

Brutalism: as a preferred style for institutional buildings in modern architecture period

Elena Imani^{1,*}, Samira Imani²

¹Department of Architecture, TOBB University, Ankara, Turkey

² Department of Architecture, Krabuk University, Ankara, Turkey

Abstract. From the 1950s onward, Brutalist style spread all over the world and dedicate many breath-taking architectural movements to buildings. Architect's opinion about this prominent approach to building design varies greatly. Brutalist style has known primarily for its aesthetics and property for institutional buildings with the use of functional reinforced concrete, steel, modular, and repetitive elements. Besides all advantages of brutalism, this style is sharply criticized for being cold, crude, cruel, and not appropriate for many climates. Brutalism also became popular with governmental and institutional buildings in modern architecture period and most of the well-known university campuses were built in this style. The purpose of this paper is to study the adaptability of brutalist style with institutional buildings and evaluate it from this point of view. Three institutional buildings have been selected as case studies for evaluating in this research such as The Royal College of Physicians, Brunel University Lecture Theatre, and Metu faculty of architecture. Due to this study, Brutalist style through their fire-resistant and durable materials which don't need to be renovated constantly is suitable for institutional buildings.

1 Introduction

Brutalist architecture style was flourished after World War II, from the 1950s to the mid-1970s and rapidly spread out all over the world. Brutalism has a prominent role in the history of modern architecture in that period. However this period has known for modernity and innovation in art and architecture but, surprisingly, historical and monumental architecture has got more attention among architects.

The most substantial characteristics of buildings in brutalism style were the rough and naked appearances of them. The term brutalism originates from the French word "béton-brut" which means raw concrete. As it's obvious from its meaning, brutalism style brought innovation in structure, function and materials of buildings by using raw concrete without ornaments and decorative elements. Basically brutalist buildings were constructed by repeating exposed concrete or brick masses therefore, the building in this style emerged as a monochrome whole. Besides concrete and brick, other materials, such as steel, gabions, timber, and glass, are also featured in these buildings.

However, the term brutalism was firstly used by Alison Smithson for an unexecuted project for a house in Colville Place but, the most significant example of brutalism style is The Unité d'Habitation in Marseilles that was designed by Swiss-French architect Le Corbusier. Even, The Unité d'Habitation is considered the birth of brutalism [1].

The reviewed literature reveals that, brutalism style was mostly preferred to use in civic and institutional buildings. It seems that by using this style modellers tried to make their design as a sculpture in the heart of the city to be seen and admired by visitors. According to the appearance of such buildings which created from double-height ceilings, large forbidden walls and severe geometric lines demonstrate that brutalism had emphasis on function of the buildings more than forms and shiny decorative designs. This research is aimed to study the functional aspects of brutalist style which made them proper for institutional buildings. In this regards, three institutional buildings have been selected as case studies for evaluating in this research such as The Royal College of Physicians, Brunel University Lecture Theatre and Metu faculty of architecture.

2 Literature review

2.1 History of brutalism

When we hear brutalism for the first time it seems that it drives from the adjective word brutal which means wildness. Actually the core of term brutalism is based on the aesthetics of the Le Corbusier residential unit in Marseille in 1952 and the use of the term "béton-brut" in the context of architecture made in raw concrete [2]. The main feature that makes this building the basis for more creative ideas by the Brutalist architects is neither the size nor the concept of spatial functional organization,

* Corresponding author: imani.elena@gmail.com

but Corbusier's reinforced concrete. Concrete was completely new, original, raw form, rough and can be used solidly therefore, it emerged before a newly built building was finished [3]. After World War II, brutalist style has emerged in United States and rapidly spread out all around the world. This style was from the first critics that criticize the positive and negative aspects of modern architecture from some points of view. In that time, modern architecture can overcome preferred architectural styles such as neoclassical or neo-Gothic and turns to the most used architectural style with clean lines and a bold expression of structure [2].

The origins of the philosophical and architectural style of brutalism can extend to events after World War II, Due to the problems that occurred during these years, the European economy was completely paralyzed and faced huge crises therefore, it was impossible for them to use the usual and expensive materials. So all the architects sought cheap materials to replace metal, which eventually resulted in concrete. The brutalism style owes its origins to its concrete and its widespread use. However, in this style, there are no restrictions on the use of raw materials, such as wood, brick, glass, steel and raw stones, in their raw forms. The architectural style of brutalist is also known for features like rectangular design and visible molding. However, the most important point in the architectural style of brutalist is its difference from other common styles; because all other common styles such as deconstruction architecture or folding architecture are important because of their special volume. The architectural style of brutality is based on the materials used in it [4].

