



Towards Integrating Passive Design Measures to Enhancing User's Security in Hotel Buildings in Nigeria

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ABSTRACT

Globally, security and safety have become important factors to be considered in every design. In Nigeria, this has become an issue of concern especially in public buildings. The hospitality industry constantly witnesses an influx of guests on a regular basis, the high degree of accessibility makes hotels susceptible to security threats. This study aims to assess the efficiency and adequacy of passive security measures as a means of reducing security threats in hotels. The objective is to explore design measures that enhance security within hotel designs and identify features that can be effectively integrated in their design. Descriptive research approach was adopted for this work and data was collected by the use of questionnaires and observation guided by a well-structured observation schedule. The study revealed the extent to which existing hotels depend on active measures to enhance security within the building and their premises. Recommendations were made on how the understudied passive security measures could be implemented stressing the need for passive security considerations in the design of hotel buildings.

Key words: hospitality, hotel, passive security, public buildings, security

INTRODUCTION

Globally, the hospitality industry contributes about 10 percent to the world's GDP (Boella, 2010). Its significance has been observed to grow substantially especially in the last decade. The hospitality industry comprises multiple sectors notable amongst which are restaurants and hotels. A hotel is a subsector of the hospitality industry that offers paid lodging to guests on a short term basis and is open to everyone. A welcoming environment is one of the fundamental requirements of a hotel's layout. The open nature of hotels however, makes them susceptible to threats and attacks.

In Nigeria, security and safety in public buildings have become an issue of concern as buildings whose functions range from administrative to institutional, commercial and even religious buildings have been known to come under various forms of attack. Attacks such as the bombings at the famous Banex shopping plaza in the commercial axis of Wuse in Abuja, suicide bomb attacks at St. Theresa's Catholic Church at Madalla in Niger State and most recently, terrorist attacks in schools within the North eastern region of the country all attest to the state of insecurity in Nigeria.



Image from the Blast Scene at Madalla, Niger State, Nigeria Image from the Blast Scene at Banex, FCT Nigeria

In curtailing and reducing the impacts of these threats and attacks, active security measures which are mostly mechanical, are not always reliable and most often increase the overall construction cost of a project as active security devices are only procured and installed upon completion of works. This study will explore design measures that enhance security in hotel designs with a view to proffering techniques through which these measures can be effectively integrated in their operations. This will be achieved by assessing the current security measures for user's safety in hotel designs and ascertaining the adequacy and effectiveness of passive security features in the design of hotels.

The study area is limited to Minna the capital of Niger state and is situated in the north central region of Nigeria, about 100km away from the F.C.T and roughly 90km away from Madalla (both being the closest cities known to have experienced attacks in the past). Minna boasts of educational and banking institutions, Government agencies and tourist attractions within and around surrounding communities. These see people troop into the city on a daily basis.

Literature Review

Ewetan and Urhie (2014) assert that the state of insecurity in some parts of Nigeria remains high and seemingly unsurmountable. This assertion is not unconnected to the fact that the Government constantly infuses funds to combat the security situation especially in the North east. The efforts on the part of the government however, seem futile as terrorist attacks are still reported to occur by the media especially in this area. Terrorism has over the years become a global phenomenon. It is "the premeditated use or threat of use of violence by an individual or group to cause fear, destruction or death, especially against unarmed targets, property or infrastructure in a state, intended to compel those in authority to respond to the demands and expectations of the individual or group behind such violent acts" (Samson et al, 2011). Law enforcement agencies i.e. the military, the police as well as other intelligence agencies have been

relied upon to curb the insecurity problem but the scourge lingers on.

Physical security involves the installation of environmental structures such as walls, fences, barbed wires, vehicle barriers and speed bumps which either prevent or stop an attack from occurring (Elert and associates, 2013). Other physical security measures that can be implemented in design include limiting the number of entrances into the building, directing movement through the building's design to ensure movement is through the various checkpoints provided and reinforcing the building envelope with steel or concrete to ensure it is capable of withstanding diverse forms of attack. Physical security measures become particularly useful in reducing the risk of direct contact and physical attack against a facility (Department of Homeland Security, 2010). Physical security can be adopted in either of two forms, i.e. active and passive security. The primary goal of every security design approach is to ensure the safety of a building's occupants.

Passive security is an aspect of physical security that concerns itself with the integration of security measures and elements in the architecture and landscape of a building and its site's design. It involves the implementation of measures which prevent unauthorized access to personnel, installations, equipment and also protect these against acts of terrorism and criminal activity (physical security program, 2007). It is impossible to completely eliminate all risks; a good security design balances security design implementation with the likelihood of the occurrence of an attack in a prioritized approach which results in the acceptance of a conscious and acceptable level of risk (NIBS, 2014). Different buildings providing varying functions require different levels of security depending on the service such facilities provide. Site planning and building elements are easily adjusted in the design stage than in the later phase when major changes or additions will incur extra cost (Nadel, et al, 2001). The implementation of passive security measures in design not only protects lives and property but also saves this 'extra cost'.

Concept of Crime Prevention through Environmental Design (CPTED)

Crime prevention through environmental design (CPTED) is a passive security tool that operates on the belief that the incidence of crime can be reduced through proper design and effective use of the built environment (Crowe, 2000). In applying the principles of CPTED to design, it is necessary to determine the purpose for which a space is intended, how such space is defined and how well such design fits its intended function. There are four underlying principles to the application of CPTED. These are natural surveillance, natural access control, territorial reinforcement and target hardening (Penrith Development Control Plan, 2014).

