

# Easy Movement Facilities for Users' Comfort in Shopping Malls in Clifton, Karachi, Pakistan

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**Abstract-** In society, shopping plays a part in outdoor activity. With the passage of time, different societies develop different modes of shopping by following particular societal values and norms. Modern shopping is a modified activity that is widely adopted by shopping malls. In this new set of shopping activities, users of shopping malls are not interested only in shopping but also in allied facilities like a ramp, main entrance of the mall, wheelchair, information desk/ reception, informal seating, signage system/way finding, emergency exit, central circulation, horizontal circulation, wide walkways/corridors, staircase, elevator/lift, escalators and cargo lift. Some basic facilities are unavoidable while designing a shopping mall, but these facilities may differ in different shopping malls. One of the specialties of the specific mall is a user-based facility which is the main attribute of shopping malls. This study emphasises selected attributes of a shopping mall, i.e., easy movement facilities. Emerald Mall in the city of Karachi, Pakistan, was selected as a case study building. A quantitative and qualitative research methodology has been adopted; the collected data was then presented statistically. An analysis of the findings has been carried out according to the standard attributes of the shopping mall. The conclusion of the study includes that some of the areas of Emerald Mall are well established, but there is still a need for improvements in many areas, such as the ramp, main entrance of the mall, wheelchair, information desk/reception, informal seating, signage system/way finding, emergency exit, central circulation, horizontal circulation, wide walkways/corridors, staircase, elevator/lift, escalators, and cargo lift. The research establishes its contribution as the provision of framework and modular analysis of selected study for a contextual approach to architectural design development. This study recommends the innovation for the future in the design of the selected mall in order to address the discrepancies identified.

**Keywords-** Comfort, Easy Movement, Satisfaction, Shopping Malls, Respondents.

## I. INTRODUCTION

Our entire lives revolve around work and recreation. However, we must pause and trade our salaries for the things and services that enable both pleasure and work in the interim. Shopping exhortation has been noticed in user purchasing practice for many years [1]. Shopping incentives are governed by utilitarian and hedonic motivations, according to research. The shopping motivation, which is utilitarian, focuses on the functional and objective aspects of going to the mall [2]. Pleasure, concept, role, experimentation, value, and social shopping are all examples of hedonic motivation. When visitors are in a bad mood, they might go shopping for gratification to relax and release stress [3]. Historically, shopping has always been a social activity, it was translated into the market but has now developed into shopping malls - with the passage of time they have become increasingly consumer-orientated. These requirements may include several factors, comfort being the most important. The comfort level can be increased and enhanced in design. In current times, the user of shopping malls is more interested in shopping that provides need-based facilities, easy movement, and entertainment. The modified form of open markets, i.e., the shopping malls, therefore have these attributes that are likely to enhance the business while increasing user comfort and satisfaction.

Combining the two definitions, a shopping mall may be described as a structure that allows people to stroll from one unit to another within the same building/set of buildings while conducting their business of exchanging products and services for money [4]. A management company builds and maintains shopping malls as a single entity, consisting of a collection of independent retail establishments, services, and parking lots [5]. A shopping mall is an enclosed place including a number of retail stores, restaurants,

recreational, and other companies with the shared goal of increasing sales. Off-street parking is available in shopping centres. A bigger shopping mall may accommodate a wider range of stores and provide a more pleasant environment for consumers, encouraging them to return more frequently. As a result of rising urbanization, there is a greater demand for environmentally friendly shopping malls. Shopping malls began in urban areas and have since spread to the suburbs of major cities to meet the shopping demands of suburban communities distant from the core business district [6]. Large recreational shopping malls have been reported to stimulate frequent shopping by both regular consumers and visitors. The major qualities of shopping mall attractiveness are ease, leisure, variety, mall essence (heart), parking and splendor [7]. The physical environment, comfort, and entertainment have completely mediated the relationship between ambience and consumption, with favourable effects on both the environment and customers. The built environment and entertainment are viewed as being essential to physical and social sustainability sustainability [8].

Karachi is Pakistan's largest and most populated metropolitan city. It is also known as the "City of Lights" and "The Bride of Cities". The city's population is expected to reach 16,093,786 million people in 2020, making it the largest metropolis in the Muslim world. [9]. The appeal of a shopping mall can be based on a number of different factors. Easy movement facilities are the main frontline support for comfort level. If customers are unable to avail the facilities, the scope of its existence is questionable towards its functionality. Study examined attributes of shopping mall in terms of easy movement facilities. The Emerald Mall is located in Clifton, Karachi and aims to provide a shopping facility to the local people. The study aims to survey selected attributes of Emerald Mall, i.e. easy movement facilities that are not widely available. It intends to assess these attributes to improve towards better facilitation for the customers.

The study focuses on the following main objectives:

1. To develop a theoretical framework that is contextually appropriate and flexible for the development of the architectural design of the shopping malls.
2. To study selected attributes of the shopping mall in terms of user facilitation, including easy movement facilities.
3. To analyze the selected case study's selected attributes concerning the standards to access the compatibility with local socio-cultural needs.
4. To find out the effective impact(s) of specific attributes on user comfort.

Following are the research questions of the study:

1. What are the designs considerations regarding easy movement facilities?

2. Which sub- attributes of the selected user facility in the case study are synchronized with the standards?
3. How is the comfort level in a case study affected due to the availability of selected attributes?

The research is limited to the ground plus three floors of the building that are used for shopping activities. The study was focused only on selected attributes for Emerald Mall; easy movement facilities. The floors above, i.e. "Emerald Tower" are out of the scope of this research because of the changed activity in the area. It also de-limits the management staff of shopping malls as their movement and usage of the mall is very limited from the sample target.

## II. LITERATURE REVIEW

A shopping mall is a structure featuring retail units and linking pathways that allow people to easily go from one unit to the next [4]. Shopping malls are complexes that contain stores with many departments and retailer units, as well as cafeterias, restaurants, amusement centres, cinema halls, exhibit halls, banks, pharmacies, and other small businesses. They usually are settled in the countryside and controlled from a single centre [10]. Shopping mall is a place where consumers are in search of a location where they can relax [10]. A marketing publication reveals that expectations are a vital decisive factor determinant of consumer behaviours [11,12,13,14,15,16,17,18].

When people are pleased with the mall's features, they spend more time there. The more delighted shoppers are with mall amenities, the more time they will spend there. According to the findings, the shopping mall to visit is chosen based on the shopping mall's characteristics [19]. Shopping malls are thought of as modern, energetic, and lively life centres that cater to a wide range of customer needs [10]. In order to properly manage shopping malls in today's competitive retail market, it is necessary to first understand what draws people to them [20]. The limitation of this research is based on selected attributes for Emerald Mall; easy movement facilities to the ground plus three floors of the building that are used for shopping activity.

