

# **THE ARCHITECTURE OF THE KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY CAMPUS AT KUMASI.**

## **ABSTRACT**

Architecture has been given various meanings and definitions throughout history. Such meanings and definitions have further been referred to as styles, movements or trends. Any good piece of architecture, regardless of the tag that it is given, must at the end of the day be able to satisfy the three basic requirements of commodity, firmness and delight. These three qualities have also been described as usefulness, structural soundness and aesthetically pleasing.

The campus of the Kwame Nkrumah University of Science and Technology, (KNUST), Kumasi has a very interesting architecture. This paper seeks to describe and discuss the architecture of the KNUST campus. It will trace the development of the campus from the beginning to the present time. It will further seek to establish the factors which have produced the architecture of the campus and how the resulting buildings have been and continue to be perceived by people.

A phenomenological approach will be used to discuss the architecture of the KNUST campus and the paper further seeks to establish whether the relevant body (or bodies) responsible for the development and maintenance of the campus appreciate what they have and whether the measures in place can sustain the campus and its growth.

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## **INTRODUCTION**

“The Kwame Nkrumah University of Science and Technology (KNUST) succeeded the Kumasi College of Technology which was established by a Government Ordinance on 6th October 1961. The University was however, opened officially on 22<sup>nd</sup> January 1952 with two hundred (200) Teacher Training students transferred from Achimota to form the nucleus of the new College.

In October 1952, the School of Engineering and the Department of Commerce were established and the first students were admitted and a Pharmacy Department was established in January 1953. In the same year, a Department of Agriculture was opened to provide a number of *ad hoc* courses of varying duration from a few terms to three years, for the Ministry of Agriculture. A Department of General Studies was also established to prepare students for the Higher School Certificate Examinations in both Science and Arts subjects and to give instruction in such subjects as were requested by the other Departments.”<sup>1</sup>

The College began to grow and in 1957, the School of Architecture, Town Planning and Building was inaugurated and its first students were admitted in January, 1958 for professional courses in Architecture, Town Planning and Building. Further expansion resulted in a decision to make the Kumasi College of Technology a purely science and technology institution.

The Government of Ghana appointed a University Commission to advise it on the future development of University education in Ghana in December 1960 in connection with the proposal to transform the Universal College of Ghana and the Kumasi College of Technology into an independent University of Ghana. The Government decided to establish two independent Universities in Kumasi and at Legon, near Accra. The Kumasi College of Technology was thus transformed into a full-fledged University – Kwame Nkrumah University of Science and Technology – by an act of Parliament on 22<sup>nd</sup> August 1961 and was officially inaugurated on Wednesday, 20<sup>th</sup> November 1961.

“The KNUST is situated on an approximately sixteen square-kilometre campus of undulating land and pleasant surroundings about seven kilometres away from the city of Kumasi. The campus presents a panorama of beautiful and modern buildings interspersed with verdant lawns and tropical flora which provide a cool and refreshing atmosphere congenial to academic studies. The University has within a relatively short time of its existence – nearly fifty years – become an important centre for the training of scientists and technologists not only for Ghana but also for other African countries as well as other parts of the world.”<sup>2</sup>

The campus can be divided into three broad areas – the teaching area, residential area for students which is close to a civic centre, the residential area for the staff with most of the Halls of residence for students, the Administration Building, the Library and the Great Hall occupying the central portion. All the buildings on the campus – except the very early ones - are in the International Style/Modern Architecture. The KNUST campus can be described as an island of Modern Architecture. Arguably, the campus has one of the largest collection of buildings designed in the International Style/Modern

Architecture to be found anywhere in the world. In an era when many buildings in the same style have been demolished and replaced with buildings in other more current architectural styles, how have the buildings on the campus survived? How were they created in the first place and by whom? What is the International Style/Modern Architecture by the way?

The International Style/Modern Architecture has been defined differently by various writers. For the purposes of this paper, the following statement by Hitchcock and Johnson (*The International Style, 1932*) in the exhibition catalogue, Museum of Modern Art, New York will be used to describe the style.

“The effect of mass, of stone solidity, hitherto the prime quality of architecture, has all but disappeared: in its place there is an effect of volume, or more accurately, of plane surfaces bounding a volume. The prime architectural symbol is no longer the dense brick, but the open box. Indeed, the great majority of buildings are in reality, as well as in effect, mere planes surrounding a volume. With skeleton construction enveloped only by a protective screen, the architect can hardly avoid this effect of surface, of volume, unless in deference to traditional design in terms of mass he goes out of his way to obtain the contrary effect.”<sup>3</sup>

Consciously or not, this approach to architecture is what has been used to hatch the buildings on the KNUST campus. This paper sets out to discuss how the campus was created and has been maintained over the years.

