Exploring inclusiveness in green hotels for sustainable development in Egypt

Mai Eid Khalil Ahmed*

Architectural Engineering Department, Aswan University, Egypt

*Corresponding Author: maieid63@yahoo.com

Abstract

Universal Design (UD) is a design operation that authorizes various people by developing human functioning, lifestyles that promote wellness, health, and social involvement. Its chief principles are resilience, simplicity, and qualification. The principles of (UD) are established to assess present designs, direct the process of design and instruct designers and consumers about the features of the environments and usable products. Furthermore, The Egyptian Hotel Association (EHA) which manages the Green Star Hotel (GSH) as a national green certificate and capacity-building program.

Egypt's Sustainable Development Strategy (SDS), Vision 2030, is along with Sustainable Development Goals (SDGs). The national strategic plan's three dimensions (economic, social and environmental) are based on ten pillars covering broadly the SDGs. Both (UD) and (GSH) boost of Sustainable Development (SD) in terms of social justice "inclusion" and environmental performance. This paper aims at accomplishing (SD) 2030 in Egypt for the best life to all Egyptian citizens by investigating the inclusiveness in green star certified hotels. The study focuses on "Three green star certified hotels" as case studies to be evaluated in terms of the Universal Design Features to achieve (SD) in Egypt. A checklist is prepared for that purpose and is applied to the chosen hotels. The study concludes that both of (UD) and Green Star program (GS) instruct to Egypt's strategy of Sustainable Development, Egypt 2030.

Keywords: *Universal Design (UD); Green Star Hotel (GSH); Sustainable Development (SD)*.

1. Introduction

Universal Design (UD), "Design For All", and "Inclusive Design" are all different designations of approaches which concentrate on the availability of environments, products, facilities, programs, and services to the broadest range of the users' abilities, ages, reading levels, learning styles, languages, and cultures [1]. (UD) is a design process that enables and empowers a diverse population by improving human performance, health and wellness, and social participation. Its key principles are simplicity, flexibility, and efficiency [2]. UD is not a synonym for accessibility. Accessibility mostly indicates minimum compliance with codes and standards for disabled people.

The Green Pyramid (GPRS) is a national system to classify green building, also the Green Star Hotel (GSH) is a national green certificate administered by the Egyptian Hotel Association (EHA) [3]. This study focuses on Green Star (GS) Certification which seeks to achieve

sustainability and environmental consciousness. Besides, universal design (UD) which targets to accomplish sustainability in the built environment.

The Purpose of the study is to attain the sustainable development strategy (SDS) Egypt 2030 in light of the UD approach and the GB program, and the study focuses on GSH in Egypt. The study intends to achieve a better quality of life for all Egyptian citizens by investigating the inclusiveness in the Egyptian green star certified hotels. The study concerned in "Three green star certified hotels" as case studies to be evaluated in terms of the Features of Universal Design to achieve (SD) in Egypt. The study designed Universal Designed Audit Checklist for that purpose to be applied to the chosen case studies of hotels.

2.   Sustainable Development Strategy (SDS)

The Egyptian strategy of Sustainable Development 2030 exemplifies a step towards inclusive development. Thence achieving prosperity in Egypt through, economic and social justice, and environmental protection. (SDS) represents a roadmap for achieving the dreams and aspirations of Egyptians in a decent life [4].

The main pillars of (SDS) vision 2030: (The Economic Dimension, the Social Dimension, and the Environmental Dimension). Concerning the "*Social Dimension*" which includes sub-struts: "Social equity, health, enlightenment, and education & training". The Egyptian vision of 2030 seeks to achieve a fair interdependent society characterized by equal economic, social, political rights and opportunities realizing social inclusion. A society that encourages all citizens in participation, and supplies protection, and supports the weak and discriminated groups. Furthermore, all Egyptians entertain a healthy, safe, secure, accessible, high-quality life, and the universal healthcare system. This will direct to prosperity, welfare, happiness, also social and economic development. Additionally, the provision of a high-quality education and training system available to all, without discrimination to any group of Egyptians. Enabling citizens to access information and knowledge. Besides, a system of positive cultural values respecting diversity and differences [4].

Regarding the "*Environmental Dimension*" of SDS 2030, the strategy considers the environment is integrated into all economic sectors to ensure a clean, safe and healthy environment guiding to various production resources and economic activities, and achieving social justice. Furthermore, balanced spatial development management of land and resources to accommodate the inhabitants and improve the quality of their lives [4].

