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RESEARCH PAPER

EVALUATING THE LEVEL OF PHYSICAL TRANSFORMATION OF HOUSES IN GATED COMMUNITIES IN GHANA

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ABSTRACT
The upsurge of real estate housing within Accra has resulted in all manner of gated communities springing up across the city scape. These seek to provide housing services to the desperate urban dweller. The quality of their services has however been brought to question due to lack of a proper regulatory body to oversee their work. Recent studies indicate the emergence of physical transformations. This research sought to investigate the conditions and reasons underlying these housing transformations. A case study approach, with a mix of both qualitative and quantitative methods were adopted in determining the conditions of the houses. The relative important index was also used in ranking the various factors that led to these physical transformations. The study revealed that 41% of the houses have undergone transformations with external works, fenetrations, and mechanical and engineering services being most parts affected. Major reasons given for transformation were poor ventilation and lighting. The study recommends amongst others that the government should institute a special regulatory body backed by law with regular assessment from the occupants in order to check the performance of real estate developers.

Keywords: *Gated community, real estates, physical transformation, housing*

INTRODUCTION
Housing demand in Ghana has been rising over the years without any commensurate provision for the supply to meet this demand. This has widened the housing deficit from 1.5 million in 2,000 to about 2.1million in 2014. It is projected to reach 3.6 million in 2022 (Ghana Statistical Service-GSS 2010). Accra as the capital city of Ghana, like any other developing city, is most affected by this phenomenon. Buckley and Malhema (2009) in a report to the World Bank described the city as a Superstar City-one where housing demand far outstripped supply. This has resulted in the springing up of many real estate houses, which have taken advantage of the situation to provide "sub-standard" housing for the desperate urban dwellers. According to the GREDA President

there is no oversight body with legal backing to properly regulate their activities (Dopoah-Dei, 2015), with the exception of the Municipal and Metropolitan authorities, which also lack the trained professionals to regulate these large developments. A recent study on residential user satisfaction of real estates in Ghana (Danquah and Afram, 2014) revealed that many of these private real estate houses have undergone physical transformation. This phenomenon seems to be a typical manifestation of privatisation of public housing (Sefika, 2012). This transformation phenomenon refers to a change in the physical appearance of the house from its original appearance after occupation.

The objective of this research therefore is to investigate the housing conditions of these real estates and reasons that have prompted the occupants to undertake such transformations. The research was primarily conducted through a qualitative case study approach with semi-structured questionnaires distributed to occupants of some selected real estate houses in Accra. The study was limited to real estates who allowed the research to be undertaken on condition of anonymity. The research is very relevant to the entire built environment professionals as it brings to the fore the real performance of these estate developments as well as serve as a feedback from occupants on their real needs.

LITERATURE REVIEW

Post occupancy evaluation (POE)

Post occupancy evaluation (POE) originates from "an interest in learning how a building performs once it is built, including if and how well it has met expectations and how satisfied building users are with the environment that has been created" (Vischer, 2002). The definition of POE has evolved since its inception about 40 years ago. Preiser *et al*. (1989) offered a definition of post-occupancy evaluation as "*the process of evaluating buildings in a systematic and rigorous manner after they have been built and occupied for some time."*

It may also mean any and all activities that originate out of an interest in learning how a building performs once it is built, including if and how well it has met expectations and how satisfied building users are with the environment that has been created (Preiser, 1989). The pioneers in the POE were the British, the French, and the North Americans, where the idea that a better living space could be designed by having better information from users drove environmental evaluation. Their focus was on the housing needs of the disadvantaged groups and efforts to improve environmental quality in government sub standardized housing (Vischer, 2002). User preferences became the legitimized aim of building research and a form of building evaluation after the initial concept of POE has been generally accepted.

Bordass and Leaman (2005), argue that the relationship between buildings and occupiers is constantly changing, with frequent clashes between operational requirements and physical facilities. Whilst designers seldom get feedback, they only notice a problem when asked to investigate a failure. The occupant's knowledge of his habitat is also not being used adequately to inform designers. Facilities' managers are hardly involved in briefing and there is no natural home for their experience. In their view occupant needs versus the built environment or products are construed as performance.