## **BEGINNINGS OF THE KNUST CAMPUS**

The first buildings developed for the new College of Technology were all done in prefabricated components. The materials used were mostly timber framing and asbestos slates as the infilling materials with asbestos roofing sheets. The buildings were mostly one-storey except the bell tower. The early residential facilities were at Hall Six – now part of junior and senior staff accommodation – and the rest of the prefabricated buildings were used as classrooms and lecture halls. Many of these buildings exist today and are used by the Faculty of Art and the Technology Secondary School.

It must be pointed out that there were several political undertones behind the development of the campus. The first Principal had enjoyed the support of the colonial Government which encouraged the development and expansion of the new College. With the transition from colonialism to independence and the elections which created the new nation called Ghana – the first independent nation in sub-Saharan Africa – the development of the campus offered the first native Prime Minister and later President, Dr. Kwame Nkrumah, the opportunity to show case his country's newly acquired status. The President enjoyed an excellent relationship with the first Ghanaian Vice-Chancellor of the KNUST, Dr. R. P. Baffour and this relationship was very important in the development of the campus. Both the President and the Vice-Chancellor were visionaries and dreamers. They wanted nothing but the best and no expense was spared to achieve their goals.

Competent architects, engineers and quantity surveyors were contracted from the United Kingdom to develop the new campus. These included E. Williamson, G. Christopher, A. L. H. Pratt, Gerlach and Gillies Reyburn, K. M. G. Kirkbride, J. K. Gregnon, Herbert Weinar, E. Blaser, Ove Arup & Partners, Widnell & Trollop, Kenneth Stead & Partners, P. V. McDonald and F. S. B. Jacobson. These were later joined by Ghanaians such as John Owusu-Addo, E. Q. A. Annan, K. A. K. Atobrah and W. S. Asamoah.

The political system in the newly independent Ghana was changing very rapidly and this was reflected in the architecture of the KNUST campus. The “cold war” was raging fervently and the socialist inclinations of the new Prime Minister, Dr. Kwame Nkrumah became a major factor in the development of the campus. The Development Office of the KNUST which produced all the designs and working drawings for the buildings on campus, turned to the East and employed architects from the “eastern bloc.” To name a few, the following architects: Nikso Ciko, Miro Marasovic and Berislar Kalogjera – all from Yugoslavia worked at the KNUST Development Office. The late former Presidents Tito and Nkrumah also incidentally enjoyed an excellent relationship. So architects and civil engineers from both sides of the cold war were collaborating at the KNUST Development Office. Considering their diverse background, how were they able to produce buildings which arguably are all referred to as being cast in the mould of the International Style or Modern Architecture? The answer could be found in an institution in Germany with the name Bauhaus.

## **THE INFLUENCE OF THE BAUHAUS ON THE DEVELOPMENT OF THE KNUST CAMPUS**

The Bauhaus had come into being in the 1930s at Weimar and later moved to Dessau and eventually to Berlin – all in Germany. Several different accounts and reasons have been assigned as to its origins and goals. This paper will not concern itself with those accounts. Instead, the paper will attempt to explain how the Bauhaus has influenced the development of the KNUST campus. The Bauhaus introduced a new pedagogy in architecture. For the first time, architectural training was done along drastically new lines. The Proclamation of the Weimar Bauhaus (1919) simply stated,

“Let us create a new guild of craftsmen, without the class distinctions which raise an arrogant barrier between craftsman and artist. Together, let us conceive and create the new building of the future, which will embrace architecture and sculpture and painting in one unity and which will rise one day toward heaven from the hands of a million workers like the crystal symbol of a new faith.”<sup>4</sup>

The Bauhaus was the outcome of a continuous effort to reform applied art education in Germany around the turn of the twentieth century, according to Frampton.<sup>5</sup> Perhaps it is important at this point to mention that the architects – both expatriate and native – who were involved in designing the buildings for the KNUST campus were all trained - at home and abroad - under the new pedagogy started and influenced immensely by the Bauhaus. The pioneer architects who arrived at Kumasi from the United Kingdom to start the School of Architecture, Planning and Building Technology had mostly been

trained at the Architectural Association (AA) School in London where theories and ideas espoused by the Bauhaus had been dominant. Similarly, those who joined the teaching staff and the Development Office later from the then East, had also been taught in the same approach. Therefore even though all the architects who eventually worked together in the Development Office of the KNUST were trained in different places around the world, they had all imbibed design approaches which resulted in their buildings being referred to individually and collectively as Modern Architecture. What are the elements of Modern Architecture?