By examining the (SDS) 2030 in Egypt, the study asserts that Universal Design (UD) Approach and its principles seek the same goals of SDS especially in "Social Dimension". Moreover, Green Building (GB) strategy intends to achieve "Environmental Dimension". Consequently, UD and GB walk aligned with the strategy of Egypt's Sustainable Development SD 2030.

3.   Green Star Certified Hotels in Egypt

The Green Star (GS) Certification seeks to achieve sustainability and environmental consciousness. The awards scheme is the first of its kind to be designed specifically for hotels in Egypt. Hotels are awarded Green Star for successfully improving their environmental performance, reserving valuable resources and cutting down on waste which guides to

sustainability [5]. Green Certification Program boosts the Sustainable Tourism in Egypt [3]. The (GSH) is a national green certification under the auspices of The Egyptian Tourism Ministry and administered by the Egyptian Hotel Association (EHA). The program of (GSH) submits the chance for hotels operating in Egypt to get an international recognition, on one hand, to promote their environmental functioning and social criterion, and on the other hand to decrease their operational costs [3].

The study selected three hotels "IBEROTEL Hotel at Luxor", "Sheraton Miramar Resort El Gouna, Red Sea", and "Hilton Marsa Alam Nubian Resort" as case studies depending on the star's level of a hotel, room numbers, the location, and the history and importance of the hotel. See Fig. (1).

Fig. (1): The destination map of Green Star Hotels in Egypt [3]

3.1. "Iberotel Hotel - Luxor"

Iberotel is the 4-star hotel and the only Green Star (GS) Certified Hotel in Luxor [3]. It is authenticated relied on the ISO 14001 which known as the international environmental management standard. Moreover, the hotel has obtained the TUI Environmental Champion award every year since 1996 and the TUI EcoResort since 2005.
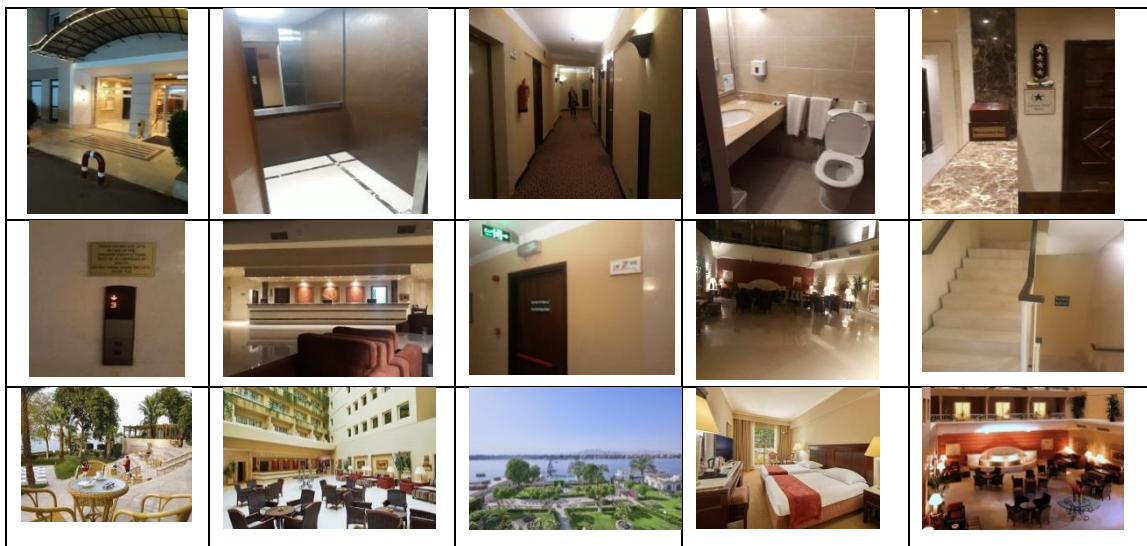

Fig. (2): Shows photos about IBEROTEL Hotel – Luxor

Iberotel utilizes energy-efficient technologies, focuses on renewable energies, and it supplies

environmental training for employees and suppliers. It has a "green" range of activities for guests and children, also it operates an environmental management system [6]. See Fig. (2)

3.2. "Sheraton Miramar Resort El Gouna, Red Sea"