The famous Roman Architect Vitruvius (1960) pronounced three basic performance requirements of a building as *firmness, commodity* and *delight*. This historic construct was later transformed and synthesized into the "Habitability Framework" (Preiser, 1989) by devising three levels of priority as depicted in Fig. 1.

1. Health, safety, and security performance;
2. Functional, efficiency, and work flow performance; and
3. Psychological, social, cultural, and aesthetic performance levels.

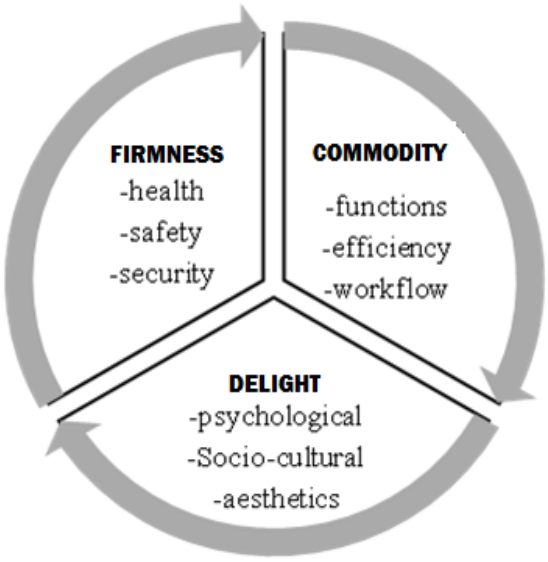

Fig. 1: Extract from habitability framework (Preiser 1988)

Preiser, (2001) further explained that the three levels that parallel the standards and guidance for designers to avail themselves to were:

A. Building codes and life safety standards

B. State of the art knowledge of products, building types and reference materials, and

C. Research based design guidelines

The principal focus on user experience remains central to most contemporary approaches to POE, and recent developments are characterized by two trends: the creation of standardized POE methodologies for specific building types (e.g. offices, healthcare and educational facilities) and the extension of the scope of POE activities to incorporate evaluation and feedback at repeated intervals during the building delivery lifecycle (Stevenson, 2009, as cited in Taylor *et al*, 2010). Over the years, this discipline has expanded and become more specialized, and various terms are used to describe it; facility performance evaluation, environmental design evaluation, environmental audits, building-in-use assessment, building evaluation, facility assessment, and building performance evaluation (Zimring *et al*., 2010).

In summary, the framework systematically relates buildings and settings to building occupants and their respective needs in relation to the product or the environment. It represents a conceptual, process-oriented approach that accommodates relational concepts to applications in any type of building or environment (Preiser, 1989).

The need for post occupancy evaluation

Enhancing, and with ever greater demands on limited resources, POE constitutes a potentially vital contribution in the effort to maintain quality assurance within the government, the downsizing of in-house facilities engineering as stated by the USA Federal Facility Council (Council, 2002). The reasons for POE are firstly, to develop knowledge about the long-

term and even the short-term results of design and construction decisions, i.e. on costs, occupant satisfaction, and such building performance aspects as energy management (Taylor *et al*, 2010).

Secondly, to accumulate knowledge to inform and improve the practices of building-related professionals such as designers, builders, and facility managers and even to inform the clients and users who are the consumers of services and products of those same building-related professionals (Preiser and Vischer, 2006).

Thirdly, POE studies can provide feedback on occupant satisfaction, on building performance, and on operating costs and management practices. In sum, POE is a useful tool for improving buildings, increasing occupant comfort and managing costs (Preiser and Vischer, 2006).

Gated communities in Ghana

Gated communities as explained by Berkoz *et al* (2009), and (Landman and Schönteich, 2002) are: *"Residential areas for upper-class families who look for security, comfort, a better life quality and social homogeneity. They consist of neighbourhoods closed by walls, barriers, fences and gates. The concept includes residential areas with restricted access and defines a self-sufficient environment with swimming pools, private bars, children's play areas and a full accompaniment of care-taking staff and security forces (Landman, 2000)."*

Design considerations for a tropical country

Ghana is a tropical country with temperatures varying in season and elevation. Annual rainfall ranges from about 1,100mm (about 43ins) in the north to about 2,100mm (about 83ins) in the southwest. The harmattan, a dry desert wind, blows from the northeast from December to March, lowering the humidity and creating hot days and cool nights in the north. In the south the effects of the harmattan are felt in January. In most areas the highest temperatures occur in March, the lowest in August (Ghana Meteorological Agency, 2014). In Accra the average daily temperature is 20^0C and 36^0C for minimum and maximum respectively. Humidity rages from 30% to 90%.

