

***Improving assessment criteria of universal design:  
Towards an equitable approach***

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**Abstract**

Architecture is for everyone, thus it needs to give a chance to all individuals and groups of society to feel included and satisfied in the various facilities and public spaces. The misconception is given when architects design built environments following the ADA regulations as a burden instead of using an innovative approach to accommodate the needs and expectations of all users. To ensure the operation of equitable spaces, an innovative architectural approach is needed. A universal space is a place where all people can fit, it is a space where people from all social categories and individual characteristics are equal and satisfied. The concept of a universal design is either used wrongly or divided into accessible or/and inclusive architecture. Therefore, the aim of this research is to investigate the significance of universal design and to put down relevant assessment criteria in order to create spaces and environments that everyone can use without feeling any discrimination. This research uses a scientific methodology to accomplish its goal by first reading the literature on universal design and its application in the design of spaces, and then by examining and comparing four chosen case studies: KWK Promes' Przelomy centre for dialogue and Steven Holl's winter visual art centre as international examples, Snohetta's Bibliotheca Alexandrina as a regional example and Zaha Hadid's Issam Fares Institute as a local example. These facts support the authors' argument that universal design is a solid starting point for appropriate design solutions to increase the equity of spaces and respond to the abilities and needs of a variety of users. As guidelines for the design of spaces, a series of recommendations are made about the effective use of this architectural approach.

**Keywords:** universal design, equity, assessment criteria.

## 1- Introduction

Being an architect means to design in order to satisfy the needs and aspirations of all users. Our society wasn't built in its beginning neither to accommodate the needs of everyone nor to consider all the society factions; it was never designed to be universal or to offer basic standards of equity.

Most groups in the communities are diverse with respect to background, cultural and gender identity, socioeconomic status, language, age, abilities, preferences, and myriad other characteristics. All people have an intersecting identity made up of a variety of these unique facets. Some of them have characteristics considered as "disabilities," including people who are blind, deaf, have mobility impairments, attention deficits, learning disabilities, and health impairments. Of the proactive design approaches, there is no approach that addresses greater user' diversity than universal design.

"Universal Design is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability" [1]. An environment should be designed to meet the needs of all people who wish to use it. This is not a special requirement for the benefit of only a minority of the population; it is a fundamental condition of good design. If an environment is accessible, usable, convenient and a pleasure to use, everyone benefits.

Universal design is the advanced concept that comes after accessible and inclusive architecture. While accessible architecture only puts basic rules that should be followed to allow people to access a space and inclusive architecture includes these people while designing and considers them into the design, universal design doesn't only consider people with physical disabilities, it has a lot of components to follow so that a space is designed to be accessible, inclusive, participatory, and healing. Furthermore, it aims to create a space that one does not feel any inequality [2].

Nowadays, it has become a priority to create equitable communities who work to improve standards of living for people without feeling any discrimination. The concept of equity goes beyond architecture. Architects must ensure that they design for all the people who will interact with the buildings as well for the communities that will experience those buildings as users or even passersby. Part of an architect's job is to test the results to make sure regularly and uniformly illuminated, ventilated and better functioning spaces that engage and inspire the people who live there. An ideal equitable design should have these qualities. Equity in architecture refers to providing equal conditions for various users. As a result, fields of architecture, urban planning, and design are considered important tools for putting the principle of equity into practice in the spaces and environments in which we live in.

Accordingly, designing products and environments to be usable by all people is the underpinning concept of universal design. In some aspects, there is a lack of understanding of the concept, which in turn, has allowed the terms "accessibility" and "disability" to inhabit the language of universal design. This means universal design is now bounded by concepts of accessibility, regulations and disability rights, rather than the intellectual challenges inherent in designing for the whole of the population bell curve. In addition, universal design faces a negative attitude due to some misconceptions and prejudice. It is mainly perceived as expensive, boring, constricted by accessibility standards and disabilities, non-aesthetics, just a trendy word, only for old people and not relevant to the majority [3].

The purpose of this research is to provide assessment criteria for universal design in order to create spaces that everyone can use without feeling any different from others, spaces of equity. This aim is accomplished through investigating the role of universal design in the establishment of equitable spaces. The research begins by defining equity, differentiating it from equality, and then examining equity in architecture. It also delves into the concept and principles of universal design, categorizes its earliest forms in architecture, describes how it came to be, throws light on the connection between universal design and human rights, and explains how SDGs fit into the universal design. The next stage is to select pertinent projects to use as case studies. They are analyzed using the following criteria that were deducted from the theoretical framework: involvement of community, accessibility and equitable use, transgenerational, legibility, flexibility, equity of

gender and age. An analytical comparison and discussion are made. The findings are supported by a list of suggestions that serve as guidelines for designing universal spaces with equitable approach.

## **2- Literature review**

The concept of "universal design" is now applied much more frequently, with the goal of creating designs that are usable by the broadest possible range of people. Regardless of social, gender, age, wealth, or job opportunity imbalance, physical or sensory disparity, universal design aims to provide fair, equal, and common spaces for everyone. As a result, universal design has three key characteristics: it is usable, inclusive, and accessible. Through universal design, which has as its primary goal ensuring equity while designing a space, equity is translated into architectural design. In terms of SDGs, universal design is one strategy to address inequality in architecture.

### **2.1. Equity**

In order to attain more fairness in treatment and results, equity refers to the provision of various amounts of support based on individual specific needs. The terms equity and equality have comparable but slightly different meanings when referring to social systems. When all societal groups enjoy the same levels of opportunity and support, this is referred to as equality. By offering various amounts of support based on individual need or ability, equity expands the idea of equality. Fundamentally, equity can be described as a strategy for achieving equality [4].

#### **2.1.1. Concept of equity**

Social justice and fairness are defined as equity. It is a concept built on the ethics of individuals. In an effort to create a society where everyone has the same rights and obligations, laws and rules are continually revised. Equity can be summed up as the absence of prejudice against those in various social classes. People are equal regardless of their socioeconomic status, gender, color, or religion [5].

“Equity is just and fair inclusion. An equitable society is one in which all can participate and prosper. The goals of equity must be to create conditions that allow all to reach their full potential. In short, equity creates a path from hope to change” [6].

#### **2.1.2. Difference between equity and equality**

Despite the fact that the terms equity and equality are frequently used interchangeably, they refer to fundamentally different ideas. Providing everyone the same item is considered equity, however giving everyone what he or she need to succeed or be on an equal footing with everyone else is considered equality. Equality assumes that everyone begins in the same place and is capable of achieving similar accomplishment when given an equal chance. In order to achieve equity, a far more complex effort must be made that takes into account opportunities, needs, and, on a larger scale, the concept of success. It involves identifying the natural advantages and disadvantages of a certain setting, building, environment, or person and using those to its best advantage [7].

Although they both promote fairness, equality and equity are fundamentally dissimilar. While equity promotes fairness by treating people differently depending on need, equality achieves fairness by treating everyone the same regardless of their need [8].

Table 1: Parameters of equity

Equity	Involvement of community	Equity of age and gender	No burdens or obstacles for all	Transgenerational impact
Architectural	Involving all people within community in the process of research, design and interaction with the architectural spaces	Designing for all ages and genders	Following Inclusive and ADA design standards	Future vision (climatic and environmental)

### 2.1.3 Equity in Architecture

It is challenging to explicitly link the practice of architecture and sustainable design with questions of justice and equity. However, in reality, these problems are inextricably linked to our efforts to build a sustainable future. They are clearly related to architects' daily lives. Because we are all human, our inclination is to associate with those who look like us, and have similar cultural backgrounds. It is simply easier. It is undeniable that there is a lack of equity in architecture. This implies that we create buildings for people like us, assuming that they would use them alike to us. With a different design than the architect would have offered otherwise, the project became a cherished success thanks to the community's inclusion and participation in an equitable process. This procedure is crucial to ensure that buildings are effectively serving the community [9].

Architecture is significantly underrepresented in terms of diversity. In recent years, nevertheless, this has grown to incorporate equity in both the profession and in the designs that architects generate. Thus, they must be prepared to respond, engage the community meaningfully, and include standards-compliant design solutions. By emphasizing user experience and genuine connections to local and natural environments, equity can be attained in the best possible way [8].

Today, much of the discourse on equity within the architectural profession is internal, highlighting issues like the need for a more diverse workplace, the social impact of not reflecting our international clientele, and the importance of talent that is intrinsically derived from personal experience [7].

With all-encompassing qualities and objectives, the equitable design approach has expanded to include ages, gender, ability, cultural identity, and religion. Its strategies encourage flexible, intuitive, and usable spaces that can contribute to reducing anxiety, promoting safety, and creating an environment that is more healthy, more equitable, and usable. An equitable approach in design promotes mental health strategies through active design, ergonomics, and social connectedness to have a positive impact on wellness [8].

## 2.2. Universal Design

Universal design is designing a product or environment with a broader range of people in mind. It is intended to be used by all people of all ages and abilities without being tailored to any one group or population. It is done mostly in order to ensure equality. It targets to make use of the item or setting for everyone without discrimination or humiliation [10].

According to environmental psychology, universal design practices are a set of principles that promote complete access by all people. The basic premise is that whether a person is in wheelchair, uses a walker, is blind, etc... he/ she will be able to use and interact with the environment without the assistance of another person. Its intent is to reduce the difficulty of performing activities of daily living as much as possible [11].

### 2.2.1. Concept and principles of Universal Design

As stated by the Center for Universal Design, universal design is “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.” [12].

The term “universal design” was created in the United States of America, and is known as “Design for All” in Europe, and “Inclusive Design” in Great Britain. Each of these terms is based on the same fundamental concept: designing for the entire population bell curve by producing the greatest benefit for the largest number of people regardless of age, culture, level of education, or ability. When it comes to applying this seemingly easy principle, it is hard to grasp [13].

In an effort to provide a more specific explanation, a group of architects, product designers, engineers, and environmental design researchers at the Center for Universal Design (CUD) in North Carolina State University, the home of universal design, established seven principles of UD, to assist designers and to provide guidance in the design of products and environments. These principles are listed below:

- *Equitable use.* The design is useful and marketable to people with diverse abilities.
- *Flexibility in use.* The design accommodates a wide range of individual preferences and abilities.
- *Simple and intuitive use.* Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration level.
- *Perceptible information.* The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities.
- *Tolerance for error.* The design minimizes hazards and the adverse consequences of accidental or unintended actions.
- *Low physical effort.* The design can be used efficiently, comfortably, and with a minimum of fatigue.
- *Size and space for approach and use.* Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user’s body size, posture, or mobility [14].

## 2.2.2. The first forms of universal design in architecture

### 2.2.2.a. Barrier free design concept

This concept first emerged when seriously hurt, temporarily or permanently injured warriors returned from battle. Thus, it was necessary to construct a space that was barrier-free and took into account both these groups of individuals and the elderly. By removing all obstacles from their way, barrier-free design ensures their effortless movement across space, both horizontally and vertically. As figure 2.1 shows, a barrier-free design considers how persons with disabilities can move around easily and comfortably.

Nevertheless, architects and designers adhered to this concept as guidelines that posed challenges for the designer. All they had to do was figure out how to put equity - a crucial component - outside of the implementation. Even if a wheelchair-accessible entrance door has been erected, it is unfair if it is situated at the building's back entrance, alerting people to their weakness, disability, and need for assistance and prompting them to ask for assistance or directions [10].