The opponents of this style believe that brutalist buildings remind mainly of signs of crime and fear due to their unified appearance. Besides spiritual critics the other groups are against this style because of structural aspects. These groups believe that the concrete appearance of these buildings don't last for long time and they could destroyed very quickly humidity and cloudy weather arising from ocean climate, especially in northwestern Europe. In this climate, concrete is often sprayed by water spots therefore, algae and lichen, causing rust on the construction. The opposite of a group of opponents, for those who participate in this style, the Brutalist architecture is beautiful, distinguished and integrated. A style that expresses the condition and raw shapes of the materials. Brutalist buildings are huge, important and almost always perceptible.

Two "Brutalism" are mentioned in architectural history. One of them was Le Corbusier and its buildings, especially those constructed after 1950. Le Corbusier's sculptural, material use of concrete for architects turned it into a building material with great artistic potential. A new path has been opened for architectural expression and monumentality, it has been opened wonderfully and the architects around the world have been fascinated. The other was Brutalism of those who followed Smithson, who shaped his ideas in an intellectual field, than that of the environment built under the name "New Brutalism." However, in both, the common features were the expression of the structure, materials and functions

of a building, as well as the use of materials, "rough" appearance and unpretentious honesty [5].

2.2 Architectural characteristics of brutalist style

Brutalism follows modernists where the buildings must follow the function of the form, or architects should pay less attention to decorative facades and resemble buildings only. A form of modernism emphasized the emergence of the basic elements and materials of a building (Figure 1). This meant that the framework was designed to be seen and celebrated rather than covering mechanical systems and supporting structures. The structure of a building was limited to what it needed to operate; "Rest" would be affected by human settlement; in doing so, it was not a "solutionist" form, but heralded a functionalist tradition that was "pre-historical" [6]. Therefore, the importance of Brutalism is related to how it relates to its inhabitants; the logic is shown in full. For example, deciphering a concrete wall as a wall is easier than what is covered with tiles or wallpaper, or moving from one level to another is usually more effective with a lining ladder rather than a fancy spiral staircase. In other words, in Brutalism, the conceptual "distance" between material and its function is as small as possible. Moreover, the "rawness" of the materials used also relates residents to the production of the building [1].

Reyner Banham states that one architectural work can be considered Brutalist if it possesses the following characteristics [3]:

1) Clear exhibition of structure – this relates to inclination to stress primary construction, often even vertical communications. Outer layers are omitted, as they hide the original appearance, the aesthetics of the construction and basic construction materials;

2) Valuation of materials "as found" – the inclination to use the materials in their raw or original form, so that there is no need for later processing, i.e.

3) Memorability as an image – perception of an architectural work should aim for its comprehensive and clear experience, i.e. that the form perceived from one point can later be confirmed when going around the building or when using the structure;

4) Formal legibility of plan1 – architectural composition should be recognizable in the structural layout. The form should reflect the functional organization of the structure and materials it was built of.



Fig. 1. Sir Denys Lasdun's Grade II* National Theatre. Photo by Mark Hammond (via Enrich the List)

3 Brutalism mostly used in institutional buildings

As Sroat states, Brutalism has been deemed particularly suitable for monumentality and hence civil and cultural structures. Accompanying the desire for monumentality was the behavioural assumption that this quality behaved like a magnet for spending leisure time in and around a building. Many brutal projects have been carried out to revive the declining city centers. Architects believed that the brutalist style shaped attractive environments that would enliven public life through walkways, plazas, terraces and usable roofs, which are often characteristic of brutal buildings and often laid on the same concrete or brick material as the buildings themselves. The winding arrangement of stairs, terraces, stepped gardens and a fountain in these buildings leads to a rather sculptural hall where various angled, solid concrete walls frame the central glass extensions [2].

Brutalist style emerged in response to countries with wartime in Britain after World War II. When the style came to America, its original meaning changed, and the Brutalist buildings became more monumental. Britain's post-war tragic feeling turned into a sense of strength from the young and strong United States [7].

Universities were the most important candidates for brutalism in the modern architecture period. In that period there was a developing tendency to construct universities all around the world. In the years when the Cold War concerns and the economy of a rapidly growing country were marked, the increased value was placed on university research and a trained workforce. Existing institutions have expanded to a large extent and completely new universities, colleges and community colleges are established and built. Some of most prominent universities which were built by brutalist style architects in modern architecture period are listed in following.