The behaviour of visitors in a shopping mall in general and specifically for this research recommends that ease as being shopping malls' feature has a great effect when a mall is chosen for a visit [21]. Another study found that various aspects of the shopping mall retail mix, such as functionality, convenience, shopping mall safety, leisure activities, shopping mall atmosphere and hygiene, and self-identification, influence shopping well-being [22]. Therefore, it is critically reviewed that shopping mall attributes that act as the main forefront support are important, like utilitarian and hedonic values, which, in turn, provide customer satisfaction and

comfort. The global standards to measure the efficiency and attributes of shopping malls are mentioned in the Time-Saver Standards for Building Types standards. McGraw-Hill [23], Building for Everyone: A Universal Design Approach: Booklet 2 - Entrances and Horizontal Circulation [24], Building for Everyone: A Universal Design Approach: Booklet 3 – Vertical Circulation [25], Building for Everyone: A Universal Design Approach: Booklet 4 - Internal environment and services [26], Building for Everyone: A Universal Design Approach: Booklet 5 - Sanitary facilities [27], Building for Everyone: A Universal Design Approach: Booklet 6 - Facilities in buildings [28], Building for Everyone: A Universal Design Approach: Booklet 7 - Building types [29] and Karachi Building and Town Planning Regulations-2002 Amended Up to Date March 2017 [30]. And also referred to by scholars as mentioned in Shopping malls attractiveness: a segmentation approach [31], Determining shopping mall visitors' perceptions on mall attributes [32], Attractiveness factors Influencing Shoppers; satisfaction, loyalty, and word of mouth: An Empirical Investigation of Saudi Arabia shopping malls [33], The relationship between shopping mall attributes, customer satisfaction and positive word-of-mouth: China visitors in Hong Kong [34] and Factors defining shopping experience: an analytical study of Dubai [35]. A critical review of the literature shows that there are a lot of requirements that need to be fulfilled for the benefit of users, including utilitarian and hedonic values. For example, larger ramps are needed in malls to accommodate walkers and motorized wheelchairs. The transition zone between the mall's exterior and interior is also crucial. It is the space just inside the entrance that defines the chamber where customers adjust to the interior of the establishment. To make the most of this capability, it must be highly effective [36]. According to several studies, long lines and time spent waiting at the **entrance**/checkout ruin the shopping experience, even if the overall experience is fantastic. According to the researchers, one can tolerate it for roughly 2 minutes [37]. The entry and exit locations are those that draw one's attention and can be difficult to navigate owing to crowds. As a result, these positions must be properly arranged. Customers will stay longer and increase sales if facilities such as informal seating/resting benches, recycle bins are provided [36]. An earlier study has shown that everything from the entrance to the passageways and the connectivity between rooms within the mall, as well as the ease and use of signs, are key to ensuring user comfort within the mall. In most retail situations, indicators are made up of a lot of words, making them difficult to read quickly. "Putting a sign that takes 12 seconds to read in an area where customers spend 4 seconds is just marginally more effective" [37]. System that chooses the safest path for pedestrians in the event of a fire has been demonstrated in earlier research. Additionally, put out a plan for emergency exit routes [38]. For safety reasons, emergency exit signs are used in buildings, malls, and many other locations [39]. Similarly, both central and horizontal circulations are

essential. It is critical that shopping malls provide access for physically challenged people. It should be made a goal to guarantee that mall facilities are used without incident. Physically challenged folks should be able to enter and exit the mall in the same manner as everyone else. Everyone, including those with disabilities, should have access to at least one safe and accessible mode of transportation. In order to accommodate walkers and motorized wheelchairs in retail malls, mall designs must provide broad walkways/larger corridors [36]. Horizontal circulation in shopping mall includes elements such as large walkways/corridors and Central Circulation. Horizontal circulation aids in maintaining continuous circulation in retail malls and other buildings, as well as providing smooth transitions between levels. Horizontal circulation refers to portions of walkways on individual levels of a building that provide access to other places, such as halls and entryways/entrance lobbies [40]. In shopping malls, everyone should have access to vertical circulation. Stairs should have a slip-resistant surface and continuous rails.

The signs that indicate when the elevator doors open and close, should be simply visible. The existence of escalators also offers an unbroken flow of shoppers, as it lowers mall overcrowding, according to the literature. Furthermore, the link between two levels of purchasing draws the shopper's attention to the higher level. Escalators should be installed in such a way that they do not block vision and are easily accessible. Vertical circulation aids the vertical movement of a shopping mall between levels within a building, with the goal of providing free access to all. Vertical circulation, walking areas, and automated systems, such as flights of stairs, ramps, lifts, and escalators, are implemented on separate floors of a structure to promote vertical movement to different areas of a shopping mall [40]. A wide range of environmental design components can help people find their way or cause them to become disoriented [41, 42].

Therefore, it is concluded that a shopping mall's motivation in terms of user satisfaction or user comfort level can be translated into shopping mall attributes, such as easy movement facilities. After a critical review of the literature, these attributes present several considerations in the design of shopping malls, which, in turn, provide customer satisfaction. It has been concluded that shopping mall attributes, which act as the main support for comfort level, may also affect the performance of a shopping mall. In addition to this, visitors, while selecting any mall for shopping purposes, should consider the provision of easy movement facilities in the mall. These attributes are selected for the conduct of further research.

### III. METHODOLOGY

The research mainly adopts a quantitative methodology for collecting data through a selected case study, however it also caters some qualitative data for value additions in the form of observations, site visits, photographs and architectural drawings. The case study was selected in the city of Karachi. The Secondary source included a literature review consisting of documents i.e. publications, earlier research, reports, census, archives, books, personal records and referential material available in relevance to the area of study. The primary sources included questionnaires separately structured for customers and shopkeepers and observations (through site visits, photographs and Architectural drawings for reference). Following this a checklist was developed in accordance with selected attributes which is the combination of the standards as prescribed by different relevant sources available in the literature and observations. Both data collection sources were processed through the developed checklist of selected attributes. The responses from the questionnaires were collected and statistically processed for the findings. These findings were further analyzed to draw conclusions.

#### A. Sample And Sampling Techniques

The sample consisted of two categories of users relevant to the type of population; Customers and Shopkeepers, regardless of the type of shop. The sample mainly consists of 210 participants in total. This includes 20% of the total number of customers, equal to 180 from 900 Customers per day (900 customers as per record from the administration of Emerald Mall). The selection of customers was based on the customers' level of interest to respond to the questionnaire questions. Large samples are usually used in descriptive research; the sample is suggested to select 10% to 20% of the approachable population. Whereas from the sample of 90 shopkeepers, 30 shopkeepers were selected, it is suggested to include at least 30 respondents in a sample as the number permits the use of large sample statistics, which minimizes the chance of standard error. The intention was to find out their experiences when using the shopping mall.

#### B. Research Instruments

The research uses two main instruments for the data collection process; firstly, questionnaires (for users, separately structured into two categories); and secondly, observations (for analysis of existing attributes through site visits, photographs, and architectural drawings for assessment).

#### C. Data Collection

Primary and secondary data are collected for this study. The primary data caters for the questionnaires and observations (site visits, photographs and architectural drawings) on-site during the case study. The secondary

data caters for the literature resources of multiple types like books, articles, websites, newspapers and more.