Frampton (1985) further states that, “In many respects, the International Style was a little more than a convenient phrase denoting a cubistic mode of architecture which had spread throughout the developed world by the time of the Second World War.”<sup>6</sup> He continues that its apparent homogeneity was deceptive, since its stripped planar form was subtly inflected so as to respond to different climatic and cultural conditions. The style implied a universality of approach which generally favoured lightweight technique, synthetic modern materials and standard modular parts so as to facilitate fabrication and erection. The style further tended towards the hypothetical flexibility of the free plan, and to that end it preferred skeleton frame construction to masonry.

From the Independence Hall building to the buildings housing the Faculties, The Administration, Senior Staff Club, the Great Hall and Library and eventually the different residential types for Senior Members, the same principles of the skeleton frame and free plan were utilized. The Great Hall, with its emphasis on bold horizontal planes, was designed by the British architects Gerlach & Gilles Reyburn with Ove Arup & Partners as the structural engineers. The quantity surveyors and services engineers were all British as well. The Administration Block II – also highlighting bold horizontal planes - was designed by the Development Office with Kirkbride, Asamoah and Odjija as architects as well as Shopping Centre. The structural engineers were again Ove Arup & Partners with British quantity surveyors and service engineers. The Chemistry Block was designed by the Development Office but the architects were Gregnon, Weinar, Asamoah and Blaser. Ove Arup & Partners were again the structural engineers with British quantity surveyors and service engineers. The Faculty of Architecture buildings were designed by the Faculty led by Christians E. Blaser again with British structural and services engineers and quantity surveyors. The Faculty of Agriculture building was designed by A. L. H. Pratt, R. Streath, E. Williamson and G. Christopher. The workshops for the College of Engineering were designed by the architects Jane Drew and Maxwell Fry, a British couple.

The first hall of residence to be built was the Independence Hall and the office of the Vice-Chancellor was located there for some time. It was designed by the British architect E. Williamson and commissioned by Prime Minister Dr. Kwame Nkrumah on 28<sup>th</sup> February 1959. The Hall was designed based on the courtyard concept and allowed through ventilation through the rooms. No mechanical means of ventilation was used for any of the rooms. Deep overhangs were used for the facades facing the east and west. This prevented direct solar radiation in the various spaces facing those directions. The same design principles were used for Queen Elizabeth, Republic and University Halls respectively but the necessary adjustments made for the *genius loci* of each site. Republic Hall was designed by G. Christopher, A. L. H. Prattie and E. Williamson.

Unity Hall was designed by Miro Marasovic and John Owusu Addo whilst Africa Hall was designed by architects in the Development Office, specifically Nikso Ciko and John Owusu Addo. Whether it is a coincidence or by design, the two halls – the former for males and the latter for females – were both designed as tower blocks. Many visitors to the campus have commented on how Unity Hall in particular looks very much like a building designed by Le Corbusier – specifically, his *Unite d’Habitation*. Unity Hall is also based on the double banking concept which has a central corridor separating one row of rooms from the other. This central corridor is perpendicular to the staircases and elevators which bring students from the lower to the higher floors. It also has perforated vertical concrete members which introduce daylight into the corridors. Another similarity between the two tower blocks is that there are no openings on the east and west facades to any of the rooms.

The same approach to design was utilized for residential buildings on the campus. This is not surprising since bungalows such as house types 3SA, 3SB, 3SD, 3S, SH/5 and 3S as well as Administration Type C were all designed by the same architects who worked at the Development Office. It could be mentioned that the Development Office did a very good job by ensuring that all the buildings developed on the campus as much as possible were done in the same architectural style or approach. The overthrow of the President, Dr. Kwame Nkrumah on 24<sup>th</sup> February 1966 arguably put a temporary halt to the advance of the International Style/Modern Architecture on the campus. Physical development virtually came to a halt. The campus did not see much of physical development except the second block of Africa Hall (which had already been designed by the Development Office) and the later Central Classroom Block which had also been already designed by the British architect Kenneth Scott and Partners; extensions to the Main Library (designed by the firm Architectural Design Partnership), the Institute of Renewable Natural Resources and the Biological Sciences extensions – (both designed by the Ghanaian firm Architectural Design Studio) - and the latter Pharmacy Block, were all completed in the 1970s and 1980s and designed by Ghanaian architects who had been trained in Ghana and the United Kingdom in the 1960s.