Therefore designers must take into consideration certain elements that will help mitigate the harsh and uncomfortable effects of this climate. Thus there is a shift towards passive designs for this type of climate. Passive designs in the tropics make effective usage of the natural day lighting and cooling breezes, and use shading, orientation and appropriate materials to reduce heat gains and storage.

Designing to meet the comfort of occupants of buildings will generally require the consideration of the following:

- Well drained roof and wide eaves as well as ceiling vents;
- Wide verandas and covered porches;
- Protected openings;
- Orientation of the building to the north-south;
- Aligning windows for effective cross ventilation and day lighting; and
- Use of courtyards.

The National Building Regulation, 1996 (LI 1630) is the regulatory document for all building developments in the country. Adequate provisions have been made in this document in order to realise the aforementioned, that is, orientation, ventilation and natural movement, natural lighting, spatial requirements, landscaping/surroundings. These have been summarized in the Table 1.

Careful consideration of these as seen in Table 1 will provide the needed thermal comfort for the occupants of such buildings. For example the positioning of the building should be done in such a way that most of the walls are shaded

from direct sunlight and at the same time allowing for maximum air flow and light. Again landscaping elements such as trees, hedges, and lawns can help reduce temperatures by as much as 50^0 C compared to paving (Cairns Regional Council, 2011).

Housing transformation in developing countries

Transformation has been seen as a typical manifestation of public housing privatisation as reviewed by a host of researchers (Sefika, 2012). However this is much less manifested in real estate (gated communities) which are governed by rules and regulations.

Key factors that account for these transformations assigned by authors such as Tipple and Ameen(1999), Kardash and Wilkinson(1991) and Sibley-Behloul (2002) include: secure tenancy and ownership, household size and composition, income and wealth, and expenditure on transformations. Secondly, in the housing environment, changes brought about by transformation have a particular effect on the livelihood of house members. For instance, Tipple and Ameen (1999) as cited in Awuvafoge (2013) noted that the effect of transformations on housing conditions includes, increase in house size, space occupied by the main household, increases in space occupied by all the residents, services available, physical conditions, plan forms, densities, value and cost, and use of house for economic activity (Tipple, 1996; Kardash and Wilkinson, 1991). The following section looks at the factors that cause transformations followed by the impact of transformations in housing environments (Sefika, 2012).

International literature suggests that the following aspects play a role in the propensity to transform: age of household head, gender, education, employment, and house tenancy and ownership, income and wealth, and household size and composition (Tipple and Willis, 1991; Sibley-Behloul, 2002). General impacts related to these transformations (as cited in Sefika

Table 1: Planning and design considerations

SPACE/ ROOMS	**Plot Size and Coverage**	**Minimum Area (M^2)**	**Natural Day Lighting**	**Natural Ventilation**	**Walls and fenestration Protection**
BEDROOMS	450 m^2 minimum plot size; building coverage on plot shall be: 40% for 2-3storey, 50% for single storey detached, and 60% for single storey semi-detached	11.5	All spaces shall have adequate natural day lighting which shall be not less than 15% of total floor area; 10% for walls in the east west facades; 0.23m^2 for all washrooms	Windows for air circulation should be located so as to provide adequate cross ventilation. Total window opening shall be 16% of floor area; 2-5% for top ventilation	Minimum of 600mm of eaves and overhangs for all walls and adequate protection for fenestrations. As much as possible windows should be located on the north-south facades.

Source: (Extracted from National Building Regulations, 1966)

(2012) are:

1. Increment of house sizes;
2. Increase in settlement densities;
3. Improvement in access to sanitation in the house;
4. Tendency by transformers to utilize better quality materials;
5. Transformations on the house plan or form and new architectural patterns Resulting in a new urban morphology;
6. Increases in value and cost of the original core structure; and
7. Higher economic activity within the household or neighborhood.