The Royal College of Physicians

Architect: Sir Denys Lasdun, 1997, London



Fig. 2. The Royal College of Physicians

In the United Kingdom, architect Sir Denys Louis Lasdun (1914-2001) who was known for his controversial use of reinforced concrete flooring exteriors, and he admired the belief that there was a 'paradoxical link' between the desire for complete renewal in art and a deep bond (Figure 2). It was an integral part of a generation of architects who were excited and inspired by reinforced concrete and its possibilities. Lasdun tried to combine old and new with dramatic interiors and white mosaic exteriors.

Brunel University Lecture Theatre

Architect: John Heywood, 1966, London



Fig. 3. Brunel University Lecture Theatre

Brunel University Lecture Theatre, built in the mid-60s, Brunel University Center took part in the *A Clockwork Orange* film as the dystopic Ludivico Medical Facility (Figure 3). In addition to this unforgettable appearance in the cinema, the protruding concrete forms of the center make it a Brutalist classic. It forms an impressive centrepiece for the campus of the university. Its jutting geometric forms mark it as a classic example of mid-term brutalism.

METU, Faculty of Architecture

Architect: Behruz Çinici, 1961, Ankara



Fig. 4. Metu faculty of architecture

The Faculty of Architecture building in METU campus is considered as an important aspect of architecture and was the first reinforced concrete building built in brutalist style in Turkey (Figure 4). This building Designed by architect couple Altuğ and Behruz Çinici as a manifestation of a modern nation, the building includes striking titles to International Style and regional interpretations of brutalism. In 1966, the building became faculty of Architecture [8].



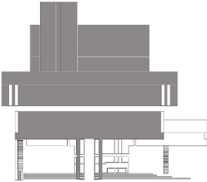

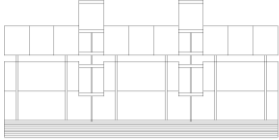



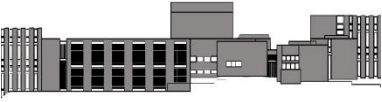
4 Discussion and conclusion

One of the most important elements of these projects was their proportionality. Nevertheless, the raw material used in brutality is not always tangible. For example, many brutal buildings used bricks, but in doing so, the brickwork is vividly present, showing how each brick joins the whole. In addition, the style of Brutalism is generally thought to be largely industrial [6]. The enlargement of the city construction proposed by the new Brutalism ideology is evident in most of the large-scale housing projects and civil buildings it produces; indeed, a concrete factory was built on the construction site for the construction of Preston Bus Terminal, and then it was dismantled after the building was finished.

Architecture states that style is "characterized by large, sometimes monumental forms, combined in a whole combined with heavy, often asymmetrical proportions." Boarding, Brutalist architecture, natural-colored beige concrete. Large geometric blocks are

arranged to simultaneously maximize the efficiency of the interior and achieve an external sculptural form. At this point in the course of the European modernist architecture, the applied decoration considered the function of the building to be ineffective and destructive. Instead, only the weight of the concrete provided visual drama. For instance, in the Brunel University Conference Center in London, which is mentioned before, Architects Sheppard, Robson and Employees have created a building consisting essentially of concrete boxes. However, despite the simplicity of the basic forms, the scale and composition of the building provide a visual effect. It expands as it rises, creating both a frightening and effortlessly balanced form. According to the analysis that prepared by author it is obvious that, all of these buildings were made of reinforced concrete in a whitewashed surfaces with band and narrow windows (Table 1). The three buildings which were selected to study in this research were the examples of brutalist style buildings. All of them were almost dedicated to a same period and constructed as institutional buildings. The ratio of the used concrete in these buildings to other materials shows that, concrete was dominant materials and created the whole of buildings structure. As shown in Table 1, concrete and glass were the particular materials that shaped the buildings.

Table 1. Concrete used in three selected institutional buildings.

Image of the building	Front elevation	Concrete used in buildings
 <p>The Royal College of Physicians</p>		
 <p>Brunel University Lecture Theatre</p>		
 <p>Metu faculty of architecture</p>		

All of these selected buildings were made of reinforced concrete in whitewashed surfaces with bands and narrow windows. The three buildings which were selected to study in this research were the examples of brutalist style in modern architecture period. All of them were almost dedicated to the same period and

constructed as institutional buildings. The ratio of the used concrete in these buildings to other materials shows that, concrete was dominant materials and created nearly the whole of buildings structure. As shown in Table 1, concrete and glass were the particular materials that shaped the buildings.