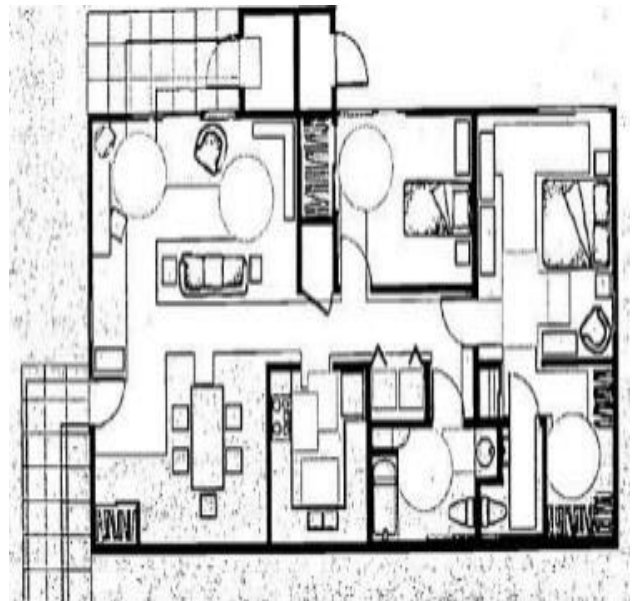


Figure 2.1: Barrier free residential plan with wide corridors for wheelchair manoeuvring  
Source: Story, 1998

Table 2: Assessment parameters of barrier free design

<b>Barrier free design assessment criteria</b>	Mobility	Vision-legibility	Cognitive image
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2.2.2.b. Inclusive design concept

Inclusive design got its start when the government in the United States chose to enact legislation to foster a society where individuals with disabilities and other regular people could live their daily lives in comfort. When injured soldiers returned to their home countries after the war, between the 1960s and 1990s, the government instated a law called “Americans with Disabilities Act Method” which is known between architects as the ADA method. A guideline that walks architects through each aspect of a barrier to be considered while designing a space that is accessible to individuals with disabilities. The term "inclusive design" refers to a form of architecture that seeks to include people with disabilities in daily social interactions and provide them with the chance for a normal daily life with greater involvement, particularly in the economic sphere where they are included in job recruitment when a building is made to accommodate staff members who are disabled, giving them job opportunities [15].

According to figure 2-3, inclusive design aims to include people with disabilities in the design process using the inclusive design strategy, because they are the only ones who often experience environmental exploitation.

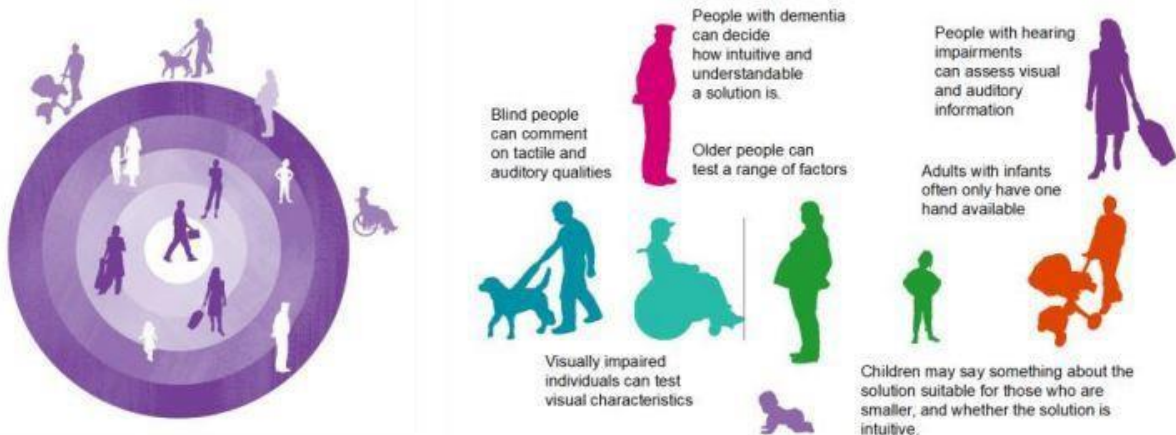


Figure 2.2: The Inclusive Design giving the lead to the user himself  
Source: Mikus *et al.*, 2020

Still, not all societal factions are fully represented in this kind of fair environment.

Table 2: Assessment parameters of inclusive design

<b>Inclusive design assessment criteria</b>	Community involvement	Activity	User feedback
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### 2.2.2.c. Design for all ages (equity of age)

According to the pyramid of ages depicted in figure 2.4, equity of age is the process of creating a space that welcomes people of all ages, from the youngest to the oldest. Next comes design for all ages, from young children to the elderly. It might be challenging for older individuals to participate in activities and events and live in society on a daily basis. Naturally, this is a result of the environment not being created to accept them and meet their needs.

In addition, because society has not changed to include items that appeal to young people's interests, they feel excluded from it and desire to live independently [10].

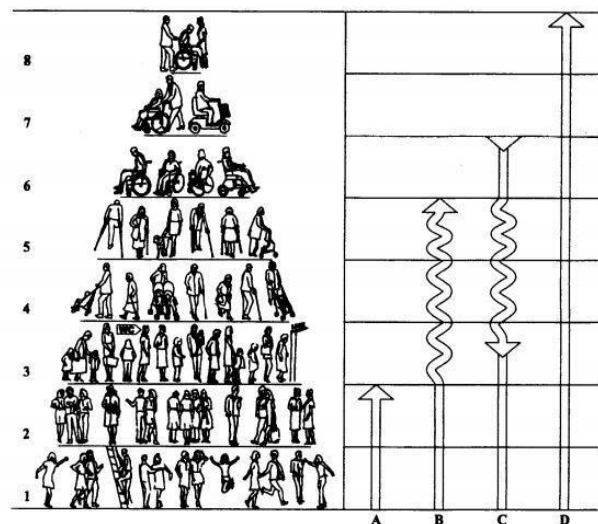


Figure 2.3: Universal design pyramid  
Source: Goldsmith, 2000

Table 3: Assessment parameters of all ages design

<b>Design for all ages assessment criteria</b>	Design for old (accessible and healing)	Design for children (safe and active environment)	Design for youth (activities to attract their attention)
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### 2.2.3. The birth of Universal Design (UD)

The term "universal design" was first coined by "Ronald L. Mace", a well-known architect, product designer, and teacher. As according him, the word "universal design" refers to the idea of designing environments and products that respond to people's needs regardless of their age, level of ability, or social position. According to latest researches, the terms "universal design" and "design for all" can be used interchangeably. Universal design has its roots in the barrier-free design and accessible design approaches. "Mace" argues that what can be barrier free for one person can be a barrier for someone else. The design challenge is so intricate that even experts struggle with it. Simply removing the barrier is insufficient; the designer must adopt a more comprehensive approach [16].

After analysis, it was found that the barrier-free approach lacked in several areas as well as inclusive design. Design standards are evolving to include individuals and groups from all facets of society. In order to accomplish what is referred to as "good inclusive design," multiple standards and guidelines are merged to produce universal design. An environment must be welcoming, equal, and devoid of discrimination in addition to being accessible and barrier-free [17].

### 2.2.4. Universal design and human rights

The Universal Declaration of Human Rights, which emphasizes the equality of all people, was adopted by the General Assembly in 1948 after the United Nations was established in 1945. The United Nations General Assembly approved the Universal Declaration of Human Rights, which serves as the cornerstone of international human rights law, in 1948. This statement has served as the foundation for a substantial corpus of legally enforceable international human rights treaties and global efforts to advance human rights. The Declaration establishes the fundamental principles of the document as universal by outlining a set of rights that should be accorded to all individuals across its 30 articles, regardless of distinguishing features including nationality,

gender, age, and religion. All people should be protected against discrimination and given the right to work, participate in societal activities, enjoy culture and the arts, and engage in political debate, to name just a few of the rights mentioned in the declaration, which states that all people are born free and equal in dignity and rights [18].

Social changes began to take place in the 20th century, which led to changes to civil and human rights. Governments began to pay greater attention to the rights of individuals and enact regulations and laws that provide everyone with the same chances and opportunities for a fair life. Human rights began with the requirement for basic needs such as food, air, and shelter. Then after, they go on to educational and medical facilities, reaching out to the marginalized facets of society and providing them with an opportunity for a better life, until human rights are incorporated into architecture. The establishment of human rights had a significant impact on architecture [19].

### 2.2.5. Universal design and SDGs

The United Nations adopted the Sustainable Development Goals (SDGs), also known as the Global Goals, in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated, they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. The creativity, knowhow, technology and financial resources from all of society is necessary to achieve the SDGs in every context [20].

The first goal is reducing the income inequality. Creating environments that are equally accessible and functional for everyone, regardless of their disabilities, age, or gender, is one of the aims of universal design in architecture. This will give everyone the same chances and opportunities to get jobs and have similar income. The second goal is promoting universal social, economic and political inclusion. The purpose of universal design is to provide a shared place for all people in order to promote social, economic, and political inclusion. Therefore, the inclusion of people who might not have previously been granted employment opportunities due to their inability to access workspaces and work comfortably is increased through the universal design of public spaces. The third goal is to ensuring equal opportunities and putting an end to discrimination, which is the main concept of universal design: Everyone deserves equal opportunity and should not have to deal with any burdens that others do not. The other indicators are primarily focused on concerns linked to marketing and immigration, which are only tangentially related to universal design and rather unrelated to the field of architecture [21].

Table 4: Parameters of Universal Design

Universal design	Readable, multi-sensory and perceptible	Accessible and equitable use	Flexibility	Social engagement and participation
<b>Architectural</b>	Simple navigation and equity in access for everyone (blind, wheelchair, normal).	Equity in use is more important than just accessing the space.	Design should be flexible to accommodate the needs of everyone.	Designing spaces that are socially engaging for all societal groups, ensuring that they all have an equal social life.



### 3- Cases studies of public facilities

#### 3.1. Methods of analysis:

This research employs a qualitative analytical research approach on the basis of collecting reference projects. The four selected case studies are public buildings that include high or medium level of universality for new architectural firms that are concerned with human equity. The information used is extracted from books, articles or the websites of the architectural firms. The parameters stated below are used to analyze the case studies. The parameters include involvement of community, accessibility and equitable use, transgenerational, legibility, flexibility, equity of gender and age.