Sheraton Miramar is the 4-green star hotel which that composes of 339 guest rooms that is extended over an abundant of interlinked islands by crystalline lakes [7]. The resort has Accessible Areas with Accessible Routes from Public Entrance. Besides, the availability of accessible guest Rooms in this resort [8]. See Fig. (3).
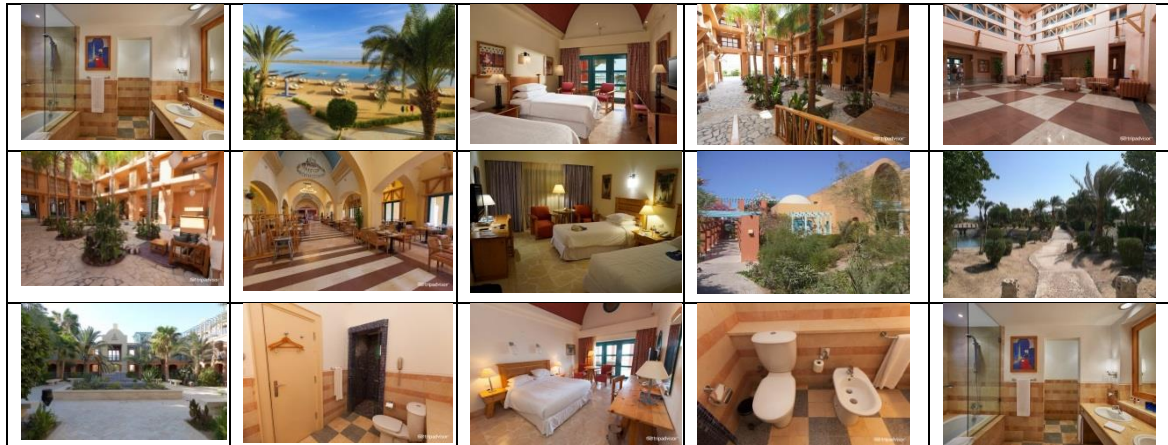

Fig. (3): Shows photos about Sheraton Miramar Resort El Gouna

3.3. "Hilton Marsa Alam Nubian Resort"

Hilton is the green star certified resort and the highest beds' number (395 guest rooms) in Marsa Alam [9]. The resort supplies more accessibility to diverse services, amenities, and spaces. For instance, the hotel provides "accessible parking" inside the parking spaces, and "accessible Rooms" to wheelchair users (no steps), automatic opening of bedroom door from the inside, and bed risers. Besides, the hotel has an emergency call button on the phone, and a digital alarm clock available with sound and a vibrating pad. Furthermore, the hotel provision of accessible bathrooms starting from the door's wide minimum (812mm) and Grab bars, also a wheelchair ramp into the building entrance and for the lobby and reception access [10]. See Fig. (4).
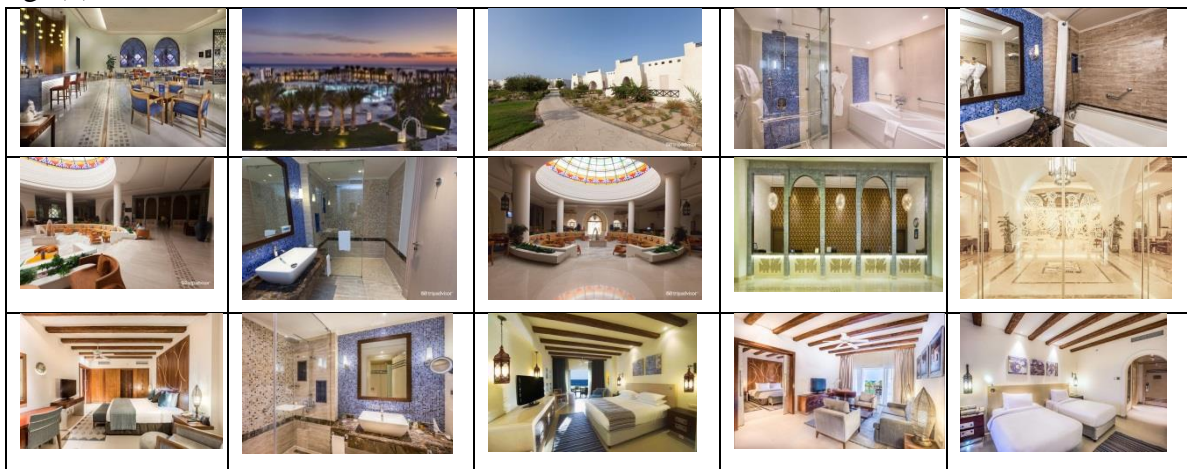