Brutalist style characterized by large, monumental forms and combined in a whole with heavy, often asymmetrical proportions with natural-colored beige concrete. Large geometric blocks are arranged to simultaneously maximize the efficiency of the interior and achieve an external sculptural form. The applied decoration considered the function of the building to be ineffective and destructive. Instead, only the weight of the concrete provided visual drama. For instance, in the Brunel University Conference Center in London, which is mentioned before, Architects Sheppard, Robson and Employees have created a building consisting essentially of concrete boxes. However, despite the simplicity of the basic forms, the scale and composition of the building provide a visual effect. It expands as it rises, creating both a frightening and effortlessly balanced form.

This research tries to discuss the properties of brutalism for institutional buildings. These monumental buildings mostly were shaped in the Reinforced Concrete framework generally and stand out visually compared to the buildings around them. Brutalism is a fairly divisive architectural style and admired a lot during architecture history. Firstly, one of the most advantages of concrete is that, concrete can be turned into any shape during construction process. Since most of the university buildings have built many years ago they require regular repainting, endless reconnection of roof tiles, or expensive renovation after every year. But concrete's solid and flexible appearance doesn't need to renovate continuously. Secondly, concrete is the most fire-resistant, non-chemically treated material and is ahead of other materials such as steel and wood. The extraordinary brightness of this style in its buildings with strong reinforced concrete, make it superior to previous architectural styles. The load-bearing construction and geometry of these buildings have freed architects to decide where to locate the windows and how to decorate them without any decorative restrictions. Therefore from this point of view, this style could be totally proper for institutional buildings which are mostly functional-based designs. Architects could decide on the location and size of the windows according to the needs of their interior spaces.

Finally, the other advantage of this style is the use of concrete in the structure of the buildings, the load of the building can be transported on several columns hence, the columns can be located where the designer wish, not where gravity desire. It could be also a privilege for institutional buildings because more spaces can be dedicated to interior spaces. Restricted and small spaces can be exhausting and not be categorized as pleasant spaces.

The natural heat of the sun may or may not be desired. The direction of the building and the building elements used in the design play an active role in controlling the heat of the sun [9]. There are many problems such as heating, cooling, acoustic, light and

shadow regarding the limitation of this building to provide indoor comfort. Moreover, the brutalist constructions can't cope with climate changes, the temperature problem is further increased with limited options for installing the building in the air conditioner.

Brutalism became popular among institutional candidates with numerous examples in all around the world. Buildings of this style typically have solid geometry with combination of detailed brick and concrete also with the predominance of massive, castle-like, exposed concrete construction. Brutalism became popular for educational buildings (especially university buildings), but it was relatively rare for commercial projects that largely favored the International Style. Brutalism has some advantages and disadvantages when it is used as institutional buildings. The good points of them are the materials that are used in brutalist style constructions are mostly cheap and easy to access. Also they are fire-resistant and durable materials so they don't need to renovate continuously. But besides the good aspects, this style has some disadvantages like problem of heating, cooling and acoustic because of isolation problems that were exist in the past. This study has researched the material of institutional buildings in Brutalist style. Future studies can be conducted to evaluate the geometry of these buildings.

References

1. D. Alfirević, S. Simonović-Alfirević. "Brutalism in Serbian architecture: Style or necessity?." *Facta universitatis-series: Architecture and Civil Engineering* **15**, no. 3 (2017): 317-331.
2. H. Sroat. "Brutalism: An Architecture of Exhilaration." In *Paul Rudolph Symposium*. 2005. Luigi T. De Luca, *Propulsion physics* (EDP Sciences, Les Ulis, 2009)
3. R. Banham. *The new brutalism: ethic or aesthetic?*. London: Architectural P, 1966.
4. C. Schum. "A Concrete Defense." (2016).
5. D.A. Altun. "Brutalism Now: Rethinking Brutalism in Contemporary World Architecture." In *Arts*, vol. **5**, no. 2, p. 3. Multidisciplinary Digital Publishing Institute, 2016.
6. O. Mould. "Brutalism redux: Relational monumentality and the urban politics of brutalist architecture." *Antipode* **49**, no. 3 (2017): 701-720.
7. K.E. Tattersall. "Brutalist Building Retrofit." (2018).
8. L. Gooding, B. Erdogan, İ.G. Dino. "Improving Building Performance of Higher Education Buildings, Involvement of End Users." (2019).
9. Qurraie, B. S., & Beyhan, F. (2018). Using a Shading Tool to Reform Window designing due to Solar Radiation. *IJARE*, 4, 1.