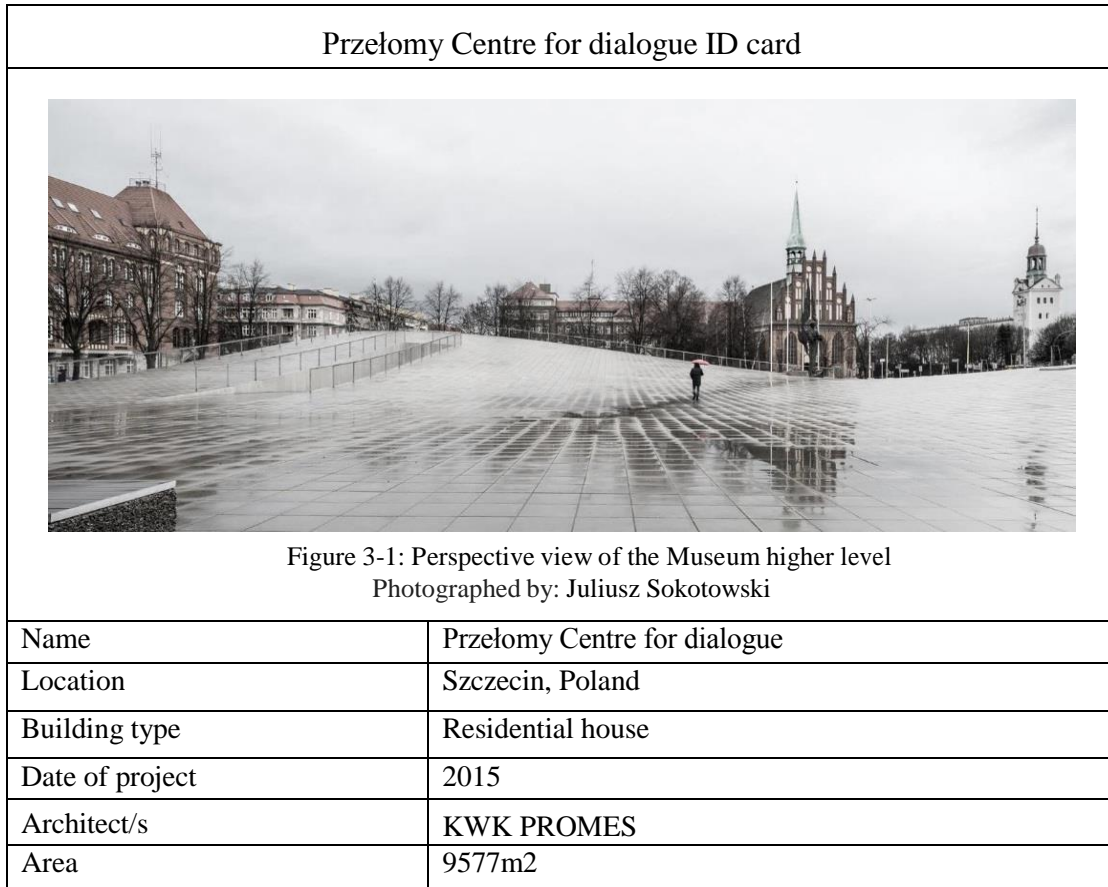
Table 5: Parameters of Analysis

Parameters	Description
Involvement of community	Social engagement and participation of every faction of society in the design and operation of a building
Accessibility and equitable use	No burdens or obstacles for all and equity in usage and wayfinding
Transgenerational	Climate consideration and future impact of the building on the environment and economy
Legibility	Readable, multi-sensory and perceptible
Flexibility	Flexibility of a space so it can fit everyone's needs
Equity of gender and age	Designing a space so it so all genders and ages feel equal when in a space

#### 3.2. Criteria of selection:

Four public projects are chosen as case studies: “KWK Promes’ Przelomy centre for dialogue” and “Steven Holl’s winter visual art centre” as international examples, “Snohetta’s Bibliotheca Alexandrina” as a regional example and “Zaha Hadid’s Issam Fares Institute” as a local example. To ensure that the selected projects address the specific research subject, a set of criteria were taken into consideration: universality and accessibility of spaces, designed for the public, contemporary projects that have recently been completed within the last 20 years to keep up with current universality trends, projects from different regions of the world, various contexts of the projects, as well as the availability of the relevant information. Thus, reaching a conclusion of detailed parameters and assessment criteria are drawn to make a space universal and equitable.

### 3.3. Case study one: Przelomy Centre for dialogue - Szczecin, Poland (2015)



The new “Przelomy” Centre for Dialogue is located in the heart of Solidarity square. It comprises two underground floors that contain a permanent exhibition about Szczecin's recent history in addition to rooms that are especially designed as locations for temporary exhibitions, conferences, educational workshops, and commemorative events. The museum’s roof has gently sloping sides, which constitute the ground of the new square. Hence, the built-up volume only emerges in the north-eastern corner of the square where, at a crossroads between two streets, it offers a conventional urban façade in which the exit doors of the museum are located. The south-western edge of the square, which is curved, also rises above street level in order to protect the space from traffic noise from the motorway running along that side. The two sloping edges converge from diagonally opposite points to meet near the center of the square, which is now sheltered despite the gaps in its urban facades. A downwards-slanting ramp set at an angle to the gradient of the square is located in the central dip giving access to the museum. This central zone, at ground level, respects the diagonal route taken by most pedestrians and cyclists when crossing the square before it was renovated. The trees on the north-western quarter in front of the Philharmonic Hall were also conserved and, in the opposite quarter, stands the Angel of Freedom [22].

#### 3.3.1. Analyzing parameter 1: Involvement of community

Over the years, numerous adjustments were made to the project site. Since the project's location had witnessed many protests and significant historical events, the residents in the area had intense preferences about it. In the 1970s, sixteen protesting workers were killed there. Therefore, the site was transformed into a square of solidarity. The project was created with the citizen's feelings and associations with the area in mind therefore. As a result, the building's roof serves as a common area for gathering, socializing, and doing activities. Figure 3-2 shows the evolution of the location throughout time. People are enjoying national holidays on the building's roof, which is open to the public and is regarded as a public square, as figure 3-3 shows [23].

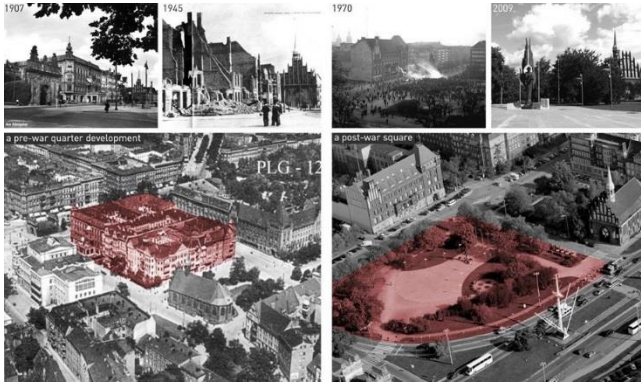


Figure 3-2: Site and site context before and after war  
Source: KWK Promes Konieczny, 2015



Figure 3-3: National day celebration  
Source: KWK Promes Konieczny, 2015

### 3.3.2. Analyzing parameter 2: Accessibility and equitable use

#### 3.3.2.a. equitable accessibility from parking space to the walkway



Figure 3-4: Parking  
Source: KWK Promes Konieczny, 2015

Figure 3-4 depicts the building's parking area and the sloped walkway, which enables anyone to ascend it without assistance or support. Everyone, including those in wheelchairs, seniors who are unable to ascend steps, and mothers with baby strollers [23].

#### 3.3.2.b. equitable accessibility of the roof and public space

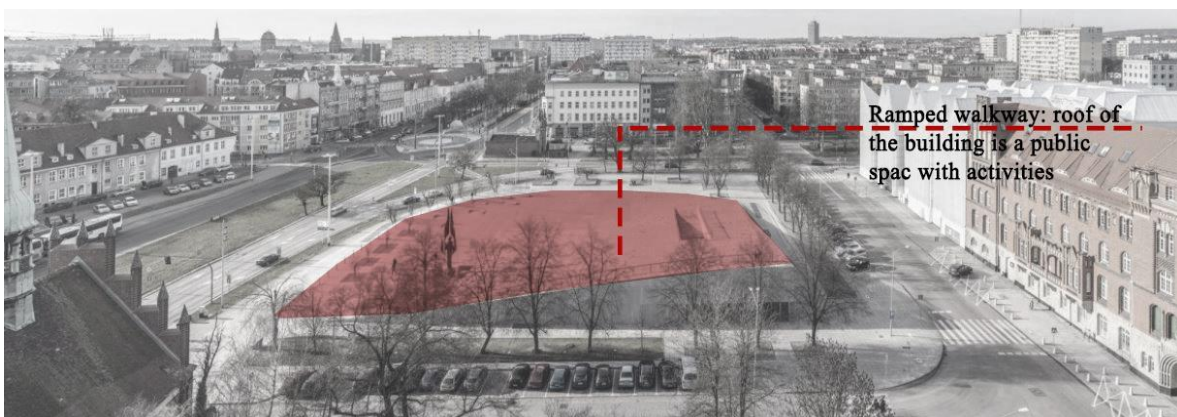


Figure 3-5: Public space  
Source: KWK Promes Konieczny, 2015

In figure 3-5, the center's roof is highlighted in red. The roof is a ramp that ascends gently from the walkway to create a public space that is accessible to anyone.

In figure 3-6, the sloped ramp of the roof, which is the public area that everyone is allowed to use comfortably and equitably, is highlighted in red on the site plan. People can gather on the roof for celebrations, events, outdoor exhibits, and even activities like skating [23].

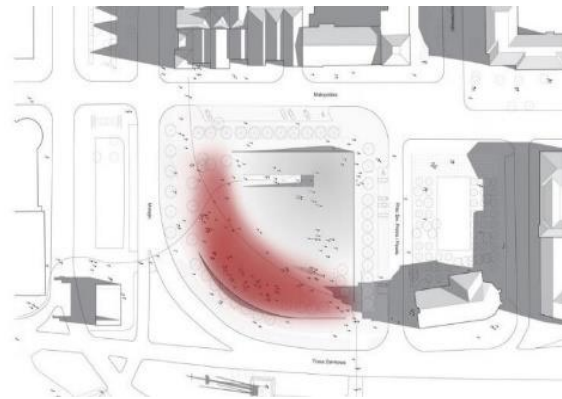


Figure 3-6: Public space  
Source: KWK Promes Konieczny, 2015

### 3.3.2.c. equitable accessibility of entrances



Figure 3-7: Entrance  
Source: KWK Promes Konieczny, 2015

In figure 3-7, the entrance is designed to open and close automatically in a rotating motion. This makes it possible for anyone with any difficulty to enter without feeling excluded or impeded. Instead, the entrance disappears into the façade when it closes as in figure 3-8 [23].



Figure 3-8: Entrance invisibly merging with the façade  
Source: KWK Promes Konieczny, 2015

### 3.3.2.d. Equitable accessibility of approach

Figure 3-9 represents the entrance approach with a tactile strip for blind or visually impaired. This allows them to enter from the same entrance as sighted people. By allowing everyone to enter the building through the same entrance, the building may be used by everyone without making a distinction between those who are physically, visually, or audibly challenged and those who are healthy. Like the main entrance, the façade opens in rotating sections. All of the hallways are large enough for persons with disabilities to walk comfortably, making it easy to move throughout the building as depicted in figure 3-10.

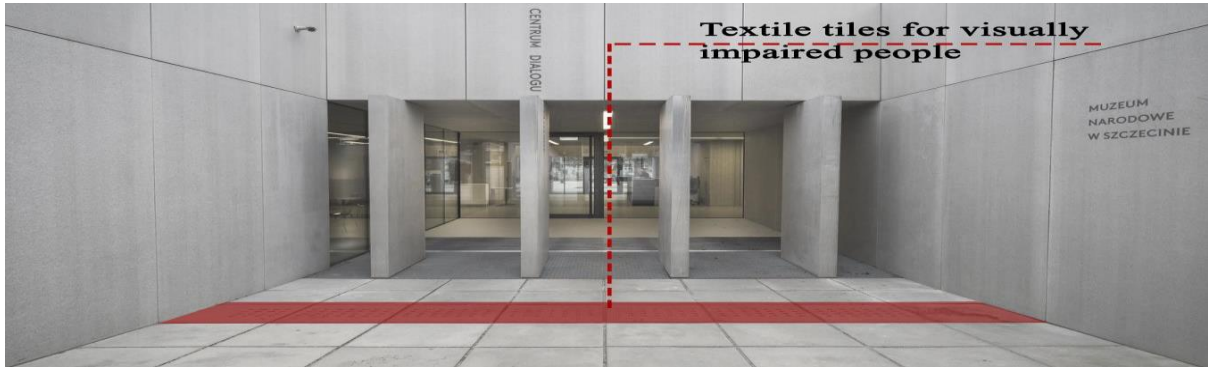


Figure 3-9: Tactile tiles on the entrance  
Source: KWK Promes Konieczny, 2015



Figure 3-10: The main entrance approach  
Source: KWK Promes Konieczny, 2015

The main entry is a ramp that descends to a tactile strip of tiles, after which one enter via the spinning doors. Consequently, the entry is designed for everyone as shows figure 3-11. The secondary entry is easily accessible from the ramped-down sidewalk that leads to the street as shows figure 3-12.