RESEARCH METHODOLOGY

A case study with both qualitative and quantitative approach was adopted for this study. This approach was used to gather factual data to study their relationships in accordance with existing theories and findings through open-ended semi -structured questionnaire and interviews. A proportional sampling method was then used to select the houses for the study at both locations. This was to ensure that a fair and accurate representation of the sampling. Thus 50% of the houses at both locations were targeted by use of house numbers polled together and balloted to select the ones to be surveyed.

In order to ensure maximum responses to the semi structured questionnaires, respondents were briefed regarding the purpose of the survey and reassured that the information provided will be kept confidential and will be used for research purposes only. Houses that indicated that changes had occurred were further studied through visual observations and limited physical measurements due to security concerns of occupants. This was then compared with what is required under L.I. 1630 building code to ascertain their compliance level.

A Likert scale ranging from "5" = very good, "4"= good, "3"= cannot tell, "2"= bad and "1"= worse, was used to measure conditions on various housing components. The overall condition for each variable was analysed based on a mean score of 3.00 as positive indication of satisfaction, and mean values below 3.00 indicating dissatisfaction. The data collected was analysed using Statistical Package for Social Sciences (SPSS version 21.0), for frequency distribution of the variables under study, including mean, standard deviation and percentage scores of satisfaction.

FINDINGS AND DISCUSSION

The study area

The sites are located in the suburbs of East Airport in Accra North District and Dome Kwabenya in the Ga East District in the Greater Accra region. The sites picked were estates belonging to companies which have been in the real estate business for the past twenty years, belong to GREDA, and the houses surveyed were over ten years old. These sites are Gated Communities with sold out or rented houses and run by a private Estate Management Organisation, a subsidiary of the Real Estate Company.

Sample population and response rate

The two locations had a total number of 137 and 567 houses for Dome Kwabenya and East Airport respectively. In order to maintain a 95% confidence level and a 0.3error level, the study aimed at surveying 143 respondents to be deemed successful for effective analysis but in order to increase the respondents rate a total of 352 questionnaires were distributed to house owners and tenants, at Dome and East Airport in the greater Accra region with a successful response of 292.

Characteristics of respondents

Majority of the residents, i.e. 46.5% were between 31-50 years old and in all 86.1% of the

residents were above age 30 years of age signifying that the respondents are matured people. They were male dominated (75.5%), of various religious faiths with Christianity as the dominant religion (74%). Residents were well educated with 77.6% of the people having tertiary education and only 3% having basic education. Employment rate was high (85.8%), with most of them in the Private sector (47.9%) and self-employment (37%). Income level was high as more than 50% of the respondents indicated that their monthly incomes were above GH₵ 1000 ($ 350). Most respondents (79.9%) were married with moderate family sizes, 63% indicated a family size of 3-5 and 30.7% had 1-2 family size.

Further analysis aimed at exploring respondents housing structure type, revealed that 68.8% of them live in detached house types with only 6.2% living in condominium/flats. About 49% of the people who live in their area are the owners of the houses whiles 10.9% of them are caretakers. All the houses surveyed were buildings put up by the estate companies. For length of stay, 47.9% of the people have lived in the area for 6-10 years. When asked the mode of payment of rent, 52.1% indicated that they pay through instalment packages.

Housing condition and rate of transformation

Analysis of the internal consistency of housing conditions, parts transformed and reasons for transformation

The study used a scale of 1–5 to ask respondents to indicate their satisfaction level with respect to housing and transformation factors, where 5 is highly satisfied and 1 is highly dissatisfied. The reliability tests of these variables are given in Table 2. The items of the housing and neighbourhood facilities have acceptable internal consistency, $\alpha > 0.7$ for all tested attributes.

Housing condition

Further analysis was conducted to explore the relative importance of the housing conditions of the respondents. Variables of interest included all the aspect of the respondent's house and their immediate environment (Table 3). Of all the variables interrogated, respondents indicated that they are in good conditions. (Mean value ≥ 2.5 for all variables). The ranking obtained indicated that construction quality (RII=0.887), floor (RII = 0.872) and safety and security (RII=0.857) were ranked highest (best) in terms of how the respondents viewed them. Natural ventilation, privacy, day lighting and plumbing works were ranked 11^{th}, 12^{th}, 13^{th}, and 14^{th} respectively indicating their dissatisfactory state among respondents.