Pictures of the earlier KNUST buildings.

## **RECENT ARCHITECTURAL DEVELOPMENTS ON THE KNUST CAMPUS**

In the more recent past, - specifically within the past ten years - many people have expressed their displeasure about the trend of architectural development on the campus. This is because a new trend appears to have emerged in the architecture of the campus. For example, when a need was felt for more space for the shopping centre on the campus, a new development known as a “mini-market” was carried out. This facility has little cubicles which operate as stalls and is similar to those found in traditional Ghanaian markets. To many people, a better solution would have been to duplicate the old building. Various Halls of residence have also found it necessary to add mini-markets to the Halls. These mini-markets have facilities such as shops and eating places. The new building for the KNUST Credit Union has also been developed within the same period. The architectural designs for these projects have all come from the Development Office. Many people have wondered whether the Development Office is following any policy as

is the case with the University of Ghana. This is because the forms and shapes used for the buildings mentioned above look very different and share nothing in common with the older buildings.

Were such recent developments simply following the statement from some architectural historians that the International Style/Modern Architecture died in the 1970s? After all, according to Jencks (1980), the death of Modern architecture occurred on July 15<sup>th</sup>, 1972 at 3.32 pm (or thereabouts).<sup>7</sup> He further adds that Modern architecture was indeed dying well before this date, and that when Ronan Point high-rise suffered 'cumulative collapse' in 1967 and when Jane Jacobs came out with her book *The Death and Life of Great American Cities* and no Modern architect had a convincing answer to her condemnations, its ideology was dead.

*“Actually, the life and death of architectural movements seems an absurd notion, periods of history, whatever they are, are not organisms and the major protagonists of an era do wake up one morning saying – ‘Here endeth the Romanesque’... Architectural movements are complex affairs, part stylistic and part ideological, part unconscious practice and part conscious convention, and any transition from one to another is bound to a flowing thing, an evolution, fast or slow. Moreover, it is bound to be a statistical thing, a matter of dropping many ideas and picking up many, and transforming the lot with a peculiar percentage of each quality.”<sup>8</sup>*

The turn of the twenty first century, however, has seen a dramatic boost in the development of infrastructure on the campus. With the ubiquitous GETFUND (Ghana Educational Trust Fund) funding most of the projects, the KNUST has seen the construction of classrooms, lecture theatres, new faculties and other facilities. No less than nineteen individual projects have been under construction on the campus between 2002 and 2007. This building boom has seen the presence of other consultants who do not work at the Development Office on the campus. Some consultants of some of the recent designs have tried to blend their relatively new designs with the overall character of buildings on the campus but others have not.

It is highly essential that the Development Office recognizes the fact that the KNUST campus is an island of a collection of buildings which arguably could be described as one of the largest single collection in the International Style/Modern Architecture anywhere in the world. The unique character of the KNUST campus could disappear in the near future if no effort is made to conserve the individual buildings. That could be a huge tragedy. It is worth noting that the Development Office at the University of Ghana has managed to ensure that all buildings developed on their campus have certain similar qualities and aesthetic values. Private consultants do also work at the University of Ghana but the ground rules are stipulated by their Development Office.

## CONCLUSIONS

This paper set out to discuss the architecture of the KNUST campus. It has tried to establish that the campus arguably, has one of the largest single collections of buildings designed and built in the International Style/Modern Architecture. The paper

further argues that despite the fact that all the buildings were designed by architects with different nationalities and trained in different countries, they all managed to produce buildings which collectively fitted the description and definition of the International Style/Modern Architecture. This, the paper discusses, was largely due to the influence of the Bauhaus. The paper therefore entreats the Development Office of the KNUST to do all it can to preserve and maintain the buildings on campus. Consequently, if there is no existing policy regarding the development of the campus, one must be put in place soon. Such a policy must emphasize the International Style/Modern Architecture. Fortunately, the style offers a wide range of possibilities and can meet the growing needs of the KNUST campus. This way, the campus can become known universally as one of the largest single collection of buildings in this style.

## **REFERENCES**

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