Fig. (4): Shows photos about Hilton Marsa Alam

4. Universal Design

The term "Universal Design" (UD) originated in the USA and it initiated with an intense concentration on disability and the built environment [11]. Universal Design philosophy targets to originate a universal and sustainable society, where everybody can engage to the utmost extent possible [12]. UD intents to facilitate life for everyone by creating products, and the environment more usable by all people with no extra cost. [13]. UD benefits people of all ages and abilities with a new attention to design for people with disabilities [14].

4.1. The Seven Principles of Universal Design (UD)

The principles of UD guide a wide range of design disciplines containing products, communications, and environments [15]. Those principles are helpful for assessing existing designs, environments, and products guiding the process of the design and instructing designers and consumers about the features of usable designs [16]. Also, the purpose of the principles is to instruct the design of environments, products and communications [15]. The 7 principles of UD as follows [15]:-

(1) *Equitable Use*: The design does not eliminate or ignore any user.
(2) *Flexibility in Use*: A design has to realize all users' abilities and options.
(3) *Simple and Intuitive Use*: The design should be understandable and readable for all users' types without the need for the previous experiences or acquaintances of users.
(4) *Perceptible Information*: A design conveys essential information efficiently to the user, without paying attention to the sensory abilities of the user.
(5) *Tolerance for Error*: The design constricts dangers and the passive costs of unintended proceedings.
(6) *Low Physical Effort*: The design should be utilized facilely, comfortably, and with the least amount of fatigue.
(7) *Size and Space for Approach and Use*: The design provides the appropriate space and size for access, manipulation, and utilization, regardless of the body size or mobility of the user.

5. Case Study

The selected three green stars certified buildings in different 3 Governorates in Egypt to clarify the variation between those 3 cases. The targets are to examine the conditions of the facilities provided and to explore the compliance with the requirement of the UD to obtain the goal of Sustainable Development (SD) in Egypt 2030. The provision level of the facilities in the three buildings of the case studies is evaluated.

6. Methods

Data collection was carried out by direct observation using (Universal Design Audit Checklist). This Checklist is prepared to complete a design in process or an amenity which in use. It contains universal design's basic features to assess the fit between the hotel's users and the built environment. This can assist to characterize hotel design factors to achieve inclusiveness for all users regardless of their diverse abilities [17].

The study's checklist composed from *Five main sections*, the *first* section was "Site issues", the second was "Building issues", the third one was "Environmental Systems", Fourth was "Communication Systems", The Fifth section was "Program and spaces". Each of the five-sections contained some items "questions" to assess the three selected case studies "IBROTEL - Luxor, SHERATON - El Gouna, and HELTON - Marsa Alam" in the light of UD features.

In this checklist, each building element has three levels of usability. *Level one* is a symbol of primary access compliance and the item worths "*1 point*". *Level two* is a higher standard supplied by major access code compliance, moreover many extra advantages, and it values "*2 points*". *Level three* is the greatest level of usability. It contains the advantages in the first two standards, along with further features, It worths "*3 points*". Besides, In case of *not availability of the element* in the building, the item worths nothing "*0 points*" [17].

The qualitative analysis was conducted in this study. Photos were taken for the three case studies buildings. Furthermore, direct observations using the access audit checklist were accomplished for the three hotels to achieve the study's objectives. A limitation of this study has appeared in obtaining some photos and information about two hotels from the case studies. Some responsible people and managers in the two hotels were not cooperative with the researcher to obtain the required information and to access to some areas and spaces in those two hotels.

7. Results and Discussions

The study's results clarified that "Helton Marsa Alam" has achieved (score 69 of 81) supplied supreme inclusiveness to the users of the hotel, pursued by the hotel "Sheraton El Gouna" which score (61 of 81), thereafter "Iberotel Hotel-Luxor" (score 58 of 81). In other words, the facilities which were provided in the "Helton hotel" met (85.2 %) of the universal design features, while "Ibrotel Hotel" met the lowest ratio (71.6 %) of the requirements of the UD features for the hotel's facilities. *See Table (1) and (2).*

On one hand, the best practices in this study clarified in the "*environmental systems*" section which achieved the third level score for the three selected case studies. On the other hand, the worst practices appeared in the "*Site and building issues*" section. For instance, the accessible parking spaces, accessible public toilets, stairs, and some amenities. The result observed that the main entrance of "Iberotel-Luxor" was on the street level, so there was no need to supply a ramp in that entrance. Similarly with the one entrance of "Sheraton-El Gouna". The study emphasized that the *"communication systems"* were found obviously in the selected case studies. For example, the way-finding elements: Information & Directional Signage and Symbols clear existed, but the size of the signage was small to be visible by all users in two of the case studies.