A detailed survey on-site data collection consisted of producing baseline drawings of the building. This included the preparation of drawings to enable an environmental analysis of key aspects, measured drawings, and explanatory and analytical drawings, attributes that achieve the goals/purposes of the Shopping Mall. A local case study was selected for the research named Emerald Mall, Clifton, Karachi.

a) *Site*: Emerald Mall is located on the 200-foot wide double road Khayaban-e-Iqbal, near Do Talwar, in Clifton Block-5, Karachi as shown in Fig. 1. The region is rapidly transforming into a facilitator for economic growth, development, and diversification [43]. The entire neighbourhood is also scattered with numerous shopping malls, most of which are frequently crowded with shoppers throughout the year. All major schools and hospitals are near the site. Public transportation is provided 24 hours a day, seven days a week. With upcoming high-rise commercial, residential, and shopping malls, it is one of the safest and most commercial areas [43]. It's known as a hangout for the city's wealthy and famous. Clifton Beach, Pakistan's most popular beach, is located south of the city. Clifton can easily be reached via rail, road and sea. The Karachi Cantonment Railway Station is located close to the vicinity. At the same time, the neighbourhood is connected with the rest of the city via a network of bridges. A boat can easily be hired to Port Grand from Keamari Harbor or DHA peninsula. International airport is at 25 to 35 minutes' drive [44].



Fig. 1. The site of Emerald Mall, Clifton, Karachi shows the growth linkage with surroundings [45]

This Mall has a link to the commercial road of all locations, namely, Clifton, Defence, Saddar and to the main parts of Karachi, as shown in Fig. 1. Civil Lines, Frere Town, Bath Island, Defence, Clifton, PECHS, Gulshan-e-Iqbal, Federal "B" Area, North Nazimabad, and other major residential areas are all close by and easily accessible.



b) *Overview of the Emerald Mall:* Emerald Mall is constructed at Do Talwar, Clifton, Karachi, with a unique and innovative concept. The location of the Mall is near the business hub of the city.

Name of the Shopping Mall: Emerald Mall. Design of Shopping Mall: Shamim Alam (SA Architects). Location: Khayaban-e-Iqbal, Clifton, Karachi. Year of Completion of Shopping Mall: 2010, December. Area of the Plot:  $140'-0'' \times 230'-0'' = 32,200$  Square feet (Sqft),  $32,200/9 = 3,577$  Square yards (Sqyd),  $3,577/4840 = 0.7392$  Acre. Building Type: Retail and Corporate Offices. Height: Roof Height  $180'-0''$  and Antenna  $236'-0''$ . Floors above Ground: 16 as shown in Fig. 2. Floor underground: 1. Office Floors: 10. Shopping Floors: Ground, First, Second, Third as shown in Fig. 3 and Fitness Club/Gymnasium located on the fourth floor. Parking Floors: 1 basement and 4 Uppers. Timing: 11:00 am to 11:00 pm.



Fig. 2. Emerald Mall is on the ground plus three floors, and Emerald Tower offices are above the mall [46]



Fig. 3. Internal View of Emerald Mall showing Ground, First, Second and Third floors [47]

Selected Mall is one of the major commercial buildings in the city, with a variety of facilities, having passenger and cargo lift, an electronic and staffed security system and a firefighting System on each floor. Attractive Architectural fair face Façade and elegant exterior create a new business landmark [43]. Services, firefighting, security and surveillance system are as follows: The location is perfect. 100% KESC power with 100% own backup generation, air-conditioned. Fire alarms, firefighting equipment, fire sprinklers, smoke detectors and water hose reels are installed throughout the building on each floor also in the plant room, control room and sensitive areas. There are digital vehicle scanners, electronic and physical barriers, security checks, scanners and metal detectors and manual gates available at the main entrance. CCTV, security and surveillance are provided by manned guards, as well as a central security control monitoring room [48]. The ground floor, first floor and Second floor of Emerald Mall was entirely kept for customized showrooms. The third floor, which was centrally air-conditioned and has six spacious kitchens with modern outlet countertops, was a symbol of cutting-edge standards. The Emerald Mall's employees and visitors benefit from the large food court. On the third floor, there were also children's play area and a prayer room. It was the first time in Pakistan five-dimensional (5D) movie cinema by Jest in Karachi was launched in

this mall, but now Jest 5D Theater is not there [43]. The shopping mall has less consideration about the pleasure that gives a valid reason to come not frequently this mall.

c) *Characteristics of Emerald Mall According to Selected Attributes:* The Mall is located in Clifton, Karachi, which is one of the urban zones having a thick population. This research aims to explain the importance of selected attributes in the performance of the spaces in the shopping mall; Emerald Mall was analyzed based on these selected attributes: It aims to consider these attributes so as to improve towards better comfort and facilitation for the customers. At the right side of the main entrance of Emerald Mall, there was a narrow ramp. Automated doors were not available at the main entry doors for user comfort. Only one wheelchair was available on the left side of the mall's main entrance. The information desk/reception is located at a proper place on the ground floor near the main entrance of Emerald Mall. In the central area on the ground floor, there is only one informal seating for resting at the Emerald Mall. It was observed that signage boards can be hung down from the top or can be up with prominent colours rather than being pasted on walls in light blue colour. The location of the emergency exits was designed well, so users were able to exit the premises quickly and safely in case of a fire or any emergency. Centralized circulation enabled people to pass through in the opposite direction. Centralized circulation may be extended to the central atrium for events or occasional gatherings. Horizontal circulation was intensely considered. The mall avoided changes in level within a story. The width of a few walkways/corridors was not wide enough. There was no staircase from the ground floor to the second floor. Lift in the mall was large enough to accommodate a small group of people, including people pushing prams and, pushchairs, wheelchairs. Provision of escalators was there. Escalator's steps were wide enough. In this mall's core part, there was also a cargo lift.

Thus, people do not seem to choose this shopping mall for the fact that there was a form of minute easy moment facilities going on. This shows that easy moment facilities are part and parcel of a shopping mall.

#### D. Interpretation Of Data

The research focused on the analysis through a quantitative and qualitative approach collected through selected instruments (Questionnaires and Observations), i.e., through site visits, photographs, and architectural drawings. This approach is further analyzed and interpreted through a statistical method. Obtained data from the survey was analyzed. A comfort level of attributes was established. Analysis was important to get to conclusions.

IV. ANALYSIS AND FINDINGS

A. Analysis

a) Use of Ramp:



Fig. 4. (a) Layout of narrow ramp near the main entrance (b and c) Ramp have handrails on both sides (d) Ramp for elderly people for vertical circulation (e) Ramp for baby stroller movement

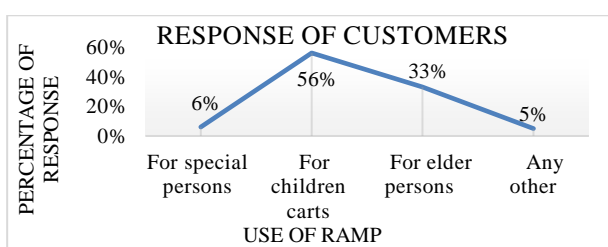


Fig. 5. Response of customers about the use of the ramp

The findings indicated that 6% of the respondents were using the ramp for a special person, while 56% indicated that the children with carts were also using the ramp, 33% indicated that the ramp was used for elderly persons, while 5% of the respondents came up with any other reason as presented in Fig. 4 and 5. Other than the observational survey, it is also mentioned in section-II: literature review, stated in standards (Chiara, & Michael, 2001), (Design, 2014) and (Sindh Building Control Authority, 2017), and referred by scholars (Jain, 2010) and (Elottol, & Bahauddin, 2011). According to experts, ramp is important for physically challenged people for vertical circulation as well as in shopping malls.

