- domicile status-  
no. of family members-
- Q.2- type of dwelling unit (1bhk, 2bhk ....)
- Q.3- income persons ( in number)
- Q.4- does the building is habitable according to you?
- Q.5- Does the building have proper P.H.E, adequate water supply & from where?
- Q.6- Does the building have proper HVAC (heating, ventilation, air condition unit & how it is installed?
- Q.7- Do you like the façade of your building?
- Q.8- what is the main problems you are facing due to the façade (like vegetative growth, cracks, patina etc.)
- Q.9- would you admire if someone replaces the problems faced in daily life due to your settlement? (Like maintenance, repairing etc.)
- Q.10- The condition of the building?
- Q.11- Do you feel any historic value to your property?
- Q.12-what amenities should be provided here?
- Q.13- From which culture do you belong?
- Q.14-assimilation of culture( how do you enjoy others festivals)
- Q.15- do you think the development outside is affecting your locality?
- Q.16- what is your responsibility to your locality as per your thought?
- Q.17- how do you feel about the precinct , street, blocks ( should be bigger or wider)
- Q.18- what the problems you feel in rainy season & summer?
- Q.19- do you think more plantation needed here or sufficient?
- Q.20- what attracts & detracts in your locality?



**Questionnaire on the extent of use of scientific methods for brick conservation in architectural conservation project**

**Section I –the Information about the respondent**

Name:

Working situation: private      institutional      governmental      other

**A. Background information of the respondent**

1. Name: \_\_\_\_\_ Surname \_\_\_\_\_
2. Gender:      a) M      b) F      c) Others
3. Age:      a) 20-30      b) 30-40      c) 40-50      d) 50-60+
4. Experience:      a) >5yrs      b) 5-10      c) 10-20      d) 20+
5. Salary:      a) >10K      b) 30-40K      c) 40-50K      d) <50k
6. Location:      a) City      b) Village      c) Heritage site      d) Abroad
7. Qualification:      a) U G      b) Graduate      c) Masters      d) Doctorate
8. Position:      a) worker      b) supervisor      c) Manager      d) Director

**Section II –the architectural conservation Project based on which information provided.**

**B. Background information of the architectural conservation project**

1. Name \_\_\_\_\_
2. Client \_\_\_\_\_
3. Project cost \_\_\_\_\_
4. Location \_\_\_\_\_
5. Project duration \_\_\_\_\_

**C. Use of scientific personnel in the project**

1. Total personnel: \_\_\_\_\_
2. How many scientific: \_\_\_\_\_
3. What qualification: \_\_\_\_\_
4. What duration: \_\_\_\_\_
5. Use of scientific methods
  - a) Brick investigation
    - a. Thin section preparation      a) Yes      b) No      c) Rarely
    - b. Chemical Investigation      a) Yes      b) No      c) Rarely
    - c. XRD/XRF      a) Yes      b) No      c) Rarely
    - d. mass spectrometry (LA-ICP-MS)      a) Yes      b) No      c) Rarely
    - e. neutron activation analysis (NAA)      a) Yes      b) No      c) rarely
    - f. x-ray fluorescence analysis (RFA)      a) Yes      b) No      c) rarely
    - g. cluster analysis      a) Yes      b) No      c) Rarely
  - b) Other material \_\_\_\_\_

**Section IV – The Treatment of the brick**

- a. Consolidation      a) Yes b) No c) Rarely
- b. Conservation      a) Yes b) No c) Rarely
- c. Minimal (Least) intervention: No intervention & Descaling      a) Yes b) No c) rarely

**d. Doweling and flaunching**

a) Yes b) No c) Rarely

**e. Plastic Repair**

a) Yes b) No c) Rarely

**f. Sacrificial Staining and Shelter Coats**

a) Yes b) No c) Rarely

**g. Sacrificial Plasters or Sacrificial Renders**

a) Yes b) No c) Rarely

Comments & suggestions if any, \_\_\_\_\_

\_\_\_\_\_