Regarding the "*program and spaces*" section, HELTON - Marsa Alam gained the highest level in that section concerning the other hotels. It was apparent that the "accessible room toilet" and "accessible shower area" were the best models to be used easily and independently by disabled users. The study found that the "sleeping rooms and suits" were accessible for all users in the three selected hotels. Concerning the outdoor recreation "accessible path of travel", there were many exterior paths that were accessible for all and provided by ramps when there was a change in levels.

Table (1): Inclusiveness evaluation dimensions, items, and checkpoints in "Iberoteal Hotel - Luxor", "Sheraton Hotel - El Gouna", and "Hilton Hotel - Marsa Alam".

Dimension	Items Included		IBROTEL - Luxor (0)	(1)	(2)	(3)	SHERATON - El Gouna (0)	(1)	(2)	(3)	HELTON - Marsa Alam (0)	(1)	(2)	(3)
(1)- Site Issues	1	Accessible Pedestrian *Access Points*			X					X				X
	2	Accessible *Parking spaces*		X				X					X	
	3	*Exterior Walking Surface*: (durable, non slip….)				X				X				X
	4	"*Pathways*" accessible path of travel				X				X				X
	5	*Amenities* "drinking fountain, garbage, telephone,…"			X				X					X
	Total Average		**11 /15**				**12 /15**				**14 /15**			
(2)- Building Issues	1	"*Doorways*" accessible entrances				X				X				X
	2	*Reception area* (Seating for people and wayfinding)				X				X				X
	3	External Ramp for entry	X					X			X			
	4	Stair		X									X	
	5	Elevator				X				X				X
	6	Escalator	X				X				X			
	7	*Internal Walking Surface*: (durable, non slip….)				X				X				X
	8	Accessible *service counters*	X							X				X
	9	Public restroom (Accessible Toilet,.)		X					X				X	
	Total Average		**15 /27**				**17 /27**				**19 /27**			
(3)- Envi. Systems	1	Natural Illumination				X				X				X
	2	Artificial Illumination				X				X				X
	3	Acoustics (Audible alarms & Background Noise				X				X				X

(Column headers for each hotel: (0) Not Available, (1) First Level, (2) Second Level, (3) Third Level — under "Situation".)

			Hotel 1				Hotel 2				Hotel 3			
			0	1	2	3	0	1	2	3	0	1	2	3
		controlled)				■				■				■
	4	Air conditions & Heating ventilation				■				■				■
		Total Average	**12 /12**				**12 /12**				**12 /12**			
(4)-Comm. Systems	1	Information & Directional Signage and Symbol)				■				■			■	
	2	Room Identification Information				■				■			■	
	3	Emergency Alarms				■				■			■	
	4	Public Information Technology (ATMs, public Internet access points, and multiple payment methods)				■				■				■
		Total Average	**12 /12**				**8 /12**				**9 /12**			
(5)-Program & Spaces	1	Outdoor recreation (accessible path of travel)				■				■				■
	2	Sleeping Rooms and suits				■				■				■
	3	Accessible Room Toilet	■						■					■
	4	Accessible shower area	■						■					■
	5	Restaurant & cafeteria		■					■					■
		Total Average	**8 /15**				**12/15**				**15 /15**			
Total average of Inclusiveness			**58 /81 – (71.6 %)**				**61 /81 – (75.3 %)**				**69 /81 – (85.2 %)**			

Table (2): Shows legends for scores

Degree	Score	Description
Not Avalaible	(0) point	Item not available
First Level	(1) point	A basic access code compliance
Second Level	(2)points	A greater level supplied by principal access code compliance, furthermore other features
Third Level	(3)points	The greatest level of usability. It comprises the advantages in the first two levels, besides, some supplemental features.