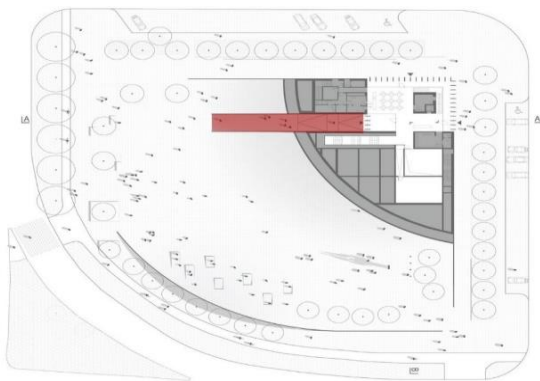


Figure 3-11: Main entrance approach  
Source: KWK Promes Konieczny, 2015

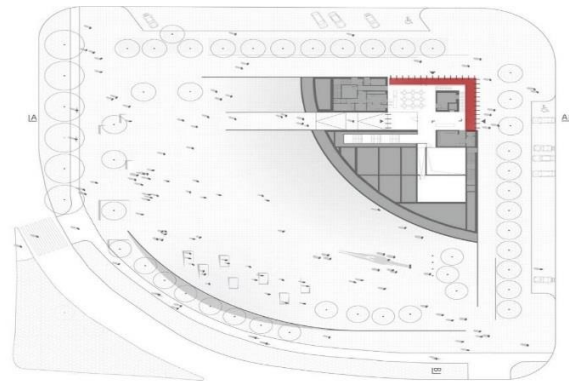


Figure 3-12: The secondary entrance  
Source: KWK Promes Konieczny, 2015

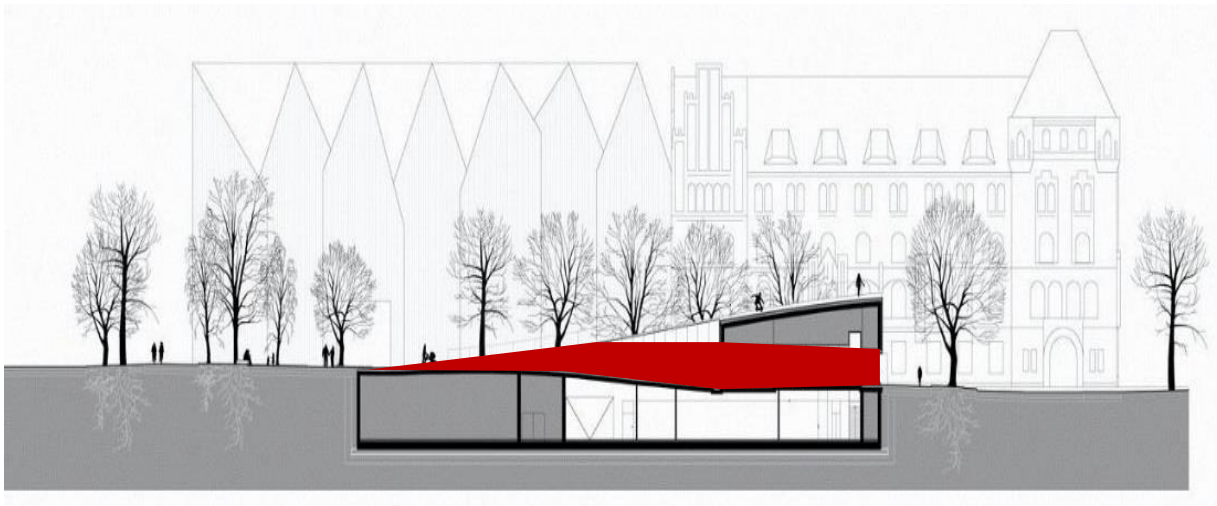


Figure 3-13: The ramp as main circulation  
Source: KWK Promes Konieczny, 2015

Ramps are the primary means of circulation both within and outside the building. From the beginning to the end of the building, the major circulation path is made up of horizontal, wide corridors with ramps allowing vertical circulation, as shown in figure 3-13.

### 3.3.3. Analyzing parameter 3: Transgenerational

The construction of the project over a contentious location handles political and historical challenges. It is a location where individuals can freely express their political beliefs, protest, and celebrate. It simultaneously introduces youth and children to all of this history and culture, creating environments that are open and democratic while also attracting young people to them, increasing their involvement in the problems facing their country. Teaching the youth about their country is crucial if they are engaged in efforts to improve the world and their future. In terms of the environment, the building uses the least amount of land that has been developed, establishing this public space with no environmental impact and reducing carbon emissions in particular [23].

### 3.3.4. Analyzing parameter 4: Legibility

With the exception of the roof over the secondary entrance, the entire building is submerged in the ground. Everyone may view their surroundings and comprehend the spaces since the public space, which is the roof, is open and accessible to all. Since it is the sole cut in the sloped roof where a ramp leads inside, the entry is visible. Due to the use of tactile textures, it is also readable for blind people. It is also readable from a distance since it is open and human-scale rather than being large and difficult to read as shown in figures 3-14, 3-15.

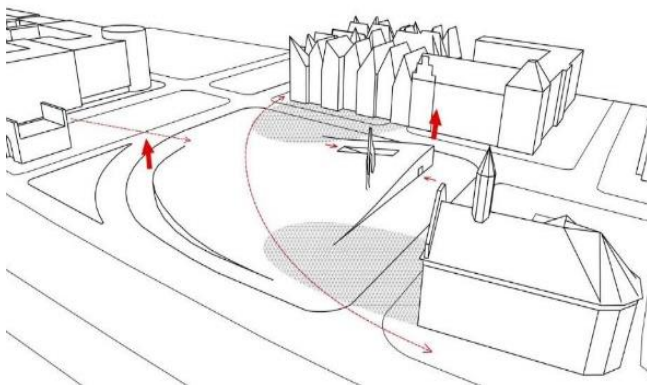


Figure 3-14: Legibility of the building  
Source: KWK Promes Konieczny, 2015



Figure 3-15: The entrance approach  
Source: KWK Promes Konieczny, 2015

### 3.3.5. Analyzing parameter 5: Flexibility

The roof is utilized for a variety of activities, including skating, snow sledding, celebrations, events, seminars, and biking. This public space is adaptable and can encompass more than one activity and more than one community. Everyone can use it and it is open throughout the year and all seasons. A place that is open all year for all visitors and seasons [23].



Figure 3-16: Multi-activity public space  
Source: KWK Promes Konieczny, 2015

### 3.3.6. Analyzing parameter 6: Equity of gender and age

#### 3.3.6.a. Design for old people

The project aims to attract the attention of senior citizens. The museum engages seniors by attracting them through historical exhibits. Historical tales and artifacts are depicted along the entire path of the center, as seen in figure 3-17. This raises an intriguing argument for older persons who may otherwise feel marginalized by modern society [23].

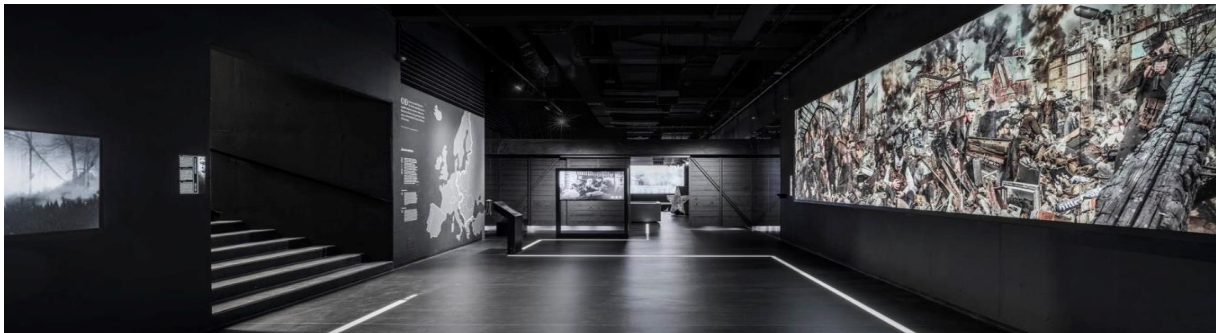


Figure 3-17: Historical exhibitions  
Source: KWK Promes Konieczny, 2015

#### 3.3.6.b. Design for middle aged people

Middle-aged people are interested in political events and political narratives. Because it provides a forum for them to express their opinions in the company of like-minded individuals, the public space draws these individuals tackling political themes through exhibitions at the same time as shown in figure 3-18.



Figure 3-18: Political and national events  
Source: KWK Promes Konieczny, 2015

### 3.3.6.c. Design for children and youth

When there is no snow, the roof can be utilized as a board, roller-skating arena and biking space, which primarily attracts children and young adults. Depending on the season, the roof can also serve as a snow skating arena as seen in figures 3-19, 3-20. Another feature is that the sloped roof, which is part of the entertainment area, was first designed for wheelchair users before being used for activities. This feature enables everyone to utilize and enjoy the accessibility feature, which is often designed for persons with disabilities [23].

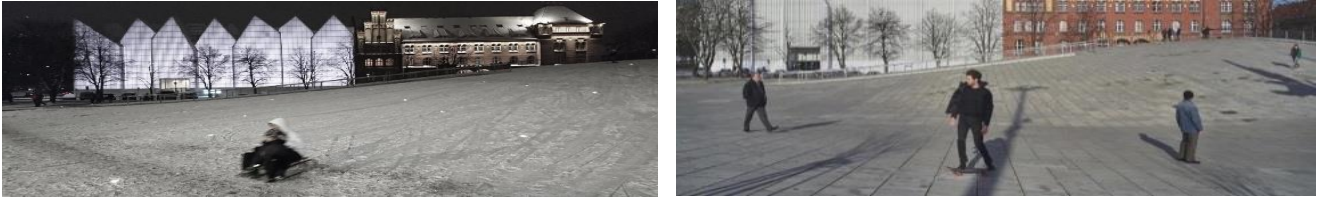


Figure 3-19: The roof of the building as snow skating arena and a roller skating arena  
Source: KWK Promes Konieczny, 2015



Figure 3-20: Attraction of public spaces for youth/ teenagers  
Source: KWK Promes Konieczny, 2015


### 3.3.7. Conclusion of case study 1:

Table 3-1: Parameters of Analysis conclusion of case study 1

Parameters	Description
Involvement of community	Historical context and citizens beliefs are considered in the design
Accessibility and equitable use	Accessibility for blind, deaf, physical impaired through the same entrance and accessibility of the public roof using ramped floor
Transgenerational	Environmental, political and historical involvement of current and next generations
Legibility	Readable and multisensory
Flexibility	Flexible for all kinds of activities and events
Equity of gender and age	All ages can participate in activities they find interesting: old people, children, youth, middle aged



**3.4. Case study two: Winter visual art centre, Franklin & Marshall College - Lancaster, Pennsylvania, United States of America (2020)**

Winter visual art centre ID card	
	
<p>Figure 3-21: Main perspective of the art centre Source: Steven Holl Architects, 2020</p>	
Name	Winter visual art centre
Location	Lancaster, Pennsylvania
Building type	Residential house
Date of project	2020
Architect/s	Steven Holl Architects
Area	3,000 m2

The Herman Arts Center has been replaced by a new fine arts building on Franklin & Marshall College's historic campus. The New Arts Quad, which will define the southwest entrance to Franklin & Marshall's campus, is currently in its initial phase. A substantial basement with recessed load bearing walls on the first level and a highly transparent glass facade in the middle supports the top building volume and its lightweight steel structure. “Knippers Helbig” provides facade design and engineering for the building envelope, which comprises transparent and opaque vertical facades, soffit claddings and skylights. A double layer of glass channels filled with translucent insulation and spans up to 14’ shall provide the interior space with diffuse light. Frameless glass on ground level maximizes transparency and sustains the architectural concept of separate opaque building volumes [24].

