

AN EVALUATION OF FACTORS AFFECTING THE CHOICE OF THE DIFFERENT FLOOR FINISHES IN THE BUILDING INDUSTRY WITHIN ABIA STATE OF NIGERIA

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Abstract: This paper is an evaluation of the factors affecting the choice of the different floor finishes in the Building Industry within Abia state. This examination has become necessary because of the different available floor finishes, finance, varying structures and the inadequate knowledge of floor finishes. This is as a result of the nature of use, aesthetic quality, durability and hardness, cost effectiveness to low water level absorption (dampness) among others. Ten (10) choice factors were identified as important with four (4) of the factors as critical factors. Stratified random sampling technique was employed to select 150 respondents for the investigation. The respondents were derived from within clients, professionals and merchandisers in the building industry being industry promoters and operators. Structured questionnaire was administered on the respondents. The data collected were collated and analyzed using statistical methods drawing inference on relationships between floor finishes and factors affecting the choice of floor finishes. Results obtained disclosed varying difficulties in choosing floor finishes for public and private buildings. The conclusion derivable is that the choice of floor finishes is a dependent function of certain variables amongst which is the use to which the building would be subjected to. Generally, it is agreed as it is accepted that cost effectiveness, durability, type of building and aesthetics are fundamental concepts of choice. Fire resistances, low water absorption (dampness), slipperiness and comfort are as well, desirable for optimal floor finish but not critical factors.

Keywords: floor finishes, cost effectiveness, building industry, Abia State of Nigeria, choice factors.

Introduction

Flooring has been expressed as materials such as wood tiles that are used for making or covering a floor (Rundell & Gusyneth 2002). Finish is the appearance of a surface. It is therefore, apparent that floors are finished with materials. These materials ensure the taste, comfort and aesthetics by the use of varying materials at a moderate cost but ensuring durability, aesthetics etc. Some of these materials in use in flooring buildings include: asphalt, concrete, cork, linoleum, magnetite (mixture of magnesium oxide, pigment and an inert material, eg saw dust), mud, stone, terrazzo concrete where marble chips are used as aggregates and polished with carborundum stone, tile and timber, plastic (PVC) – Rubber (mixture of raw rubber, tillers eg fibre, pigment, with percentage of sulphur ((Rangwala, Rangwala & Rangwala 2002, Ekwelem, 2009) Floors so constructed are designed to be tolerable to certain decibel of sound ideal for the provision of acoustics in halls and studios in the control of the level of sound/noise. Such floors with quality flooring materials for upper floors are important in the prevention and avoidance of fire incidence/out breaks. These facts would ensure among others the comfort of the occupants which is the goodness of well finished building without neglecting the good appearance of the flooring material to produce the client's desired colour effect. Finishes, therefore, do not contribute to the strength of the floors rather, it adds beauty and colour to the floor. This is besides the increase in comfort and safety to the user. It also hides cables underneath the floor and protecting structural floor from tear and wear or corrosion (Ekelem, 2009).

In Nigeria, the period of stone age and medieval times encountered forms of shelters constructed with roof, walls and floors where occupants hide to escape annihilation from predators. Nigerians commenced and

perfected the building of their shelter (hut) with clay, Bamboo sticks and thatch or grass roof long before the advent of European civilization. The choice of materials for the decoration of the walls and floors is a dependent factor of climate, location and finance (Okoro & Onochie, 2005). Within this period overseas, buildings and their finishes were conducted under the same prevailing conditions of climate etc. These shelters or houses accommodated the inhabitants carrying out the functions of a building. According to Hornby(2000), a building can be defined thus: a structure with roof and walls: schools, churches, houses and factories are all buildings. But Forster (1979) defined a building: An enclosure which exists to meet the primary physical human needs for mental and spiritual activities.

In his contribution Obiegbu (2003) opined that: “A building is a structure for support, shelter or enclosure of persons, animals or chattels is utilized primarily for living, working and storages”. When buildings are constructed, they are made comfortable by the inclusion of finishing touches which include: ceiling, floor finishes, doors and windows before painting to make them homes. The ceiling could be bamboo and the floor made of mud finishing and finished in decorative dye stuff (uli) of varying appeal as in the ancient olden days. The modern materials for the ceiling could be asbestos sheets, acoustic suspended ceiling sheets, strip and laminated sheets. Invariably, the floor is finished with either mosaic tiles, clay tiles, wooden block tiles, terrazzo, marble, granolithic floor finishes OR stone et cetra. The clay tiles and the other forms of tiles no doubt, is an advancement on the use and application of the decorative mud floor finish.