8. Conclusion

The study summarized that there is a relevance between universal design (UD) and green building (GB). The green Star hotels (GSH) have to achieve some elements. Moreover, several features should be provided in universally designed buildings. By examining the existence of some features of the universally designed buildings in the Green Star Hotels selected in the study. The paper explored that many of the UD features are implied in the elements of the

(GSH). For instance, "environmental systems" that were found clearly in the selected 3 green star hotels and these systems should be provided in the universally designed buildings too.

UD can be related to socially sustainable development (SSD). The prime concern of UD is to achieve social participation, access to products and services by the broad possible scope of users. Likewise, the GS program targets to accomplish environmental, economic and social Sustainable Development (SD). Both (UD) and (GSH) are in support of sustainable development (SD) in terms of "environmental protection" and social justice "inclusion". To summarize, the study emphasizes that both of Universal Design UD and Green Star program GS lead to Egypt's Sustainable Development Strategy (SDS), Vision 2030.

References

[1] H. Persson, H. Åhman, A. A. Yngling, and J. Gulliksen, "Universal design, inclusive design, accessible design, design for all: different concepts-one goal? On the concept of accessibility-historical, methodological and philosophical aspects", Springer-Verlag Berlin Heidelberg, 2014.

[2] E. Steinfeld, and J.L. Maisel, "Universal Design: Creating Inclusive Environments". John Wiley & Sons, Inc., Hoboken, New Jersey, 2012.

[3] Green Star Hotel, Retrived from: https://www.greenstarhotel.org/, [Accessed Nov. 1, 2019].

[4] English Booklet Egypt Vision 2030, Retrived from: http://www.cabinet.gov.eg/English/GovernmentStrategy/Pages/Egypt%E2%80%99sVision2030.aspx, [Accessed Nov. 15, 2019].

[5] Green Star Certificates, Retrived from: https://www.hotels.elgouna.com/green-star-certificates, [Accessed Nov. 23, 2019].

[6] Iberotel Hotels and Resorts, Retrived from: https://www.iberotel.de/en/environment-and-sustainability.html, [Accessed Nov. 12, 2019].

[7] Sheraton Miramar Resort El Gouna, Retrived from: https://www.marriott.com/hotels/travel/hrgsi-sheraton-miramar-resort-el-gouna?program=spg, [Accessed Dec. 1, 2019].

[8] Sheraton Miramar Resort El Gouna, Retrived from: https://www.marriott.com/hotels/fact-sheet/travel/hrgsi-sheraton-miramar-resort-el-gouna/#accessibility, [Accessed Dec. 5, 2019].

[9] Green Star Hotel, Retrived from: https://www.greenstarhotel.org/gsh-in-numbers/marsa-alam/, [Accessed Dec. 3, 2019].

[10] Hilton Marsa Alam Nubian Resort, Retrived from: https://www3.hilton.com/en/hotels/egypt/hilton-marsa-alam-nubian-resort-RMFHIHI/about/amenities.html, [Accessed Dec. 5, 2019].

[11] The Norwegian Centre For Design and Architecture. "Inclusive Design: A people Centered Strategy For Innovation", 2015. Retrieved from: http://www.inclusivedesign.no/practical-tools/definitions-article56-127.html.

[12] W.F.E. Preiser, and E. Ostroff, Universal Design Handbook. McGraw Hill, New York, 2001.

[13] M. Ahmed, "An Assessment Of Street Design With Universal Design Principles: Case In Aswan / As-Souq", Phd Thesis, University Of Yildiz Technical, Graduate School Of Natural And Applied Sciences, Istanbul, 2016.

[14] NAHB Research Center Inc. and Barrier Free Environments, Inc. "Residential Remodeling and Universal Design, Making Homes More Comfortable and Accessible". Office of Policy Development and Research (PD&R). Washington, 1996.

[15] The Center For Universal Design. Retrieved From: NC State University Website: https://projects.ncsu.edu/design/cud/about_ud/udprinciples.htm, [Accessed Sep. 19, 2019].

[16] M.F. Story, J.L. Mueller, and R.L. Mace, "The universal design file: Designing for people of all ages and abilities". North Carolina: North Carolina State University Press.,1998.

[17] Universal Design Audit Checklist. (UDNY2), Retrieved From:
    Center for Inclusive Design and Environmental Access, University at Buffalo, School of Architecture and Planning,http://etd.cput.ac.za/bitstream/handle/20.500.11838/1337/UD%20Audit%2017checklist.pdf?sequence=17&isAllowed=y, [Accessed Oct. 19, 2019].