**3.4.1. Analyzing parameter 1: Involvement of community**

The new building in the university campus was designed based on a research that included the students of the university, taking their needs and opinions into consideration. Choosing a new center to add to the campus was the first step. It was decided that an art center would be the most appropriate option based on the needs of the students. In that regard, students were involved from the beginning of the design process. First with the components (figures 3-22,3-23) through bubble diagrams and sketches, then through designing for the disabled community (figures 3-24, 3.25) [25].



Figure 3-22: Sketches  
Source: Steven Holl Architects, 2020

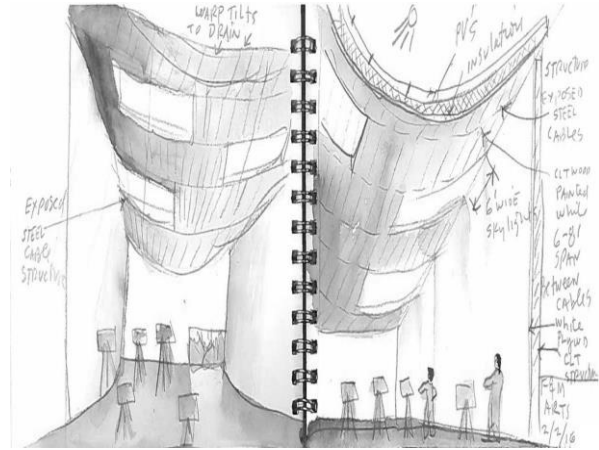


Figure 3-23: Sketches  
Source: Steven Holl Architects, 2020

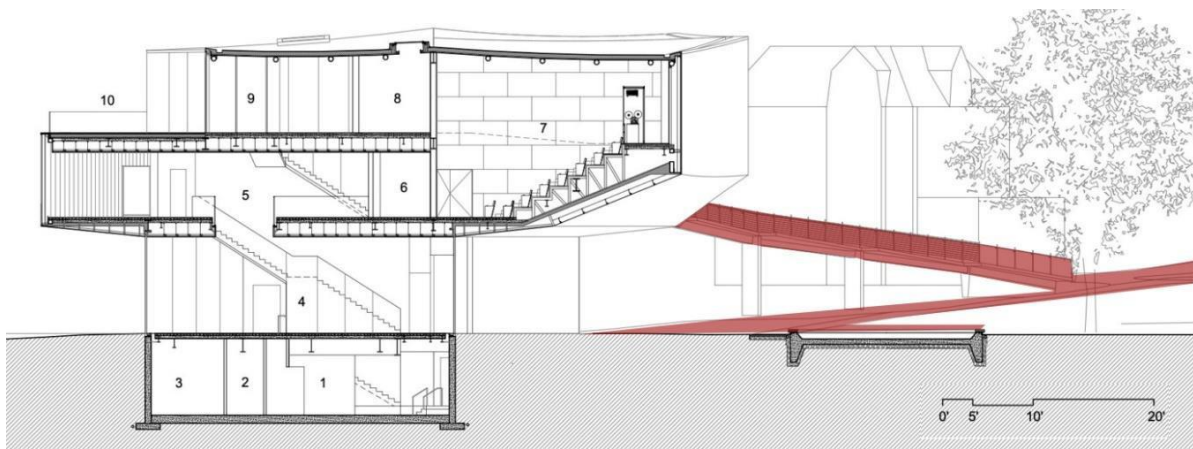


Figure 3-24: The main element of universality  
Source: Steven Holl Architects, 2020

People with impairments may feel more at home in a building if certain elements are visible. When there is anything that everyone can see and identify as a welcome sign, they feel more welcomed and accepted.

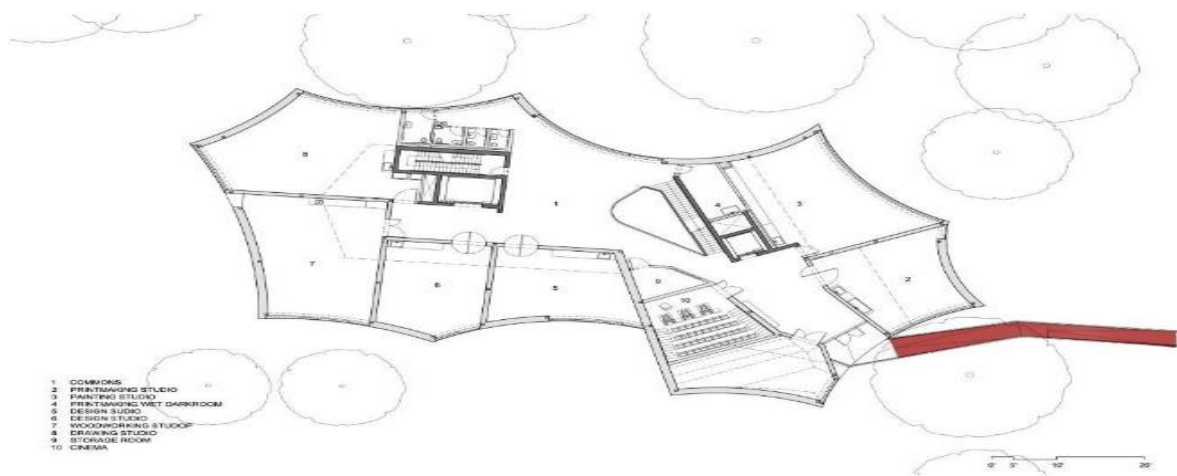


Figure 3-25: Ramp to the entrance  
Source: Steven Holl Architects, 2020

### 3.4.2. Analyzing parameter 2: Accessibility and equitable use

#### 3.3.2.a. equitable accessibility of approach

The ramp that leads to the first floor serves as the project's primary entrance. This entry is intended to be the main and only entrance to all students. It does not pick one part of the community. Instead, it unites people and assures they are equal and would use the same entrance (figures 3-26, 3-27).

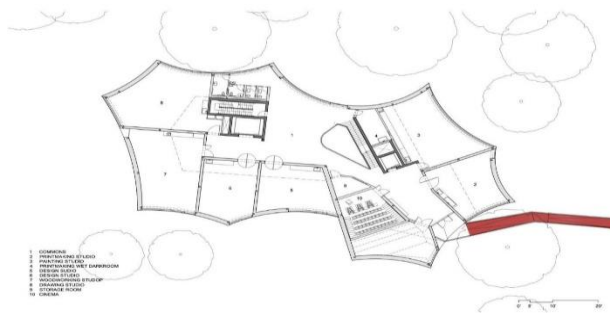


Figure 3-26: Accessibility of approach  
Source: Steven Holl Architects, 2020

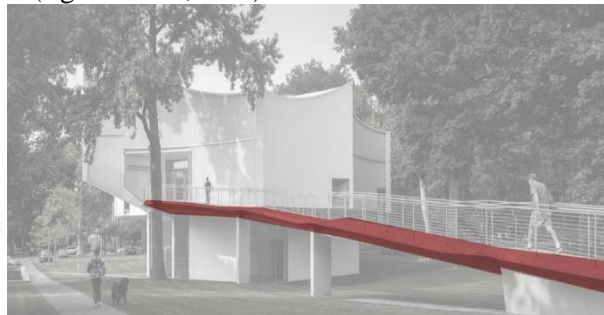


Figure 3-27: Accessibility of approach  
Source: Steven Holl Architects, 2020

#### 3.3.2.b. equitable accessibility of corridors and circulation elements

The entire building's circulation is planned for equal accessibility. You first enter via the ramp at the entryway. Everyone uses the same entrance. Then, all door openings are designed to be greater than 1m to provide wheelchair access. Other doors are made to revolve, reducing the obstructions to people moving through the spaces (figure 3-28). The auditorium, which is accessible from the top level via a ramp, is a further crucial element (figure 3-29). Behind the fixed chairs, there is space for the wheelchairs to be parked. Another consideration is that a wheelchair can access through a door from the lower floor, making it accessible to those in wheelchairs who need to sit in the front or who need to deliver a lecture. Additionally, there are elevators that are accessible to everyone and located in the building's public area.

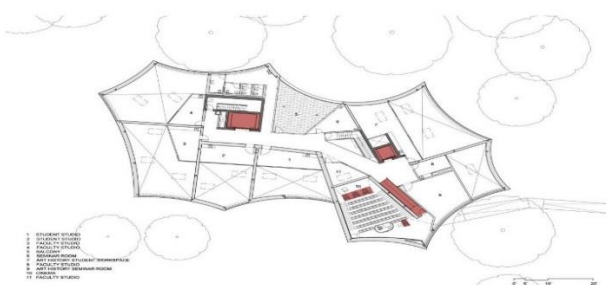


Figure 3-28: Accessibility of approach  
Source: Steven Holl Architects, 2020

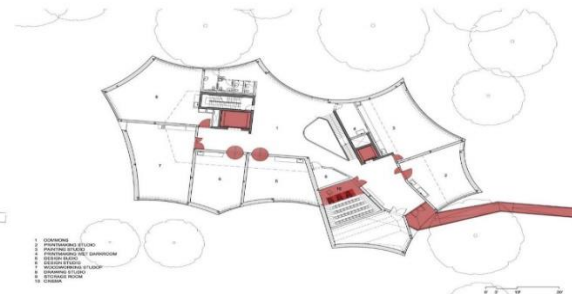


Figure 3-29: Accessibility of approach  
Source: Steven Holl Architects, 2020

### 3.4.3. Analyzing parameter 3: Transgenerational

#### 3.4.3.a. Protection of existing nature

The building is surrounded by greenery without damaging the ecosystem or the campus's landscape. The form's design underwent numerous alterations, but the key element remained the insertion of a rectangular shape and the subsequent placement of the existing trees. Subtractions were made from the rectangle on the shape of the surrounding trees giving them a little more space for the future [25].



Figure 3-30: Location of site in nature  
Source: Steven Holl Architects, 2020

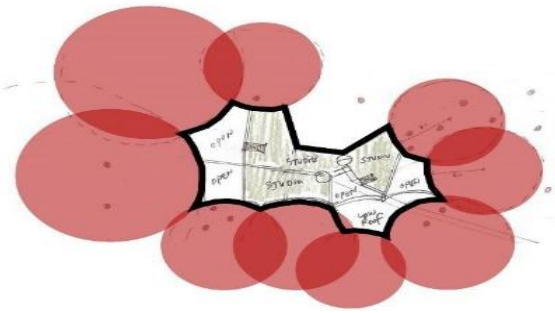


Figure 3-31: Form generation  
Source: Steven Holl Architects, 2020

### 3.4.3.b. Natural lighting

Small skylights and glass facades are used to let in natural light. The tiny skylights let light in yet prevent the space from becoming too hot.

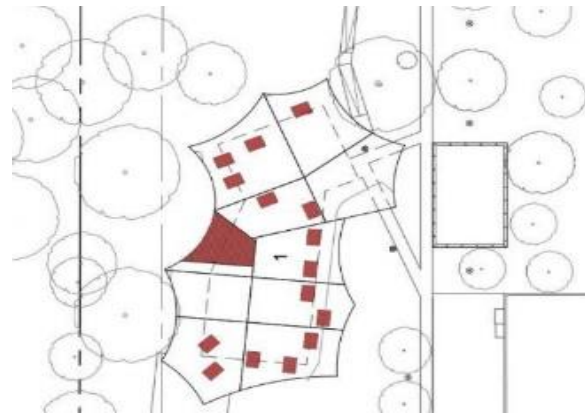
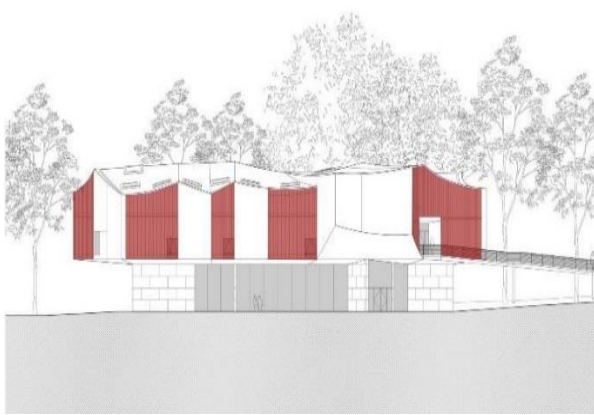


Figure 3-32: Glass facades and small skylights  
Source: Steven Holl Architects, 2020

Figure 3-33 shows a sketch, illustrating the modifications made to the building to improve drainage, lower heating costs by using PV materials and insulation in the steel roof, and lower the amount of cooling energy required [25].