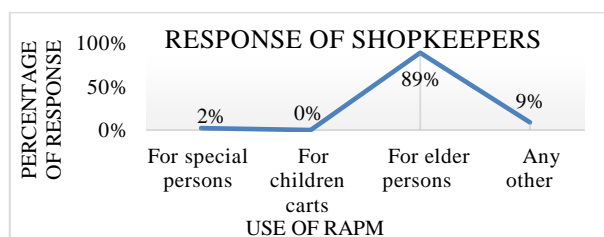


Fig. 6. Response of shopkeepers about the use of the ramp

The findings indicated that 2% of the respondents were using the ramp for a special person, while 89% indicated that the ramp is used for elderly persons, and 9% indicated that the ramp was used for any other purpose, as presented in Fig. 6. The figure also indicates that 0% is used for children's carts. The reason for this finding is that shopkeepers are not accompanying the children with them during their job timings. Only the elderly and

special people use the ramp for vertical circulation. During the discussion about any other reason to use the ramp, the shopkeepers mainly indicated the use of the ramp for goods in shops through trolleys.

b) Main Entrance of Mall:



Fig. 7. (a) The layout of a hand-operated gate at main Entrance of Mall (b) Steps with a handrail at the main entrance (c) Security at the entrance and exit of the mall (d and e) Both entrances directly connect to the central area of the mall

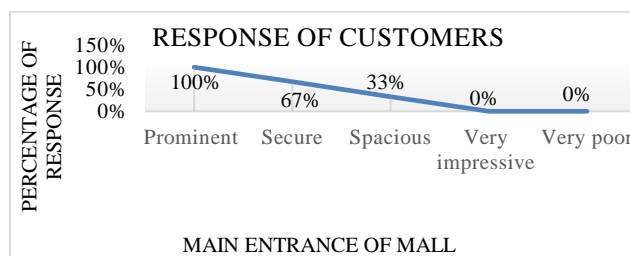


Fig. 8. Response of customers about the main entrance of the mall

When asked about the main entrance of the mall, 100% of the respondents mentioned that the main entrance was prominent, so they reach it easily, while 67% stated that they felt the main entrance was secure, 33% stated as spacious, as shown in Fig. 7 and 8. This is mentioned in section-II: literature review; stated in standards (Chiara, & Michael, 2001), (Design, 2014), (Design, 2014), (Design, 2014) and (Sindh Building Control Authority, 2017), and referred by scholars (Jain, 2010), (Underhill, 2009) and (Elottol, & Bahauddin, 2011). The main entrance was prominent and secure; its design was with lot of consideration. The multiple uses of ramp by customers demonstrate the consideration of easy movement facilities provided at the main entrance of the mall.

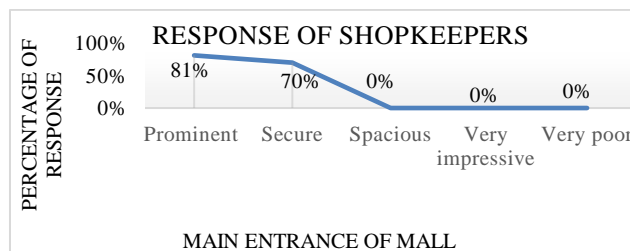


Fig. 9. Response of shopkeepers about the main entrance of the mall

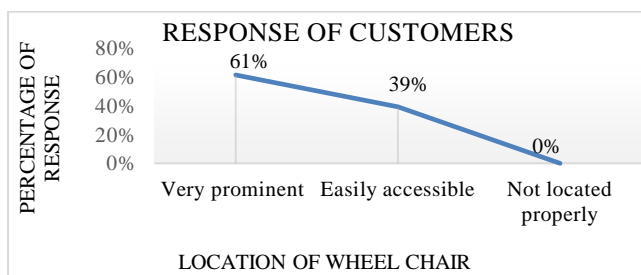
When asked about the main entrance of the mall, 81% of the respondents mentioned that the main entrance was prominent, so they reach it easily, while 70% stated that they felt the main entrance was secure, as shown in Fig.

9. The same set of standards as mentioned for customers are referred to here. Furthermore, observations and usage of ramp by shopkeepers indicate that the facility of ramp is in multiple uses for all users according to their convenience.

c) Location of Wheel Chair:

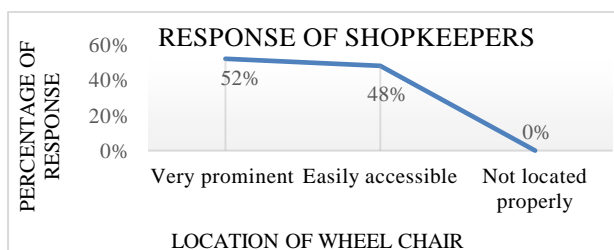


**Fig. 10.** (a) Layout showing location of a wheelchair (b, c and d) Only one Wheel Chair on the left side of main entrance of Emerald Mall for physically challenge people and elderly people



**Fig. 11.** Response of customers about the location of wheelchair

The survey result showed that 61% of the respondents were satisfied with the location of wheel chair and stated it was very prominent, 39% indicated that the location of the wheelchair was easily accessible, while 0% has stated it was not located properly, as shown in Fig. 10 and 11. The observations of the survey also indicated that the location of a wheelchair was very prominent and quite easy in access. This is also mentioned in section-II: literature review; stated in standards (Design, 2014), (Design, 2014) and (Design, 2014), and referred by scholars (Jain, 2010).



**Fig. 12.** Response of shopkeepers about the location of wheelchair

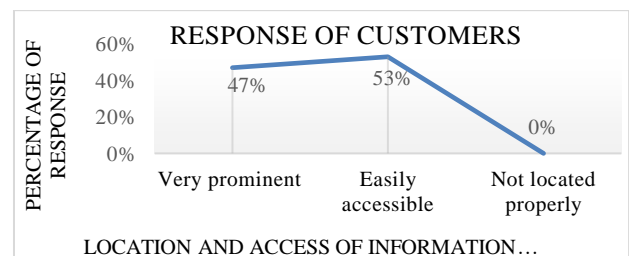
The survey result showed that 52% of the respondents were satisfied with the location of wheel chair and stated it was very prominent, 48% indicated that the location of the wheelchair was easily accessible, while 0% stated it was not located properly as shown in Fig. 12. Since the shopkeepers are also having the same opinion about the location and access of wheelchairs, this indicates that

there is general user satisfaction prevailing in the mall for wheel chair facility, but people had to wait because there is only one wheelchair. However, it is suggested to increase the number of wheelchairs for the users.

d) Location and Access of Information Desk/Reception:



**Fig. 13:** (a) Layout showing location of information desk near the main entrance (b and c) Information desk/reception is located on the ground floor near the main entrance in a proper place, which is very prominent and easily accessible



**Fig. 14.** Response of customers about the location and access of information desk/reception

The findings indicated that 47% of the respondent's satisfied with the location of the information desk and stated it was very prominent, 53% indicated that the location of the desk was easily accessible, while no one stated it was not located properly as presented in Fig. 13 and 14. This is mentioned in section-II: literature review; stated in standards (Design, 2014), (Design, 2014) and (Design, 2014), and referred by scholar (Makgopa, 2016). Also, the observations during the survey indicate that the reception is located at a proper place on the ground floor near the main entrance, which is very prominent and easily accessible for users. This question was not inquired from the shopkeepers, as it was not relevant.

e) Use of Informal Seating:



**Fig. 15.** (a) Layout of informal seating for resting on ground floor in Emerald Mall (b and c) On the ground floor, only one informal seating in the central area of the mall



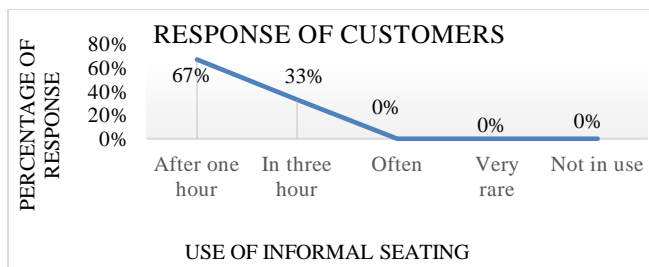


Fig. 16. Response of customers about the use of informal seating in the mall located in movement areas

The findings indicated that 67% of the respondents used informal seating after one hour when they visited the shopping mall, while 33% indicated that they used seating for three hours. Young, energetic people tend to use seats after three hours. No one responded for often, very rare and not in use as shown in Fig. 15 and 16. It is observed that informal seating should be available on every floor, not only the ground floor. If a customer needs to sit down for resting purposes, they have to go down to the ground floor for informal seating. This is also mentioned in section-II: literature review, stated in standards (Design, 2014) and (Design, 2014), and referred by scholars (Adly, 2007) and (Jain, 2010). This question was not inquired from the shopkeepers, as it was not relevant.

f) Signage system/way finding:



Fig. 17. (a) layout showing location of Signage System/Way Finding (b, c and d) Signage boards having international symbols pasted on the mall's wall

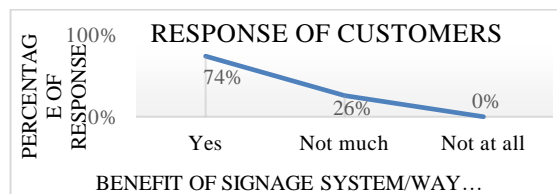


Fig. 18. Response of customers about the benefit of the Signage system/way finding

The findings indicated that 74% of the respondents get the benefit from the signage system, while 26% indicated that the signage was not enough to guide people. And no one responded for not at all, as shown in Fig. 17 and 18. It was observed that signage boards having international symbols could be hung down or up with prominent colours rather than pasted on the wall in light blue colour. This is also mentioned in section-II: literature review; stated in standards (Design, 2014), (Design, 2014) and (Design, 2014), and referred by

scholars (Makgopa, 2016), (Underhill, 2009) and (Carpman, 1991, Carpman, & Grant, 2002). This question was not inquired from the shopkeepers, as it was not relevant.

g) Emergency Exit:



Fig. 19. (a) Layout showing location of Emergency exit (b) Emergency exit signs and plans for emergency exit routes were not placed, only at the emergency gates (c) Enough width of the emergency exits and large landing spaces to use in an emergency (d) Location of emergency exits were designed directly into the ground and opened to the outside

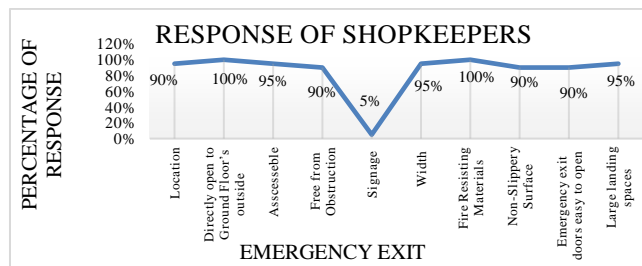


Fig. 20. Response of shopkeepers about the emergency exit

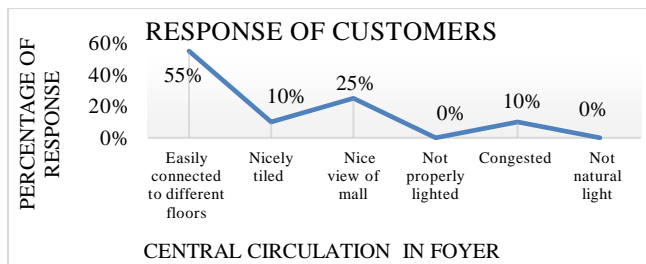
This query was not inquired from the customers. Representations show that 90% of respondents were satisfied with the location of the emergency exit, 100% of respondents were satisfied with directly open to ground floor's outside, 95% of respondents were satisfied with the assesseability, 90% of respondents were satisfied with the free from obstruction, while 5% of respondents were satisfied with the emergency exit sign system, 95% of respondents were satisfied with the width of emergency exits , 100% of respondents were satisfied with the fire resisting materials, 90% of respondents were satisfied with the non-slippery surface , 90% of respondents were satisfied with the emergency exit doors easy to open and 95% of respondents were satisfied with the large landing spaces, as shown in Fig. 19 and 20. This is mentioned in section II: literature review; stated in standards (Chiara, & Michael, 2001), (Design, 2014), (Design, 2014) and (Sindh Building Control Authority, 2017). And is also mentioned in section-II: literature review; referred by scholar (Underhill, 2009), (Shikhalev, Khabibulin, Kemloh & Gudin, 2016) and (Swathika & Sharmila, 2016).



h) Central Circulation in the foyer:

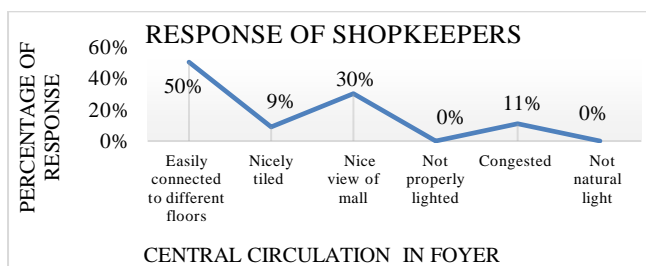


**Fig. 21.** (a) Layout showing adequate circulation at centre of foyer (b) Central area is not sufficient for promotional activities, events, or displays in ground floor's central area (c and d) Central circulation showing horizontal and vertical circulation



**Fig. 22.** Response of customers about the central circulation in foyer

Of the respondents, 55% indicated that Central circulation of the foyer was easily connected with other floors, 10% of them were satisfied with the nicely tiled area of the foyer, which helps in movement, 25% stated thsse nice view of the mall, 0% stated about not properly lighted foyer, 10% opined about congestion in space while 0% of respondents stated about no natural light as shown in Fig. 21 and 22. The people who feel it is congested could be those people who are comparing Emerald Mall with other malls; such as, Dolmen Mall (Clifton). It is observed that central area of mall should be wide enough for promotional activities, events, and displays. This is mentioned in section II: literature review, stated in standards (Design, 2014) and (Design, 2014).