The initiative as opined by Candini (2006) in the choice of floor finish is a concept which follows and obeys existing natural and scientific characteristic laws. The law is in obedience to cost effectiveness, availability of materials and labour, durability in respect, of resistance to abrasion, low level water absorption, frost and thermal shock. The flooring materials for floor finishes are construction materials which can be imported or sourced locally. Materials as defined in Opara (1999) is a mixture of processed OR un-processed materials or compound used in engineering construction which include cement, sand, gravel, granite, timber etc. The cost of these materials have been identified to contribute to the major cost in construction (Ayeni, 1986, Wahab, 1996 and Ene, 1997). Floor finishes concluded Ezeji (1984) are applied largely according to the intended use of the floor like in the instance of sheds, workshops, stores and garages which finished top surface of these over-site concrete maybe used as the floor finish. Choice of floor finish Varghese (2007) indicated is dependent on the availability of finances and the types of building under construction. A typical example is a computer where the attraction lies on dust-free, warm resilient floor. For a large kitchen, vitrified ceramic floor tiles not prone to acid attack and chemicals is preferred. In the case of high class hotel lobby, large size marble slabs and polished granite which maybe slippery is ideal.

Materials And Method

The method of investigation is the collection of requisite data from the primary and secondary sources. The structured questionnaire was tested and administered on stratified randomly sampled population of professionals (46.7%), clients (33.3%), and merchandizers (20%).

Accordingly, the questionnaire adopted for the primary source was divided into three sections:

Section A dealt with the choice of floor finish by industry promoters (Builders Architects, Estate Valuers, clients and merchandizers) while section B dealt on choice of floor finish due to the known factors of low cost, aesthetics, durability and hardness, low maintenance cost etc. section C concentrated on comparative evaluation of floor finish types and factors for effective choice.

The questionnaire were administered personally to the respondents and collected. Moreso, some of the respondents were interviewed orally and their views recorded. On the whole, a total of 150 questionnaire were administered on the respondents and retrieved representing 100% collection success.

Statistical analysis of frequency and percentages were employed in the determination of choice separately and collectively. In this regard, the relative importance index (R11) and Principal Component Analysis (PCA) were employed. Five of these factors were chosen and tested accordingly.

Respondents Choice Factor Of Floor Finish

FLOOR TYPE / FACTORS OF CHOICE	Low cost		Aesthetics		Durability		Low Mtce		Ease of Cleaning / Fixing		Dampress / fire		Ease of use		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Terrazzo	50	33.3	20	13.3	25	16.7	20	13.3	13	8.7	5	3.3	17	11.3	150	100
Wood Block	40	26.7	36	24	23	15.3	18	12	8	5.3	15	10	10	6.7	150	100
PVC Tile	65	43.3	15	10	12	8	15	10	18	12	15	10	10	6.7	150	100
Ceramic Tiles	48	32	18	12	30	20	22	14.6	10	6.7	12	8	10	6.7	150	100
Marble	12	8	25	16.7	5	3.3	31	20.7	10	6.7	15	10	12	8	150	100
Mosaic	10	6.7	25	16.7	42	28	29	19.2	15	10	10	6.7	19	12.7	150	100
Carpet (Rug)	62	41.3	8	5.3	10	6.7	10	6.7	15	10	13	8.7	32	21.3	150	100
Palladiana	11	7.3	21	14	42	28	28	18.7	18	12	18	12	12	8	150	100
Concrete	45	30	12	8	22	14.7	18	12	16	10.6	22	14.7	15	10	150	100
Linoleum	70	46.7	5	3.3	5	3.3	5	3.3	20	13.3	5	3.3	40	26.7	150	100

Table 1.0

Degree of Response

Population	Frequency	%
Professionals	70	46.7
Clients	50	33.3
Merchandisers	30	20.0
	150	100%

Table 3.0

Degree of Importance

FACTOOR	RESPONSE (% Response)				
	1	2	3	4	RII
- Low cost	0	0	16	84	3.84
- Durability	0	0	24.60	75.40	3.76
- Aesthetics	0	0	34.80	65.20	3.56
- Type of Building/place of use	0	4	36.50	59.50	3.56
- Low Maintenance	0.	18.60	24.9	56.50	3.38