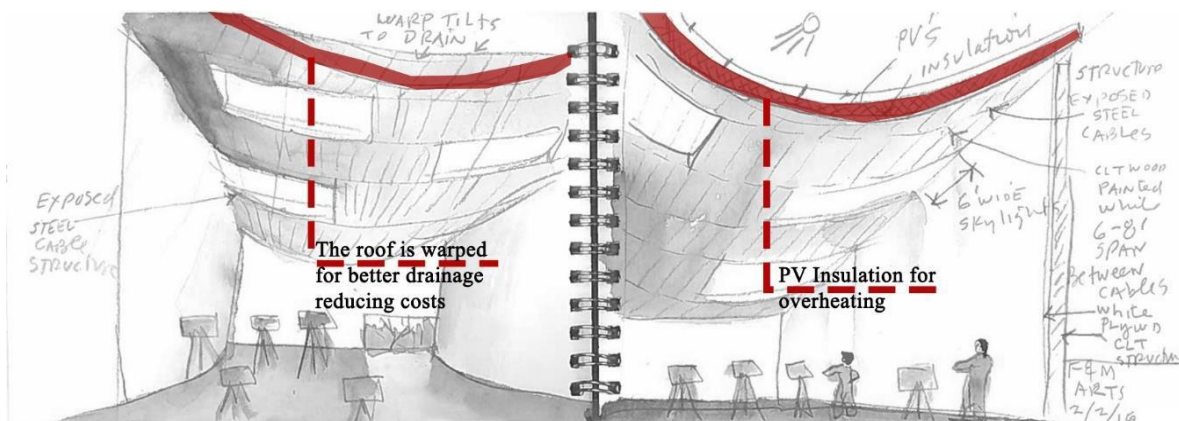


Figure 3-33: Building shaped for better drainage and heating treatment  
Source: Steven Holl Architects, 2020

### 3.4.4. Analyzing parameter 4: Legibility

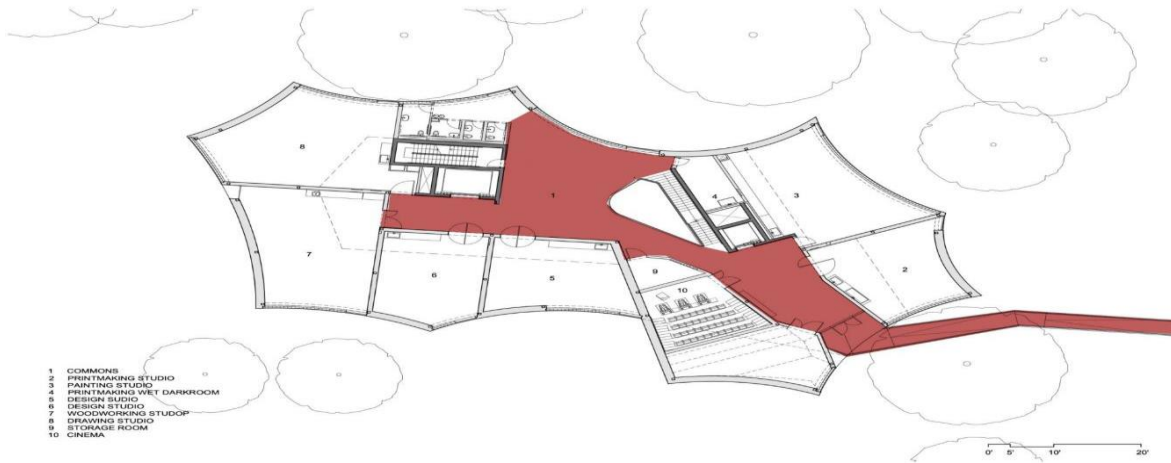


Figure 3-34: Building main spine  
Source: Steven Holl Architects, 2020

The building is legible, readable and accessible. There is just one distinct path that leads from beginning to end in the circulation. The hallways are spacious enough to provide for a full view of everything. So, navigating the building is not too difficult.

### 3.4.5. Analyzing parameter 5: Flexibility

The building has a percentage of flexibility. The studios have two floors and can be used as separate studios or as a single one. A studio is flexible enough to be used by many organizations. They can be utilized in pottery, painting, carving, and even exhibitions as shown in figure 3-35.



Figure 3-35: Studios on two levels  
Source: Steven Holl Architects, 2020

### 3.4.6. Analyzing parameter 6: Equity of gender and age

Regardless of one's gender, the art center was designed to be a gathering place to everyone. It is an open-minded art center where everyone is treated equally and has a safe place to express all forms of creative thought. In addition, because the building is intended for university students, it is primarily targeted at young adults and does not take elderly or young children into account [25].

3.4.7. Conclusion of case study 2:

Table 3-2: Parameters of Analysis conclusion of case study 2

<b>Parameters</b>	<b>Description</b>
<b>Involvement of community</b>	Involvement of students in the design process
<b>Accessibility and equitable use</b>	Accessibility for people who are blind, deaf, immobile through the same entrance as well as equitable accessibility and use of the auditorium
<b>Transgenerational</b>	Environmental protection for the sake of future generations
<b>Legibility</b>	Readable and easy wayfinding
<b>Flexibility</b>	Flexible studios
<b>Equity of gender and age</b>	Gender equality for students

### 3.5. Case study three: Bibliotheca Alexandrina - Alexandria, Egypt (2001)

Bibliotheca Alexandrina ID card




Figure 3-36: Main perspective of the Library  
Source: Snohetta Architects, 2001

Name	Bibliotheca Alexandrina
Location	Alexandria, Egypt
Building type	Residential house
Date of project	2001
Architect/s	Snohetta
Area	80000 m2

The Bibliotheca Alexandrina is built on a magnificent site alongside Alexandria's ancient harbor in the historic center of the city. The 11-story library can contain up to 4 million volumes of books, and can be expanded up to 8 million by the use of compact storage. In addition to the library facilities, the library also contains other cultural and educational functions including a planetarium, several museums, a school for information science, and conservation facilities. Characterized by its circular, tilting form, the building spans 160 meters in diameter and reaches up to 32 meters in height, while also diving some 12 meters into the ground. An open plaza and reflecting pool surrounds the building, and a footbridge links the city to the nearby University of Alexandria. Conceived as a revival of the ancient library in the city founded by Alexander the Great about 2300 years ago but lost to civilization centuries later, the new Alexandria Library is a contemporary design that will contribute meaningfully to students, researchers and the public. The design of the new library is both timeless and bold. Its vast circular form alongside the circular Alexandrian harbor recalls the cyclical nature of knowledge, fluid throughout time. It is glistening; tilting roof recalls the ancient Alexandrian lighthouse and provides the city with a new symbol for learning and culture [26].

### 3.5.1. Analyzing parameter 1: Involvement of community

The building serves as a library, which is intended for the public. It was designed for a community that it serves with the idea of accepting various cultures. The library's wall is covered in words from all different languages as a tribute to that. The words are carved into the major facades and the walls [27].



Figure 3-37: The carvings on the walls of the library  
Source: Snohetta Architects, 2001

### 3.5.2. Analyzing parameter 2: Accessibility and equitable use

The building is accessible for everyone, using ramps and elevators. A long bridge serves as the library's main entrance (figure 3-38). The library is located inside the building on several levels that are open to each other (figure 3-39), and they are connected through stairs and ramps [27].

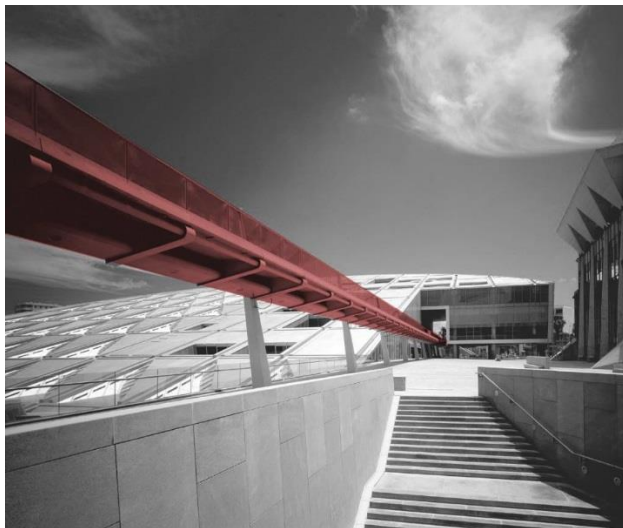


Figure 3-38: The Bridge that connects the university to the library  
Source: Snohetta Architects, 2001

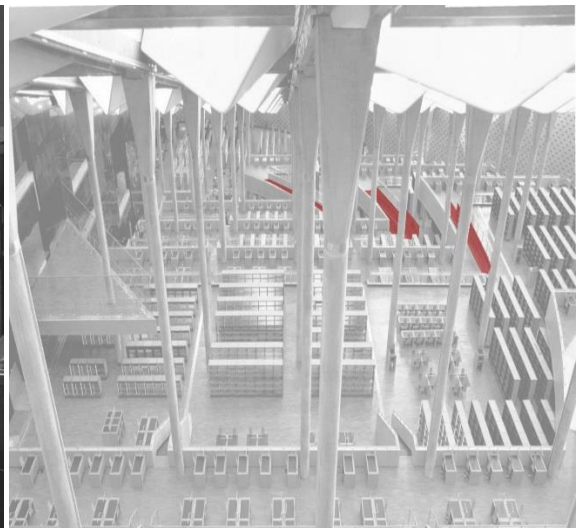


Figure 3-39: The ramps that connect the different library levels  
Source: Snohetta Architects, 2001



### 3.5.3. Analyzing parameter 3: Transgenerational

The project prioritizes taking into account the climate. One of the mitigating methods adopted is indirect lighting using partially covered skylights to diffuse light and prevent it from glaring or becoming too intense for a library, which in libraries is peculiar [27].



Figure 3-40: The ramps that connect the different library levels  
Source: Snohetta Architects, 2001

### 3.5.4. Analyzing parameter 4: Legibility

The floors are all open to each other. Since the levels of the library are open to one another, anyone on one level may see the entire library. As a result, the legibility is high. It is simple to read and to navigate in this place as shown in figure 3-41.



Figure 3-41: The levels of the library open over each other  
Source: Snohetta Architects, 2011

### 3.5.5. Analyzing parameter 5: Flexibility

The library operates on levels as shows figure 3-42. Each level is tasked with serving a particular part of the community. On the other hand, these sections are flexible and can change their functions according to how they are needed and how many users each section has [27].