Transformation

Further analysis was performed with the aim of exploring the nature and trend of transformations that respondents had made to their houses and related features. Analysis revealed that 41% of the houses indicated that there has been some form of transformation in their houses. Many parts of the houses have received some form of transformation (Table 4), with main

Table 2 : Reliability test of housing and environmental variables

Attribute	Number of Items	Cronbach Alpha
Housing Conditions	14	0.839
Extent of Building transformation	15	0.914
Reasons for transformation	8	0.870
Total variables	37	

Source: Field survey 2014

Table 3: Ranking of housing condition

NO	CAUSES/ VARIABLES	RANKING					TOTAL	ΣW	MEAN	RII	RANK
		1	**2**	**3**	**4**	**5**					
1	Construction Quality	1	15	5	68	136	225	998	4.4356	0.8871	1
3	Floor	0	8	27	65	125	225	982	4.3644	0.8729	2
7	Safety/ Security	0	5	27	92	101	225	964	4.2844	0.8569	3
2	Walls	0	23	13	109	80	225	921	4.0933	0.8187	4
13	Aesthetics/ General outlook of building	0	25	33	84	83	225	900	4.0000	0.8000	5
14	I000mmediate Surroundings	0	7	61	88	69	225	894	3.9733	0.7947	6
11	Electrical Works	6	25	32	69	93	225	893	3.9689	0.7938	7
12	Painting And Other Finishes	6	19	34	99	67	225	877	3.8978	0.7796	8
8	Roofing Incl. Ceiling	0	15	33	145	32	225	869	3.8622	0.7724	9
4	Foundation	0	21	69	60	75	225	864	3.8400	0.7680	10
5	Natural Ventilation	4	35	49	80	57	225	826	3.6711	0.7342	11
9	Privacy	4	32	41	120	28	225	811	3.6044	0.7209	12
6	Natural Day Lighting	13	40	37	75	60	225	804	3.5733	0.7147	13
10	Plumbing Works	25	71	36	78	15	225	662	2.9422	0.5884	14

Likert Scale of 1-5; With 1=Worse, @=Bad, 3=Cannot Tell, 4=Good and 5=Very Good

Author, Field survey 2014

Table 4: Ranking of parts of building transformed

NO	PART OF THE HOUSE	RATING				TOTAL		MEAN	RII	RANK
		1	**2**	**3**	**4**					
1	External Works	1	25	66	5	97	269	2.7732	0.5546	1st
2	Fenestration	10	65	75	9	159	401	2.5220	0.5044	2nd
3	M& E Services	24	34	2	0	60	98	1.6333	0.3267	3rd
4	Finishes/ Painting	52	12	12	4	80	128	1.6000	0.3200	4th
5	Walls/ Partitioning	41	39	5	0	85	134	1.5765	0.3153	5th
6	Ceiling	39	27	1	0	67	96	1.4328	0.2866	6th
7	Floors	52	12	4	0	68	88	1.2941	0.2588	7th
8	Roofing	45	1	0	0	46	47	1.0217	0.2043	8th
	Spaces Altered									
9	Outhouse	12	20	46	9	87	226	2.5977	0.5195	1st
10	Garage	11	33	25	2	71	160	2.2535	0.4507	2nd
11	Hall+ Dining	28	24	21		73	139	1.9041	0.3808	3rd
12	Kitchen+ Storage	22	20	5	0	47	77	1.6383	0.3277	4th
13	Washroom	35	19	0	0	54	73	1.3519	0.2704	5th
14	Bedrooms	15	6	0	0	21	27	1.2857	0.2571	6th
15	Utility/ Corridors	35	9	0	0	44	53	1.2045	0.2409	7th

Likert Scale of 1-4; With 1=Minor, 2=Normal, 3=Major, 4= Total. RII is the Relative Importance Index

Author, Field survey 2014

parts of building receiving major transformations being external works (Mean=2.77, RII= 0.55), fenestration (Mean=2.52, RII= 0.50), mechanical and electrical (Mean=1.63, RII= 0.33). On the other hand, floors (Mean=1.29, RII= 0.26) and roofing (Mean=1.02, RII= 0.20) were less transformed. On the issue of room space alterations, outhouse (Mean=2.60, RII= 0.52) and garages (Mean=2.25, RII= 0.45) were heavily transformed ranking 1st and 2nd respectively, whilst bedrooms and utility and corridors were the least transformed receiving a RII of 0.26 and 0.24 respectively.