Natural Surveillance

Natural surveillance is a design CPTED strategy geared towards ensuring intruders are kept under observation giving room for legitimate users of a facility to observe the space while going about their normal activities. It involves physically positioning a building and activities in a manner that maximizes natural visibility and observation (North Yorkshire police, 2014) giving offenders/defaulters the impression of being watched thus discouraging the perpetuation of crimes (Virginia police department, 2011). Choices of glazing material, proper selection and placement of carefully selected plants as well as perimeter lighting are important considerations in maximizing the impact and resultant effects of natural surveillance.

Natural Access Control

This is a design strategy that seeks to decrease crime opportunity by denying access to a crime target and creating an impression/perception of risk to an offender (Fenelly and Perry, 2018). Features such as bollards, paved walk ways, and reinforced planters are used to deny offenders access to these targets, reduce escape opportunities and also serve as a guide for legitimate users of a facility.

Territorial Reinforcement

Territoriality is a concept that is intended to clearly mark out a space as public, semi-public or private and indicate appropriate ownership of such

space. It fosters a behavior which challenges unwanted acts or abuse that may occur within such space by creating an environment where strangers and possible intruders stand out and are easily identified. Street design can be used as a means of marking out territories by the use of signages and setting speed limits to slow down traffic (Katyal, 2002).

Target Hardening

Target hardening consists of measures taken to make targets more resilient to attacks (Virginia police department, 2011). Elements capable of slowing down intruders or increasing the chances of such being detected are employed to make this effective. Employing good target hardening strategies therefore increases the chances of intruders being spotted and decreases the time it takes to gain access into a building. The more time spent in committing an offence, the higher the vulnerability of the offender (North Yorkshire, 2014).

RESEARCH METHOD

A descriptive research approach was adopted for this work. A total of five (5) hotels were purposively selected (hotels where at least five security features were employed were selected). These include Hydro hotel, Yayi hotel, Shiroro hotel, Ajuba hotel and Haske luxury hotel all within the study area. Data was collected using an observation schedule alongside a questionnaire structured to collect information bordering on the security of the users of hotel facilities. Elements observed in the collection of data include the basic security features obtainable within the facility, the nature of materials used for glazing and window openings, vehicular and pedestrian access control measures employed, standoff distances from the building, number of major access points into the hotel (entrance/exit), and site features that define boundary of spaces. Variables generic to hotels on security that were considered for this research include cases of criminal activity at the hotel in the past, the nature of such criminal activity, period of occurrence, the factor about the building that triggered such insecure occurrences.

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RESULTS AND DISCUSSION

The data obtained from the observation schedules were coded for descriptive statistical analysis (tabulation, production of charts and

correlation analysis). The main aim of the analysis was to determine the nature of security measures put in place in hotel facilities within Minna metropolis.

Hotels	Active Security Measures		
	Security alarms	CCTV camera	Secured gate
Yayi hotels	-		-
Shiroro hotel	-		-
Haske hotel			-
Ajuba hotel	-	-	-
Hydro hotel	-		-

From the table above, it can be observed that 80% of the facilities visited made provisions for security alarms, 20% employed the use of closed circuit television (CCTV) for surveillance within

their vicinity and all the facilities studied had a secured gate as control into and out of the vicinity.

Stand off Distance



Images Showing a Stand-off less than 5 meters at Haske Luxury and Yayi Hotels Respectively.

Hotels	1-5 meters	6-10 meters	11-15 meters
Yayi hotels		-	
Shiroro hotel	-		
Haske hotel	-		
Ajuba hotel		-	
Hydro hotel	-		

The table above indicates that while 60% of the hotels visited gave an allowance of 1-5 meters as stand-off distance, 40% observed a stand-off

between 6-10 meters and none gave a distance of up-to 15m between the main building and parking lot.

Sill Height for Windows

Hotels	0.9 meters	1200 meters	1500 meters	1800 meters
Yayi hotels			.	
Shiroro hotel	.			
Haske hotel			.	
Ajuba hotel	.			
Hydro hotel			.	

While 40% of the selected hotels had a window sill height of 0.9m, none had 1.2m, 60% had a sill height of 1.5m and none had upto 1.5m as its sill height.

HARDENED LANDSCAPE ELEMENTS



Image showing hardened landscape elements used at shiroro hotel

Hotels	Concrete seating	Concrete planters	Bollards	bumps
Yayi hotels		.		
Shiroro hotel		.		
Haske hotel				
Ajuba hotel				
Hydro hotel		.		

Of the four hardened landscape elements selected to be observed, only concrete planters were employed by some of the hotels studied.

None made use of concrete seating, bollards and bumps while 60% of the samples made use of concrete planters as a landscape element.

Hotels	Material for Glazing	
	translucent	transparent
Yayi hotels		.
Shiroro hotel		.
Haske hotel		.
Ajuba hotel	.	
Hydro hotel	.	

DISCUSSION OF RESULTS

The results revealed a heavy reliance on active measures for security within hotel premises. Secured gates as well as security alarms were relied heavily upon by all the facilities studied in securing their premises. Although some passive security elements were employed, most of these played aesthetic rather than security functions. The standard stand-off distance of 15 meters for a facility of this nature was not observed by any of the samples selected for the study. Some of the hotel establishments observed sill heights of 1.5 meters making it difficult for intruders to access the building via window openings. Others however, used lower values, this makes it easier for intruders to gain access to the facility. All the facilities employed concrete planters as the only anti-intrusion device within their premises. Bollards, bumps and concrete seating were absent in all the samples studied.

RECOMMENDATIONS AND CONCLUSION

Considerations should be made for passive design measures for security in hotel layouts. By observing adequate stand-off, ensuring a reasonable sill height is employed for window openings, carefully selecting materials for the glazing of these openings and introducing a variety of hardened landscape elements, the security and safety of lives and property within hotel buildings is better ensured. Passive security measures if adopted offer cheaper and long term solutions to security issues encountered in hotel buildings.

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