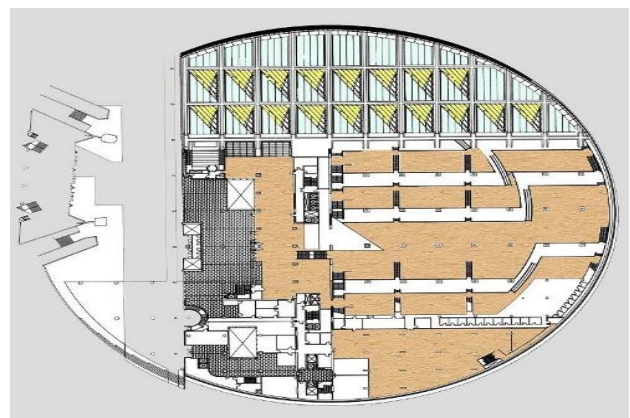


Figure 3-42: The different levels of the library  
Source: Snohetta Architects, 2001

### 3.5.6. Analyzing parameter 6: Equity of gender and age


The building is designed for all ages and all genders; it includes sections for men, women, blind, deaf, immobile persons, young adults and children. It is divided into sections to include everyone. Level one includes a section for books on history and philosophy, addressing the society's old and middle-aged population. Level 4 includes news media, museums and science sections that address young adults and children and level 5 includes a section for blind people. Children can find their place in the level 6 sections for science children, young people [27].

### 3.5.7. Conclusion of case study 3:

Table 3-3: Parameters of Analysis conclusion of case study 3

<b>Parameters</b>	<b>Description</b>
<b>Involvement of community</b>	The library is designed for the public community
<b>Accessibility and equitable use</b>	Ramps and a deaf and blind area of the library provide access for people who are blind, deaf, and have mobility issues
<b>Transgenerational</b>	Environmental protection for the sake of future generations
<b>Legibility</b>	Readable and easy wayfinding
<b>Flexibility</b>	Flexibility of library levels
<b>Equity of gender and age</b>	Gender and age equality through inclusion

### 3.6. Case study four: Issam Fares Institute - American University of Beirut, Lebanon (2014)

Issam Fares Institute ID card	
	
<p>Figure 3-43: Main perspective of the building            Source: Zaha Hadid Architects, 2014            Photographed by: Hufton + Crow, Luke Hayes</p>	
Name	Issam Fares Institute
Location	Beirut, Lebanon
Building type	Residential house
Date of project	2014
Architect/s	Zaha Hadid Architects
Area	7000 m2

Inaugurated in 2006, the Issam Fares Institute (IFI) for Public Policy and International Affairs at the American University of Beirut (AUB) is an independent, research-based, policy-oriented institute. It aims to initiate and develop policy-relevant research in and about the Arab world. The Issam Fares Institute for Public Policy and International Affairs building by Zaha Hadid Architects (ZHA) continues on the ongoing implementation of the 2002 AUB Campus Master Plan by Sasaki Associates (in collaboration with Machado and Silvetti, MGT of America, and Dar Al-Handasa, Shair and Partners) to advance the university’s academic mission in the 21st Century with facilities of the highest international standards [28].

#### 3.6.1. Analyzing parameter 1: Involvement of community

The new institute in the AUB campus is an addition to the master plan that has been developing since the 2002. In order to provide new facilities that met high international standards, a new building was built. The IFI was designed to be a common ground for people to share all viewpoints of society; it is a neutral space that encourages people to discuss new issues that are connected either to national civil life or to social events and issues. The institute is attempting to work on many regional issues such as refugee crisis, food security for people of low income, climate change and global warming, water drying up and floods, youth, social equity and justice, urbanism, and UN of the Arab world [29].

### 3.3.2. Analyzing parameter 2: Accessibility and equitable use

#### 3.3.2.a. Accessibility and equitable use of approach:

The ramps enable users to access the first and second floors from the surrounding walkways as figure 3-44 shows. Figure 3-45 depicts the ramps leading to the second floor's open terrace.

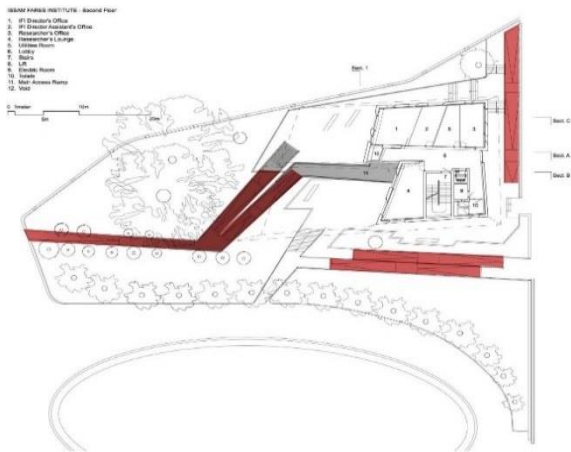


Figure 3-44: The ramp approaches to first floor  
Source: Zaha Hadid Architects, 2014

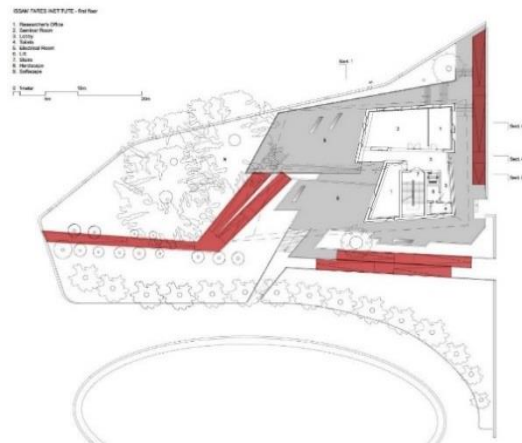


Figure 3-45: The ramp approaches to second floor  
Source: Zaha Hadid Architects, 2014

The ramps highlighted in red on the site plan demonstrate how the new building is related to its surroundings. The building and the central roundabout are connected by a single ramp. The second ramp joins the building to the two nicely halls as seen in figure 3-46 [29].

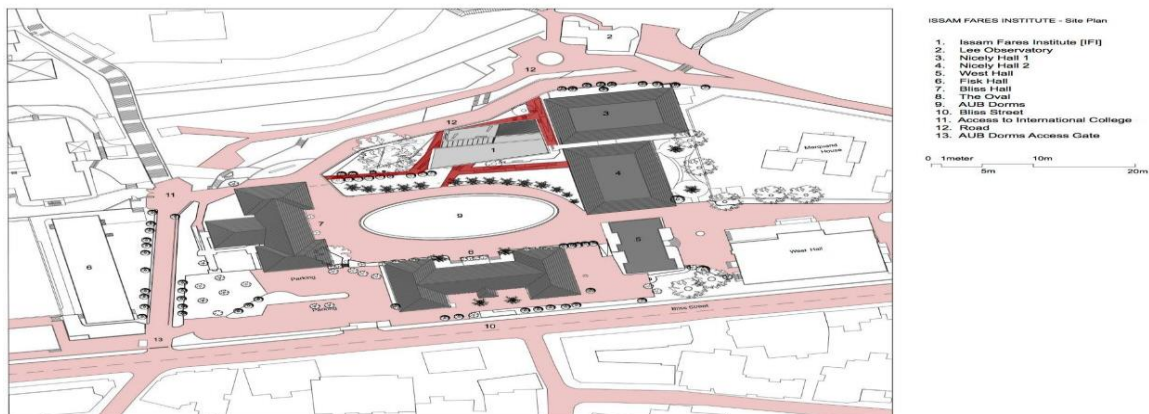


Figure 3-46: The ramp approaches that connects the site to the building  
Source: Zaha Hadid Architects, 2014

#### 3.3.2.b. Accessibility and equitable use of corridors

Figures 3-47 and 3-48 show that everyone can access the main entrance through a common approach, and the interior circulation is then carried out through vast hallways, elevators, and doors with wide openings.

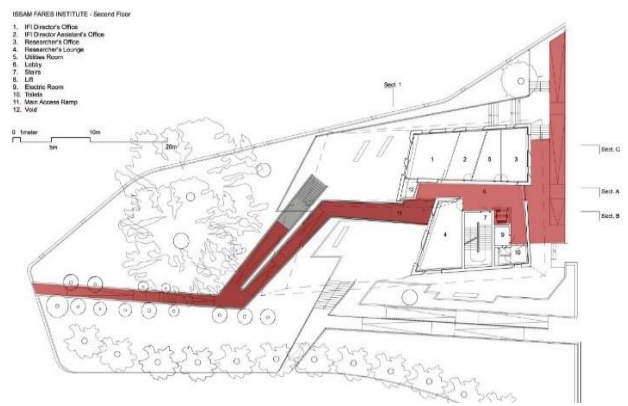


Figure 3-47: The accessibility through ramps to the first floor  
Source: Zaha Hadid Architects, 2014

Figure 3-48: The accessible circulation inside the first floor  
Source: Zaha Hadid Architects, 2014

### 3.6.3. Analyzing parameter 3: Transgenerational

Following a competition, Zaha Hadid architects' proposal from 2006 was chosen because it called for raising the building above the ground, maintaining the existing landscape and connecting the new landscaping to the campus's existing one. In figure 3-49, the photo shows the ramp approach that leads to the entrance. The ramp takes the user from outside to the entrance through nature; it raises the approach over pillars so that it doesn't impose on the existing nature. It reduces the building's footprint thus protecting nature as it is [29].



Figure 3-49: the approach through nature  
Photographed by: Hufton + Crow, Luke Hayes

The ground floor in figure 3-50, is embedded partly in the natural ground. It has a smaller footprint and then the first floor is raised over it with cantilevers and a bigger surface area. The grey highlights in figure 3-51 on the first floor shows the upper floor outline that is held up with cantilevers. This keeps the natural landscape as it is and reduces the impact on the bottom level, preserving its existing nature [29].

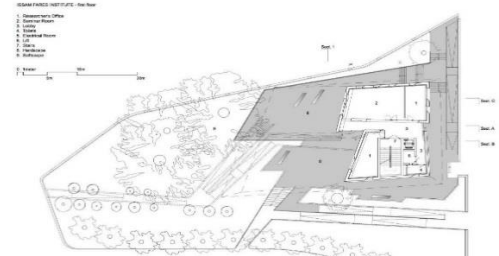
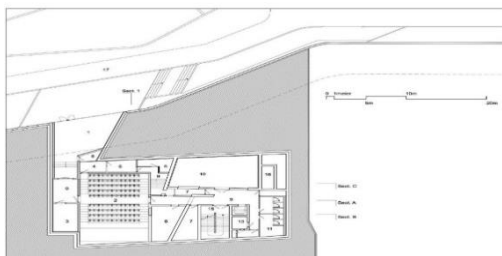


Figure 3-50: the lower floor plan  
Source: Zaha Hadid Architects, 2014

Figure 3-51: the approach through nature  
Source: Zaha Hadid Architects, 2014

### 3.6.4. Analyzing parameter 4: Legibility

Figure 3-52 shows in red highlights the open circulation space. With simple wayfinding, all of the spaces are open to one another. The main ramp provides a simple path that makes it very straightforward for users to find their way to the entrance. Then, the building's internal circulation is easy and simple. There is an information desk and an elevator right outside the door. People with special needs find it relaxing as a result of the spaces being readable and not confusing [29].

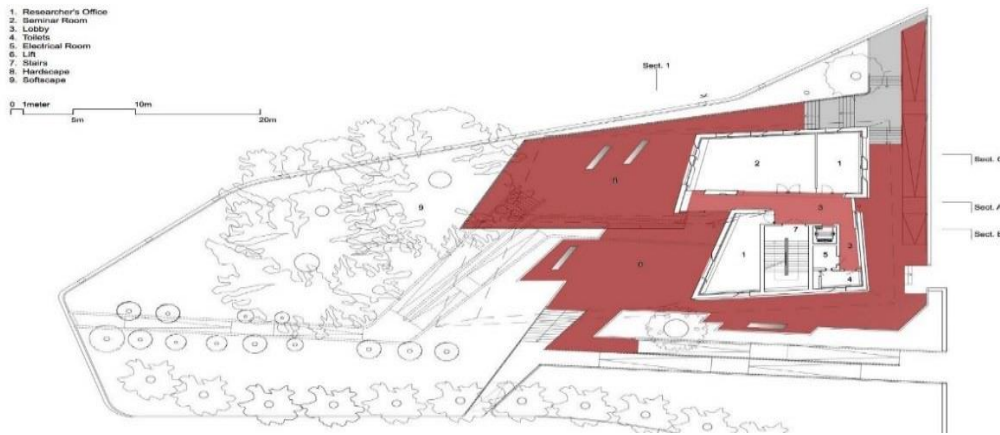


Figure 3-52: The circulation in the first floor  
Source: Zaha Hadid Architects, 2014

### 3.6.5. Analyzing parameter 5: Flexibility

Due to the building's flexibility, users can choose from a variety of vertical circulation modes to meet their needs. Ramps, stairs, and elevators are used for circulation as in figure 3-53. The other mode of flexibility is through double door openings, which allow wheelchair users access when one wing of the door is insufficient. The outdoor space on the lower level, which was designed for social events, is another example of flexibility. It is adaptable for people to use for many occasions as seen in figure 3-54.