Neighbourhood facilities

Exploration of the condition of their neighbourhood facility, which was to further find out the impact that transformation has had on these, revealed that 75% of respondents use their personal vehicle for transport, 50% of them have barb wire to secure their houses, 83.3% indicated that crime incidence was rare in the neighbourhood. The high income levels of these residents can be attributed to their mobility patterns, whilst the few ones without vehicles use the bus stop just at the entrance of the main gate. These neighbourhoods operate a 24hr security system with modern gadgets thus making crime very difficult. This sense of absolute safety can be attributed to the parking of vehicles within the compounds of the houses without using their purpose built spaces.

When respondents were asked to indicate factors that motivated the need for the transformation, poor ventilation (Mean=2.6, RII=0.52) and poor lighting (Mean=2.57, RII= 0.52) top the motivational factors. Reasons such as need for bigger space and additional rooms were least ranked with a RII of 0.436 and 0.427 respectively (Table 5).

A further analysis of the major reasons indicated that change in window sizes were the

Table 5: Ranking of reasons for transformation

NO	REASONS/ VARIABLES	RATING			TOTAL	ΣW	MEAN	RII	RANK
		1	2	3					
1	Poor Ventilation	6	74	145	225	589	2.618	0.524	1st
2	Poor Lighting	2	92	131	225	579	2.573	0.515	2nd
3	Economic/Income Generation	17	102	106	225	539	2.396	0.479	3rd
4	Aesthetics /Beauty	33	91	101	225	518	2.302	0.460	4th
5	Poor Construction / Workmanship	11	145	69	225	508	2.258	0.452	5th
6	Need for Bigger Spaces	45	85	95	225	500	2.222	0.444	6th
7	Additional Rooms	50	85	90	225	490	2.178	0.436	7th
8	Others	0	196	31	227	485	2.137	0.427	8th

Likert Scale of 1-3; With 1=Other, 2=Minor, 3=Major. RII is the Relative Importance Index

Source: Field survey 2013

the most affected. The initial sizes were small sliding windows, which were not providing adequate lighting. Much critical was the severe reduction (50% less) in ventilation due to the limitation in openings.

The study further revealed that though these transformations affected most parts of the building features, they were effectively controlled by the estate management company so as to ensure that these changes do not deviate from the identity of the gated community. However due to the option of the homeowner obtaining the services of outside artisans and professionals for these transformations, supervision of the work undertaken usually lacked the controls required to maintain the order within the neighbourhood.

These transformations can be classified into planned (option of expansion provided for) and unplanned (where the original design has been altered). For example, the study found majority of the planned transformation occurred with the construction of outhouses 1-bedroom expandable to 3-bedroom design option (see fig. 2). On the other hand the unplanned transformation had to do with the fenestration, creation and expansion of spaces. For instance, due to satisfaction in security and safety levels resulting in fewer crimes, many garages were being transformed into rooms for renting and household accommodation. Management could see the trend and put up measures to address these issues by paying more attention to the external works, doors and windows, floors, and plumbing works.

Compliance to the national building regulations

The study revealed that the building materials adopted generally conform to the provisions of the LI 1630. All the constructions were made of sandcrete block walls and concrete. Micro concrete tiles (75%).