Table 4.0

Legend: 1 – indifferent: 2 Not Important: 3-important; 4-very Important RII – Relative Importance Index

$$R11 = \frac{\sum [\%R_xr]}{100}$$

% R = Percentage Response

r = rank for each factor

RII = Relative Importance Index

Graded Important Choice Factors

Important	Choice Factor
High	Cow Cost Durability Aesthetics Type of Building/Place of use
Low	Low maintenance Dampers/Fire Resistance Ease of Cleaning Ease of Fixing

TABLE 2.0

Results – Include The Table

The results obtained are as shown in tables 1, 2, 3 and 4. Table 1.0 disclosed the essential factors of choice with respect to their percentages, and frequencies. Initial low cost has a frequency of 40 and scoring 23.3% as leading factor while ease of fixing and ease of cleaning made frequencies of 5 and 3.3% score to achieve last position in low cost consideration. Table 2.0 showed graded important choice factors in the following order: low cost durability, good aesthetics and type of building for high importance. The low importance order: as low maintenance, good dampness and fire resistance, ease of cleaning and costly fixing labour charges. Respondents floor finish classification is on table 3.0. Low cost consideration factor gave linoleum first position with a frequency of 70 % and 40% score. Ceramic tiles came 4th while paladiana came last with a frequency of 10 and 6% score for the ten sensitized floor types to tie with mosaic tiles.

On aesthetics chart and durability, though marble came first on durability with a frequency of 45 scoring 30%, it tied second with mosaic tile on aesthetics making a frequency of 25 and 16% score respectively. Marble earned the first choice floor finish for residential building and offices beating terrazzo to the second position; paladiana 3rd and ceramic tiles 4th in the overall position on a total of 150 score.

Discussions

The different types of floor finishes were considered with their essential determinant factors necessary for the choice of a floor finish. These factors included but limited to: cost, convenience to use, fire resistance, durability dampness, aesthetics, maintainability and sustainability requirements. The floor finishes considered included: cement/sand screed, terrazzo, linoleum, poly vinyl, chloride (PVC) tiles, marble, mosaic, concrete tiles carpet (Rug), wooden blocks and ceramic tiles.

A comparative analysis of these floor finishes (table 1) displayed the characteristics applicable to floor finishes. Some floor finishes showed comparative advantage over others with respect to initial low cost but could not compete favourably in other respects such as: aesthetics and durability, fire resistance and dampness, maintainability and sustainability. Certain floor finishes displayed advantage in combination of factors such as low cost and good aesthetics. A good example is linoleum which had least cost advantage but could not compete in either aesthetics, durability, fire resistance and maintenance. It could therefore, be adduced that certain decision on the choice of a floor finish are arbitrarily motivated. Choice of finish is made either because it is the norm within the environment OR society OR a display of affluence OR just to have a floor finish in place. The Relative Importance Index (RII) on five (5) high importance choice factor (Table 4) shows the quality of responses which is in tandem with the principal component Analysis.

According to Egolom (2001) “Decision criteria are the various logical approaches that can be used to arrive at decision alternative that best meet the decision objectives”. The ability to undertake a purposeful decision is dependent on the extent of the decision maker’s understanding of the different functional advantages of the different floor finishes and the desired interest. A good knowledge of the comparative advantage of the different, floor finishes as regards finance and availability would influence the choice of appropriate floor finish. To ensure the certainty of knowledge, the use of the appropriate professionals to advice the clients would be necessary.

The choice of flooring material and floor finish is a function of cost (40%); durability and hardness (27.7%), aesthetics and comfort (32.3%). These are the basic factors in selecting materials for flooring in a

particular building. Appearance which is of essence should be good to produce the client's desire colour effect. However, the cost of finance of the flooring material should be reasonable compared to the utility of the building. It may be convenient and expedient to use clay tile where marble is desired because of the perceived wear and tear. Moreso, the flooring material should be durable and strong to building resistance against wear and tear, marks or signs, acid, chemical action including temperature changes.

Conclusion

The conclusion derivable from the study is that the choice of floor finish and flooring materials are dependent functions of certain variables including the use to which the building would be subjected to. It is generally agreed as it is acceptable that cost effectiveness and aesthetics are fundamental concepts of choice. Moreso, is the durability of the flooring material due to the resistance to abrasive stress is of essence. Floor finishes, do not contribute to the strength of the floors but adds beauty, elegance of colour to the floor finish. It could as well be seen to provide comfort and safety to the inhabitants.

Fire resistance and low water absorption material's performance are only desirable for the good choice of floor finish including low maintenance property.

To check-mate the difficulties in the choice of floor finish/flooring materials for the different building structures; the frequency tables of factors are ideal. They constitute a good and handy determinate guide for quick selection by the professionals.

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