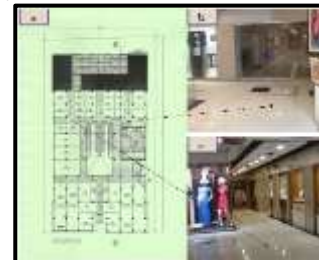


**Fig. 23.** Response of shopkeepers about the central circulation in foyer

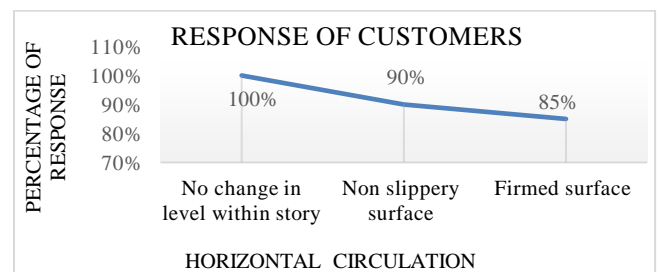
Of the respondents, 50% indicated that Central circulation of the foyer was easily connected with other floors, 9% of them were satisfied with the nicely tiled area of the foyer, which helps in movement, 30% stated about the nice view of the mall, 0% stated about not properly lighted foyer, 11% opined about congestion in space while 0% of respondents stated about no natural light as shown in Fig. 23. Shopkeepers may feel congested and irritated, especially at the time of opening

and closure of the shops. The shopkeepers' opinion was not much different from the customers as the shopkeepers are using this facility on a regular basis. This is also mentioned in section II: literature review; referred by scholars(Jain, 2010) and (Elottol, & Bahauddin, 2011).

i) Horizontal Circulation:

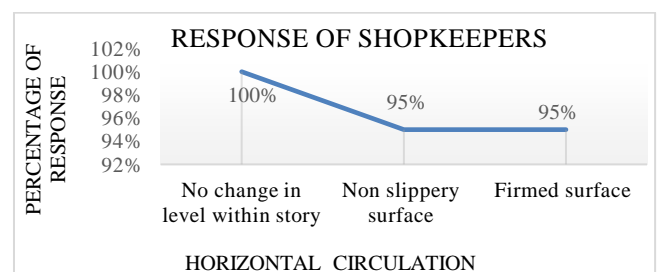


**Fig. 24.** (a) Layout showing a satisfied Horizontal Circulation (b) Avoided changes in level within a story (c) non-slippery and firmed surface provided



**Fig. 25.** Response of customers about the Horizontal Circulation

Of the respondents, 100% indicated that there was no change in level within a story as shown in Fig. 24 and 25, 90% of them were satisfied with non-slippery surfaces which help in easy movement and 85% stated about firmed surface provided in the mall. This is mentioned in section II: literature review; stated in standards (Design, 2014) and (Design, 2014), and referred by scholars (Jain, 2010) and (Elottol, & Bahauddin, 2011). It was observed that the horizontal circulation of the mall was satisfied and had no change in level within a story, non-slippery surfaces, and a firmed surface.



**Fig. 26.** Response of shopkeepers about the Horizontal Circulation

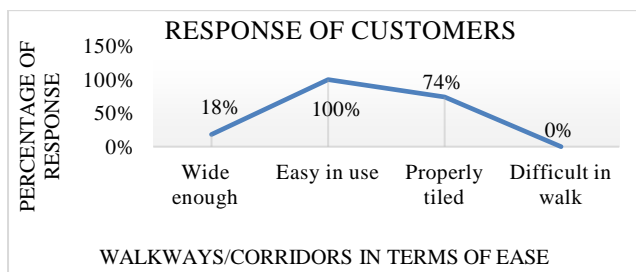
Of the respondents, 100% indicated that there was no change in level within a story as shown in Fig. 26 , 95% of them were satisfied with non-slippery surfaces which help in easy movement and 95% stated about firmed surface provided in the mall. The shopkeepers' opinion

about the horizontal circulation was not much different from the customers as the shopkeepers are using this facility on a regular basis.

j) Walkways/Corridors in terms of ease:

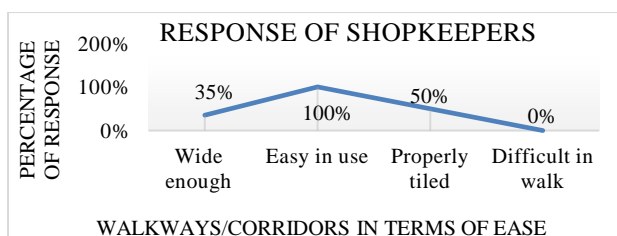


**Fig. 27.** (a) Layout showing a few narrow corridors (b and c) Eight feet wide corridor on the first floor (d and e) Due to columns extended into corridor, result is narrowing and obstructing walkways. Wheelchairs and strollers cannot be moved at the same time from both sides of those corridors



**Fig. 28.** Response of customers about the walkways/ corridors in terms of ease

Of the respondents, 18% indicated that the walkways were wide enough and could be used conveniently, 100% of respondents indicated that the use of the walkways was easy and comfortable, 74% stated as walkways were properly tiled, and 0% were facing any difficulty in walkways as shown in Fig. 27 and 28. The observations during the survey also endorse the same findings. The only discrepancy appears in terms of the width of a few walkways, which could have been considered for wider space while designing the mall. This is mentioned in section-II: literature review, stated in the standard (Design, 2014).

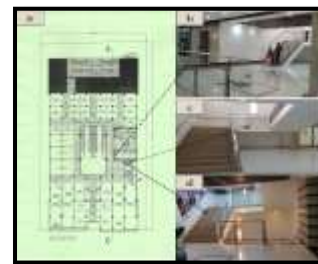


**Fig. 29.** Response of shopkeepers about the walkways/ corridors in terms of ease

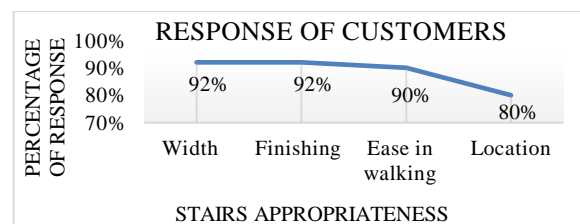
Of the respondents, 35% indicated that the walkways were wide enough and could be used conveniently, 100% of respondents indicated that the use of the walkways was easy and comfortable, 50% stated as

walkways were properly tiled, and 0% were facing any difficulty in walkways as shown in Fig. 29. The observational indications are similar to those for customers. However, shopkeepers' opinion about the width of the walkways is different because of the fact that shopkeepers are not coming with families, and they are not using the space in a similar manner as customers are using. This is also mentioned in section II: literature review; referred by scholars (Jain, 2010) and (Elottol, & Bahauddin, 2011).

k) Staircase:

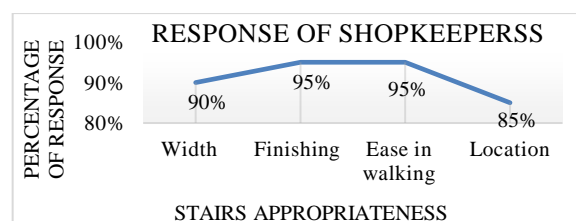


**Fig. 30.** (a) Layout showing location of Stair Case (b) Staircase near the lift, which was convenient (c) Convenient U-Shaped Staircase at the mall (d) Eight feet wide stair case with handrail on both sides for vertical circulation



**Fig. 31.** Response of customers about the staircase appropriateness

The above Fig. 30 and 31 graphical representations show that 92% of respondents were satisfied with the width of the staircase, 92% of respondents were satisfied with finishing materials, 90% respondents were satisfied with the ease of walking, and 80% responded for location. However, there was no staircase from the ground floor to the second floor. Users were unable to use this facility from the ground floor to the second floor. While from other floors, it was easily accessible/located. This is mentioned in section II: literature review; stated in standards (Chiara, & Michael, 2001), (Design, 2014) and (Sindh Building Control Authority, 2017).