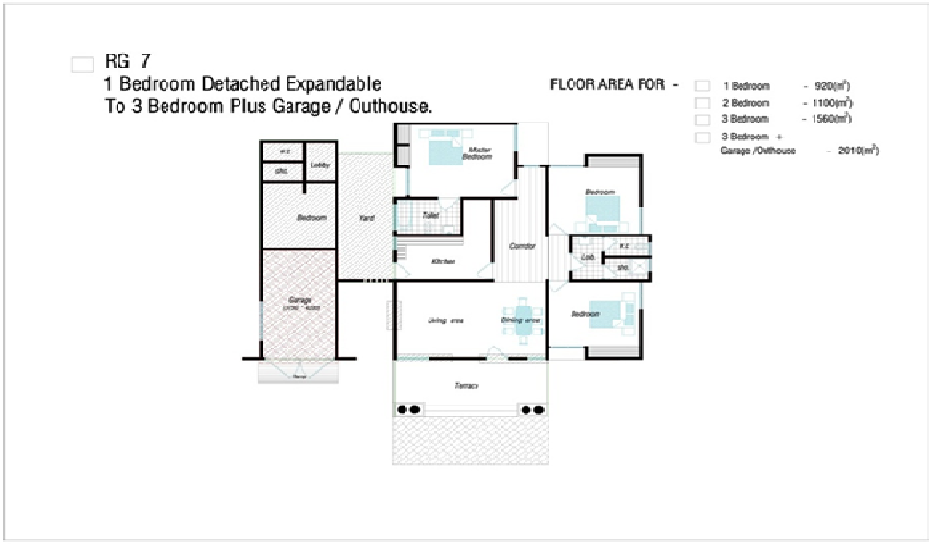

Fig. 2: ***Typical Floor plan showing main areas of transformation***

Source: Author field study, 2014

formed the majority for the roofing, whilst the rest were long span aluminium sheets. Fenestrations were basically glass louvered and sliding windows. Build up areas of the plot sizes ranged from 25-35% well within the required 40%. With respect to room sizes 85% of the spaces were adequate, with corridors, verandas and bathrooms falling just below the required area. The study revealed that two critical provisions- natural ventilation and lighting have been greatly compromised. For example most spaces had less than 10% of floor area as window sizes for ventilation as against the required minimum of 15%. Corridors recorded less than 7%. It was observed that the use of sliding windows also limited the flow of ventilation to these spaces as it limited by half the opening of the windows. On walls and opening protection, it is required that minimum of 600mm eaves are projected but the average in these houses were 450mm. It thus noted that these shortcomings had influenced the kinds of transformations taking place within them. This confirms the reasons assigned by respondents for the transformations.

CONCLUSION AND RECOMMENDATIONS

The evidence indicates that many parts of the houses have received some form of transformation with the main part being external works, doors and windows, mechanical and electrical. This implies that residents are less satisfied with external works, doors and windows, floors and plumbing works. On the other hand, walls, roof and ceiling are less touched areas.

The analysis revealed that various factors motivated the need for the transformation. The need for adequate ventilation and lighting, and economic reasons topped the motivational factors. Issues such as poor construction and poor and inferior spaces also motivated a transformation but were of lower effect. It can also be seen that though there was a higher compliance to the building regulations one area that failed generally to meet this was in the area of ventilation. On the surface area of these windows one can say the areas provided were adequate, but the use of sliding windows effectively limited the ventilation area to just half of the window size. It is concluded that whilst management paid more attention to the main frame of the houses, less attention was given to fenestrations, services and external works. However the strict procedures adopted for any physical change to houses by the management has instilled some form of sanity and harmony in the neighbourhood. These rules are called Covenants, which has been agreed upon by both the home owners and the management and binds all to abide by them. For example, one cannot do an alteration to his or her building without seeking the consent of management and conforming to the laid out scheme and designs. The owner can then engage the management to effect the change at a fee or engage a private contractor but with supervision from the management. Penalties are paid for breaches.

It is important for management to address the taste of residents by performing actions such as increasing the number of rooms in the houses, improving construction quality and beautifying the landscape.

The study provides the following recommendations to enhance peoples' residential satisfaction and conditions in the Ghanaian real estates.

- There should be effective management of these estates with the urgent establishment of a proper legal regulatory body in collaboration with GREDA, Professional bodies such as Engineers, Planners and Architects and the Government. In this regard this regulatory body will be mandated to supervise the preparation and construction of these estates with their services being paid for by the real estate’s companies and a percentage of the fee charged retained at the respective MMDA’s to serve as additional income.

- Ghana Real Estate Industry could apply the knowledge that residents are satisfied with

large room sizes, high quality houses to their future developmental plans. Taking this path will limit the rate and extent of transformations made to houses. This can be achieved by the conduct of regular occupants' satisfaction surveys.

- A critical look should be taken by the built environment professionals in developing countries to review the provision of traditional garages for gated community houses as there seems to be a shift away from traditional garages to open ports and open parking.

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