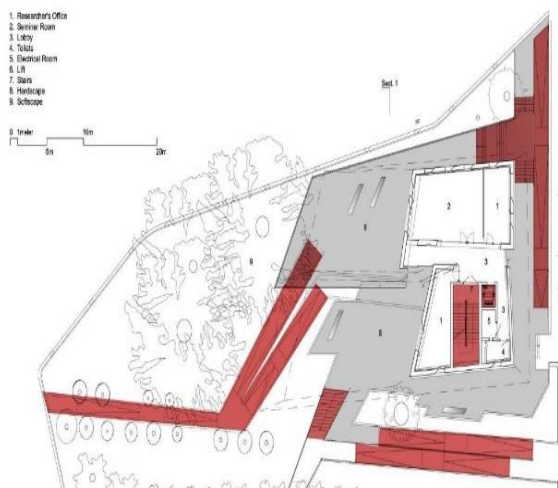


Figure 3-53: The circulation in the first floor  
Source: Zaha Hadid Architects, 2014



Figure 3-54: the public space under the cantilevers  
Source: Zaha Hadid Architects, 2014

### 3.6.6. Analyzing parameter 6: Equity of gender and age

The institution attracts visitors of all ages and genders since it hosts events, lectures, and research projects on a variety of controversial issues, including those that affect everyone in our society, such as global warming, politics, history, women's rights [29].

### 3.6.7. Conclusion of case study 4:

Table 3-4: Parameters of Analysis conclusion of case study 4

<b>Parameters</b>	<b>Description</b>
<b>Involvement of community</b>	Involvement of all interested groups in the community through discourse and investigation of various issues
<b>Accessibility and equitable use</b>	Long ramp is used as part of the main entrance which serves for everyone
<b>Transgenerational</b>	Environmental consideration to protect earth for the next generation: raising the first floor over a small ground floor to protect natural landscape
<b>Legibility</b>	Readable and easy wayfinding
<b>Flexibility</b>	Flexibility of use and the public space under the large cantilever
<b>Equity of gender and age</b>	Gender and age equality through inclusion in events and research

### 3.7. Comparison between the four case studies:

Table 3-5: Table of comparison between the case studies

Project	Przelomy centre for dialogue	Winter visual art centre	Bibliotheca Alexandrina	Issam Fares Institute
<b>Location</b>	Szczecin, Poland	Lancaster, Pennsylvania, USA	Alexandria, Egypt	Beirut, Lebanon
<b>Architect</b>	KWK Promes	Steven Holl Architects	Snohetta Architects	Zaha Hadid Architects
<b>Year</b>	2015	2020	2001	2014
<b>Parameters</b>				
<b>Involvement of community</b>	Political and historical background of the site. No involvement of community.	Designed with the community (the art students).	Library for all groups of community but not designed with them.	Events and community research involve members of the community but the community was not involved in its design.
<b>Accessibility and equitable use</b>	Sloped walkways. Sloped roof public space. Tactile tile for blind. Ramp to entrance for all users. Rotating entrance doors.	Approach to the project through a ramp common for all users. Ramp to the auditorium. Entrance to auditorium from lower level.	Ramps connect the different levels. Bridge connection from the university to the library but separates access between able and disabled people.	Ramp approaches from three sides of the building. Increased accessibility.
<b>Transgenerational</b>	Children's futures can be improved by exposing them to history, a love of the city, and its politics.	Environmental approach: Subtracting from the building to keep the trees. Environment friendly materiality. Concave roof for better drainage. Natural lighting through small skylights.	Environmental approach: Shading system for skylights diffusers and solar energy.	Reducing ground floor plan surface area to protect the natural landscape.



<b>Legibility</b>	Open space. Easy to read and understand.	Wide corridors and main core	Library levels are open over each other like a mezzanine.	Access on the first floor with a big terrace.
<b>Flexibility</b>	Flexible use of the roof for different functions and events.	Studios can be used on two levels and for more than one form of art, but flexibility for access is low.	Library sections are on levels, easy to change their functions according to the need but has low flexibility when it comes to access.	Flexibility of the shaded outdoor space under the cantilevers is not enough for accessibility.
<b>Equity of gender and age</b>	Activities for all ages and genders, skating, bicycles, and ice-skating for children and young adults. Multi use roof for events, protests and celebrations for middle aged and old people. Historical exhibitions for old people.	Other than freedom of art for all ages and genders, equity of gender and age is not evident in the architecture	Sections for blind people, elderly, children and young adults to provide interest of all ages and genders.	Institution main function is to negotiate and research solutions that involve all ages and genders but architecturally it is not evident.

### 3.8. Discussions:

The concept of Universal design is not a commonly used concept. The first case study describes how architectural and non-architectural elements, including approaches, doors, ramps, roofs, and parking, were designed using universal design as the primary design principle. The three other projects, on the other hand, are designed with the intention of including persons who have mobility issues and are created with accessible and inclusive design principles. This means that, although blind or deaf persons were not expressly considered in the design, people with mobility impairments were. Children and the elderly may have been slightly excluded in case studies two and four, although this exclusion could be justified given the purpose of the function and the targeted users. The case studies provided discussion of elements that contribute in increasing the universality of a space. As a result, the elements could be developed to be included in the assessment criteria.

The universal declaration of human rights was established in 1948 as a result of people's defiance to atrocities committed against people during World War II. Legislations to defend human rights were included in the declaration. People who served in the army and returned from the war injured and disabled found life harder than before. Standards for accessible architecture design began to be established in the 1980s. Later, inclusive design gained popularity as it does a better task of including these people into society, not just those with mobility impairments, but also elderly people and children. The Alexandria library is the oldest of the case studies, which date from the past two decades. Thus, accessibility can be easily seen, but the first case study's use of the universality concept is most obvious because it adheres to current universal design trends.

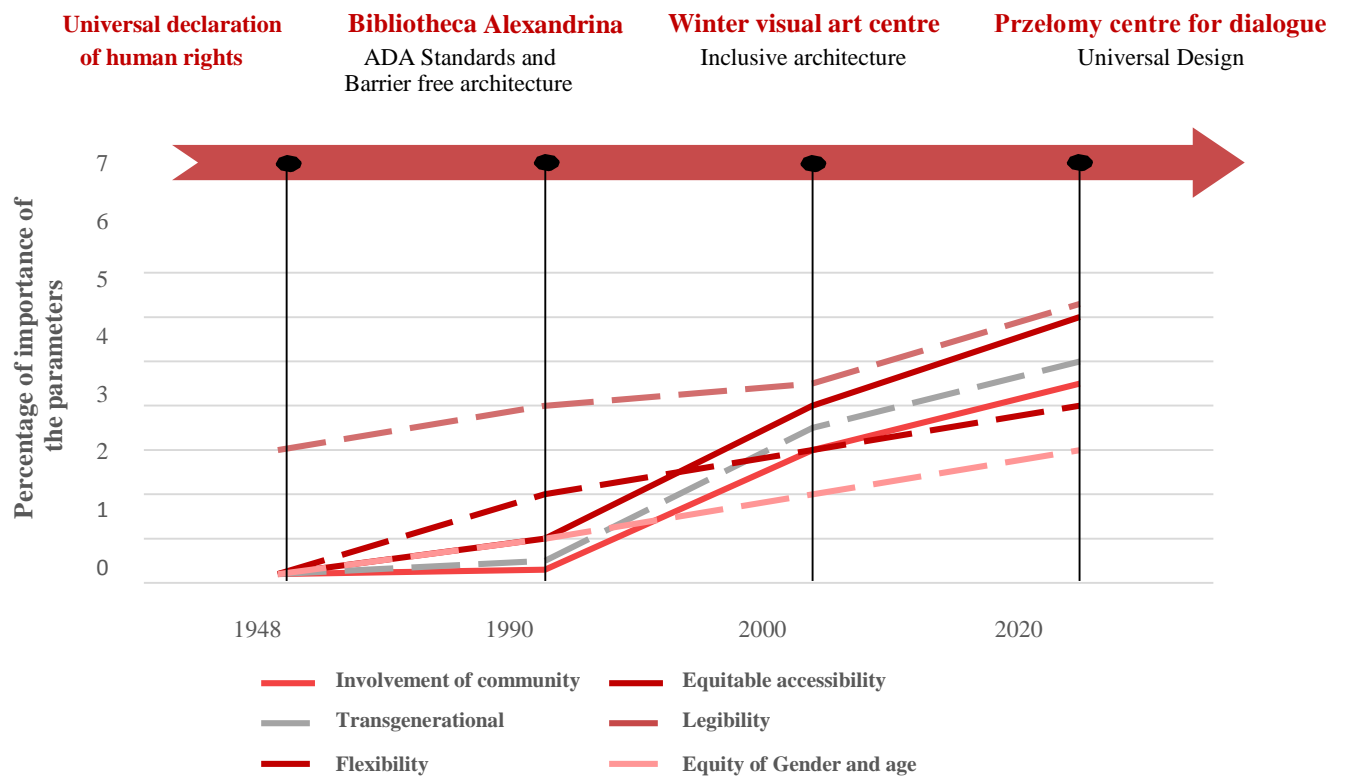


Figure 3-55: The graph illustrates how the significance of universal design characteristics has evolved over time

#### 4. Conclusion and recommendations:

Architects must acquire information, develop strategies and provide innovative ideas. Equity must be the core point of discussion when addressing design-driven solutions. We must comprehend what architects can do to establish equity, not just in architecture but also in society, in order to attain that goal. Architectural innovation, collaboration, and creativity promote equity in our environments. Using universal design principles enables architects create spaces that meet the needs of potential users who may have a variety of characteristics. Making a space accessible to people with disabilities frequently has benefits for other individuals as well. This holistic and cutting-edge approach presents a creative and ethical challenge for architects and designers. Universal design aspires to provide everyone with an equal opportunity to engage in all facets of society. To achieve this, the built environment, everyday objects, services, culture and information – all things designed and intended for human use – must be viable by everyone, convenient and responsive to basic human rights. Every stage of the process must take end users into account, and it makes purposeful use of understanding of human needs and aspirations. As a result, this will enhance social sustainability and improve the quality of life for the intended audience. By incorporating a wider range of capabilities and qualities into the design, society as a whole can portray its ethical standards better enforced.

The researchers would like to suggest the following recommendations:

- Improving future architects' knowledge and skills by including relevant material on universal design in architecture curricula. This will result in a workforce that is knowledgeable about and competent in addressing universality challenges.
- Emphasizing the value of equity in spaces when instructing architecture students. The curriculum should include lectures underscoring the significance of creating equitable spaces and environments.
- Architects and designers should accord a higher priority on appraising the lives of people with disabilities and all other groups in the community.
- Prioritizing equality and universality for architects and practitioners, keeping in mind that their designs have a significant impact on people's quality of life live and social engagement.
- An architect's main duty should be to respect human rights.

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