**Fig. 32.** Response of shopkeepers about the staircase appropriateness

Representations show that 90% of respondents were satisfied with the width of the staircase, 95% of respondents were satisfied with finishing materials, 95%

of respondents were satisfied with the ease of walking, and 85% responded for location, as shown in Fig. 32. This issue is not with shopkeepers because they come daily, so they do not face this problem. And is also mentioned in section-II: literature review; referred by scholar (Elottol, & Bahauddin, 2011).

1) Elevator/Lift:

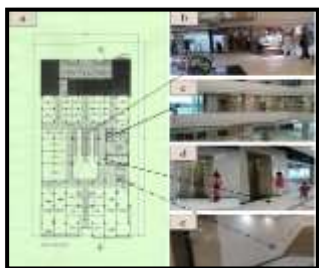


Fig. 33. (a) Layout showing the location of lift (b) Lift and escalators' located nearby each other (c and d) Lift was properly located (e) Lift and staircase's locations were near each other

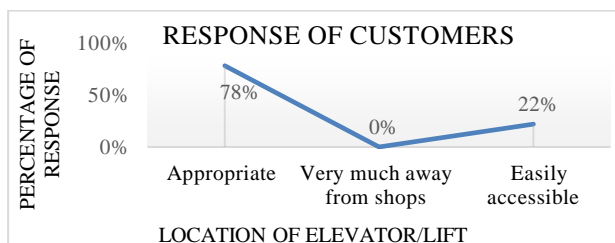


Fig. 34. Response of customers about the location of Elevator/Lift

The above Fig. 33 and 34 graphical representations show that 78% of respondents were satisfied with the location of the elevator was appropriate, while no one responded for very much away from shops and 22% satisfied with the easily accessible. A waiting area for the lift on the ground floor was congested because an automated teller machine was nearby. There should be enough space for waiting on the ground floor. This is mentioned in section II: literature review; stated in standards (Chiara, & Michael, 2001), (Design, 2014) and (Sindh Building Control Authority, 2017).

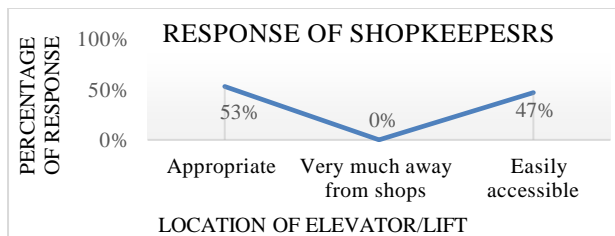


Fig. 35. Response of shopkeepers about the location of Elevator/Lift

The above Fig. 35 graphical representations show that 53% of respondents were satisfied with the location of the elevator was appropriate, while no one responded for very much away from shops and 47% satisfied with the easily accessible. However, it was observed that the lift was very near an automated teller machine, so users are not comfortable while they are using an automatic teller

machine. Therefore, it is suggested that respondent's viewpoint may be considered for design interventions. And is also mentioned in section-II: literature review; referred by scholars (Ahmad, 2012), (Chi, Hing Cheong, & Man Ho, 2012), (Singh, & Prashar, 2013) and (Elottol, & Bahauddin, 2011).

m) Escalators:

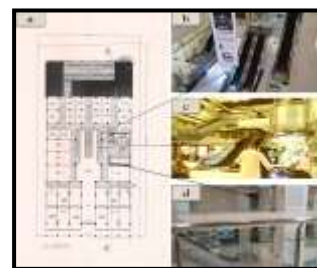


Fig. 36. (a) layout showing the location of Escalators (b and c) Centrally located escalators allow using them easily (d) The location of escalators near the lift provides alternative means of access

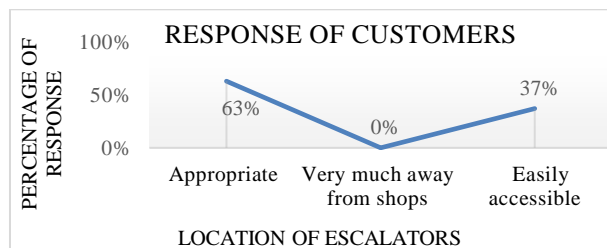


Fig. 37. Response of customers about the location of escalators

The above Fig. 36 and 37 graphical representations show that 63% of respondents were satisfied with the location of the escalator was appropriate, while no one responded for very much away from shops and 37% satisfied with the easily accessible. It was observed that when we reach the upper floor, we are reaching in walkways, which is not at all comfortable. It would be better if it were improvised in terms of design. This is mentioned in section II: literature review; stated in standards (Chiara, & Michael, 2001), (Design, 2014) [25] and (Sindh Building Control Authority, 2017).

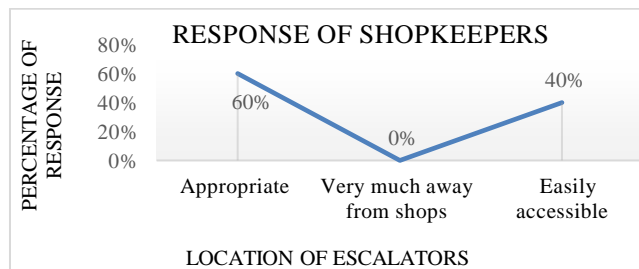


Fig. 38. Response of shopkeepers about the location of escalators

The above Fig. 38 graphical representations show that 60% of respondents were satisfied with the location of the escalator was appropriate, while no one responded for very much away from shops and 40% satisfied with the easily accessible. However, instead of being in the walkways, there should be a separate landing. Therefore,

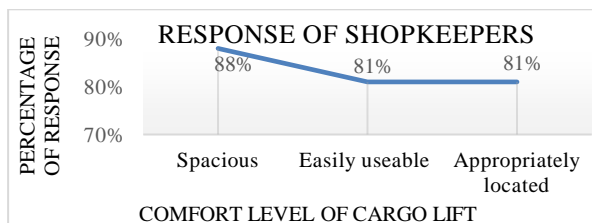


it is suggested that the respondent's viewpoint may be considered for design interventions. And is also mentioned in section-II: literature review; referred by scholars (Ahmad, 2012), (Chi, Hing Cheong, & Man Ho, 2012), (Singh, & Prashar, 2013) and (Elottol, & Bahauddin, 2011).

n) *Cargo lift:*



**Fig. 39.** (a) Layout of Cargo Lift (b) Ten feet wide cargo lift was for transferring goods from one floor to another floor (c) Cargo lift near the stair case and passenger lift was easily useable



**Fig. 40.** Response of shopkeepers about the Comfort level of cargo lift in the mall

This question was not inquired from the customers, as it was not relevant.

The above Fig. 39 and 40 graphical representation shows that 88% of respondents were satisfied that the cargo lift was spacious it can be easily used, 81% of respondents were satisfied with the easily usable, and 81% of respondents were satisfied with appropriately located of the cargo lift. Observations also conclude that the location and size of the cargo lift were appropriate. This is mentioned in section-II: literature review; stated in standards (Chiara, & Michael, 2001), (Design, 2014) [25] and (Sindh Building Control Authority, 2017), and is also mentioned in section-II: literature review; referred by scholars (Ahmad, 2012), (Chi, Hing Cheong, & Man Ho, 2012), (Singh, & Prashar, 2013) and (Elottol, & Bahauddin, 2011).

### B. Findings/Results: Effective Impacts of Specific Attributes on User Comfort

The findings of the research are summarized below according to the easy movement facilities of the shopping mall discussed. There was a narrow ramp for vertical circulation at the right side of the main entrance. Also, automated doors were not available for user ease and interest at the main entry doors. Only one wheelchair was available on the left side of the main entrance, while the place of wheelchair was perfect. It was easily assessable. Furthermore, the information desk on the ground floor near the main entrance was accurate

and accessible for users. Likewise, informal seating was only one provided in the central area of the ground floor. While the signage boards were not enough to guide people because boards were pasted on the wall in light blue colour. Moreover, a good design was used for the emergency exits. The accessibility of emergency exits was well-designed. The emergency exits were constructed with non-combustible materials, non-slippery surfaces, and stability. Similarly, centralized Circulation has been well worked out. Centralized circulation enabled people to pass through in the opposite direction and provided sufficient space for man oeuvres. Furthermore, it was also determined that horizontal circulation was given a lot of thought. Within a story, the mall avoided level changes. The floor surfaces at shopping mall were firmed, leveled, and non-slippery. Furthermore, walkways were not well considered throughout the shopping mall. However, a few walkways were not wide enough due to a projecting column. Wheelchairs and strollers cannot be moved simultaneously from both sides of those corridors. While the main walkways that connect the entrance to the Centre of the mall were width enough, according to their position with regard to traffic flow. This was because these were the regions that receive the highest number of traffic flow as customers either exit from or enter the mall before dispersing to their destinations of choice within the mall. Almost every mode of vertical circulation was to be found there. A staircase was also provided in the central area of the shopping mall. These serve as vertical circulation channels without causing congestion. The design of the staircase was good enough for a comfortable use. However, the staircase from the ground floor to the second floor was not designed inside the mall. From the ground floor to the second floor, users were unable to use this facility. Moreover, a waiting area for the lift only on the ground floor was congested because an automated teller machine was nearby. There should be enough space for waiting on the ground floor. Moving forward, the lift was good enough with sufficient space. There is emergency lighting and emergency call buttons within the lift. Plus, the landing space in front of the escalator was missing at the top and bottom of the escalator on the upper floors. Moreover, the moving handrails to each side of the escalator were there, and they extended beyond the top and the bottom step. However, in this mall's core part, there was also a cargo lift. These act as vertical circulation conduits without congestion up the system.

Emerald Mall lacked the necessary facilities, which are highly recommended to be provided. It was not greatly offering these selected attributes in terms of user facilitation, and it seems to focus much more on retail services. These attributes largely easy movement facilities act certainly in inviting multiple customers to shopping malls.

## V. CONCLUSION

The conclusions of the research were summed up in a few points. It was concluded that the width of the ramp was not wide enough. For user convenience and interest, the main entry doors were not mechanised. Moreover, wheelchairs were short in number. The wheelchair was not provided in order to cater a large number of shoppers and make it convenient for them. It was also concluded that the information desk/reception was properly located. Furthermore, informal seating at regular intervals was inadequate. The research also concluded that because the sign boards were pasted on the wall in a light blue colour, they were insufficient to direct visitors. The international symbol for access was incorporated into the signage. Additionally, the emergency exit's location was a clearly visible location. Fire-resisting materials were used in the emergency exits. Emergency exit signs and plans for emergency exit routes were not placed on every floor of the mall, only at the emergency gates. Additionally, the mall's centralized circulation led to all of the main entrances, from which consumers dispersed to their destinations. In relevance to this, it was also concluded that horizontal circulation was intensely considered. The mall avoided changes of level within a story. In mall, floor surfaces were firmed, levelled and non-slippery. Likewise, due to a projecting column, there is a reduction in the width of walkways/corridors in this mall. The clear width of a few walkways and corridors was not wide enough. Columns in corridors were not recessed into the wall. Moreover, the staircase was safe and easy for everyone to use. All step risers were solid. Additionally, lift was properly located in terms of clear space around it, having an uncongested area around the lift. But only on the ground floor, there is an automated teller machine near the lift, which creates congestion. Likewise, in addition, landing for escalators was not there on upper floors, which was difficult to manage. Similarly, there was an appropriate size and location of the cargo lift. Ten-foot wide cargo lift was used to transfer goods from one floor to another.

## VI. RECOMMENDATIONS/ SUGGESTIONS

The research culminates in several different ways that suggest some of the key points regarding easy movement facilities to be addressed in order to enhance the user facilities. The ramp's width should be sufficient. As a result, individuals may utilise the ramp in both directions at the same time. A larger ramp is recommended for the mall. Likewise, doors at the main entrance should be automated for user comfort and attraction. However, it is suggested that the number of wheelchairs should be increased for the users so that more than one person can facilitate themselves with a wheelchair in a state of waiting. More than one wheelchair should be provided in order to cater a large number of shoppers and make it convenient for them. Similarly, the information desk/reception should be an

attractive facility for users, which welcomes people into the building and enables them to orient themselves. Equally, informal seating at regular intervals should be adequate on every floor, not only on the ground floor, because most users use those benches usually after one hour for a short rest. If a customer needs to sit down for resting purposes, they have to go down to the ground floor for informal seating. It was observed that signage boards can be hanged down from the top or can keep up with prominent colours rather than being pasted on walls. Also, emergency exit signs and plans for emergency exit routes should be clear, visible, and placed on every floor of the mall. Moreover, centralized circulation may be extended in terms of the Atrium of the mall to accommodate promotional activities, events, or displays that may appear occasionally. Also, handrails should be designed on both sides of walkways for horizontal circulation, and seating should be provided at regular intervals. It should also be noted that eased or translucent corners on corridors allow people with hearing difficulties to see others approaching and avoid an accident. Similarly, columns should be recessed in walls or levelled with walls. A wheelchair user or parents with strollers should never be forced to reverse along a corridor, as this can be a very difficult manoeuvre, particularly over a long distance. For the mall, bigger walkways/corridors are recommended. Moreover, the staircase should be designed from the ground floor to the second floor too. Users should be able to utilise this facility from the ground to the second floors. The total rise of a flight of steps between landings should not contain more than 12 steps to make it easier for the visitors. Furthermore, a lift should always be located adjacent to stairs on all floors in order to offer an alternative means of access. . This is to meet the needs of people who may be anxious about using a lift and prefer to use stairs in order to access other floors. Lift should be clearly signed from the entrances of a building and from other key areas within the building at each floor level. On the ground floor, there should be enough space for waiting for the lift because there is an automated teller machine near the lift. Congestion should not be there near the lift. Also, landing space in front of the escalator should be provided at the top and bottom of the escalator on upper floors. Additionally, there should be more than one cargo lift in order to cater to more people and be an alternative if in case one elevator goes off. Moreover, it would save the time of the customers/visitors/shop owners as they would not have to wait for the lift as these facilities cater for a parent who is on a visit to the mall.

It is recommended to focus on easy movement facilities for user comfort. This proceeds categorically in inviting numerous customers to shopping malls. The shopping mall designers should consider recommended attributes according to standards as these attributes play a vital role to attract customers to preferably visit Emerald Mall.

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